



CAMEROON BIOSECURITY PROJECT
*Development and Institution of a National Monitoring
and Control System (Framework) for Living Modified Organisms (LMOs)
and Invasive Alien Species (IAS)*

**MANUAL ON INSPECTION SYSTEMS AND
METHODS, INCLUDING TREATMENTS FOR
BIOLOGICAL INVASIONS IN CAMEROON**

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Government of Cameroon via the Ministry of Environment, Protection of Nature and
Sustainable Development.*

Under the Supervision of:

Project Component Two Taskforce (MINADER)

&

The Biosecurity Project Coordination Unit (MINEPDED)



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LIST OF ACRONYMS AND ABBREVIATIONS

ABBREVIATION/ ACRONYM	FULL NAME
AC	Animals Committee
AEWA	Agreement on the Conservation of African-Eurasian Migratory Water Birds
AIA	Advance Informed Agreement
ALPP	Areas of Low Pest Prevalence
ANOR	Agency for Standards and Quality
AP	Adventitious Presence
APHIS	Animal and Plant Health Inspection Service
BNF	Biological Nitrogen Fixation
BTS	Border and Transportation Security
BWM	Ballast Water Management
BWMS	Ballast Water Management System
CAC	Codex Alimentarius Commission
CBD	Convention on Biological Diversity
CBP	Cameroon Biosecurity Project
CITES	The Convention on International Trade in Endangered Species (of Wild Flora and Fauna)
CNDT	National Committee for Technology Development
COP	Conference of the Parties
CPB	Cartagena Protocol on Biosafety
CBPA	Customs and Border Protection Agency
CMS	Convention on Migratory Species
CPM	Commission on Phytosanitary Measures
CSOs	Civil Society Organizations
DNA	Deoxyribonucleic Acid
ELISA	Enzyme-Linked Immunosorbent Assay
EPPO	European and Mediterranean Plant Protection Organization
EFSA	European Food Safety Authority
ERA	Environmental Risk Assessment
ETO	Ethylene dioxide
EU	European Union

FAO	Food and Agriculture Organization of the United Nations
FMD	Foot and Mouth Disease
GATT	General Agreement on Tariffs and Trade
GEF	Global Environment Facility
GIASI	Global Invasive Alien Species Information
GISD	Global Invasive Species Database
GISP	Global Invasive Species Programme
GM	Genetically Modified
GMOs	Genetically Modified Organisms
GMP	Good Manufacturing Practices
HIV	Human Immunodeficiency Virus
HIV/AIDS	Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome
HPR-	Highly Polymorphic Region-
HPR0	Non-deleted Polymorphic Region
IAPSC	Inter-African Phytosanitary Council
IAS	Invasive Alien Species
ICAO	International Civil Aviation Organization
IHRs	International Health Regulations
IMO	International Maritime Organization
IMPM	Institute of Medical Research and Medicinal Plant Studies
IPPC	International Plant Protection Convention
IPFSAPH	International Portal on Food Safety, Animal and Plant Health
IRAD	Institute of Agricultural Research for Development
ISAV	Infectious Salmon Anaemia Virus
ISPM	International Standards for Phytosanitary Measures
ISSG	Invasive Species Specialist Group
ITTA	International Tropical Timber Agreement
ITISs	Infrared Thermal Image Scanners
IUCN	International Union for Conservation of Nature
LANAVET	National Veterinary Laboratory
LLP	Low Level Presence
LMOs	Living Modified Organisms
LMO-FFPs	Living Modified Organisms intended for use as Food, Feed or Processing
MEAs	Multi-lateral Environmental Agreements
MEPC	Marine Environment Protection Committee

MINADER	Ministry of Agriculture and Rural Development
MINEE	Ministry of Water Resources & Energy
MINEPIA	Ministry of Livestock, Fisheries and Animal Industries
MINEPDED	Ministry of Environment, Protection of Nature and Sustainable Development
MINFOF	Ministry of Forestry and Wildlife
MINT	Ministry of Transport
MINPOSTEL	Ministry of Post and Telecommunications
MINRESI	Ministry of Scientific Research and Innovation
MINSANTE	Ministry of Public Health
NBSAPs	National Biodiversity Strategies and Action Plans
NGOs	Non-Governmental Organizations
NPPO	National Plant Protection Organization
OIE	Organisation for Animal Health
PoE	Points of Entry
PCR	Polymerase Chain Reaction
PFA	Pest Free Areas
PRA	Pest Risk Assessment
PMRP	Propagative Monitoring and Release Program
PSC	Port State Control
rDNA	Recombinant DNA
RM	Risk Management
RNQP	Regulated, non-quarantine pest
RPPOs	Regional Plant Protection Organizations
RAPID	Ruggedized Advanced Pathogen Identification Device
SARS	Severe Acute Respiratory Syndrome
SBSTTA	Subsidiary Body on Scientific Technical and Technological Advice
SCBD	Secretariat to the Convention on Biological Diversity
SOPs	Standard Operating Procedures
SPB	Strategic Plan for Biodiversity
SPF	Specific Pathogen Free
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures
SSC	Species Survival Commission
STDF	Standards and Trade Development Facility
STEEEP	Social, Technical and Scientific, Economic, Environmental, Ethical, Policy & Political

TBM	Transboundary Movement
TBT	Technical Barriers to Trade
ToT	Training of Trainers
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNDP	United Nations Development Program
USDA	United States Department of Agriculture
VFZ	Vector Free Zones
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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CONTACT DETAILS OF THOSE WHO PARTICIPATED

Authors

Dr Phumzile Zanele Dlamini

Independent Consultant
P.O. Box 963 Buccleuch
2066
Johannesburg
South Africa.
Phone: +27785629849
Email: phumiedlam@gmail.com

Mrs Mary Fosi Mbantenkhu

President, Myrianthus Fosi Foundation for
Biodiversity Conservation and
Environmental Protection (MyFF)
Cameroon
Phone +237 78791580
Email: Maryfosi@yahoo.com

Members of the Project Coordination Unit

Mr Rigobert Ntep

Cameroon Biosecurity Project Coordinator
Ministry of Environment, Protection of Nature
and Sustainable Development
Acropole, Yaoundé, Cameroon
Tel: +237 677 30 39 32
Email: rntep@yahoo.fr

Mr Declan Chongwa Ambe

Cameroon Biosecurity Project Assistant
Ministry of Environment, Protection of
Nature and Sustainable Development
Acropole, Yaoundé, Cameroon
Tel: +237 77 02 22 85 / 96 86 66 19
Email: declanambe@yahoo.co.uk

Mr Clouvis Johnbang

Cameroon Biosecurity Project Financial
Assistant
Ministry of Environment, Protection of Nature
and Sustainable Development
Acropole, Cameroon
Tel: +237 75 95 92 97 / 98 09 94 77
Email: clouvisjohnbang@yahoo.com

Project Technical Advisors

Dr David Mbah

Project Technical Advisor
Cameroon Academy of Sciences
Tel: +237 677 83 91 41
Email: dambah@yahoo.co.uk

Dr John Mauremootoo

Supporting Project & Programme Planning,
Monitoring and Evaluation
Phone/Fax: +44 (0)1934 876565
Email: John@InspiralPathways.com
Skype: johnmaure
Website: www.inspiralpathways.com

Members of the Component 2 Taskforce

Mr. Paul Metenou

Head Component 2
Agric. Engineer
Regional Delegate
MINADER, West Region
Tel: +237 699254396
Email: metenou_paul@yahoo.fr

Mr Barthelemy Ndongo

Component 2 Co-Lead
MINEPDED
Tel: +237 677 56 40 96
Email: bandongo@yahoo.fr

Dr Vitalis R.M. Chepnda

Component 2 Task Team Member
DVM (Disease Control Specialist),
Permanent Secretary National Zoonoses
Program, MINEPIA
Yaoundé, Cameroon
Tel: +237 699 003 722
Cell: +237 679 688 500
Email: drchepnda@yahoo.co.uk

Dr Roger Noël Iroume

Component 2 Task Team Member
Plant Geneticist, Senior University
Lecturer, Inspector General MINRESI
Yaoundé, Cameroon
Tel: +237 677 335 433
Email: iroumerog@hotmail.fr

Mirabel Lanyuy

Agronomist, MINADER
Component Support Staff
Tel: +237 675 585 398
Email: lanyuym@yahoo.com

Mrs. Amandine Epse Afoumbe

Samekomba Nang
Agronomist, MINADER
Component Support staff
Tel: +237 677 488 126
Email: amandenang@yahoo.fr

Mrs. Christine Pedhom

Agronomist

Former Component Head, Resource Person,

Tel: +237 676 887 995

Email: madiesse223@yahoo.fr

Mrs Colette Ekobo

Agronomist

Former PAC vice president and TT

member, resource person

Tel: +237 677 604 101,

Email: capcao@yahoo.fr /

ekoboce@voila.fr

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EXECUTIVE SUMMARY

Project Purpose and Justification

The Cameroon Biosecurity Project (CBP) entitled “*Development and Institution of a National Monitoring and Control System (Framework) for Living Modified Organisms (LMOs) and Invasive Alien Species (IAS) is aimed at* increasing the capacity of stakeholders to prevent and control the introduction, establishment and spread of IAS and management of LMOs in Cameroon through the implementation of a risk-based decision making process. The project addresses four barriers as follows:

1. Ineffective policy, regulatory and institutional framework for the effective prevention and control of the introduction, establishment and spread of biological invaders,
2. Inadequate implementation of cost-effective risk-based biosecurity measures,
3. Insufficient capacity for a risk-based approach to biosecurity management and,
4. Lack of information to inform management and low levels of awareness among key stakeholder groups.

The project seeks to address these gaps through implementation of four interlinked components i.e.

- i. **Component 1 (Policy & Regulatory Framework):** Establishment of policy and regulatory framework for effective prevention and control of the introduction, establishment and spread of biological invaders.
- ii. **Component 2 (Capacity Building):** Build capacity to enable the control of the entry, establishment and spread of IAS and management of LMOs.
- iii. **Component 3 (Information and Awareness):** Raise awareness of key stakeholder groups on risks, impacts and management of IAS and LMOs.
- iv. **Component 4 (Risk-Based Management):** Implement sustainable strategies for the risk-based management of priority pathways and species for IAS and LMOs.

In Particular, Component 2 seeks to address the following gaps:

- Strategies for importation of new organisms into Cameroon have rarely been based on systematic risk-based approaches to inspection and treatment.
- Efforts to promote a systematic risk-based approach to the prevention of biological invasions in Cameroon have been extremely difficult to investigate as the knowledge of movements of risk commodities into and within Cameroon has been confined to a few individuals from specific sectors and has not been systematically documented, and;

- The fragmented legal and institutional environment relating to the management of biological invasions.

Objectives of the Study

Activity B14b was implemented with the aim of producing an inspection manual to manage introductions of IAS and LMOs into Cameroon. By the end of the Manual, trainees are expected to:

- Demonstrate an understanding of inspection systems, inspection methods and treatments processes for movements of people and products into the country.
- Have an overview of risk analysis and selection of appropriate risk management options for various classes of bio-invaders.
- Have an overview of the different treatment options available for different species / species types / commodities.
- Understand inspection sampling methods and how they are used as a means of detection of a risk organism or its symptom.
- Understand the roles and responsibilities of various actors in an integrated biosecurity system.
- Examine and validate documentation accompanying imports.

Other users of the Manual such as scholars, researchers, importers/exporters, field workers in disciplines such as health, agriculture, environment, livestock and animal production industries including fisheries and forestry will gain a lot of knowledge/hindsight from the manual. The document will enhance users' capacity towards handling various species of bio-invaders as well as LMOs which may become invasive. It is expected that a lot of public awareness will be raised by the competent institutions before and during the use of the Manual. The process will enhance the public's decision-making thus enabling travellers, tourists, and others travelling into Cameroon to be informed on products that may pose risk along as well as facilitating adoption of precaution and preventive measures to avoid unintentional introduction of IAS.

Methodology

In developing the Manual, the Consultants conducted a desktop review of National documents including legal and policy documents, documents produced under the CBP, Journals as well as documents developed by international organizations. Examples here include leading international agencies such as under the Convention on Biological Diversity (CBD), the Global Invasive Species Programme (GISP), the International Maritime Organization (IMO), the

International Plant Protection Convention (IPPC), the Organization for Animal Health (OIE), the Food and Agriculture Organization (FAO), the World Trade Organization (WTO), the International Union for Conservation of Nature (IUCN).

Relevant material was drawn from these sources and consolidated into the Training Manual. Direct interviews were also conducted with experts and key personnel at stakeholder institutions in order to develop the Case studies on systems, processes and approaches applied in handling the recent Ebola and Avian influenza in Cameroon. An initial draft of the Manual was presented to the Component 2 Task Team. A Training of Trainers (ToT) Workshop was then held under the related Activity C6 (Component 3). Thirty (30) participants were selected to participate in the ToT Workshop. Participants were drawn from lead institutions responsible for various biosecurity sectors including government ministries, Research Institutions, Universities, Non-Governmental Organizations and others. The training methodology used was participatory involving Power Point Presentations, Group Work and Discussion. Following the workshop, the Manual was developed further using inputs and recommendations of participants at the ToT.

The Manual was presented to the Task Team for Component 2 and further refined based on their inputs.

Results

The synthesis of this process is presented in Five Modules as follows:

- Module I: Review of Basic Concepts: This Module is a revision of basic concepts related to various biosecurity sectors.
- Module II: The Institutional and Regulatory Framework for Management of Risk Pathways. This Module is aimed at enhancing the understanding of inspection systems, inspection methods and treatments processes for movements of people and products into a country.
- Module III: Risk Analysis. This Module begins with a definition of Risk Analysis and its components i.e. Risk Assessment, Risk Management and Risk Communication.
- Module IV: Treatment Options. This Module considers treatment methods and various classes of pests and products they can be applied to.
- Module V: Technical and Administrative Issues. This Module considers various technical and administrative issues involved in inspection.

Recommendations

- A. **Preparation of guidance documents and Standard Operating Procedures:** There currently exists gaps in terms of detailed guidance in a number of key areas. It is recommended that the following are developed with utmost urgency:
- Manuals for cleaning vehicles and equipment with particular emphasis on imports of used vehicles and agricultural equipment.
 - Guidelines for inspection and monitoring of contained use facilities working with LMOs and record forms
 - Guidelines for inspection and monitoring trials involving LMO and record forms
 - Guidelines for post-release monitoring and surveillance of LMOs. The Manual on Biosafety Risk Assessment and Risk Management for Cameroon can form the basis for these with additional information based on current best practice.
 - Standard Operation Procedures (SOPs) to cover the range of inspection related functions across biosecurity sectors.
- B. **Elaboration of thresholds:** Tolerance levels for Adventitious Presence and Low Level Presence for Cameroon need to be agreed on and elaborated through a legal instrument.
- C. **Clear elaboration of protection goals and acceptable levels of protection to enhance effectiveness of Risk Analysis:** Protection goals in all sectors and the desired levels of protection must be clearly elaborated to assist with Risk Analysis.
- D. **Integration and/or coordination of biosecurity and enhancing collaboration with the Customs Directorate:** This could be done through establishment of a single entity to coordinate biosecurity issues as suggested in (MINEPDED, 2015²) and a single, comprehensive Biosecurity Act. An example of this approach is New Zealand's Biosecurity System.