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NATIONAL INTEGRATED PLAN FOR THE CONTROL OF MONKEYPOX IN CAMEROON 2023-2027

NATIONAL PROGRAM FOR THE PREVENTION AND FIGHT AGAINST EMERGING AND RE-EMERGING ZOONOSES

NATIONAL ONE HEALTH PLATFORM

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USAID's Infectious Disease Detection and Surveillance (IDDS) Project

+237 242 015 965 / 242 015 961 pnplzer@onehealth.cm @CmrZoonoses www.onehealth.cm

NATIONAL INTEGRATED PLAN FOR THE CONTROL OF MONKEYPOX IN CAMEROON 2023-2027

PREFACE

The National Integrated Action Plan for the control of Mpox in Cameroon is a framework document for the control of the disease taking into consideration, human, animal and environmental health. The plan has been developed based on multi-sectoral collaboration in interventions, and the systematic sharing of information related to Mpox. In alignment with the national "One Health" strategy, it shall contribute to strengthen the efficiency of the health system. The Plan was elaborated in a national context marked by the rising incidence of human Mpox cases and the existence of two clades of the virus responsible for the disease in Cameroon. It also has its rationale from the National Development Strategy 2020-2030 (NDS30), which streamlines the importance of programmes and initiatives to control major epidemic and endemic diseases.

The response to the Mpox epidemic is vital in a context whereby the public health system is already burdened by the COVID-19 pandemic and many other ongoing epidemics (cholera, measles, yellow fever, etc.) in Cameroon. The lessons learnt from the management of these epidemics reiterate the need to focus on raising awareness of the population at risk on the prevention of Mpox, the case management of infected people in health facilities and the prevention and control of the infection in hospitals and communities. This document was developed using a comprehensive and participatory approach, involving sectors from the administrations and partners whose actions contribute to improve on the health of humans, animals and the environment.

The document contains an analysis of the national epidemiological situation of Mpox and the health system's response to the disease. It describes in a succinct manner, four strategic action areas of intervention namely: (i) strengthening multi-sectoral coordination, (ii) strengthening surveillance and response, (iii) strengthening communication and awareness raising, and (iv), strengthening laboratory capacity and Mpox research.

We would like to thank all the experts from the sectoral administrations and institutions (MINSANTE, MINEPIA, MINFOF, MINEPDED, MINRESI, MINDEF, MINCOM, MINADER, MINAT, MINDDEVEL, MINESUP, MINEPAT, MINMIDT), the structures under their supervision (LANAVET, CPC, CREMER, CRESAR) and technical and financial partners (USAID, WHO, FAO, IDDS, AFROHUN, Breakthrough ACTION, TRAFFIC, The Cameroon Red Cross and the International Federation of the Red Cross and Red Crescent Societies), who contributed with dedication and professionalism to the development of this plan.

Director of Disease control,
epidemics and pandemics MINSANTE

Dr Etoundi MBALLA Georges Alain

Director of Veterinary Services
MINEPIA

Dr Garga GONNE

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The National Integrated Plan for the control of Mpox in Cameroon is the outcome of an initiative that started in 2019. It is the result of good multi-sectoral collaboration of national and international experts in human, animal, plant and environmental health, with the technical and financial support of development partners.

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TECHNICAL WRITING COMMITTEE

General supervision

M. SALI BALLO,	CCT PNPLZER

General coordination

Dr GARGA GONNE,	CCT Adjoint PNPLZER, DSV MINEPIA
Dr ETOUNDI MBALLA Georges Alain,	DLMEP MINSANTE

Technical supervision

Dr Conrad NTOH NKUO	SP, PNPLZER
Mme DIBONGUE Elisabeth	SPA, PNPLZER
Dr ESSO Linda	SDLEP, MINSANTE
Dr FEUSSOM Jean-Marc	SDPSE, MINEPIA
M. ADAMA SAÏDOU	DPDM, MINEPDED
M. LEKEALEM JOSEPH	DFAP, MINFOF
M. KALDAOUSSA FAÏSSAM	DPC, MINAT
Dr Abel WADE	DG, LANAVET
M. DAMOU LAMTOING Antoine	CT, MINEPDED

EDITORIAL TEAM

Noms	Structures
Dr BILOUNGA Chanceline	SDLEP, MINSANTE
Dr NSIEWE Natacha	SDLEP, MINSANTE
Mme EMAH Inès	SDLEP, MINSANTE
Dr DEYA YANG Marie-Paulette	DSV, MINEPIA
Dr AMBA ABONA Oliva	DSV, MINEPIA
Dr MENYA EPOK Gilbert	DSV, MINEPIA
Dr IKOUM Dalida	PNPLZER
Dr CHA-AH NGONG Crystella	PNPLZER

OTHER CONTRIBUTORS

Noms	Structures
Dr NGANDO Laure	MINSANTE
Dr MENENGUE Cathérine	MINSANTE
Dr DO'O BESSIN	MINSANTE
Dr METOMB Franck	MINSANTE
Dr NGONGLA Néhémie	MINSANTE
M. BOFIA Rostand Serge	MINSANTE
Mme KAMDOM Née KAMGUIA Flore	MINSANTE
M. NNOMA NNOMA Achille	CCOUSP
Dr AGWE Samuel	MINSANTE
Dr NOUDJI Simon	DPS
Mme EDZIMBI YENE Yvette	DLMEP
Mme ONGUENE ZOBO Carine E.	MINSANTE
Dr DONBOU Bertrand Léopold	MINEPIA

Dr DONBOU Bertrand Léopold	MINEPIA
Dr OKIWAH Boris	MINEPIA
Dr TCHAMBA Magloire	MINEPIA
Dr SOUSSAÏ Ornelle	MINEPIA
Dr EBENE Armelle	MINEPIA
Dr AHMADOU Alim	MINEPIA
Mme LEKUNZE Evangeline NATSI	MINEPIA
Dr ETENE Protais Cyriaque	MINEPIA
Mme NGO BOUM Vénérande Eugénie	MINEPIA
M. ELAD Deudone FONKENG	MINEPIA
Mme ANYA SIMI Alvyne Anyta	MINCOM
Mme NOGNIBO AKAMBA Lafortune Sylvie	MINDDEVEL
Dr NGOUFACK Marie N.	MINDEF (CRESAR)
Lt ZINTCHEM André Demaison	MINDEF
Pr DONGO Joseph	MINRESI
Dr TCHINDA TIABOU Alembert	MINRESI (IMPM)
Dr MBA DJONDZO Flaubert Auguste	MINRESI (CREMER)
Cne LOKO BILLE EBOKOLO Maryvonne	MINDEF (CRESAR)
Mme EKOM ANGO Marceline	MINFOF
M. SINGHA Moïse Guy	MINFOF
Mme FOMO Geneviève	MINFOF
M. ENGUEU Stéphan	MINFOF
Mme MOAPANG Gisèle	MINFOF
M. DEUTOU NGAKAM Ulrich	MINEPDED
Mme DAKNOU LENTCHEU Irène	MINADER
M. OUSSIL FONG Etienne	MINMIDT (Codex)
Mme NGUINI Ursule Solange	MINESUP
M. NENKAM Robert	LANAVET
Pr NJOUOM Richard	CPC
Dr DJUICY Delia Doreen	CPC
M. SAHADJO Gilbert	SPM
M. MONGONHE ESUKA Marius	SPM
M. BENG SANDING Pierre	Consultant
M. KUICHEU FEUKEU Thierry	PNPLZER
Mme NGO MPAN Berthe Clémence	PNPLZER
Dr AMAWOTA FOUDJIN Alvine Aurelle	PNPLZER
Dr ABDOUL WAHHAB	PNPLZER
Dr YAYA AMINOU	PNPLZER
Dr BELLA ABESSOLO Stella	FAO
Mme NGO BAKALE Manuela	Breakthrough ACTION
Dr WAZEH Stephen ATANGA	USAID
Dr ELOUNDOU NKA Marc Cyrille	OMS
Dr ONAMBANY Benjamin	CRC
M. EWANE NGANDO D. Cyrille	CRC
Dr MBONDA NOULA Aimé G.	IFRC
Pr NJAYOU NGAPAGNA Arouna	AFROHUN
M. MOMBALA	TRAFFIC
Pr MOHAMED MOCTAR MOUICHE	USAID-IDDS
Dr NDONGMO NJUKENG Tarcisius	USAID-IDDS
Dr ANYA Priscilla	USAID-IDDS
M. AMABO Serge	USAID-IDDS

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LIST OF ABBREVIATIONS AND ACRONYMS

AEFI	Adverse Events Following Immunisation
AFROHUN	Africa One Health University Network
CAR	Central African Republic
CDC	Centre of Disease Control
CPC	Centre Pasteur du Cameroun
CREMER	Centre for Research on Emerging and Re-emerging Diseases
CRESAR	Centre for Research and the Army Health
DFAP	Director of Forestry and Protected Areas
DPC	Director of Civil Protection
DPS	Deputy Permanent Secretary
DRC	Democratic Republic of Congo
DSV	Department of Veterinary Services
FAO	Food and Agricultural Organization e Organisation of the United Nations
HEMC	Health Emergency Management Committee
HMIS	Health Management Information System
ICT	Information Communication and Technology
IDDS	Infectious Disease Detection and Surveillance
IDSR	Integrated Disease Surveillance and Response
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IHR	International Health Regulation
IMPM	Institute of Medical Research and studies of Medicinal Plants
IPC	Infection Prevention and Control
LANAVET	National Veterinary Laboratory
LNSP	National Laboratory of Public Health
MINADER	Ministry of Agriculture and Rural Development
MINAT	Ministry of Territorial Administration
MINCOM	Ministry of Communication
MINDDEVEL	Ministry of Decentralization and Local Development
MINDEF	Ministry of Defence
MINEPAT	Ministry of Economy, Planning and Regional Development
MINEPDED	Ministry of Environment, Nature Protection and Sustainable Development
MINEPIA	Ministry of Livestock, Fisheries and Animal Industries
MINESUP	Ministry of Higher Education
MINFOF	Ministry of Forestry and Wildlife
MINRESI	Ministry of Scientific Research and Innovation
MINSANTE	Ministry of Public Health
ONSP	National Public Health Observatory
PHEIC	Public Health Emergency of International Concern
PoE	Point of Entry
PPE	Personal protective equipment
PS	Permanent Secretary
RCCE	Risk Communication and Community Engagement
RESCAM	Cameroon Epidemiological Network of Animal Diseases

RIT	Rapid Intervention Teams
RT-PCR	Real time Polymerase chain reaction
SDLEP	Sub-Director of Epidemic and Pandemic Control
SDPSE	Sub- Director of Health Protection and Epidemiological surveillance
SOP	Standard Operating Procedures
TRAFFIC	Wildlife Trade Monitoring Network
USAID	United States Agency for International Development
WHO	World Health Organization
WHO-AFRO	World Health Organisation for Africa
WOAH	World Organisation of Animal Health

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I. BACKGROUND

Mpox is a viral zoonosis caused by a virus of the *genus* Orthopoxvirus *(Cho & Wenner, 1973).* The disease is transmitted by direct or indirect contact with infected blood, body fluids, skin lesions or mucous membranes *(Kaler et al., 2022).*

Since its discovery in 1958, Mpox has been endemic in some countries of Central and West Africa *(Magnus et al., 1959).* In 2022, a other continents and non-endemic African countries observed an emergence of the disease. Indeed, the epidemiological situation of the disease shows that human-to-human transmission is more important than in previous epidemic forms *(Ontario Public Health, 2022)*. By the 28th of December 2022, more than 82,353 confirmed cases of simian Orthopoxvirus were reported to WHO by 103 non-endemic Member States (CDC, 2022).

On the 23rd of July 2022, Mpox was declared a Public Health Emergency of International Concern (PHEIC) by the World Health Organisation (WHO). Based on its epidemiological situation, transmission patterns, and capacity, each WHO member State at any given time falls into one of the following groups (WHO, 2022a):

Group 1: Member States with no history of simian Orthopoxvirus in the human population or with no detected cases of simian Orthopoxvirus for more than 21 days;

Group 2: Member States with recently imported cases of simian Orthopoxvirus in the human population and/or otherwise experiencing human-to-human transmission of simian Orthopoxvirus , including in key population groups and communities at high risk of exposure

Group 3: Member States where zoonotic transmission of simian Orthopoxvirus is known or suspected, including those where zoonotic transmission of simian Orthopoxvirus is known to occur or has been reported in the past, those where simian Orthopoxvirus virus has been documented in any animal species, and those where infection of animal species may be suspected, including newly affected countries.

Group 4: Member States with diagnostic, vaccine and treatment manufacturing capacity and medical countermeasures.

Based on these criteria, Cameroon is classified in Group 3 by the WHO. Indeed, it has experienced several epidemics and epizootics (in wildlife) that have been notified to the WHO and the World Organisation for Animal Health (WOAH). As at 6 December 2022, 106 suspected cases of Mpox were recorded in Cameroon sporadically, particularly in the Centre, East, Littoral, North-West, South, and South-West Regions (MINSANTE/SITREP NO. 5/Mpox, 2022).

In response to this health situation, several actions were carried out, including two table-top simulation exercises at the national and sub-regional (Central Africa) levels for multi-sector management of Mpox cases. At the end of these exercises, several strengths and weaknesses regarding the preparedness and response system were identified, including the lack of an integrated plan to control this disease, hence the need to develop this plan to guide the response to the Mpox epidemic.

II. GENERALITIES ABOUT MPOX

II.1 DEFINITION

Mpox (Simian Orthopoxvirus) is a re-emerging zoonotic disease caused by an Orthopoxvirus *(Cho & Wenner, 1973)*. It is characterised primarily by a generalised vesicular and pustular rash, and fever. The virus was first identified in a monkey hence the name Monkey pox, but it can also infect several mammalian species. The rashes usually start from one part of one part of the body and spread to the rest of the body including the face, palms, and soles. The lesions are clinically similar to those of smallpox, which was eradicated in 1980 (Cho &Wenner, 1973).

II.2 HISTORY

II.2.1 In the world

Mpox virus was incidentally identified in 1958 in laboratory monkeys imported from Singapore to Denmark *(Aubry et al, 2022)*. An outbreak of Mpox occurred in 2003 in the United States of America, with 82 human cases; the source of infection was traced to wild rodents shipped from Ghana (Giant Gambian rat, African dormouse, tree squirrel) carrying Mpox Virus (MXV) that infected pet prairie dogs, which in turn infected human pet lovers.

On 7 May 2022, the United Kingdom (England) became the first non-endemic country to report a confirmed case of Mpox originating from Nigeria. Since then, numerous cases have been reported in several non-endemic countries in Europe, America and Oceania, Africa; without any epidemiological links with endemic areas (Central and West Africa).

II.2.2. In Africa

Mpox was first identified in humans in 1970 in the Democratic Republic of Congo (DRC), in a young boy who had not been vaccinated against smallpox and who contracted the disease through contact with monkeys. From 1970 to 1996, cases of human Mpox were observed in Central and West Africa (DRC, Nigeria, Cameroon, Côte d'Ivoire, Liberia, Sierra Leone, Central African Republic, Gabon). The case-fatality rate during this period was 11% (Kara N. et al 2018)significantly lower than that of smallpox, which was 20-40% *(Patrick Berche;2002)*.

Between 1981 and 1986, 338 cases were studied in DRC, of which 245 cases were from direct animal contact, and 93 from human-to-human transmission. Mpox re-emerged between 1996 and 1997 as an epidemic in the DRC: 511 cases were identified with a mortality of 1.5 to 3%. The main development was the very high proportion of secondary cases (78%) through direct human-to-human transmission. In 2005, the geographical range of Mpox expanded into East Africa, south of Sudan *(Aubry et al., 2022)*. Since 2016, Mpox outbreaks have been reported in CAR, Cameroon, DRC, Liberia, Nigeria, Republic of Congo, Sierra Leone *(Aubry et al., 2022)*.

By December 2022, Mpox had affected 13 countries in Africa: Benin, Cameroon, Congo, Egypt, Gabon, Liberia, Nigeria, CAR, South Africa, Egypt, Morroco, South Sudan, and Sierra Leone *(CDC, 2022)*. Since its initial identification in 1958, Mpox epidemics have occurred primarily in rural areas of the tropical forests of the Congo Basin and West Africa.

II.2.3. In Cameroon

- Cameroon is a Mpox endemic country with several epidemic and epizootic outbreaks.

- In 1979: 01 confirmed human case was reported in the Centre region, Mefou-et-Afamba Division, Mfou Subdivision (Eozenou, 1980);
- In 1980: one confirmed human case was reported in the district of Moloundou, Eastern region *(Heymann D. et al., 1980)*
- In 1989, one confirmed human case was reported in the Centre region, Haute-Sanaga Division, Nkoteng Subdivision (Tchokoteu *et al.*, 1991);
- In 2014: 72 Chimpanzees were exposed of which 06 were sick, 1 died , 1 euthanized, one confirmed case at the Mbinang sanctuary, Minta Sub-division, Haute Sanaga Division of the Centre Region;
- In 2016: 300 Chimpanzees were exposed, including 8 mobidities, 3 confirmed cases and 3 mortalities. This took place in the Mefou and Afamba Division, Mfou Sub-Division in the Mefou Park, Centre Region, (Guagliardo et al, 2020);
- In 2018: 01 confirmed case in Njikwa Health District of the North West Region, (Sadeuh-Mba *et al.,* 2019);
- In 2019: 01 confirmed human case in the Ekondo Titi Health District, South Region;
- In 2020: 01 human case was confirmed in Ayos Health District, in the Centre Region, and 06 human cases in Doumé Health District /, in the East Region;
- In 2021: 10 cases were recorded including: 02 confirmed human cases in Bertoua Health District, 01 confirmed case in Ndikinimeki Health District in the Centre Region, 02 suspected cases and 01 confirmed case in Ayos Health District; 03 cases and 01 death in Kumba North health district in the South West Region (MINSATE database).
- Between 1 January and 6 December 2022, Cameroon recorded 18 confirmed cases and 03 deaths in the Centre, South West and North West regions (MINSANTE/SITREP No. 5/Mpox, 2022).

II.3 EPIDEMIOLOGY

Monkeypox is a zoonotic disease with epidemic potential and which is immediately notifiable. It is one of the ten (10) priority zoonotic diseases in Cameroon. People at risk are hunters, eco guards, vendors, consumers of bush meat, human and animal health personnel, water and forestry personnel in charge of zoonosis control, operators in charge of medical and pharmaceutical waste management.

II.3.1 INFECTIOUS AGENT

Mpox virus is an enveloped double-stranded DNA Orthopoxvirus, belonging to the *Poxviridae* family, related to smallpox and vaccinia viruses. Two genetic clades are distinguished:

- Clade I (formerly known as Central Africa or Congo Basin clade);
- Clade II (formerly known as West African clade with 02 sub-types).

Clade I has historically caused the most severe forms of the disease (*WHO, 2022).*

II.3.2. RESERVOIRS

The natural reservoirs of the virus have not yet been clearly identified, but the virus has been isolated a few times from squirrels and small monkeys (*Radonic et al., 2014*). Nevertheless, serological surveys suggest that several small mammal species are potential reservoirs (*Reynolds et al., 2019*).

II.3.3. TRANSMISSION

Transmission can be direct or indirect

II.3.3.1. In humans

- Animal-to-human (zoonotic) transmission can result from direct contact with blood, body fluids, skin or mucous membrane lesions of infected animals.
- Human-to-human transmission can result from close contact with body fluids including, respiratory tract secretions or skin lesions of an infected individual or with recently contaminated objects (*WHO, 2022)*. Some cases of sexual transmission have recently been notified in 16 countries around the World *(John Thornhill et al. 2022).*

II.3.3.2 In animals

The major transmission routes in animals include;

- Inhalation of droplets by close contact with infected animals;
- Biting infected animals;
- Consumption of tissues from infected animals;
- Contamination of wounds and mucous membranes by infected animal tissues.

II.3.4 RISK FACTORS FOR MPOX INFECTION

Exposure to Mpox virus results primarily from close contact with an infected person or animal, repeated contact/proximity to the forest, exposure to faeces and fluids of infected animals, and to contaminated objects/surfaces (*Kaler et al., 2022*).

The risk factors fall into two main categories:

- **Socio-cultural factors**: traditional hunting, gathering, handling of infected carcasses, consumption of poorly cooked infected meat, population movement
- **Socio-professional factors**: Eco guards, professional hunters, animal and human health professionals.

II. 3.5. DIAGNOSIS

II.3.5.1 CLINICAL DIAGNOSIS

SYMPTOMS

- **In Humans**

Suspected case: any person with a fever > 38.5°C and a deep rash in the form of uniform macules or papules (same stage), generalised or localised (face, palms, soles and ano-genital areas), with or without the following signs and symptoms: asthenia, headache, back pain, myalgia (Operational Guidelines for Monkeypox Surveillance in Cameroon, 2022).

Probable case: any person meeting the definition of a suspect case who has had proven contact with an animal with skin lesions; epidemiologically linked to a confirmed case (Directives opérationnelles de la surveillance de la variole du singe au Cameroun, 2022).

Confirmed case: a suspected case or probable case with a positive PCR test for MPX virus (Directives opérationnelles de la surveillance de la variole du singe au Cameroun, 2022).

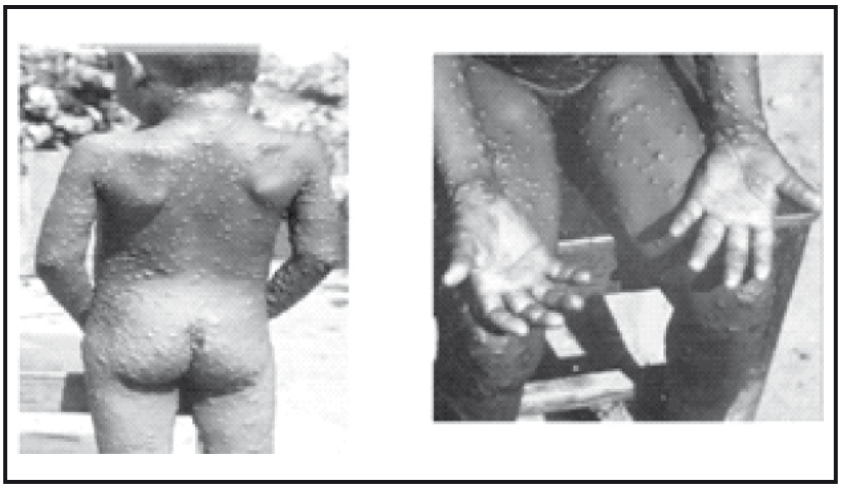

Figure 1: Symptoms of monkeypox in humans

- **In Animals**

Observed symptoms include cough, eye discharge, adenitis, fatigue, anorexia, adipsia (decreased or complete loss of thirst), hyperthermia, rash (CDC, 2022)

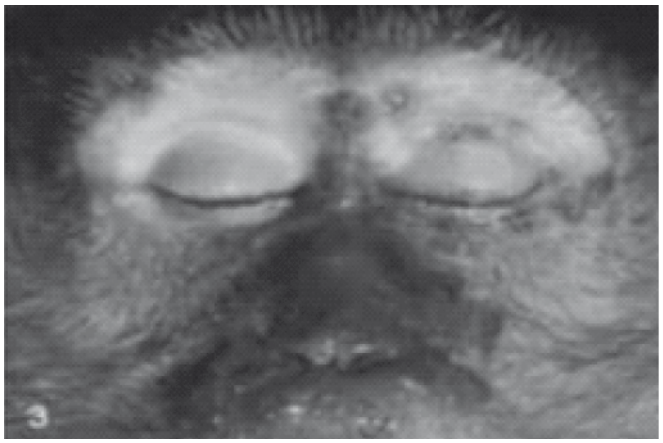

Figure 2: Symptoms of Mpox in Animals

COMPLICATIONS

Complications are due to the virus' own activity or to bacterial concurrent infections. They include cutaneous or subcutaneous abscesses, dermatitis, bronchopulmonary infections, severe dehydration due to vomiting and diarrhoea, corneal ulcerations that may lead to blindness, encephalitis, deafness, etc.

II.3.5.2 BIOLOGICAL DIAGNOSIS

Any person or animal that meets the definition of a suspect or probable case should be subjected to a specific biological diagnosis.

II.3.5.2.1 Pre-analytic step: Sample collection, packaging and transportation

- All samples collected for laboratory testing must be considered potentially infectious and handled with precaution. Biosecurity and biosafety measures need to be taken to minimise the risk of transmission.

➢ **Type of sample**

The choice specimen for laboratory diagnosis of Mpox virus infection is a swab of pustular skin or oropharyngeal vesicles. Depending on the course of the disease, crusts from dried lesions on the skin are also an appropriate specimen.

➢ **Sample Conservation**

Specimens from suspected Mpox cases should be stored in dry sterile tubes without viral transport media and refrigerated (2-8°C) or frozen (-20°C) within one hour. If the test sample is transported for more than 7 days, the samples should be stored at -20°C. Longer term storage of samples (>60 days after collection) is recommended at -70°C.

➢ **Samples Transport**

All samples collected must be triple wrapped, labelled and accompanied by the appropriate documentation before being sent to the laboratory.

II.3.5.3. ANALYTIC PHASE: LABORATORY DIAGNOSIS

Confirmation of Mpox virus infection is based on a nucleic acid amplification test using real-time or conventional PCR to detect single sequences of viral DNA.

Although PCR is the choice laboratory test for confirming Mpox virus infection, other alternatives can be used for diagnosis. These include viral culture, PCR blood tests, serological tests for IgG and IgM antibodies, electron microscopic visualisation, immunohistochemical staining. PCR blood tests are usually inconclusive due to the short duration of the viremia. The antigen and antibody detection method does not confirm the specificity of Mpox because Orthopoxviruses show serological cross-reactions.

➢ **Sharing results**

After analysis, the results obtained should be shared with stakeholders involved in Mpox control.

II.3.5.4. DIFFERENTIAL DIAGNOSES

Mpox may be confused with the following viral diseases:

- Smallpox
- Chickenpox
- The other poxviruses are: contagious pustular dermatitis (in sheep and goats);
- Cowpox
- Lumpy skin disease

II.3.6. Case management

➢ In humans

Case management is mainly based on symptomatic treatment and prevention of complications. According to the WHO, there is no specific treatment for Mpox. However, an anti-viral agent known as ***Tecovirimat (TPOXX),*** which was developed for smallpox, has been approved by the European Medicines Agency for Mpox in 2022. It is not yet widely available. If used to treat patients, ***Tecovirimat*** should ideally be monitored within clinical setting with prospecting data collection (*Reynolds, Mary G et al, 2017).*

➢ **In animals**

Human-to-animal transmission of monkeypox has been reported in domestic dogs that have been in close contact with their owners, who have shown symptoms of the disease. These dogs had

mucocutaneous lesions and tested positive using PCR. Various wild mammals are susceptible to monkeypox virus infection: funisciurus squirrels, tree squirrels, the savannah cricket (also known as the Gambia rat), African dormice, non-human primates, and others. Although it may depend on the route of transmission and the infectious dose, some species do not develop clinical signs, especially some rodent species that are suspected reservoirs of the virus. Other mammals, especially primates, may have skin rashes similar to those found in humans. To prevent possible spread to animals, including pets and livestock, human cases should have a healthy household member care for their animals. If this is not possible, confirmed cases should:

- cover all their injuries with clothing or bandages
- Wear a tight-fitting medical mask and gloves when near animals, their food, sleeping areas, etc.; - -avoid close contact (e.g., petting, kissing, cuddling, sharing a sleeping area, sharing food); frequently clean and disinfect touched surfaces.

Human cases should avoid handling, feeding, or working near wild animals to prevent possible spread of the virus. Limit contact with unknown pets. Human cases should be informed that if they have close contact with animals (e.g., petting, kissing, cuddling, sharing a sleeping area, sharing food) during their period of contagion, the animals should be monitored for clinical signs for 21 days after exposure and kept away from other animals and people during that time. If an animal develops clinical signs of simian pox (e.g., fever, depression, cessation of eating, respiratory signs, diarrhoea, oral ulcers, skin lesions) within 21 days of close contact with a case, veterinary attention should be sought. Environmental health and biosecurity measures are mandatory

II.4 EPIDEMIOLOGICAL SURVEILLANCE

Public health surveillance is the systematic and continuous identification, collection, analysis and interpretation of data on disease occurrence and public health events, with the aim of taking timely and effective action.

The goal of Mpox surveillance is to rapidly detect cases, chains of transmission, and sources of infection as soon as possible in order to respond promptly and appropriately, identify areas at risk, and estimate its burden.

II.4.1. Surveillance of Mpox in human health

Surveillance is both passive and active and is done through immediate notification of suspected cases in health facilities and/or in the community as described in the Integrated Disease Surveillance and Response (IDSR) technical guide, 3rd edition. Active surveillance is done by the surveillance focal points, and involves reviewing past records, in the course of case investigations, among others. Following a case notification, a preliminary investigation is done by the Health District. Upon confirmation, a multi-sectoral investigation is conducted to determine the chains of transmission and sources of infection to identify risk areas, in order to provide an appropriate response.

II.4.2. Mpox surveillance in animal health

Surveillance for Mpox in animal health is mainly conducted in wildlife (sanctuaries, reserves, parks and zoos). Any suspected case is immediately notified to RESCAM. Surveillance is also conducted by actively searching for reservoirs of Mpox virus in wildlife.

Active surveillance is conducted by actively searching for monkeypox virus reservoirs in wildlife. It is also conducted in the community at risk through case investigations when human and animal cases are notified.

II.5 IMPORTANCE OF THE CONTROL OF MPOX

Mpox is a viral zoonosis with symptoms like those previously seen in patients with smallpox, although it is clinically less severe. Since the eradication of smallpox in 1980 and the subsequent cessation of smallpox vaccination, Mpox has become the most important Orthopoxviral disease in public health.

In 2022, the number of Mpox cases reported to WHO exceeded the total number of cases reported in the past 60 years combined since its identification in 1958 (WHO, 2022). The current outbreak has spread worldwide and requires a coordinated global response. On 23 July 2022, the WHO Director General declared the escalating Mpox epidemic a Public Health Emergency of International Concern (PHEIC), meaning that countries have a legal obligation to respond to the Mpox outbreak. As at 28 December 2022, 83,359 laboratory-confirmed cases of Mpox had been reported to WHO by Member States in the six WHO regions, reflecting an unusually high number of cases and wide geographic spread of the virus.

Mpox is endemic in West and Central Africa, often near tropical rainforests, and is increasingly occurring in urban areas. Globally, it has a case-fatality rate of between 8.4% and 13%, with the highest rate recorded in Central Africa (*Bunge et al., 2022).*

There are two genetic clades of Mpox virus: Clade I (formerly known as Congo Basin clade) and Clade II (formerly known as West Africa clade). Cameroon is the only country where both viral clades have been identified (WHO, 2022).

From 1979 to 2022, there were many Mpox outbreaks in human and animal populations, with a decrease in the interval of occurrence of these outbreaks in the last five years especially in human populations. Between January and December 2022, 18 confirmed cases of human Mpox were reported, of which 13 are Clade II and 05 are Clade I (more virulent, more contagious, and more lethal). The Cameroon Mpox Risk Analysis conducted in May 2021 by the National Programme for the Prevention and Fight against Emerging and Re-emerging Zoonoses (PNPLZER) reveals that the likelihood of a Mpox case is high in human and animal populations living near forest areas, due to close contact with wild animals and lack of compliance with biosecurity measures (Joint Risk Assessment report, 2021).

The increasing incidence of Mpox in humans, its clinical similarities to smallpox, and its inclusion in the selected list of biological agents considered possible agents of bioterrorism make this virus the most important human Orthopoxvirus infection for surveillance and research *(Chen et al., 2005).*

A combination of factors is likely responsible for the increasing incidence. These factors may include:

- Decreased immunity in people who were vaccinated during the smallpox eradication campaign (Rebecca Grant et al., 2020);
- Lack of immunity in people born after smallpox vaccination was stopped,
- Increased reliance on hunting for food (bush meat) in Mpox endemic localities;
- Human encroachment into the ecological niches of host reservoirs and degradation of ecosystems.

In Cameroon, Mpox is classified among the ten (10) priority zoonoses (PNPLZER, 2020) and is

a public health challenge in terms of disease management notably concerning the coordination of activities, surveillance, laboratory diagnostic capacities, case management, Risk Communication and Community Engagement (RCCE).
The response to Mpox epidemic is challenging given that the public health system is already overstretched by the COVID-19 pandemic and many other ongoing epidemics (cholera, measles, yellow fever, etc.).

Given the health (human, animal, and environmental), socio-cultural, and economic consequences of Mpox, it is imperative to develop a multi-sectoral strategy for the control and management of the disease.

III. STATE OF MPOX CONTROL IN CAMEROON

IV.1 Regulatory framework

At the international level, actions for the prevention and control of public health emergencies are reinforced by the International Health Regulations (IHR) 2005, and the Terrestrial Animal Health Code.

In Cameroon, a set of laws, decrees and orders govern the prevention and control of zoonotic diseases, including:

- Law No. 006 of 16 April 2001, on zoo-sanitary nomenclature and regulation for reportable animal diseases... It provides for the conditions for declaring, isolating, and managing cases, implementing the Order on infection reporting (APDI) (sanitary police actions) and makes vaccination against certain diseases mandatory;
- Law No.2000/017 of 19 December 2000 to lay down veterinary health inspection regulations;
- Decree No.86/711 of 14 June 1986 to lay down modalities for veterinary health inspection.

However, Mpox is not on the notifiable diseases list provided by Law No. 006 of 16 April 2001. The measures to be taken in case of suspicion and/or confirmation of this disease are so far absent in Cameroonian regulations.

IV.2 Epidemiological situation of Mpox in Cameroon in 2022

Cameroon is an endemic country for Mpox. Since 1979, the country has recorded several outbreaks in animals and humans with reported cases being more recrudescent over the past five years.

From 1 January to 18 October 2022, 108 suspected cases of human Mpox, were recorded and 18 cases were confirmed in six Regions of the country.

Table 1 and Figure 3 summarizes the epidemiological status of Mpox in Cameroon.

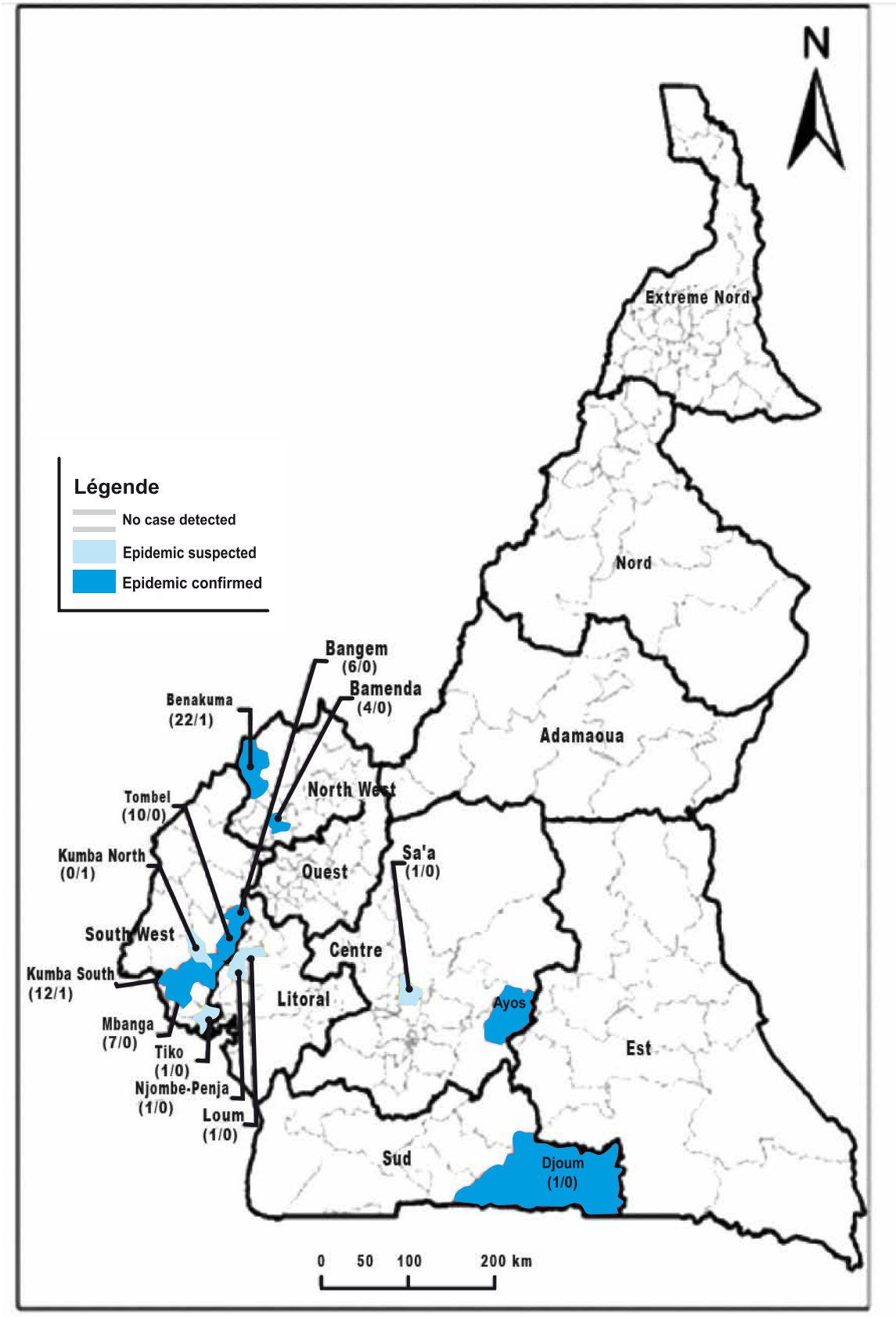

Figure 3:Health Districts Affected by Mpox in Cameroon, 1 January to 6 December 2022 (MINSANTE/SITREP/Mpox No. 5, 2022)

Table I: Summary of the epidemiological situation of Mpox in humans from January to December, 2022, Cameroon (MINSANTE/SITREP/MPOX N°5, 2022).

Regions	Health District	Cumulative number of confirmed cases	Cumulative number of Death	Case fatality rate (%)
Centre	Ayos	6	4	0
	Eseka	1	0	0
	Djoungolo	1	0	0
	Nkolndongo	1	0	0
	Sa'a	1	0	0
East	Batouri	1	0	0
	Bertoua	2	0	0
Far-North	Maroua 2	1	0	0
Littoral	Njombe Penja	2	0	0
	Loum	1	0	1
	Bonassama	1	0	0
North-West	Bamenda	7	3	0
	Benakuma	22	1	1
South	Djoum	5	1	0
South-West	Bangem	6	3	0
	Kumba North	8	1	0
	Kumba South	12	2	1
	Mamfe	1	0	0
	Mbonge	7	2	0
	Tombel	18	1	0
	Tiko	1	0	0
	Limbe	1	0	0
Total		**106**	**18**	**3**

Table 1 shows that four regions reported confirmed cases of Mpox in humans with an overall case-fatality rate of 2.8%. In animals, no case was confirmed in the year 2022.

IV.3 Analysis of stakeholders involved in Mpox control of in Cameroon

IV.3.1. State stakeholders:

IV.3.1.1 National Programme for the Prevention and Fight against Emerging and Re-emerging Zoonoses (PNPLZER)

Order No. 28/CAB/PM of 4 April 2014 gives PNPLZER the responsibility to prevent and control zoonoses through the "One Health" approach, and develop early detection mechanisms. PNPLZER ensures coordination, collaboration and communication between sectors in the prevention, preparedness and response against zoonotic diseases and other public health threats, as well as risk communication and community engagement.

As regards Mpox, the PNPLZER is responsible for reinforcing multisector preparedness and response mechanisms by supporting field investigations, improvement of coordination and communication between different sectors, organisation of simulation exercises and Joint Risk Assessment.

IV.3.1.2. Ministry of Livestock, Fisheries and Animal Industries

Decree No. 2012/382 of 14 September 2012 to organise the Ministry of Livestock, Fisheries and Animal Industries (MINEPIA), has as one of its missions, the supervision of veterinary services through which it ensures sanitary protection and veterinary public health in Cameroon.

With respect to zoonoses control and veterinary public health, the Department of Veterinary Services (DSV) collaborates with other sectors following the "One Health" approach. It ensures, with the help of RESCAM, the planning and organisation of investigation missions and management of outbreak locations. It is responsible for the control of animal disease outbreaks.

In MINEPIA, Mpox is not listed on the notifiable disease provided by Law No. 006 of 16 April 2001. The control of this disease in animals is essentially based on the management of outbreaks in animals and raising the awareness of the human population living in affected areas.

IV.3.1.3 Ministry of Public Health

Mpox is listed in the Technical Guide for Integrated Disease Surveillance and Response, 3rd edition as one of the diseases with epidemic potential under surveillance in Cameroon

Decree No. 2013/093 of 3 April 2013 to organise the Ministry of Public Health (MINSANTE) gives the Department for Disease Control, Epidemics and Pandemics (DLMEP) the responsibility for development of strategies for the prevention and control of epidemics and pandemics in conjunction with the relevant administrations. This decree also gives the Directorate of Health Promotion (DPS)the responsibility for social mobilization to promote community health.

Decree No. 2010/2952/PM of 01 November 2010 confers on the National Observatory of Public Health (ONSP) the responsibility of contributing to the preparation and response to events that could constitute a PHEIC.

IV.3.1.4 Ministry of Forestry and Wildlife

Decree No. 2005/099 of 6 April 2005, to organise the Ministry of Forestry and Wildlife (MINFOF) gives the Department of Wildlife and Protected Areas (DFAP) the responsibility to protect wildlife species and ensure continuous monitoring of wildlife heritage. In addition, DFAP plays a role in relaying information on zoonotic diseases within the framework of the "One Health" approach.

IV.3.1.6. Laboratories

a. National Veterinary Laboratory

The decree No. 2021/089 of 12 February 2021, gives the **National Veterinary Laboratory (**LANAVET) the responsibility to diagnose priority diseases in animal health, the analysis of samples and the training of field agents in good sampling practices. LANAVET also conducts research on zoonoses and other animal diseases.

b. National Public Health Laboratory

Order No. 2964/MINSANTE of 09 October 2013, gives the **National Public Health Laboratory** (LNSP) the responsibility to conduct public health diagnostic activities and providing technical support for epidemiological surveillance in collaboration with the DLMEP and ONSP.

c. Military Health Research Centre

Decision No.^{0} 0037/CAB/MINRESI of 20 June 2002 gives CRESAR the responsibility to conduct medical research in health facilities throughout the national territory, in close collaboration with operational structures of the Institute of Medical Research and studies of Medicinal Plants (IMPM), to initiate and conduct research on emerging and re-emerging diseases.

d. Centre for Research on Emerging and Re-emerging Diseases

The Decision No. 009/PCA/IMPM/MINRESI/001/09-04 of 09 April 2009 gives the **Centre for Research on Emerging and Re-emerging Diseases (**CREMER) the mission to carry out fundamental and applied research on emerging and re-emerging diseases in order to improve the health of Cameroonians as much in terms of prevention as diagnosis and care.

e. Centre Pasteur du Cameroun

The **Centre Pasteur du Cameroun's** (CPC) mission as concerns public health is to conduct epidemiological surveillance activities through participation in major national and international programmes for the control of diseases, particularly those of epidemic potential, not only in Cameroon but also in the Central African sub-region. The activities carried out by the CPC are the isolation and molecular identification of microorganisms and conducting situational analysis of epidemic alerts.

IV.3.1.6. Communities

In 1993, Cameroon adopted the Reorientation of Primary Health Care policy that emerged from the Bamako initiative. This policy is characterised by the development of "dialogue structures" and is based on three essential principles: co-financing, co-management and community participation. Many non-governmental organizations and associations are formally involved in public health and health promotion activities in the country.

IV.3.2. Non-state stakeholders

In addition to national actors, the fight against zoonotic diseases in Cameroon benefits from the support of many Technical and Financial Partners (PTF). These include: WHO, WOAH, FAO, UNEP, USAID-IDDS, DTRA, CDC, Breakthrough ACTION MTaPS, TRAFFIC, GIZ-PPOH, IFRC, DTRA, TRAFFIC, AFROHUN, CRC. These partners participate in the fight against zoonotic diseases through multi-faceted support (infrastructure, equipment, capacity building, funding for other operational activities).

IV.4. Analysis of Mpox control measures in Cameroon

a) Coordination

PNPLZER ensures coordination, collaboration, and communication between sectors for the management of Mpox in Cameroon. In case of outbreaks, the Incident Management System can be activated within the different response sectors. There also exists intra sectoral coordination mechanisms.

b) Surveillance

The purpose of surveillance is to detect early and respond immediately to suspected cases of Mpox. Many human and animal cases have been detected thanks to the surveillance systems in Cameroon. Community Based Surveillance, implemented in both sectors through community health workers contribute to strengthen the existing surveillance systems. Multi-sectoral Mpox investigations conducted since 2020 revealed that infected people reside mostly in the near forest areas. In addition, the collection and analysis of rodent samples in the areas where the Mpox outbreaks were confirmed did not permit the identification of reservoirs till date.

c. Response

Response to Mpox outbreaks is carried out in a multisectoral manner and it involves the case management of affected individuals in Health Centres, raising awareness of the population at risk on its prevention and control (using posters, radio spots, video grams, flyers, etc), the management of human remains and animal carcasses. Human remains are handled and buried respecting biosecurity measures. Animal carcasses are destroyed by denaturing, deep burial and/or incineration.

d. Risk Communication and Community Engagement

Posters on the definition and management of Mpox cases are developed, produced and distributed in health districts and communities. Communication is also done through community health workers, traditional media (radio, television, print), social networks, administrative, traditional, and religious authorities**.** Civil Society Organisations have also been involved in risk communication and community engagement.

IV.5 Strengths, Weaknesses, Opportunities and Strengths analysis

Table II: SWOT Analysis

	Coordination	Surveillance	Response	Communication
Strengths	• Existence of coordination structures (PNPLZER, CCOUSA, Focal Point-RSI, CCOUSP, DPC) • Existence of reference documents for emergency management (Guidelines, CCOUSP manual, Animal Health Emergency Management Manual) • Availability of expertise and material resources to conduct tabletop/full scale simulation exercises. • Holding weekly epidemiological surveillance meetings	• Implementation of the Integrated Disease Surveillance and Response (IDSR) strategy • Existence of laboratories for the detection of Mpox (CPC, LNSP, LANAVET, CREMER, CRESAR) • Existence of RESCAM • Existence of SOPs for multi-sectoral investigations • Existence of warning systems (SFE/SBC/EWARS) • Existence of a wildlife monitoring manual • Collaboration between sectors in the conduct of investigations • Existence of a toll-free number for early notification	• Existence of normative documents (IDSR technical guide, SOPs, directives...) • Existence of health centres and veterinary services in risk areas • Availability experts (epidemiologists, RCCE, WASH, ICP) • Ability of LANAVET to manufacture vaccines	• Civil society organization (CSO) engagement/adherence in the response to epidemics and public health events • Organization of awareness campaigns • Availability of communication tools on Mpox case definition and management posters in French and English • Availability of communication tools (posters, flyers, radio spots, videograms, etc) • Adhesion of digital communicators • Availability of a RCCE OH strategic plan and behavioural change strategy
Weaknesses	• Mpox not on the list of notifiable diseases in the animal health sector	• Inadequate implementation of wildlife monitoring in	• Surveillance documents and tools not adequately distributed (e.g., disease	• No systematic translation of documents produced in both official languages • No specific communication guide for each

	• Roles and responsibilities of coordination (PNPLZER) and emergency management (CCOUSP) bodies not clearly defined • CCOUSA not functional • Insufficient dissemination of reference documents for emergency management. • Low level of multi-sectoral collaboration at the deconcentrated level • Lack of a platform to exchange information and share reference documents in real time between sectors • Unavailability of funds.....	protected conservation areas • Lack of interoperable system for data and information sharing • Delays in animal health case notifications at the regional level • Lack of functional multi-sectoral RRTs • Insufficient resources to conduct timely investigations • Data collection forms not adapted in animal health system • Insufficient implementation of surveillance by all actors in animal health sector • Lack of laboratories at the Regional levels with adequate technical facilities for the diagnosis of Mpox • Non availability of monitoring tools for field staff • Inadequate knowledge of the viral reservoirs,	case definition) • Inadequate sharing of Reports of multi-sectoral investigations to the heads of the different administrations • Low proportion of actors at all levels of the health pyramid with the capacity to manage Mpox cases. • Non-existence of management algorithms in hospitals • Lack of a regulatory framework for the management of human cases during an epidemic or public health event • Lack of dedicated resources for the management of public health emergencies • Lack of a multi-sectoral national emergency management strategy • Lack of a system and SOPs for sample transportation	priority zoonosis • Non availability of the bank of communication messages on zoonoses • Information sharing between sectoral administrations with

Opportunities	• Presence of partners to support coordination efforts • Declaration of Mpox as a PHEIC by WHO	• Willingness of Partners to support surveillance efforts	• willingness of partners to support capacity building	
Threats		• Porous borders • Insecurity in some regions of the country • Epidemic in neighbouring countries • Risk of importation of cases • Transhumance of animals/	• Insecurity in some regions of the country • Lack of specific treatment for Mpox	• Infodemics (dissemination of false information related to health)

IV. STRATEGIC FRAMEWORK

V.1. Vision
A Cameroon free of Mpox by 2030.

V.2. Mission
Ensure preparedness and response to Mpox through coordinated public health actions in Cameroon.

V.3. Purpose of the plan
The goal of this action plan is to improve human, animal, and environmental health through coordinated management of Mpox interventions in Cameroon.

V.4. OBJECTIVES OF THE PLAN

V.4.1. GENERAL OBJECTIVE
Prevent and respond effectively to Mpox epidemics/epizootics in Cameroon by 2027.

V.4.2. SPECIFIC OBJECTIVES
- Strengthen the multisectoral coordination of actors;
- Strengthen Mpox surveillance with a multi-sectoral, multi-stakeholder approach (Interrupt human-to-human transmission of Mpox with a focus on high-risk groups;
- Reducing zoonotic transmission of Mpox virus;
- Strengthen preventive measures;
- Strengthen capacity to respond to Mpox outbreaks.

V. STRATEGIC AXES OF INTERVENTION
Four strategic areas were identified:

- Strengthening multi-sectoral coordination,
- Strengthening surveillance and response,
- Strengthening communication and awareness,
- Strengthening laboratory capacity and research on Mpox.

VI.1 STRATEGIC AXIS 1: MULTISECTORAL COORDINATION IN THE FIGHT AGAINST MPOX

VI.1.1 OBJECTIVE
Strengthen multisectoral coordination on Mpox preparedness and response by 2027.

VI.1.2. ACTIONS
- Building capacity for multi-sectoral Mpox management;
- Establish a monitoring and evaluation framework for the implementation of the plan.

VI.1.3. PRIORITY ACTIVITIES

- Development of the concept of operations for multi-sectoral monkeypox management
- Definition of resource mobilisation mechanisms (material, human, financial)
- Building stakeholder capacity in prevention, preparedness, detection, response, mitigation and rehabilitation for monkeypox management
- Support to CCOUSA and CCOUSP for the response to monkeypox
- Cross-border coordination meetings held every six months
- Reinvigorating multi-sectoral coordination mechanisms at all levels, in conjunction with One Health
- Implementation of RIT at all levels
- Establishment of a programme for multi-sectoral simulation exercises at all levels
- Organisation of monkeypox coordination meetings at all levels
- Organisation of follow-up meetings every six months
- Conducting a mid-term and final evaluation of the National Integrated action plan for the control of Monkeypox

VI.2 STRATEGIC AXIS 2: EPIDEMIOLOGICAL SURVEILLANCE AND RESPONSE

VI.2.1. OBJECTIVE

Early detection and effective response to a possible case of Mpox.

VI.2.2. ACTIONS

It specifically addresses:

- Ensure continuous data reporting and information sharing between different sectors in real time
- Responding effectively to the possible occurrence of monkeypox cases
- Ensure continuous data reporting and information sharing between different sectors in real time
- Responding effectively to potential monkeypox cases

VI.2.3. PRIORITY ACTIVITIES

- Conducting a mid-term and final evaluation of the National Integrated action plan for the control of Monkeypox
- Establishing mechanisms for interoperability of systems and information sharing between sectors
- Development, validation, production and dissemination of SOPs and surveillance tools for human, animal and environmental health
- Capacity building of surveillance actors (identification, biosafety, biosecurity, detection) on the use of surveillance tools

- Implementation of RITs/ Updating of RIT mapping (further training and/or training)
- Identification, design and equipment of case management sites
- Procurement and provision of communication means to surveillance actors in priority sites (communication) resources to actors involved in monitoring in priority sites
- Stakeholders' capacity building in the use of monkeypox surveillance data collection tools (DHIS-2, CAHIS...);
- Acquisition and pre-positioning of vaccines
- Acquisition and pre-positioning of PPE for case management in priority areas
- Development/update and production of SOPs for carcass and waste management
- Acquisition and pre-positioning of detection and case management equipment within the country and at border posts
- Capacity building of actors involved in monkeypox case management
- Capacity building of RITs
- Financial, material and logistical support for multi-sectoral investigations
- Support for the management of all monkeypox cases
- Capacity building of stakeholders on event-based surveillance/community-based surveillance of risk areas

VI.3. STRATEGIC AXIS 3: COMMUNICATION ON MPOX

VI.3.1 Objective

Improve communication management among key players in the fight against Mpox and sensitization of communities

VI.3.2. Priority actions

- Raise community awareness about Mpox in at-risk areas;
- Managing Crisis Communication in an Emergency;
- Strengthen the capacity of actors on communication on Mpox.

VI.3.3. Activities

Priority activities include:

- Operationalisation of a rumour management system
- Capacity building of key actors on monkeypox communication
- Surveys to assess the impact of communication activities
- Surveys to assess the impact of communication activities

Organisation of advocacy meetings for community engagement at all levels

VI.4. STRATEGIC AREA 4: BIOLOGICAL SURVEILLANCE AND RESEARCH ON MPOX

VI.4.1. Objective

Strengthen the capacity of the laboratory network for Mpox diagnosis and research.

VI.4.2. Priority actions

- Operationalise the national sub-network of laboratories involved in monkeypox diagnosis
- Strengthen the capacity of laboratory personnel involved in the diagnosis of monkeypox in Cameroon
- Harmonise national guidelines for the biological diagnosis of monkeypox within the sub-network of national laboratories involved in monkeypox diagnosis
- Strengthen the technical platform of laboratories involved in the diagnosis of monkeypox in Cameroon;
- Support research to generate epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon
- Supporting research to produce epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon
- Supporting research to generate epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon

VI.4.3. Activities

The priority activities are the following:

- Establishment of a sub-network of national laboratories dedicated to monkeypox
- Holding quarterly sub-network coordination meetings
- Situational analysis of needs in terms of technical facilities and training of personnel involved in the diagnosis of monkeypox
- Training of national experts in biological diagnosis of monkeypox
- Strengthening laboratory capacity in the diagnosis of monkeypox
- Development/revision and production of SOPs for collection, packaging, transport and diagnosis of monkeypox
- Development/revision/production and dissemination of diagnostic and laboratory waste management SOPs;
- assessment of the technical platform for the diagnosis of monkeypox
- Acquisition of equipment, reagents and consumables for biological diagnosis and waste management
- Equipment maintenance

- Establishment of a certification mechanism for diagnostic equipment and materials
- Advocacy for the assignment of biomedical maintenance engineers in RENALAB
- Conducting seroprevalence surveys
- Conducting research on potential monkeypox reservoirs
- Conducting genomic surveillance for monkeypox
- Evaluation of human population immunity to monkeypox vaccines

  Development of monkeypox candidate vaccines for local production of specific vaccines

VI. LOGICA L FRAMEWORK

Table III: Logical framework

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
1	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Development of the concept of operations for multi-sectoral monkeypox management	Availability of a concept of operations	01 Multi-sectoral management concept of operations document available and validated	One (01) document available	PNPLZER/ MINEPIA	**42 724 960**	X				
2	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Definition of resource mobilisation mechanisms (material, human, financial)	Availability of a resource mobilisation plan	At least 90% of the resources requested are available	Mobilisation plan, funding agreements, minutes of meetings, attendance list	MINSANTE, MINEPIA, MINFOF, MINEPDED, MINDEF, MINFI, PNPLZER	**26 725 000**	X	X	X	X	X
3	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Building stakeholder capacity in prevention, preparedness, detection, response, mitigation and rehabilitation for monkeypox management	Number of people trained	1025 people trained in the 10 regions	Training reports, Mapping of trained human resources available	MINSANTE, MINEPIA, MINFOF, MINEPDED, MINDEF, MINFI, MINAT, MINTRANS PORT	**75 300 000**	X	X	X	X	X
4	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Support to CCOUSA and CCOUSP for the response to monkeypox	CCOUSA is functional, CCOUSA and CCOUSP coordination is functional	100% of notifiable diseases and zoonoses reported are coordinated by the CCOUSA	Management reports Activity reports	MINEPIA MINFOF MINEPDED	**51 976 400**	X				

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
5	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Cross-border coordination meetings held every six months	Proportion of meetings held	10 cross-border meetings held in 05 years	Meeting reports, Attendance list	PNPLZER / ONSP	**25003500**	X	X	X	X	X
6	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Reinvigorating multi-sectoral coordination mechanisms at all levels, in conjunction with One Health	Number of multi-sectoral coordination meetings held at all levels, taking into account One Health aspects	One Health aspects are taken into consideration in multi-sectoral coordination meetings at all levels	Meeting reports	MINAT, MINEPIA MINSANTE MINFOF MINEPDED PNPLZER	**For the record**	X	X	X	X	X
7	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Implementation of RIT at all levels	Number of teams with their members by Region, Division, Subdivision	RIT are set up	Report containing this information, Memos	MINAT MINEPIA MINSANTE MINFOF MINEPDED MINDDEVEL MINDEF PNPLZER	**5000000**	X				
8	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Establishment of a programme for multi-sectoral simulation exercises at all levels	A programme of activities is developed at all levels	Aprogramme of activities is validated and available	Work groups created, Designated focal points at all levels	MINAT MINEPIA MINSANTE MINFOF MINEPDED MINDDEVEL PNPLZER	**118 236 800**	X	X	X	X	X

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
9	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Organisation of monkeypox coordination meetings at all levels	Number of coordination meetings held	80% of scheduled meetings are held	Coordination meeting reports	MINAT MINEPIA MINSANTE MINFOF MINEPDED MINDEF MINDDEVEL PNPLZER	**10500000**	X	X	X	X	X
10	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Capacity building for multi-sectoral monkeypox management	Organisation of follow-up meetings every six months	Number of coordination meetings held	80% of scheduled meetings are held	Follow-up meeting reports	MINAT MINEPIA MINSANTE MINFOF MINEPDED MINDEF MINDDEVEL PNPLZER	**28625000**	X	X	X	X	X
11	A. Multi-sectoral coordination for monkeypox control	Strengthen multi-sectoral coordination for monkeypox preparedness and response by 2027	Establish a framework for monitoring and evaluating the implementation of the plan	Conducting a mid-term and final evaluation of the National Integrated action plan for the control of Monkeypox	Number of assessments conducted	02 assessments conducted	Assessment reports	PNPLZER MINEPIA MINSANTE MINFOF MINEPDED	**27045825**			X		X
12	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensure continuous data reporting and information sharing between different sectors in real time	Establishing mechanisms for interoperability of systems and information sharing between sectors	Interoperability system functional; 100% of sectoral focal points use the system	At least 90% of information is shared between administrations	Application available and functional, Report of inter-administration consultation meetings Training , reports information is available in the system	PNPLZER MINEPIA MINSANTE MINFOF MINEPDED	**114617925**	X	X			

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
13	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Development, validation, production and dissemination of SOPs and surveillance tools for human, animal and environmental health	Number of surveillance tools produced and disseminated	100% of the tools available	Reports of workshops to develop and validate surveillance tools	PNPLZER MINEPIA MINSANTE MINFOF MINEPDED	**57868 200**	X			X	
14	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Capacity building of surveillance actors (identification, biosafety, biosecurity, detection) on the use of surveillance tools	Number of people trained	80% of actors trained	Training workshop reports	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER MINESUP PTF	**55 815 500**		X		X	
15	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Implementation of RITs/ Updating of RIT mapping (further training and/or training)	Availability of RITs	Mapping available	Training reports, attendance lists	MINSANTE MINAT MINEPIA MINFOF MINEPDED MINDDEVEL MINDEF PNPLZER	**111631000**	X		X		
16	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Identification, design and equipment of case management sites	Number of functional case management sites	100% of functional case management sites identified	Report of receipt of equipment	MINSANTE	**50 995 275**		X		X	

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
17	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensure continuous data reporting and information sharing between different sectors in real time	Procurement and provision of communication means to surveillance actors in priority sites (communication) resources to actors involved in monitoring in priority sites	Proportion of actors who received communicati on means	100% of the actors received communication means	Discharge sheets	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER	**975000000**		X			
18	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensure continuous data reporting and information sharing between different sectors in real time	Stakeholders capacity building in the use of monkeypox surveillance data collection tools (DHIS-2, CAHIS...);	Number of actors trained in the use of monkeypox surveillance data collection tools	80% of stakeholders trained in the use of monkeypox surveillance data collection tools	Training reports	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER	**111631000**		X		X	
19	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Acquisition and pre-positioning of vaccines	10,000 doses of vaccine purchased and pre-positioned	Vaccination coverage in risk areas	Report of receipt of vaccines	MINSANTE	**400000000**	X	X	X	X	X
20	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Acquisition and pre-positioning of PPE for case management in priority areas	Number of priority areas with complete PPE set	PPE is acquired and pre-positioned in priority areas	Accounting register, Discharge sheets	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER PTF	**300000000**	X	X	X	X	X

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
21	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to the possible occurrence of monkeypox cases	Development/update and production of SOPs for carcass and waste management	Number of SOPs developed, validated and disseminated	SOPs developed, validated and disseminated	SOPs available	MINEPIA MINFOF MINEPDED	**17163100**		X			X
22	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Responding effectively to potential monkeypox cases	Acquisition and pre-positioning of detection and case management equipment within the country and at border posts	Proportion of equipment pre-positioned at border posts	100% of equipment are pre-positioned	Discharge sheets	PNPLZER MINSANTE MINEPIA	**35 000 000**	X	X	X	X	X
23	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensuring early detection of any possible cases of monkeypox	Capacity building of actors involved in monkeypox case management	Number of actors trained at all levels	80% of actors are trained	Training reports Attendance lists	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER MINDEF DGNS MINAT MINDDEVEL PTF	**55 815 500**	X	X	X	X	X
24	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensuring early detection of any possible cases of monkeypox	Capacity building of RITs	Number of RITs trained at all levels	80% of RITs are trained	Training reports Attendance lists	MINEPIA MINFOF MINEPDED MINSANTE PNPLZER MINDEF DGNS MINAT MINDDEVEL PTF	**55815500**		X		X	

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
25	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensuring early detection of any possible cases of monkeypox	Financial, material and logistical support for multi-sectoral investigations	Quantity of equipment and logistics, amount acquired	100% of the investigation teams received material, logistical and financial support	Reports, Discharge sheets	MINSANTE, MINEPIA, MINFOF, MINEPDED PNPLZER MINFI MINDEF MINAT PTF	**51 000 000**	X	X	X	X	X
26	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensuring early detection of any possible cases of monkeypox	Support for the management of all monkeypox cases	Proportion of monkeypox cases managed	100% of diagnosed cases treated	Available budgetary line	MINSANTE, MINEPIA, MINFOF, MINEPDED MINFI PNPLZER	**105000000**	X	X	X	X	X
27	B. Epidemiological surveillance and response	Early detection of and effective response to a possible case of monkeypox	Ensuring early detection of any possible cases of monkeypox	Capacity building of stakeholders on event-based surveillance/community-based surveillance of risk areas	Number of actors trained in event-based surveillance/community-based surveillance of risk areas	80% of people trained in event-based surveillance/community-based surveillance of risk areas	Training report, attendance list	MINSANTE, MINEPIA, PNPLZER PTF	**15281800**	X		X		X
28	C. Communication on monkeypox	Improving communication management between key players in the fight against monkeypox	Raise community awareness of monkeypox in high-risk areas.	Development and production of a communication guide and awareness raising tools (flyers, spots, posters...) specific to monkeypox	Proportion of key actors with the communication guide and awareness sensitization tools; Proportion of guides and tools developed translated and disseminated	Key players have the communication guide, the awareness-raising tools developed are translated and disseminated	Availability of the guide at the level of actors; availability of the tools developed, translated and disseminated	PNPLZER MINEPIA MINSANTE MINFOF MINEPDED MINCOM PTF	**36 646 400**	X				

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
29	C. Communication on monkeypox	Improving communication management between key players in the fight against monkeypox	Raise community awareness of Mpox in high-risk areas.	Operationalisation of a rumour management system	Percentage of rumours dealt with	Rumours are treated	The rumour management system is operational and accessible to all actors	PNPLZER MINEPIA MINSANTE MINFOF MINEPDED MINCOM PTF	**76 409 000**	X				
30	C. Communication on monkeypox	Improving communication management between key actors in the fight against monkeypox and community sensitisation	Raise community awareness of Mpox in high-risk areas.	Capacity building of key actors on monkeypox communication	Number of people trained	Key players trained in monkeypox communication; crisis managers trained in crisis communication	Report of training workshops, participants attendance list	PNPLZER	**296482000**	X	X	X	X	X
31	C. Communication on monkeypox	Improving communication management between key actors in the fight against monkeypox and community awareness	Raise community awareness of Mpox in high-risk areas.	Surveys to assess the impact of communication activities	Proportion of evaluation surveys carried out	Surveys conducted	Survey reports	PNPLZER/ RCCE Task Force	**38 208 925**		X		X	
32	C. Communication on Monkeypox	Improving communication management between key actors in the fight against monkeypox and community awareness	Raise community awareness of Mpox in high-risk areas.	Surveys to assess the impact of communication activities	Proportion of evaluation surveys carried out	Surveys conducted	Survey reports	PNPLZER/ RCCE Task Force	**38 208 925**		X		X	

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
33	C. Communication on Monkeypox	Improving communication management between key actors in the fight against monkeypox and community awareness	Managing crisis communication in an emergency	Organisation of advocacy meetings for community engagement at all levels	Number of advocacy meetings held at all levels	Advocacy meetings are held at all levels	Meeting reports, attendance list	PNPLZER/ RCCE Task Force	**2 075 000**	X		X		
34	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Operationalise the sub-network of national laboratories involved in monkeypox;	Establishment of a sub-network of national laboratories dedicated to monkeypox	The documents for setting up the sub-network of national laboratories are available	The sub-network of national laboratories is functional, SOPs are available	Availability of documents for the establishment of the sub-network of national laboratories and its operationalis-ation	PM/ PNPLZER/ RENALAB	**16 331 800**	X				
35	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Operationalise the national sub-network of laboratories involved in monkeypox diagnosis	Holding quarterly sub-network coordination meetings	Proportion of coordination meetings held	04 coordination meetings held	Minutes of meetings, Attendance list	PNPLZER/ RENALAB	**30000000**	X	X	X	X	X
36	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the capacity of laboratory personnel involved in the diagnosis of monkeypox in Cameroon	Situational analysis of needs in terms of technical facilities and training of personnel involved in the diagnosis of monkeypox	Audit report	The needs are known	Availability of the statement of needs	PNPLZER/ RENALAB	**35 660 825**	X	X			

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
37	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the capacity of laboratory personnel involved in the diagnosis of monkeypox in Cameroon	Training of national experts in biological diagnosis of monkeypox	Proportion of experts trained on monkeypox diagnosis, modules, biosafety SOP, biosecurity, etc. available	10 national experts trained, modules, SOPs for biosafety, biosecurity, etc. developed	Training certificates, training tools developed	RENALAB/ PNPLZER	**19263755**	X	X			
38	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the capacity of laboratory personnel involved in the diagnosis of monkeypox in Cameroon	Strengthening laboratory capacity in the diagnosis of monkeypox	Number of laboratory staff trained at all levels, Number of laboratories whose technical facilities have been reinforced	80% of laboratory staff are trained, 80% of the technical platform of laboratories has been reinforced	Training reports, Attendance lists, Discharge sheets for acquired equipment	RENALAB MINEPIA MINFOF MINEPDED MINSANTE PNPLZER MINDEF DGNS MINRESI MINESUP PTF	**11163100**		X	X		
39	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Harmonise national guidelines for the biological diagnosis of monkeypox within the sub-network of national laboratories involved in monkeypox diagnosis	Development/ revision and production of SOPs for collection, packaging, transport and diagnosis of monkeypox	Availability of the manual of SOPs	Manual of SOPs available	Manual of SOPs, Activity report	RENALAB / PNPLZER	**29 172 700**	X		X		

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
40	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Harmonise national guidelines for the biological diagnosis of monkeypox within the national network of laboratories involved in monkeypox diagnosis	Development/revision/production and dissemination of diagnostic and laboratory waste management SOPs;	Availability of SOPs	SOPs available	SOP, Activity report	MINEPDED/ PNPLZER/ RENALAB	**21 531 800**	X			X	
41	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the technical platform of laboratories involved in the diagnosis of monkeypox in Cameroon;	assessment of the technical platform for the diagnosis of monkeypox	Availability of the results of the assessment	Available results	Assessment report	RENALAB/ PNPLZER	**35 660 825**	X				
42	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the technical facilities of laboratories involved in the diagnosis of monkeypox in Cameroon;	Acquisition of equipment, reagents and consumables for biological diagnosis and waste management	Proportion of RENALAB laboratories equipped	100% of RENALAB laboratories equipped	Report of receipt of equipment and discharge form	RENALAB / PNPLZER	**75 000 000**	X	X	X	X	X
43	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the technical platform of laboratories involved in the diagnosis of monkeypox in Cameroon	Equipment maintenance	Proportion of equipment that has undergone annual preventive and corrective maintenance	80% of preventive and corrective maintenance performed per year	Maintenance reports	RENALAB / PNPLZER	**20 000 000**		X	X	X	X

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
44	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the technical facilities of laboratories involved in the diagnosis of monkeypox in Cameroon	Establishment of a certification mechanism for diagnostic equipment and materials	Number of people trained for certification	Pool of 05 trained staff	Training report and training certificates	RENALAB / PNPLZER	**34 333 750**	X				
45	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Strengthen the technical facilities of laboratories involved in the diagnosis of monkeypox in Cameroon;	Advocacy for the assignment of biomedical maintenance engineers in RENALAB	Number of engineers assigned	15 biomedical maintenance engineers available	Posting decisions Effective presence	RENALAB / PNPLZER	**For the record**	X		X		
46	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Support research to generate epidemiologi-cal, ecological, genetic and vaccine data on monkeypox in Cameroon	Conducting seroprevalence surveys	Proportion of surveys carried out	02 seroprevalence surveys	Survey report available	RENALAB / PNPLZER MINRESI	**85 754 280**	X		X		
47	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Supporting research to produce epidemiologi-cal, ecological, genetic and vaccine data on monkeypox in Cameroon	Conducting research on potential monkeypox reservoirs	Number of study reports	Potential reservoirs of monkeypox are known	Study reports available	MINFOF MINESUP MINEPIA PNPLZER RENALAB MINRESI	**85 754 280**	X		X		X

N°	Strategic Area	Objective	Actions	Activities	Indicators	Expected results	Source of verification	Responsible for	Cost of the activity	Y1	Y2	Y3	Y4	Y5
48	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Supporting research to produce epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon	Conducting genomic surveillance for monkeypox	Knowledge of all the strains causing cases	The strains are known	Laboratory results, Publications	RENALAB	**60000000**	X	X	X	X	X
49	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Supporting research to generate epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon	Evaluation of human population immunity to monkeypox vaccines	Population protection rate of monkeypox vaccines	80% of the population have immunity to vaccines	Evaluation report	MINRESI RENALAB MINSANTE MINEPIA MINFOF MINEPDED PNPLZER	**85 754 280**				X	
50	D. Biological surveillance and research on monkeypox	Strengthen the capacity of the laboratory network for monkeypox diagnosis and research	Supporting research to generate epidemiological, ecological, genetic and vaccine data on monkeypox in Cameroon	Development of monkeypox candidate vaccines for local production of specific vaccines	Number of vaccines produced from the candidate vaccines	Produced candidate vaccines	Availability of candidate vaccines	MINRESI/ RENALAB MINEPIA MINSANTE MINFOF MINEPDED PNPLZER	**31 561 860**					X

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