



**Ministério da Saúde**  
**Direção Nacional de Saúde Pública**  
**Programa Nacional de Controlo de Malária**



**Supporting the setup of a malaria entomological surveillance network in Angola toward sustainable local entomological capacity**



**REDUCING DEATHS AND SUFFERING**  
**FROM TROPICAL DISEASES**

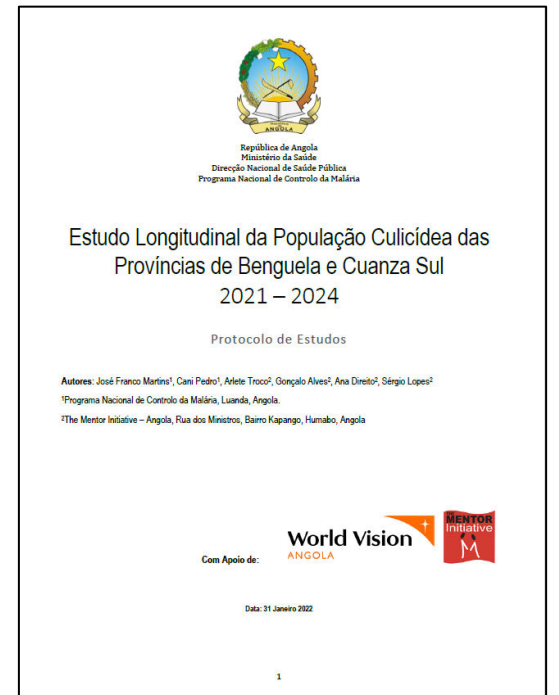


# Introduction

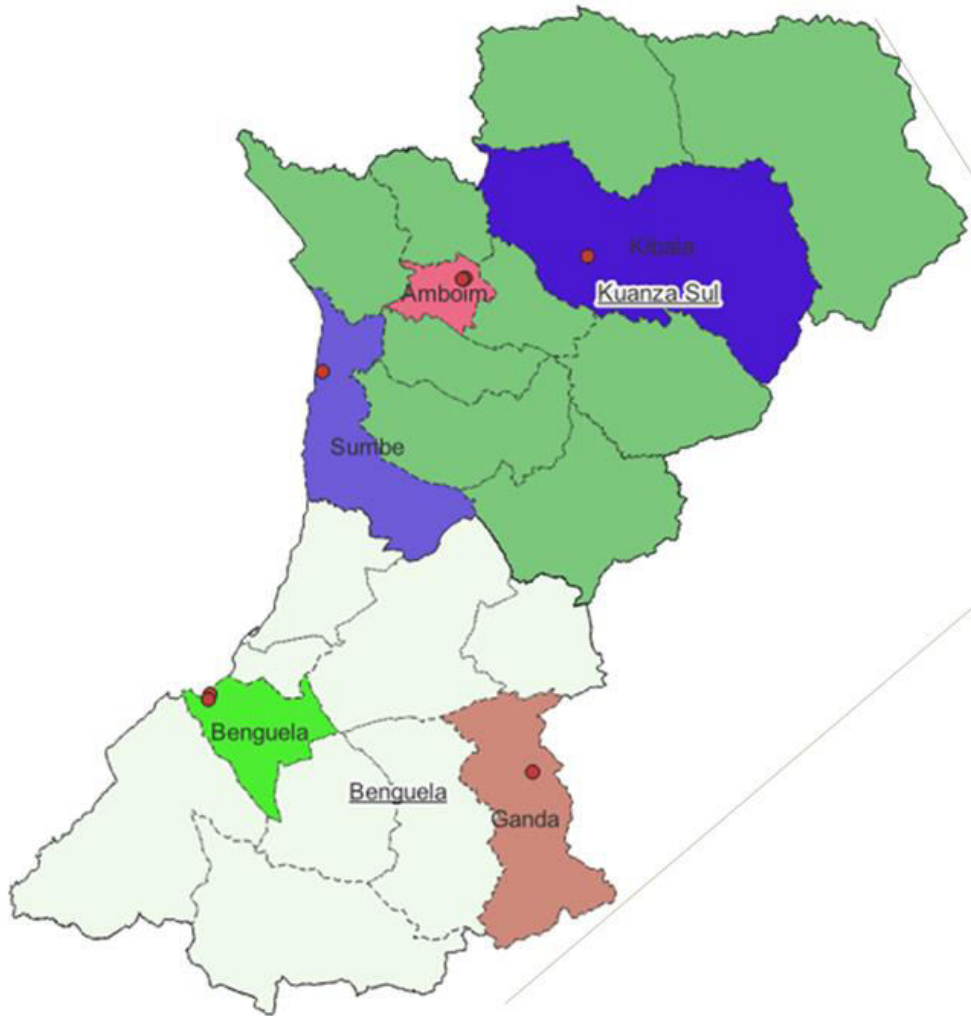
## Longitudinal Study of the Culicidae Population of the Provinces of Benguela and Cuanza-Sul, 2021 – 2024

### • Objectives

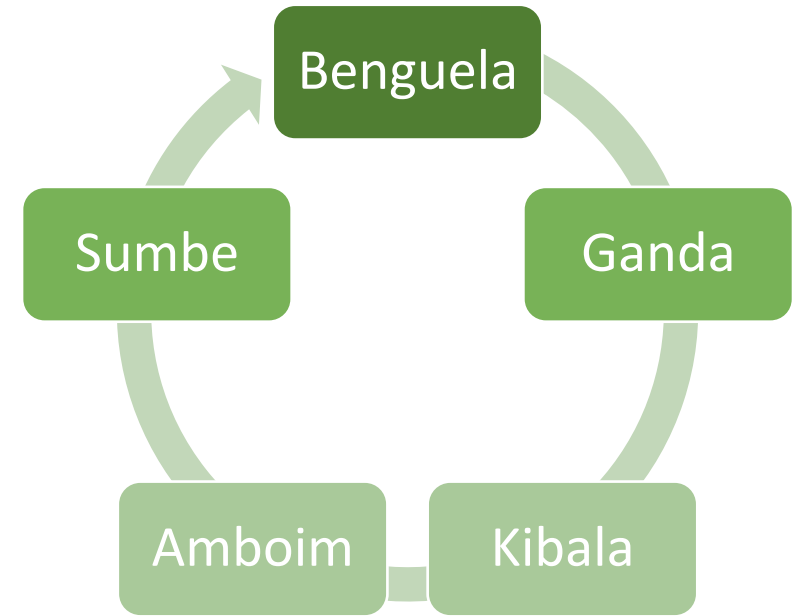
- Characterise local mosquito populations – focusing on *Anopheles* spp.
- Selection and training of entomology teams at provincial level



# Introduction



**Beginning of implementation:** January 2022



CDC LT 3 night a month in 3 houses per night  
Larvae collections → WHO bioassays



# Opportunities

- How to leverage the opportunities open by the project to look for **sustainable and long-term local mosquito monitoring?**
- How to **engage** provincial teams for malaria entomological field work?
- How to ensure that provincial teams have all **necessary materials** and **logistical support** to implement the field work?

**SELECTION AND TRAINING OF ENTOMOLOGY TEAMS AT PROVINCIAL LEVEL**



# Implementation

**Selection and training  
of entomology teams  
at provincial level**

**Develop a training course with focus on field work**

**Develop a forum for routine data driven decision making and refresher sessions – Provincial Vector Control Groups (TWG)**


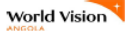
**Integrate the trainees into regular mosquito monitoring activities**

**Monthly supervision - on job training supportive supervisions**

# Training

- **5 days training session** – theory and practical sessions
  - **7 chapters**, from bionomics to **mosquito collection and sample sorting and storing**
  - Benguela and Cuanza-Sul (March / April 2022)
- Facilitated by **trainers from Angola NMCP and MENTOR**
- Evaluation of knowledge before and after the trainings
- Delivery of training materials
- Trainees: **Malaria provincial and municipal supervisors (MMS)**

República de Angola  
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Com a colaboração:  

**Agenda de Formação**

Tema: Formação Básica de Entomologia  
Local: Província de Cuanza Sul, Sumbe, GPS

Hora	Dia 1 28mar	Dia 2 29mar	Dia 3 30mar	Dia 4 31mar	Dia 5 01abr
08:00	Chegada dos participantes; Cerimónia de abertura (1 hora)		Unidade 2/3: introdução à identificação morfológica de mosquitos - características básicas (1 hora 30 min) - T / P	Unidade 7: recolha de CDC - P	
08:30		Unidade 2: Biologia dos vetores da malária (1 hora 30 min) - T			Unidade 7: continuação dos trabalhos de campo - P
09:00	Objectivos do curso (30 min)			Unidade 7: pesquisa de mosquitos imaturos - P	
09:30	Pré-teste (1 hora)		Unidade 7: Preparação e conservação de amostras - mosquitos imaturos (1 hora) - T / P		Pequeno almoço (30 min)
10:00		Unidade 3: Biologia dos vetores de arbovirus (1 hora 30 min) - T		Pequeno almoço (30 min)	
10:30	Pequeno almoço (30 min)		Pequeno almoço (30 min)	Unidade 7: inspeção de ovitrampas - P	Cerimónia de encerramento com entrega de diplomas de frequência na formação
11:00	Unidade 1: Conceitos básicos de entomologia médica e controlo de vetores (1 hora) - T	Pequeno almoço (30 min)	Unidade 7: Preparação e conservação de amostras - mosquitos adultos (1 hora) - T / P	Unidade 7: organização das amostras recolhidas, separação de amostras, identificação de amostras - P	
11:30		Unidade 4: Colheita de mosquitos imaturos (1 hora 30 min) - T			1º Encontro do Grupo Técnico de Controlo Vetorial Provincial
12:00	Unidade 1: Abordagens para o controlo da malária (1 hora) - T		Unidade 6: Cálculo de indicadores entomológicos (1 hora) - T / P	Unidade 7: preenchimento hoze abidos, preparação e conservação de amostras - P	
12:30					
13:00	Almoço (1 hora)	Almoço (1 hora)	Almoço (1 hora)	Almoço (1 hora)	Almoço (1 hora)
13:30					
14:00	Unidade 1: Principais tipos de levantamentos entomológicos (1 hora) - T	Unidade 5: Colheita de mosquitos adultos (1 hora) - T	Unidade 7: Preenchimento de formulários (1 hora) - T / P	Pós-teste	
14:30					
		Unidade 4 / 5: equipamentos e materiais de monitorização entomológica (30 min) - P	Unidade 7: montagem de armadilhas luminosas tipo CDC - P		

REPÚBLICA DE ANGOLA  
MINISTÉRIO DA SAÚDE  
DIREÇÃO NACIONAL DE SAÚDE PÚBLICA  
PROGRAMA NACIONAL DE CONTROLO DA MALÁRIA

**Formação Básica de Entomologia**

**Unidade 1**  
Entomologia Médica no Controlo de Doenças Transmitidas  
por Mosquitos

Benguela & Sumbe, 2022

# Training



**24 provincial and municipal malaria supervisors trained**

Province	Trainees	Pre-training test approval	Post-training test approval
Benguela	11	7 (64%) Mean grade: 55%	11 (100%) Mean grade: 92%
Cuanza-Sul	13	5 (38%) Mean grade: 63%	13 (100%) Mean grade: 72%

# Provincial Vector Control Groups

- Supported by a **Term of Reference** draft and approved by the NMCP
- Objectives:
  - A forum to debate the results of ongoing entomological surveillance
  - **Experience sharing and bottlenecks**
  - Re-training / **Training sessions**
  - Provincial authorities follow the results of the ongoing surveillance.
  - **Planned for every 3 months**
- **Duration:** half a day (morning)
- Production of minutes by the Provincial Health Directorate and forwarded to the central level.





# Provincial Vector Control Groups

- **First meeting:** March and April 2022
- **Second meeting:** June 2022
- **Third meeting:** October 2022 (*joint meeting with the two provinces*)



# Integration of the MMS

## 4 STEPS PROCESS

1º

- **January to March 2022:** MMS supports the malaria entomological activities implemented by NMCP and MENTOR, taking part in all steps, from advocacy to setting up traps

2º

- **March / April 2022:** Training

3º

- **April to May 2022:** the MMS is integrated in the activities; training on the job in real life situation.

4º

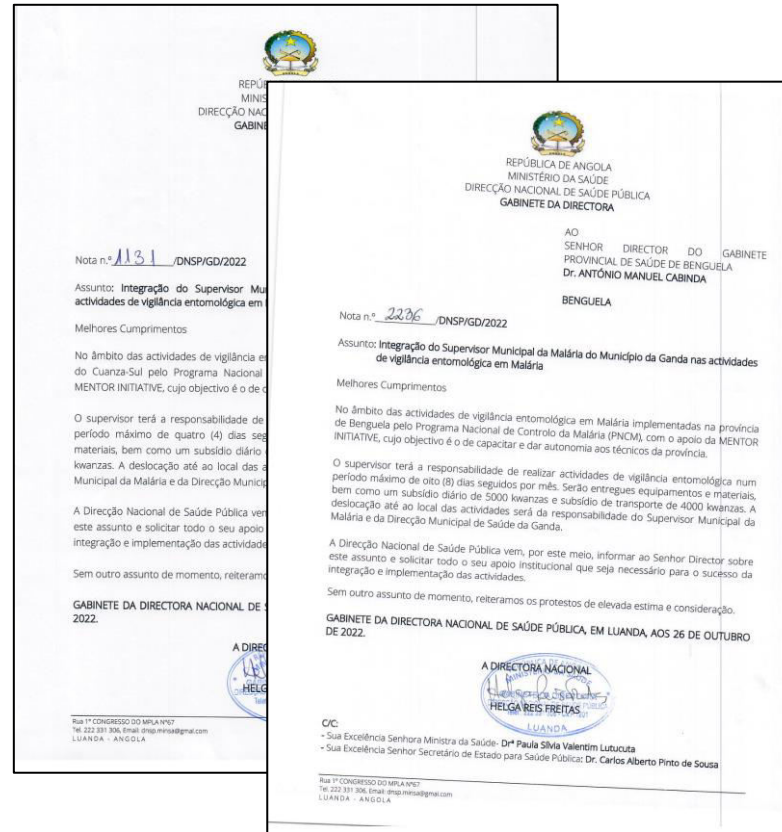
- **June 2022 (onwards):** Delivery of an entomological KIT so that the MMS can carry out monitoring activities by themselves. Regular supervisions



# Integration of the MMS

## • Entomological monitoring kit

- 3 x CDC LT
- 3 x 6 volts battery
- 2 x 6 volts battery chargers
- 1 x 50ml tube of silica gel
- 300 x 1,5 ml microtubes and cotton
- 1 x 125ml bottle of alcohol
- 15 x field forms
- 15 x plastic petri dishes
- 1 x magnifier and tweezer

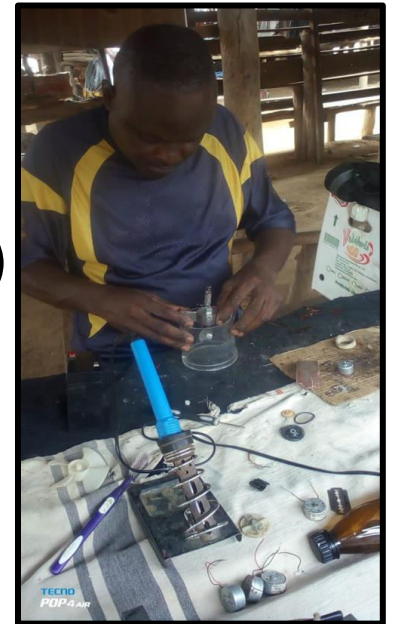


NDH / NMCP supporting the initiative



# Monthly supervision

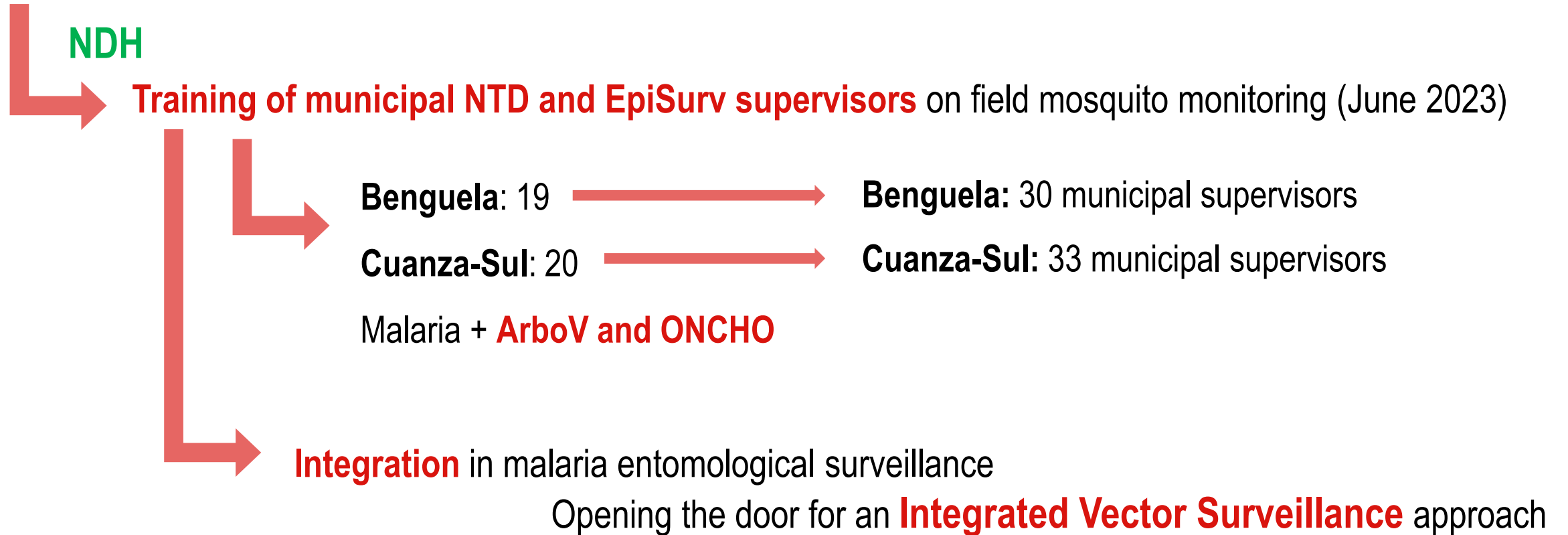
- After the MMS start working by themselves, a monthly supervision was implemented by NMCP and MENTOR entomological supervisors
- Objectives:
  - Replace consumables and materials (silica gel, microtubes, cotton, damaged batteries)
  - Problem solving (fixing and cleaning CDC traps)
  - **Collect the samples sorted by the MMS.**
  - Accompany the MMS in one night of work





# Lessons learned

The MMS are responsible for many activities / overlap of activities





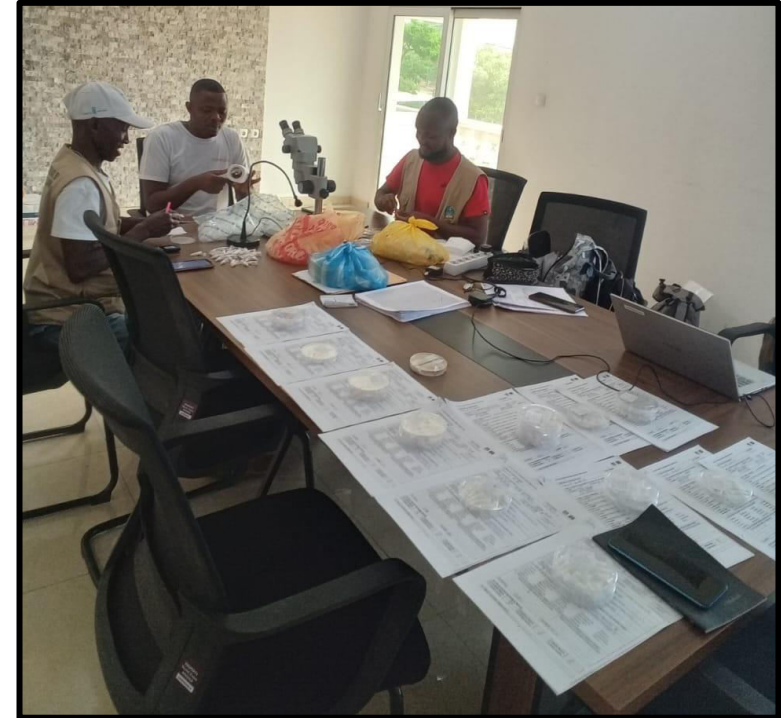
# Lessons learned

- The **PVCG/TWG**
  - **opened the scope for deeper discussions** about **mosquito monitoring** and control.
  - Joint meetings both provinces
  - Networking between municipal supervisors / sharing field experiences
    - **Malaria, NTD and Ep surveillance MS**



# Lesson learned

- **Monthly supervisions** are **pivotal to ensure**:
  - good sampling collection, sorting and storing
  - only point of connection between field and the next step:
    - **Laboratory processing (central level / international)**



- **Morphological identification training in every supervision**



# Conclusion & Next steps

- The **municipal-supervisor based** is an alternative for mosquito monitoring **in Angola**,
  - **HR capacity and KNOWLEDGE TRANSFERENCE within the MoH structure**
  - **Lead to a greater autonomy and engagement** from provincial/municipal health structures.
  - Anopheles morphological identification
- Study the impact of this strategy on the **sustainability of an entomological monitoring network in Angola.**





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## **Acknowledgements**

- Angola National Health Directorate
- Angola National Malaria Control Programme
- Provincial Health Directorate of Benguela and Cuanza-Sul
- World Vision Angola
- UNDP Angola
- The Global Fund



**REDUCING DEATHS AND SUFFERING  
FROM TROPICAL DISEASES**

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**Thank you!**