



MINISTRY OF HEALTH OF ANGOLA
NATIONAL DEPARTMENT OF PUBLIC HEALTH
NATIONAL DEPARTMENT OF NEGLECTED TROPICAL DISEASES

COVERAGE EVALUATION SURVEY OF THE INTEGRATED MASS DRUG ADMINISTRATION FOR ALBENDAZOL AND PRAZIQUANTEL TO SCHOOL AGED CHILDREN IN KWANZA SUL

**REPORT OF THE COVERAGE EVALUATION SURVEY (CES) APPLIED TO THE SCHOOL BASED
DEWORMING IMPLEMENTED IN KWANZA SUL DURING THE YEAR 2017**

ANGOLA 2017

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- NATIONAL DEPARTMENT OF PUBLIC HEALTH
- NATIONAL PROGRAM OF NEGLECTED TROPICAL DISEASES (NTD)
- PROVINCIAL HEALTH DIRECTORATE (DPS) OF KWANZA SUL
- PROVINCIAL EDUCATION DIRECTORATE (DPE) OF KWANZA SUL
- DEVELOPMENT AID FROM PEOPLE TO PEOPLE (DAPP)
- THE MENTOR-INITIATIVE (NGO)
- HEALTH AND EDUCATION MUNICIPAL DEPARTMENTS OF KWANZA SUL

A collaboration between the Ministry of Health of Angola through the National program for control of Neglected Tropical Diseases and the Development Aid from People to People (DAPP), The MENTOR Initiative with the support of The END Fund





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List of Acronyms

○ ALB	Albendazole
○ LF	Lymphatic Filariasis
○ IEC	Information Education Communication
○ NGO	Non-Governmental Organization
○ NTD	Neglected Tropical Diseases
○ MDA	Mass Drug Administration
○ MoH	Ministry of Health
○ PZQ	Praziquantel
○ STH	Soil Transmitted Helminthes
○ WHO	World Health Organization
○ DPS	Provincial Health Department
○ DPE	Provincial Education Department
○ SE	Side Effects
○ SCH	Schistosomiasis
○ RME	Municipal Education Department
○ RMS	Municipal Health Department
○ CES	Coverage Evaluation Survey
○ ADPP/DAPP	Development Aid from People to People
○ CD	Community Distributor
○ SBDW	School Based Deworming
○ CBDW	Community Based Deworming
○ SAC	School Aged Children
○ CSB	Coverage Survey Builder
○ SA	Survey Area
○ PPS	Proportional Probability Sample
○ HH	Household
○ CI	Confidence Interval
○ PNCDTN	National Program for the Control of NTDs
○ SDG	Sustainable Development Goals



Executive Summary

Following the SBDW in KS a coverage evaluation survey (CES) was done in order to assess three aspects, the program reach, the coverage survey in relation to the MDA threshold and to validate the actually reported coverages of the MDA itself.

Methodologically, the CES guidelines were thoroughly followed:

- After an exhaustive assessment of potential partners based on criteria such as experience in Angolan context, track record of target oriented successful activity delivery and past collaboration with MENTOR, ADPP was chosen as CES implementer;
- The training of the implementing teams took place in the ADPP facilities for 2 days provided by MENTOR coordinators;
- Regarding timing; the KS SBDW took place during June/July 2017, it was decided that the CES would not be implemented long after the 3 months threshold. August had to be discounted due to political activities taking place in the country, so September was the logical choice;
- In Angola, the implementation of MDA campaigns is planned and reported at the municipal level, consequently the implementation of this tool was aligned with this. Based on the reported coverages the Municipalities of Kibala and Libolo were chosen. These municipalities were selected based on criteria such as resources / time available, lowest reported coverage on both ALB and PZQ distributions and highest discrepancies between baselines (DPE, School level and CENSUS);
- For the subsequent smaller research units (communes, villages and segmentation), the randomization process was supported by the Coverage Survey Tool as per CES protocol.

In the selected SAs for Kwanza Sul, a total of 3760 SAC were surveyed, 1782 in Kibala (Female = 845; Male = 937) and 1978 in Libolo (Female = 935; Male = 1043). In terms of results, in general terms the conclusions were as follows:

1. The WHO target coverage threshold of 75% does not appear to have been met in either municipality;
2. There does not appear to be a problem with compliance, as the number who were offered the drug is very similar to the number who swallowed it, mainly thanks to the valuable information and sensitization efforts spread by the teachers;
3. The low coverage and program reach figures indicate that the challenge lies within the program itself. A comprehensive mixed approach between schools and communities would be advisable for future events as many areas do not have schools or teachers;
4. This high design effect is the reason why the confidence intervals are so wide and is a sign that coverage is very heterogeneous by village; in other words, coverage is patchy and varies dramatically according to the village in which a person resides



Challenges, lessons learnt and conclusions:

- Tools such as the CES should be used more systematically across as many MDAs as possible. The implementation in Kuanza Sul has clearly and successfully proved its utility, as many problems that were undetected have now been highlighted. This provides an opportunity to address geographical and therapeutic coverage challenges with strategic changes that can be based on these findings to improve the MDAs in the future.
- The implementation of the CES survey itself faced few and minor challenges. Poor accessibility to some villages, one isolated case of mistrust from the local population related to confusion with political purposes post elections, in some villages it was hard to find the children at home, minor internal logistical impediments, and poor municipal administration which meant some villages and areas were not clearly named.
- There was a remarkable collaboration between all the implementing and support partners, from the survey team from the ADPP, the support/training staff from MENTOR through to the assistance provided by RTI from distance. Local, national, provincial and municipal health authorities were key partners offering invaluable support.

1. Introduction

Neglected Tropical Diseases are a group of diseases that affect, above all, populations that for a myriad of reasons were overlooked over the years, thus leading low standards of sanitation, education and health. Due to their relatively low direct mortality and long-term morbidity NTDs for a long time have been overlooked by decision makers and donors who focused on diseases with greater visibility. Unfortunately, these diseases constitute a major public health risk since despite not having a high lethality, they are an important cause of morbidity and early long-lasting disability. In this group, there are diseases such as Schistosomiasis, Lymphatic Filariasis (Elefantiasis), Onchocerciasis (River Blindness), Soil Transmitted Helminths amongst others.

In recent years increasingly more attention has been given to NTDs leading to its inclusion on the SDG's, more specifically under the objective 3.0 - "Good Health and Wellbeing", Target 3.3 – "By 2030, end the epidemics of HIV, tuberculosis, malaria, and neglected tropical diseases and fighting hepatitis, waterborne diseases and other communicable diseases".

Angola's population is affected by a high prevalence of these diseases. The Ministry of Health has had a national programme devoted to NTDs and has recently finalised a draft Strategic Plan for the control of NTDs aligned to WHO recommended treatment strategies and interventions. The country has undertaken several initiatives to control NTDs including under the old APOC programme for Ocho as well as instigating PC Mass drug administrations with donated WHO drugs both in partnership with MENTOR and on its own. Such initiatives have been implemented at school and community level in several provinces as well some levels of mapping for Schisto, STH, Oncho and LF

The National Directorate of Public Health of Angola through National Program of NTDs, the provincial health and education authorities in partnership with the MENTOR-Initiative have been implementing



school and community based deworming in six of the 18 provinces of Angola. Since 2013 to the present, deworming campaigns have been implemented for school age children with ALB and / or PZQ in the provinces of Zaire, Uíge, Huambo, Bie, Cuando Cubango and Kwanza Sul. Additionally, community based deworming with IVM and / or ALB with resource to CDD's have been implemented in Uíge and Cuando Cubango.

WHO recommendations suggest that in order for MDAs to achieve positive impacts in the beneficiary populations and break the transmission cycle a minimum therapeutic coverage of 75% is required for STH and SCH campaigns. Currently the MDA data is treated and consolidated in a standardized system of data entering developed by MENTOR. This allows for a level of verification of the MDA therapeutic and geographic coverages through comparison of the number of SAC and schools treated with baselines attained from census and DPE data. However, this is a time consuming process that takes several weeks. Moreover, the coverages alone are by definition static allowing only to verify if a MDA had a high or low adhesion, not making it possible to perceive the reasons behind this same adhesion.

In Angola, mechanisms that allow for a detailed evaluation of an MDA in order to validate the coverages reached are still not in place. The unknown reliability of baseline figures from either the census or the other government figures means that having confidence in calculated coverages following an MDA is difficult. The implementation of this type of tool makes it possible to understand more clearly not only the compliance of the target populations in relation to the activity but verify populations size and spread in randomly selected areas. Doing this means that we can identify needs to adapt the implementation strategies to maximize coverages in future MDAs. For these reasons, it is essential to take measures to implement a tool that fills these gaps and the implementation of the CES tool has been an exciting step forward in illuminating the unknowns between the coverages, baselines and compliance.

The purpose of this report is to present the methods and results of the Preventive Chemotherapy Campaign Coverage Evaluation Survey System implemented in September 2017 in Kwanza Sul. Its objective was to clarify the effectiveness of the school based deworming carried out in Kwanza Sul during the months of June/July 2017. The tool validates the successes and failures of the MDA activities performed, as well as its results in the form of coverages, and therefore provides a mechanism to identify strategies for future improvements .

2. Activity Context

With the repeated implementation of several MDAs in target Provinces in recent years, the provincial and municipal NTD focal points have gradually become more experienced and independent in its planning and implementation. This is especially evident in the proactivity, independence and enthusiasm that is now demonstrated at all stages of MDA implementation. This makes it important to capitalize on this moment to start a new phase with regard to MDAs in Angola.

The main focus in supporting the delivery of MDAs in MENTOR provinces was in building capacity of the MOH and MOE partners as prior to 2013 few MDAs had occurred. Consequently, little knowledge on how to systematically conduct and measure the effectiveness of these types of activities existed. The



consecutive nature of the campaigns in the target provinces with MENTOR has addressed some of these gaps important to move to quality control and evaluation activities to inform better and more focused use of resources in the future as well as identify continuing gaps and trouble shoot the continuing issues regarding coverage which suffers from the varying denominators.

Thus far in Angola, no formal evaluation tools had been used. The only available measure was the final coverages, calculated to geographical or population based data collection and analysis. Unfortunately, this is static information, and does not enable a more sophisticated interpretation of results considering factors such as the specific reasons behind the results achieved nor point to potential strategies that could be adapted to maximize coverage in future events. Moreover, the coverages currently achieved are the only measures of success or failure of the prophylactic chemotherapy campaigns, which are not yet challenged and therefore validated by any external tool and/or entities. The CES is designed to fill these gaps and facilitate a substantial improvement in the available campaign information.

For these reasons the CES conducted in the municipalities of Kibala and Libolo in Kwanza Sul Province in collaboration with ADPP focused its objectives on evaluating the results reported throughout the school based deworming held during the months of June and July 2017. It also aimed to illuminate whether the National program to control the NTDs achieved the therapeutic coverages thresholds sufficiently to interrupt the transmission cycle amongst the targeted population (75% for both STH and SCH). The evaluation program covered 60 survey areas selected from the two municipalities.

As the assessment tools within the CES are essentially population-based surveys, they are designed specifically to provide representative and accurate estimates of the coverage, thus overcoming many biases and errors that often influence the coverages reported.

3. Objectives of the CES

GENERAL OBJECTIVE: To provide accurate coverage estimates of the 2017 Preventive Chemotherapy Campaigns in Kwanza Sul in order to verify if the goals were met and validate the reported results.

SECONDARY OBJECTIVES:

SO1: To verify if the coverage thresholds were achieved;

SO2: To identify motives of compliance and/or not compliance;

SO3: To assess and identify the challenges regarding the program reach;

SO4: To identify lessons learnt to adapt the MDA strategy for future campaigns.

4. Expected Results



GENERAL RESULT: The reported coverages of the 2017 Prophylactic Chemotherapy Campaign in Kwanza Sul are assessed and validated.

SPECIFIC RESULTS:

RE1: Precise estimates of coverages are obtained so that it can be compared to the recommended WHO coverage thresholds, allowing to determine the effectiveness of the MDA;

RE2: The reported coverages are validated allowing for confirmation of the accuracy of the data recording and reporting systems and taking corrective actions if necessary;

RE3. The reasons for non-compliance to the MDA are identified thereby supporting program managers in improving social mobilization in the next rounds;

RE4. Problems with the supply chain and distribution systems are detected by identifying groups of individuals for whom treatments have never been offered and corrective actions can be taken;

RE5. Further studies of Coverage in different subpopulations are conducted, for example: Urban vs rural and/or feminine vs masculine.

5. Methodology

5.1 GENERAL METHODOLOGY APPLIED TO THE ANGOLAN CONTEXT

International CES protocol		Adaptation of the protocol to the Angolan context
Who?	National, provincial and / or municipal level personnel not directly involved the MDA implementation	<p>CESs are tools for evaluating MDAs, and as such, it is recommended that such activities should be conducted by external entities, namely, institutions, organizations or bodies that are not directly involved in any of the stages of implementation of the MDAs.</p> <p>An assessment of potential partners based on criteria such as experience in Angolan context, track record of successful activity delivery and past collaboration with MENTOR, ADPP was chosen as CES implementer.</p> <p>Composition of the CES team: 1 survey leader; 2 drivers; 2 randomizers; 2 interviewers.</p>
When?	As soon as possible after the MDA campaign but never exceeding 3 to 6 months post-MDA	<p>The implementation of tools of this nature involves the use of the beneficiary's memory of the campaign moment. For the information obtained to be as accurate as possible, it is important that the CES is conducted as soon as possible following the conclusion of the MDA. Furthermore, the conclusions of these surveys will help to adapt new strategies for future rounds, and the time required after the completion of the surveys is essential so that new strategies are planned according to their results.</p> <p>Given that the KS SBDW took place during June/July 2017, and the CES needed to be implemented within the 3 month threshold, and that August was necessary discounted due to Angolan national elections the implementation period chosen was September 2017.</p>
Where?	Administrative units for which an estimate of drug coverage is	The CES protocol recommends that the implementation of these tools should be made at the



	reported (Municipalities)	<p>same level as the MDAs are planned and the coverages reported.</p> <p>In Angola, the MDAs are planned and reported at municipal level, so it followed that the CES was conducted at that same level. Based on the reported coverages the Municipalities of Kibala and Libolo were chosen (Appendix 1 & 2). The choice for these two municipalities was based on criteria such as resources / time available, lowest reported coverage on both ALB and PZQ distributions and highest discrepancies between baselines (DPE, School level and CENSUS). After analysing the time and resources availability it was inferred that the CES could accommodate an area of two municipalities in KS, furthermore in the MDA reported coverages those two municipalities were the ones that presented lower coverages based on the JRSM (CENSUS) baseline and also were among the ones with the highest discrepancies in terms of comparison between different baselines (CENSUS, DPE and School)</p>
How?	Random selection of subunits inside each Survey Area, followed by its segmentation. A random selection of one segment per subunit takes place and in each segment, target all HH.	In general, the CES implementation process, for reasons of statistical validity involves the random selection of subunits, namely villages and-or neighbourhoods within a survey area (municipalities). These subunits are further segmented into homogeneous household clusters and one segment is chosen randomly in each of the subunits. Within the selected segments a number of households is randomly chosen to conduct the survey itself. The randomization for this CES was supported by the Coverage Survey Builder (CSB) as per protocol.

Table 1: CES General Methodology Applied to the Angolan Context

5.2 CES GENERAL TIMELINE

- **Logistical Preparation – July / August 2017**
 - Preparation of a list of all villages and towns and their populations in conjunction with RME/RMS
 - Selection and establishment of the working team and securing of logistics;
 - Training of the implementing team
- **Selection of the survey area and target population – July / August 2017**
 - The SA is equivalent to a municipality;
 - The number of SAC/HH and the sample size were calculated with recourse to the CSB
- **Systematic Selection of Sub-Units – August 2017**
 - 30 subunits within a SA were randomly selected through PPS method automatically generated by the CSB.
- **Segmentation of the subunits – August 2017**
 - The CSB calculated automatically the number of segments within each subunit on a ratio of approximately 50 HH / Segment;
 - At field level, the survey team worked directly with the local leaders to divide the subunits into the predetermined number of segments.
 - One segment per subunit was randomly selected
- **Selection of the HH inside each segment – August / September 2017**
 - The CSB automatically generated 2 enumeration lists of sampling intervals.
 - At field level all the HH were enumerated on the spot with chalk in the doors for better identification and selection;
 - One of the sampling intervals was randomly selected and the HH visited thoroughly followed that same sampling enumeration list.
- **Interviewing the HHs – September 2017**
 - Questions about whether the treatments were offered and whether these were actually swallowed were directed to ALL the SAC in each selected family
 - If there were no SAC in one household, the next numbered household in the sampling list was selected



- **Data analysis and interpretation – September/October 2017**
 - The survey coverage and program reach, based on the "offered" and "swallowed" questions, respectively, were calculated;
 - The reported coverage was compared with the survey coverage.
- **Converting data into a solid action plan – October / November 2017**
 - Stakeholder meeting with the national NTD program in the Ministry of Health and donors was convened to develop the Plan of Action based on the results of the research

5.3 FIELD IMPLEMENTATION EXPERIENCE

For each municipality, the list of all existing villages and towns, and their populations, were entered into the Coverage Survey Builder (CSB). From this list, the subunits were selected automatically using the coverage survey builder (CSB) resulting in a total of 60 subunits for the two chosen municipalities. The evaluation team collaborated with the MoH at provincial and municipality level, administration offices at municipality level and the local leaders, working in 30 subunits per each Municipality.

PRE-SURVEY PERIOD

The training of the evaluation team took place at the ADPP center in Ramiro on the 8th and 9th of August 2017. Participants Invited included representatives from the Ministry of Health, (PNCDTN) and ADPP. The training was facilitated by the MENTOR team.

The training program covered:

1. Introduction to NTDs and MDA theory and practice
2. Introduction to the CES process of selecting the areas/villages to carry out the evaluation.
3. Guide to CES implementation and strategies in the field.
4. Information on data interpretation using tools from WHO-CSB.
5. Micro planning of the villages.

FIELD IMPLEMENTATION PERIOD

The implementation of the evaluation program in the field, was carried out as follows:

1. Presentation of the CES team and information to the provincial and municipal administrations on how and when the implementation will take place and establishment of the synergies between all partners for better implementing the surveys;
2. Collaboration with the local leaders, firstly by communicating and explaining the purpose of the survey and their role in it and secondly to be given permission to carry out the evaluation in each village;
3. Division of bigger villages into sectors of equal population to enable the team to implement as per CSB assessment;
4. After dividing, each local leader had to select one of the segments to carry out the evaluation door to door.
5. Only children between the age of 5- 15 were interviewed. using the pre-established evaluation questionnaire;



6. The team used GPS in each village for geolocation.
7. Each day the evaluation team together with the survey leader controlled for the quality of the data collected in the field;

POST-SURVEY PERIOD

The consolidation and reporting period was carried as follows:

1. All the HH and village forms were taken to Luanda;
2. Each team together with the survey leader and MENTOR advisor proceeded with the data quality verification. Every single HH and village form was assessed for errors;
3. A double layer excel system was created:
 - a. First layer: A simple excel table per each SA area was created to account for a deeper analysis of the reasons behind compliance or not compliance of the MDA. This type of analysis is not possible in the CSB;
 - b. Second layer: After the all data was inserted into the first layer and assessed for errors, the variables of interest (children that received the tablets and children that swallowed the tablets by gender) were then exported to the CSB for assessing the program reach, program coverage and validation of the reported coverage.
4. After the data treatment a quantitative and qualitative report was produced.

6. Field Challenges / Solutions to the implementation of the CES

6.1 Accessibility

- From all the villages that were selected to carry out the evaluation survey Quipela viliange in Libolo and Mbanza Lubuco were the most challenging. The road to Quipela village in the municipality of Libolo is full of stones, with mountains and small rivers without bridges. This village is in an isolated area which makes it difficult for people to reach it at all. Mbanza Lubuco, situated in the community of Cariango in the municipality of Kibala also was reported to be full of potholes and with rivers without bridges.
- Following these challenges, the field teams were requested to classify accessibility based on objective criteria such as Good; Average and Bad road conditions (Appendix 7 & 8). For Kibala municipality, 20 subunits were classified as having good access, 1 with average access and 9 with bad access. As for Libolo the scenario was substantially worst, 4 subunits were described with good accessibility, 20 with average accessibility and 6 with bad accessibility. Even though to reach some subunits the accessibility was difficult, the survey teams still successfully managed all efforts to reach those. Thus, despite all the logistical challenges all selected communities were reached.



6.2 Unwelcoming communities

- One isolated situation occurred in the village of Luso which did not want to participate in the evaluation because it was believed that the surveyors were from political party. When first approached, they completely refused to participate in the survey. The CES team had to contact the MENTOR advisors and the DPS at provincial level to resolve this issue. Subsequently the DPS at provincial level communicated with the RMS in Kibala to find ways to resolve it. The evaluation team together with one member from the RMS of Kibala visited the community administration to advocate in favor of carrying out the survey in this village.

After agreeing, the community administrator sent a representative with the CES team to the village in order to let its inhabitants know that the evaluation would be carried in the following day. When that moment arrived, only four families agreed to be surveyed and the rest continued with the same attitude which led the team to replace Luso by a the nearest by village, Silencio, as per CES guidelines.

- When classifying all the subunits by its survey acceptance as good, average or bad the average was very positive (Appendix 7 & 8). The Kibala team pointed that 25 and 5 were good and average respectively and as for Libolo, 26 were classified as good and 4 as average.

6.3 Communication

- Although duly briefed and instructed, the DPS did not inform the municipal administrations and the local leaders especially chiefs about the survey. The team in Libolo faced a challenge of not being allowed to implement the process of evaluation due lack of communication. The traditional chief of Libolo wanted the administration to directly communicate with him, as such, the evaluation team invited one of the DPS members to convince him. A similar experience occurred with the formal municipal administrator; who had not been formally informed about the evaluation survey, and consequently only allowed the activity after being persuaded by the Municipal Health Director. Despite this, the DPS at provincial level was always ready to help solving whatever situation concerning any issues on the ground.

6.4 Children at the age 5

- Some of the children at the age of 5 had difficulties in responding to the questions especially when the father or mother were not present. This difficulty was found in all the villages assessed. To tackle this problem, the team invited the closest neighbor who had a detailed insight of the HH to answer on behalf of the child. Besides this, the CES protocol was followed, in the case of children less than 10 years the next of kin answered on their behalf.

6.5 Difficulties in finding all the children at home.

- In all the villages, especially those with schools, the evaluation team had some challenges of not finding all children at home as result of either studying in the morning or in the afternoon. Some of



these children also were absent because were in the fields helping their parents in the morning and going back in the afternoon just in time to go to school. This influenced the evaluation team that had to adapt their strategies in order to work in the morning and the afternoon in the same village to make sure that all the children were reached.

6.7 Transport

- One of the two cars required for the survey was delayed by 5 days, the teams adjusted their strategy by targeting urban SAs first and utilizing hired motorbikes for transport.

6.8 Villages with wrong name spelling

- The evaluation team had some difficulties in identifying some of the villages due to wrong name spellings. Some of the villages were initially confirmed not to exist for example Cabota 1 and Cabota 2 in libolo, however, later, it was discovered that the names were in fact Capopa 1 and Capopa 2. In Kibala there was Quassonge and Kihole which had to be corrected to Songue and Kicole respectively. These situations were solved with a tight collaboration with the municipal authorities and DPS.

Names with wrong spellings	Correct names
Cabota 1	Capopa 1
Cabota 2	Capopa 2
Quassonge	Songue
Kihole	Kicole

Table 2: List of Villages found with the wrong names

- On an isolated situation one same village had two different names and both were selected by the CSB. Luso and Hojeateca were found to be the same village just with two different names, so, following the technical advisor's recommendations and the CES protocol the team had to replace Hojeateca with Kissengue.

6.9 Uniforms/ID material

- The team had insufficient identification materials during the working hours. It was referred that it would have been beneficial in terms of accessibility if the DPS had issued some type of official credentials or declarations regarding this activity. Additionally, the manufacturer delivered the waistcoats too late, as such the survey team could only rely on a limited number of t-shirts per surveyor (1/person).



6.10 Other Observations

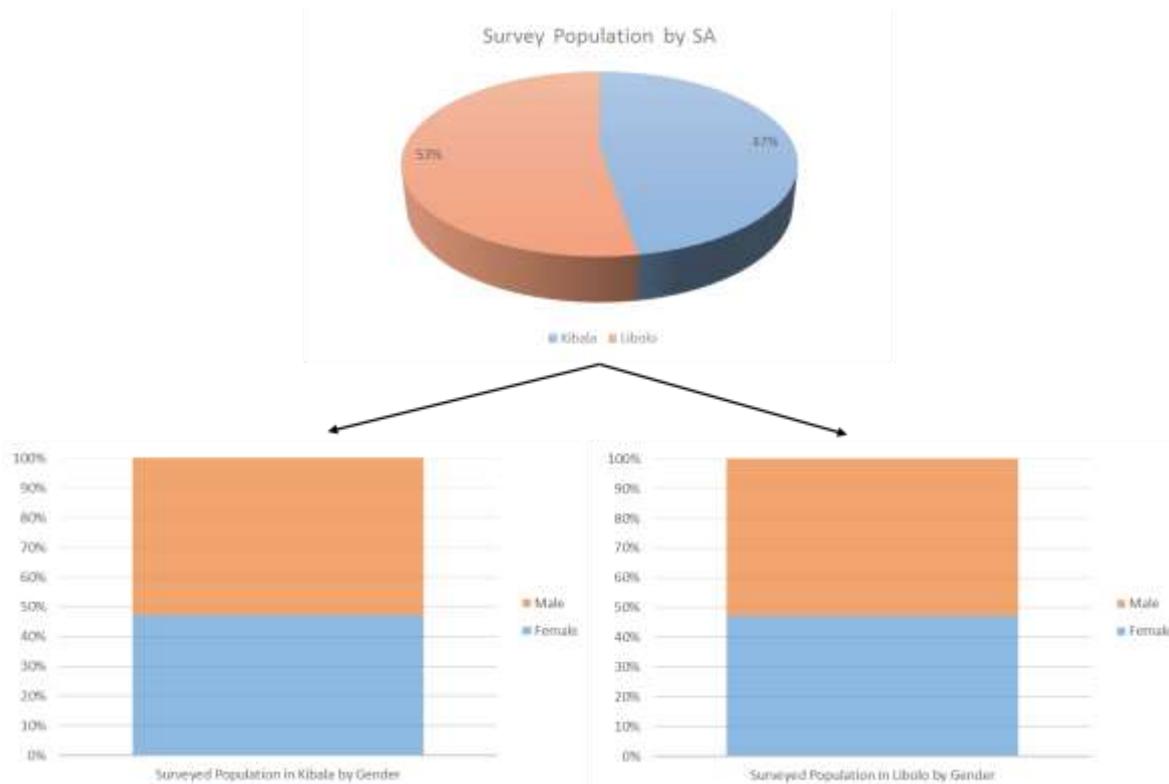
- The team had problems in addressing some of the questions made by the village heads, for instance, when asked on what to do with those children that did not receive the treatment. Some of those villages were Quipela, in Libolo, Mamo verde, Mbanza Lubuco and Kicole in Kibala where the campaign did not reach to distribute the treatment.

7. Quantitative Description

Once the survey data collection had been concluded in the 60 selected segments the team proceeded with the compilation, analysis and interpretation of the results. The three main objectives of coverage surveys are:

- To measure **program Outreach**;
- To estimate the **survey coverage** and determine if it reaches or exceeds the coverage threshold recommended by WHO;
- To **validate the reported coverage**.

In the selected SAs for Kwanza Sul, a total of **3760 SAC** were surveyed, **1782 in Kibala (Female = 845; Male = 937)** and **1978 in Libolo (Female = 935; Male = 1043)**.



Graphic 1;2;3: Population Distribution by SA and Gender



7.1 Program Reach

The program reach indicates the proportion of the target population that had the opportunity to participate in the MDA. There is no recommended threshold for this indicator, however, a low coverage can be an indicator of supply chain problems, drug distributor challenges or inadequate social mobilization.

The program reach can be assessed as follows:

$$\text{Program Reach} = \frac{\text{[Number of SAC that received the treatment]}}{\text{[Total number of SAC enquired]}}$$

Program Reach in Kibala Municipality:

The program reach achieved in Kibala was of 47% for ALB and 48% for PZQ. In total terms this translates into 845 SAC reporting having received the ALB, 937 SAC not receiving ALB, 857 SAC receiving PZQ and 925 SAC not receiving PZQ (Appendix 3 & 4). As for the main reasons pointed out for not receiving the treatments most were related with the lack of distributor (Alb n=310; PZQ n=310); lack of information (ALB n= 227; PZQ n=228); absence (ALB n=96; PZQ n=95) and others (ALB n=234; PZQ=237).

Kibala Municipality					
Total Sample Size	1782	Female Sample Size	845	Male Sample Size	937
Program Reach (ALB)	47%	Female Programme Reach	44%	Male Programme Reach	50%
Program Reach (PZQ)	48%		45%		51%

Table 3: Program Reach Kibala



Graphic 4;5: Reasons for not receiving ALB and PZQ in Kibala

Program Reach in Libolo Municipality:

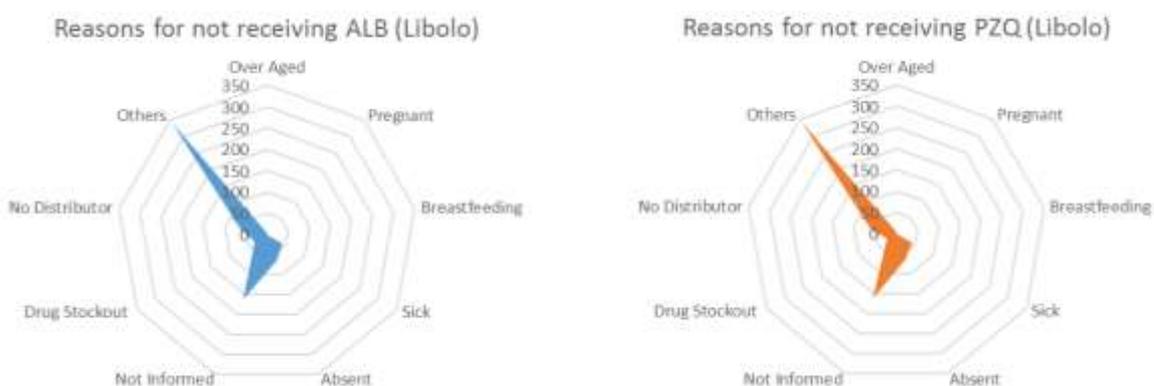
The program reach achieved in Libolo was of 64% for ALB and 65% for PZQ. In total terms this means that 1273 SAC reported having received the ALB, 705 SAC not receiving ALB, 1281 SAC receiving PZQ and 697 SAC not receiving PZQ (Appendix 5 & 6). As for the main reasons for not receiving the



treatments most were related with lack of information (ALB n=163; PZQ n=163); absence (ALB n=65; PZQ n=64); no distributor (ALB n=61; PZQ n= 61); sickness (ALB n=42; PZQ n=42); treatment stock out (ALB n=32; PZQ n=24) and others (ALB n=346; PZQ n=346).

Libolo Municipality					
Total Sample Size	1782	Female Sample Size	845	Male Sample Size	937
Program Reach (ALB)	64%	Female Programme Reach	60%	Male Programme Reach	69%
Program Reach (PZQ)	65%		60%		69%

Table 4: Program reach Libolo



Graphic 6;7: Reasons for not receiving ALB and PZQ in Libolo

7.2 Survey Coverage

The survey coverage is the measure of both the reach of the programme and individual compliance with the MDA. It provides data that can be compared with WHO thresholds. Since the research methodology yields an equal probability sample, no weighting of the results is required. The estimated coverage can be calculated as follows:

$$\text{Survey Coverage} = \frac{\text{[Number of SAC that swallow the treatment]}}{\text{[Total Number of SAC interviewed]}}$$

These results are later compared with the WHO minimum coverage thresholds (SCH: 75% / STH: 75%) to assess if the MDA achieved its objectives. If the survey coverage is below at least 10 percentage points relative to the threshold it means that there is need for strategic improvements to be carried out. On the other hand, if the survey coverage is above the coverage recommendations at least 10 percentage points this means that the program is running well, and potential replication is advised. If the survey coverage falls under 10 percentage points on either side of the coverage threshold additional analysis needs to be carried. This means that the lower sided 95% CI needs to be calculated.



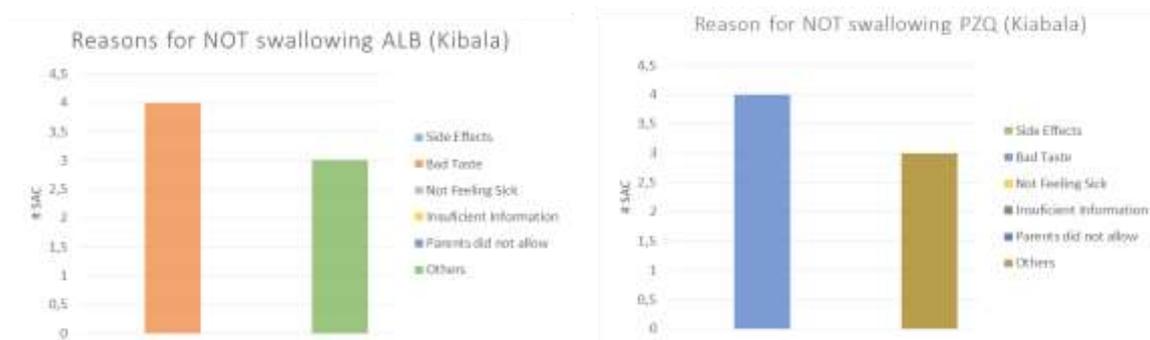
Survey coverage in Kibala Municipality:

In Kibala the survey coverage was of 47% for ALB and 48% for PZQ (Appendix 3 & 4). The reasons for these children not having swallowed the treatment although having received it, was mainly bad taste (ALB n=4, PZQ n=4) and others (ALB n=3; PZQ n=3).

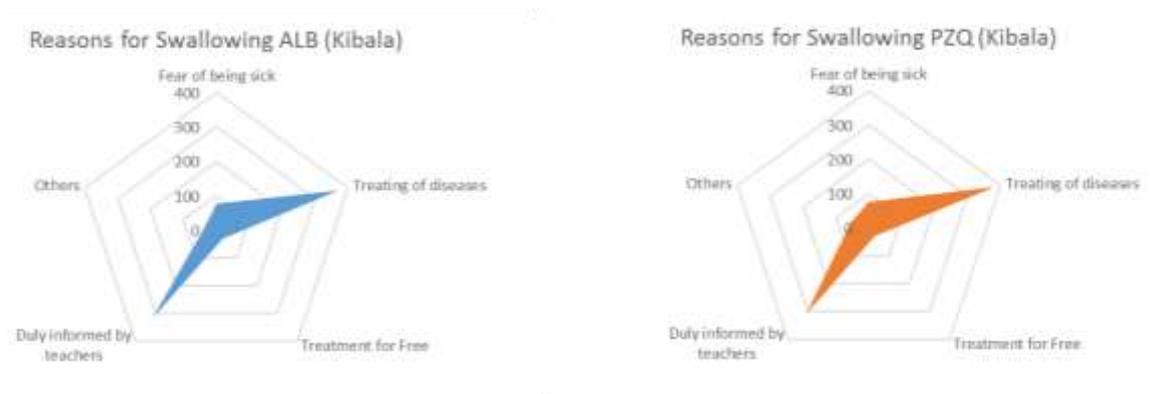
As for the reasons for swallowing the treatment these were, treatment of diseases (ALB n=371, PZQ n=383); valuable information provided by the teachers (ALB n=317, PZQ n=309); fear of being sick (ALB n=76, PZQ n=77); free treatment (ALB n=32, PZQ n=28); and others (ALB n=35, PZQ n=54).

Kibala Municipality					
Total Sample Size	1782	Female Sample Size	845	Male Sample Size	937
Survey Coverage (ALB)	47%	Female Survey Coverage	44%	Male Survey Coverage	50%
Survey Coverage (PZQ)	48%		44%		51%

Table 5: Survey Coverage Kibala



Graphic 8;9: Reasons for not swallowing ALB and PZQ in Kibala



Graphic 10; 11: Reasons for swallowing ALB and PZQ in Kibala

Survey coverage in Libolo Municipality:

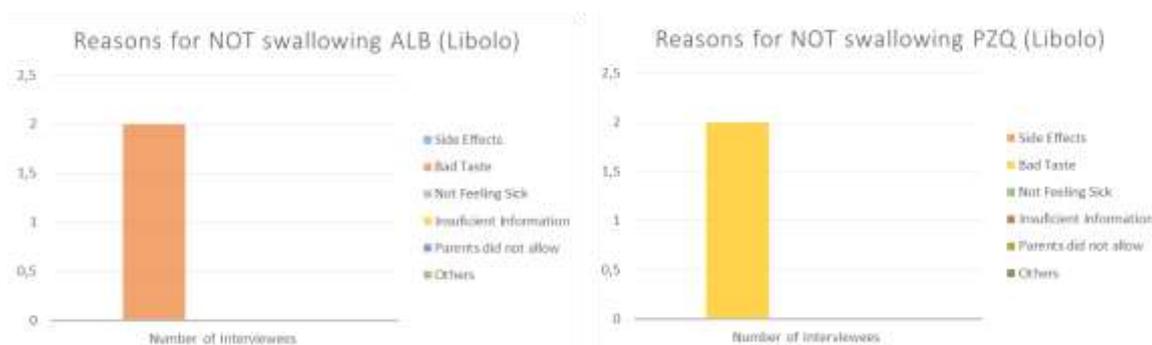


In Libolo the survey coverage was slightly better than Kibala, 64% for ALB and 63% for PZQ (Appendix 5 & 6). The reasons pointed out by the SAC for not having swallowed the treatment although having received it, was only bad taste (ALB n=2, PZQ n=2).

The reasons for swallowing the treatment were, treatment of diseases (ALB n=622, PZQ n=625); fear of being sick (ALB n=551, PZQ n=555); valuable information provided by the teachers (ALB n=65, PZQ n=65); free treatment (ALB n=31, PZQ n=31); and others (ALB n=6, PZQ n=6).

Libolo Municipality					
Total Sample Size	1978	Female Sample Size	935	Male Sample Size	1043
Survey Coverage (ALB)	64%	Female Survey Coverage	59%	Male Survey Coverage	69%
Survey Coverage (PZQ)	63%		58%		67%

Table 6: Survey Coverage in Libolo



Graphic 12; 13: Reasons for not swallowing ALB and PZQ in Libolo



Graphic 14;15: Reasons for not swallowing ALB and PZQ in Libolo

7.3 Reported Coverage Validation



The CES can be compared to the reported coverage. If the two numbers are similar, the reported coverage can be considered as "validated". If both numbers are different, then there may be a problem with the reported coverage - e.g.: reporting mechanisms or faulty baseline data. However, the notion of "alike" versus "different" can be subjective. A more objective method is to calculate the two-sided 95% CI around the surveyed coverage and verify if the reported coverage falls within this confidence interval. This can be done automatically with resource to the Coverage Survey Analysis Tool developed by RTI and assessable in <https://analysis.linkssystem.org/>.

Coverage Survey Analysis for Kibala Municipality:

Proceeding with this analysis, the Kibala Survey Coverages were, 47.4% for ALB and 48.1% for PZQ. Utilising the coverage survey analysis tool, the lower and upper 95% CI range was calculated, providing a coverage range for ALB from 37.5% – 57.3%, and for PZQ from 38.3% – 57.9%. This means that the reported coverage which falls within this range can be considered to be accurate

Coverage Survey Analysis for Libolo Municipality:

Similarly, for Libolo the initial analysis of the survey coverage was of 64.4% for ALB and 64.8% for PZQ. Utilising the coverage survey analysis tool the lower and upper 95% CI range was calculated, providing a coverage range for ALB from 56.0% – 72.7%, and for PZQ from 56.4% – 73.2%. This means that the reported coverage which falls within this range can be considered to be accurate

Municipality	Albendazol Coverages				Praziquantel Coverages			
	Therapeutic Coverage- (DPE Baseline) %	Therapeutic Coverage- (CENSUS Baseline) %	Therapeutic Coverage- (School Data Baseline) %	Survey Coverage %	Therapeutic Coverage- (DPE Baseline) %	Therapeutic Coverage- (CENSUS Baseline) %	Therapeutic Coverage- (School Data Baseline) %	Survey Coverage %
Kibala	104	43	81	47	105	43	82	48
Libolo	89	43	78	64	89	43	78	63

Table 7: Therapeutic Coverages (DPS/CENSUS/Schools) for ALB and PZQ

Kibala Coverage Analysis Results				
Coverage Indicator	% Prevalence	Lower 95% CI	Upper 95% CI	Design Effect
Program Reach Coverage (ALB)	47.1	37.3	56.9	15.0
Surveyed Coverage (ALB)	47.4	37.5	57.3	15.3
Program Reach Coverage (PZQ)	47.9	38.1	57.6	15.0
Surveyed Coverage (PZQ)	48.1	38.3	57.9	15.0
Libolo Coverage Analysis Results				
Program Reach Coverage (ALB)	64.3	55.9	72.7	13.3
Surveyed Coverage (ALB)	64.4	56.0	72.7	13.3
Program Reach Coverage (PZQ)	62.8	53.6	72.0	15.9



Surveyed Coverage (PZQ)	64.8	56.4	73.2	13.5
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Table 8: Report validation (Lower / Upper 95%CI)



8. Results Discussion

8.1 Program Reach

For MDA planning the only geographic base data used for planning an MDA was the number and distribution of schools per village. Planning in this way always guaranteed a full geographic coverage, as all the schools geographically identified in Kwanza Sul would be reached by the MDA. Furthermore, through the sensitization/mobilization efforts of the provincial, municipal and traditional authorities together with the teachers, substantial non-enrolled children received the treatment (N>27,000). Taking these two indicators, it could be inferred that the rate of success of this MDAs was high.

However, the results reflected in the CES point to a different conclusion. In both municipalities the program reach found through the implementation of the CES was low. This leads to the need to clarify why this is the case given that according to the data collected during the MDA a geographic coverage of 100% was reached based on the DPE school distribution data.

Program Reach in Kibala Municipality:

In Kibala, of the 30 subunits surveyed, 20 had good accessibility, 1 was classified as average and 9 as bad. As for the presence of a school serving the location (Sub-Unit), 13 were found to be covered by a school whilst 17 were not. Regarding the presence of teachers, 26 were found to have a teaching entity of some sort, formal or informal teachers and 4 not covered by any kind of school. Concerning the distance from the surveyed location to the nearest school, 23 subunits were less than 5Km from the nearest school, 1 was between 5 and 10 km and 6 were above 10km (Appendix 7). Additionally, there are clear indications that most of the reported SAC who did not receive treatment in Kabala was mainly due to either not having a distributor during the time of the MDA or that they were not informed.

This can be illustrated through the following examples:

- Vila Alice parents did not allow the children to take the treatment.
- Mamo Verde- There is no school in the village and the nearest school is far from the village. Thus information about the MDA did not reach this village.
- Kikcole – there is no official school but exists a sort of school that is for informal teaching only. Also here, information did not reach the village as the school does not appear in DPE data base..
- Mumba – the school is far (+ 10km) and there are few children studying in this village and those studying are the ones who got access of the treatment.

Program Reach in Libolo Municipality:

In Libolo municipality the CES exposed a different and somewhat contradictory scenario. Considering accessibility, only 4 villages had good accesses, 20 average access and 6 were classified as bad. Furthermore, 23 subunits were served by schools of some sort whereas 7 were not. Of those, all the subunits with schools had teachers while the others did not have a teacher of any sort. Finally, when



considering distances, 24 subunits were less than 5km from the nearest school, 3 between 5 and 10 and 3 above 10km (Appendix 8). As found in Kibala, the main reasons for the SAC not receiving the treatment, were lack of distributor or information.

Additionally, some of the families did not allow their children to take the treatment due to lack of trust and understanding of the importance as they believed it was to poison their children. Some of the villages believed that the MDA was part of political activities which the communities were fearful of so children were told to hide or run away.

Conclusion / Specific Recommendation

The CES has been instrumental in illuminating some of the contradictions in baseline data to which MENTOR has been working to assess the coverage of MDAs. In both municipalities the CES clearly demonstrates that there are still substantial efforts to be made in order to reach all the target population with the MDA treatments. Contrary to what was believed, geographic coverage based on the distribution of schools (DPE) can never reach all school children in these Municipalities as not all villages are reached by schools. In both municipalities the program reach identified was low. This is not due to the strategic planning of the school based deworming itself but rather a problem with the base data. **As DPE school distribution data is shown to be inadequate as by relying solely on this, many areas without schools and/or with poor accessibility to it are neglected.**

Recommendations

- The geographic baseline exclusively based on the DPE school distribution data proved not to be sufficient as by doing so, many areas without schools and/or with poor accessibility to it are neglected. As such, when planning the MDAs it would be advisable to consider not only the DPE/school data but also the administration data such as the village geographic distribution;
- Informal schools should be taken into account. These are hard to identify as there are no clear or consistent records of these in the education authorities. Besides that, there are the informal teachers that go to the village occasionally. These informal teachers are simply members of the community who try to pass on the basic literacy and numeracy skills. When training the teachers at municipal level, efforts should be made to identify who are those informal entities and provide them with the means to treat the children under their guidance;
- Extra efforts should be made sensitizing the furthest more isolated areas. Ideally these issues could be overcome through introducing a mixed approach to the MDA incorporating elements of school based and community based campaigns (SBDW/CBDW) which would address many of these identified obstacles to reaching more children and reaching the recommended threshold for MDAs.

8.2 Survey Coverage

Of note that the CES by concept is a survey based on collinearity, meaning that the variable “swallowed treatment” is dependent on the variable “received treatment”. This means that if a child did not receive the treatment logically she/he did not swallow the treatment. Having said that, the fact that the survey

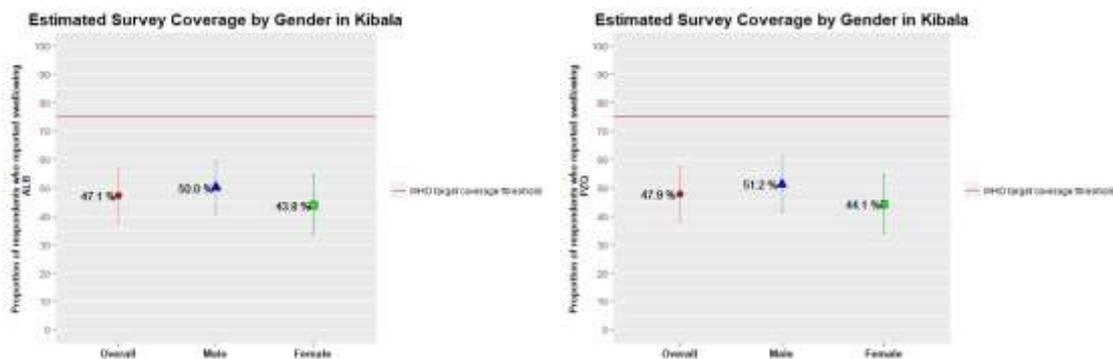


coverage for both treatments is equal to the program reach, implies that the SAC that indeed received the treatment actually swallowed it.

However, in contrast to the program reach results, the survey coverage showed very optimistic results. In both municipalities, the children reached by the MDA, took the tablets. This indicates that there was a clear effort from the teachers and other implementing entities to make sure that every child under their responsibility were treated.

Survey Coverage in Kibala Municipality

In Kibala, from the children that received the treatments both for ALB and PZQ, only 7 did not take: 4 because of bad taste, and 3 due to other unspecified reasons. This is marginal (<1%) considering that from the total sample size of 1782 interviewees 851 received ALB and 861 received PZQ. In relation to reasons that individuals took the tablets, two influencing factors stand out; firstly, good information provided by the teacher and secondly a motivation to treat diseases a factor which in itself can be related to the quality of information provided.

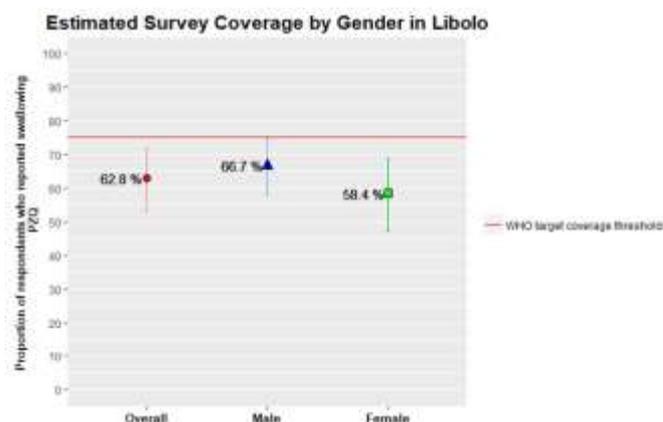
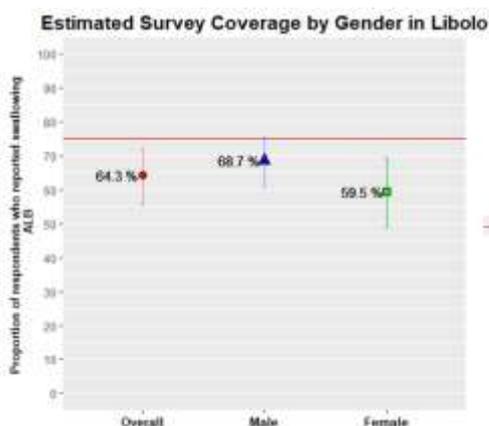


Graphic 16; 17: Estimated Survey Coverage by Gender in Kibala for ALB and PZQ

Survey Coverage in Libolo Municipality

There are many similarities in findings from Libolo municipality as compared to Kibala. From the SAC that received the treatment, 1276 for ALB and 1245 for PZQ, only 2 did not swallow it due to bad taste. However, the motivation for swallowing the tablets differ slightly as in this case respondents reported to have taken the tablets because of fear of being sick and treating diseases, for each treatment. Again, this highlights the success achieved by the implementers in communicating effective messages about the MDA.

On some occasions, parents were invited to participate during the distribution of the treatments. For example, the case of Libolo communal center all the parents came to the school and observed the treatments being given to their children.



Graphic 18; 19: Estimated Survey Coverage by Gender in Libolo for ALB and PZQ

Conclusion / Specific Recommendation

The results point to the fact that the main issue with the MDA is not the acceptability of the treatment to the population. It can be seen that the educators were very effective in motivating the population reached to take the tablets. In total, from over 2000 SAC that received the treatment only 9 did not swallow it, and all this thanks in large scale to the proper information and sensitization made by the teachers. The main aspect that needs to be addressed to improve the MDA is through increasing its reach to areas not covered by the current model of delivery.

8.3 MDA Report Validation

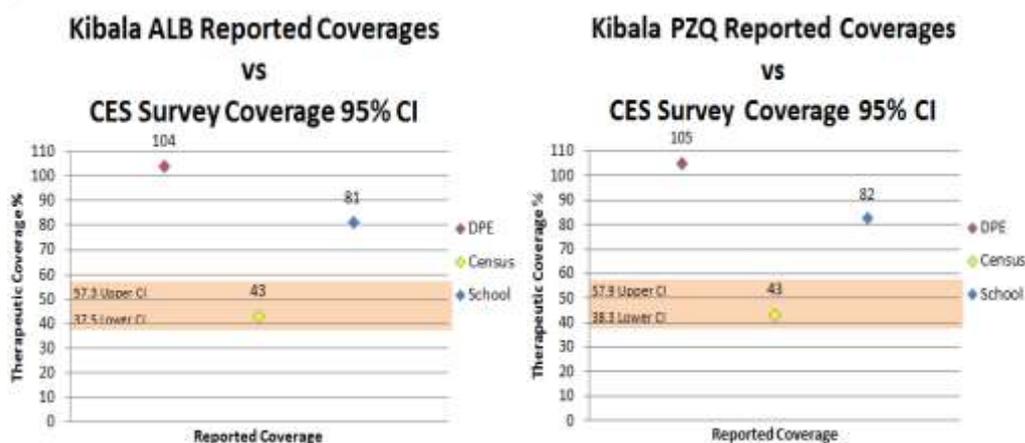
Throughout the history of MDA implementation in Angola with the support of the MENTOR Initiative, a concern has consistently recurred regarding the most accurate and reliable administrative population baseline which should be used to report the MDAs and calculate coverages. There have always been three options: data provided by the provincial departments of education; school data provided by each one of the schools, and the CENSUS figures (2014). There have been strengths and weaknesses in reliability of each of these as baseline. For example, considering the provincial education department, data comes from a reliable official source, directly involved in the implementation of the MDA. However, it was held that in some cases school data is slightly more reliable than the provincial education department because it is updated more often than the provincial data and is closer to the student. However, neither of these sources count non-enrolled children, being children who do not attend or are not covered by schools. The CENSUS data has also been questioned, with MENTOR experience pointing to both over and underestimates of populations in different provinces although it is a figure that accounts for all the SAC enrolled and non-enrolled. Furthermore, in practical terms, both the WHO reports and the drug procurement are based on the CENSUS figures. Taking to account the challenges presented by each choice of baseline data the pragmatic choice has been to report on all three baselines, considering that each one of those would act as controls to the others.

The CES, besides allowing for the validation of the reported coverages, comes as an invaluable tool that can assist in tackling the problematic baseline definition.



Report Validation in Kibala Municipality

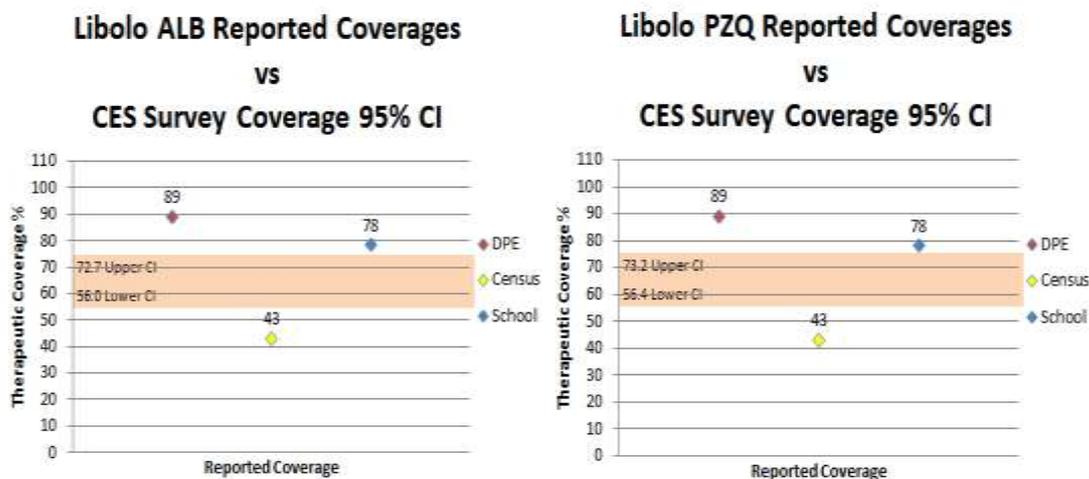
The reported coverages in Kibala were for PZQ of 105% (DPE), 43% (CENSUS) and 82% (Schools). As for ALB these were 104% (DPE); 43%(CENSUS) and 81%(Schools). When analyzing the survey coverage, we find that its 95% CI ranges between 37,5% and 57,3% for ALB and 38,3% and 57,9% for PZQ. Following the CES protocol, we see that the only reported coverage falling inside the 95% CI is the CENSUS thus validating its reporting. Since the other two controls do not fall under the 95%CI these are not validated.



Graphic 20; 21: Reported Coverages vs 95% CI

Report Validation in Libolo Municipality

Libolo constitutes a different scenario entirely as none of the reported coverages fall under the 95%CI of the survey coverage. For ALB the reported coverages were 89% (DPE), 43% (CENSUS) and 78% (Schools). For PZQ these were exactly the same. Taking into account the 95% CI of 56% to 72,7% for ALB and 56,4% to 73,2% for PZQ we fail to validate any of the reported coverages as none fall under the 95%CI.



Graphic 22; 23: Reported Coverages vs 95% CI in Libolo for ALB and PZQ



Conclusion / Specific Recommendation

Although only for Kibala the reported coverages based on the CENSUS were validated, it is to some extent evident that for this specific case the most reliable baseline data source is the CENSUS. This might be because it accounts for both enrolled and non-enrolled children, reached and not reached by the MDA. As such, in the future the CENSUS together with a proper village mapping should be considered when planning for future MDAs. All in addition to the common education data already provided.

9. Overall Evidence Based Recommendations

9.1 Teachers Municipal Training

- In Mucula village, the teachers were found not to follow the instructions in using the poles provided so they did not administer the treatment according the instructions. In future, the training of teachers/directors should be supervised even more tightly, furthermore more support materials such as flipcharts should be introduced to aid the trainings at municipal level;
- Teachers should follow the instructions on how to give the treatment according to the target age group. In some situations, there were records of teachers being found dispensing tablets to children over 15 years of age;
- Good control measures of the treatment should be upheld, as there were some isolated reports that some of the teachers had taken the treatments to their houses to give it to children under the age of 5. This activity may have potentially contributed to target beneficiaries missing out from the treatment.

9.2 MDA Communication and Mass-Media

- Additional measures should be taken to make sure that pre-MDA communication reaches the furthest and more isolated places planned to receive the treatment. Most of the SAC that did not receive the treatment was because of not hearing about the planned treatments because of insufficient communication in many cases due to lack of distribution points – e.g.: areas falling outside the geographical catchment area of the schools.

9.3 Planning and Logistics

- More transport capabilities for teachers are needed by the MDA implementing partners to be able to reach all the planned villages in the catchment area and for the treatment reaches all the children.
- Mapping out the villages should be as important as the assessment of the total number of schools and students in every location. Many villages were found not to have any schools either in the center nor close by, as such the SAC of those locations did not have any opportunity to receive



treatments. Geographic data should therefore be used complementary to education data in order to make sure that even the furthest locations without schools are reached.

- The CES points to a conclusion being that the schools in Kwanza Sul are not uniformly spread, leading to many areas not having schools nor teachers nearby. It is important that in this context a mixed approach that encompasses both school and community based approaches is considered.
- The population baselines provided by the provincial department of education and schools were found not to be representative. In fact, when considering the survey coverage analysis, the only therapeutic coverages found to be more accurate were the ones based on the CENSUS which either fell inside the lower and upper 95% or were closest.

9.4 Investing further in the evaluation tools

- Findings illuminated through this CES point to its value as a mechanism that would bring benefit by being implemented more systematically across as many MDAs as possible. This process has clearly and successfully proved its capabilities, as many problems that would otherwise have remained obscure have been clarified. This has provided vital information which can be used to inform strategic changes which have the potential to greatly increase the effectiveness of the MDA delivery in Angola supported by the END Fund. Those can now be carried on in order to improve the MDAs in the future.



10. Conclusion

In conclusion, it is of the utmost importance to reinforce the potentialities of tools such as the CES. With a sample size that spans for several thousands of SAC, geographically spread across the area of interest, invaluable conclusions could be withdrawn that have an incredible strategic value for defining future activities.

Moreover, it is worth noting the remarkable collaboration between all the implementing and support partners, from the survey team from ADPP through to the support/training staff from MENTOR and remote technical guidance and support provided by RTI.

It is hoped that the conclusions drawn in this study/report will serve as a driving force for the change and improvement of the MDAs in Kwanza Sul and in general throughout MENOTR Angola programs and beyond.



Appendix 1: Kwanza Sul SBDW 2017 Reported Coverages (PZQ)

Praziquantel							
Municip.	Baseline - CENSUS	Baseline School Data	Baseline-DPE	Total of Children Treated	Therapeutic Coverage-(DPE Baseline)	Therapeutic Coverage-(CENSUS Baseline)	Therapeutic Coverage-(School Data Baseline)
Amboim	74741	42138	39885	41964	105	56	100
Cassongue	44734	34470	35004	33774	96	75	98
Cela	69526	55743	49572	49171	99	71	88
Conda	28536	18256	15306	14252	93	50	78
Ebo	50291	28444	25362	29121	115	58	102
Kibala	43242	22756	17693	18568	105	43	82
Kilenda	29389	18818	17951	18166	101	62	97
Libolo	27080	14806	13083	11605	89	43	78
Mussende	24273	21928	18828	20273	108	84	92
Porto Amboim	38101	25493	26240	23906	91	63	94
Seles	55677	33940	31129	34345	110	62	101
Sumbe	85178	59744	49403	44948	91	53	75
Total	570768	376536	339456	340093	100	60	90



Appendix 2: Kwanza Sul SBDW 2017 Reported Coverages (ALB)

Albendazol							
Municip.	Baseline - CENSUS	Baseline School Data	Baseline-DPE	Total of Children Treated	Therapeutic Coverage-(DPE Baseline)	Therapeutic Coverage-(CENSUS Baseline)	Therapeutic Coverage-(School Data Baseline)
Amboim	74741	42138	39885	42187	106	56	100
Cassongue	44734	34470	35004	34398	98	77	100
Cela	69526	55743	49572	49822	101	72	89
Conda	28536	18256	15306	13614	89	48	75
Ebo	50291	28444	25362	29847	118	59	105
Kibala	43242	22756	17693	18466	104	43	81
Kilenda	29389	18818	17951	18168	101	62	97
Libolo	27080	14806	13083	11593	89	43	78
Mussende	24273	21928	18828	20445	109	84	93
Porto Amboim	38101	25493	26240	23480	89	62	92
Seles	55677	33940	31129	32250	104	58	95
Sumbe	85178	59744	49403	45858	93	54	77
Total	570768	376536	339456	340128	101	60	90



Appendix 3: Kibala (ALB) CES

Drug: **Albendazol**

Strata	Subunit Name	No. Females Interviewed	No. Males Interviewed	No. Females Offered Albendazol	No. Males Offered Albendazol	No. Females Swallowed Albendazol	No. Males Swallowed Albendazol
1	Marien Goabi A (Parte 2/3)	52	42	43	32	42	31
1	Marien Goabi B (Parte 2/2)	30	26	19	22	18	22
2	Cambango (Parte 2/3)	60	66	34	31	34	31
2	Kifangondo Miseria (Parte 2/2)	49	50	13	17	13	17
3	Kifangondo Palanca (Parte 1/2)	36	43	5	8	5	8
3	Cacungulo (Parte 2/2)	50	50	12	21	12	21
4	Cabezo	27	30	25	30	24	30
4	Cambumba Oeste	13	24	7	17	7	17
5	Kifangondo Bandeira (Parte 1/3)	29	30	12	17	12	17
5	Kifangondo B (Parte 2/3)	44	40	26	20	26	20
6	Kifangondo Zero (Parte 2/2)	37	44	24	28	24	28
6	Bondo Grandre	33	40	25	36	25	36
7	Mamão verde	13	19	1	1	1	1
7	Kitula Hanza	21	29	16	21	16	21
8	Mugango	22	29	14	19	14	19
8	Zemba	19	10	12	7	12	7
9	Quitula kiambole	17	18	2	8	2	8
9	Somuee (Parte 1/2)	46	43	4	11	4	11
10	Cassongue	19	20	10	15	10	15
10	Mbanza Ndala Cachibo	42	48	14	25	14	25
11	Kihote	35	35	0	0	0	0
11	Cavungi	12	18	5	6	5	6
12	Mumba	11	30	8	14	8	14
12	Mabulo 2	18	18	4	10	4	10
13	Luso	23	22	8	5	8	5
13	Santo Anjo	13	17	9	11	7	11
14	Vila Alice	10	27	10	23	10	23
14	Banza Lubuco	35	38	0	0	0	0
15	Hojeyateca	12	15	11	12	11	12
15	Banza Cariango	17	16	2	3	2	3
	Total Sample Size	1782	Female Sample Size	845	Male Sample Size	937	
	Programme Reach	47%	Female Programme Reach	44%	Male Programme Reach	50%	
	Survey Coverage	47%	Female Survey Coverage	44%	Male Survey Coverage	50%	



Appendix 4: Kibala (PZQ) CES

Drug: Praziquantel

Strata	Subunit Name	No. Females Interviewed	No. Males Interviewed	No. Females Offered Praziquantel	No. Males Offered Praziquantel	No. Females Swallowed Praziquantel	No. Males Swallowed Praziquantel
1	Marien Goabi A (Parte 2/3)	52	42	43	33	43	33
1	Marien Goabi B (Parte 2/2)	30	26	19	22	18	22
2	Cambango (Parte 2/3)	60	66	34	31	34	31
2	Kifangondo Miseria (Parte 2/2)	49	50	13	17	13	17
3	Kifangondo Palanca (Parte 1/2)	36	43	5	8	5	8
3	Cacungulo (Parte 2/2)	50	50	12	21	12	21
4	Cabezo	27	30	25	30	24	30
4	Cambumba Oeste	13	24	7	17	7	17
5	Kifangondo Bandeira (Parte 1/3)	29	30	12	17	12	17
5	Kifangondo B (Parte 2/3)	44	40	26	20	26	20
6	Kifangondo Zero (Parte 2/2)	37	44	24	28	24	28
6	Bondo Grandre	33	40	25	36	25	36
7	Mamão verde	13	19	1	1	1	1
7	Kitula Hanza	21	29	15	21	15	21
8	Mugango	22	29	14	19	14	19
8	Zemba	19	10	12	7	12	7
9	Quitula kiambole	17	18	2	8	2	8
9	Somuee (Parte 1/2)	46	43	4	11	4	11
10	Cassongue	19	20	10	15	10	15
10	Mbanza Ndala Cachibo	42	48	14	25	14	25
11	Kihote	35	35	0	0	0	0
11	Cavungi	12	18	5	6	5	6
12	Mumba	11	30	8	14	8	14
12	Mabulo 2	18	18	4	10	4	10
13	Luso	23	22	11	13	11	13
13	Santo Anjo	13	17	9	11	7	11
14	Vila Alice	10	27	10	23	10	23
14	Banza Lubuco	35	38	0	0	0	0
15	Hojeyateca	12	15	11	13	11	13
15	Banza Cariango	17	16	2	3	2	3
	Total Sample Size	1782	Female Sample Size	845	Male Sample Size	937	
	Programme Reach	48%	Female Programme Reach	45%	Male Programme Reach	51%	
	Survey Coverage	48%	Female Survey Coverage	44%	Male Survey Coverage	51%	



Appendix 5: Libolo (ALB) CES

Drug: **Albendazol**

Strata	Subunit Name	No. Females Interviewed	No. Males Interviewed	No. Females Offered Albendazol	No. Males Offered Albendazol	No. Females Swallowed Albendazol	No. Males Swallowed Albendazol
1	Caxica	19	24	17	19	17	20
1	Hengue	4	8	4	8	4	8
2	Tando	17	28	4	11	4	10
2	Catanda	32	50	21	36	20	36
3	Bimbi	28	28	9	15	9	15
3	Mussafo (2 de 3)	67	51	41	33	41	33
4	Candemba (1 de 3)	28	29	23	26	23	26
4	Candemba (3 de 3)	32	33	29	28	29	28
5	Banza Dambo (2 de 3)	54	57	43	53	43	53
5	Bairro Azul (1 de 2)	25	25	19	19	19	19
6	Cabota 1 (1 de 2)	44	52	25	32	25	32
6	Cabota 2 (1 de 2)	36	44	20	29	20	29
7	Cahomba (1 de 2)	15	23	6	12	6	12
7	Dala- Uso (1 de 2)	47	51	37	45	37	45
8	Capemba (2 de 2)	44	45	17	27	17	27
8	Cacula	52	46	22	21	22	21
9	Caxinga	55	60	16	31	16	31
9	Cassequel	52	61	39	38	39	38
10	Gulungo	33	34	5	12	5	12
10	Mucula	9	11	8	10	8	10
11	Pungo	11	11	1	5	1	5
11	Caxilo	8	6	6	6	6	6
12	Bingue Mussende + Kiteque	29	50	18	42	18	42
12	Catoto	32	42	21	38	21	38
13	Candemba	24	27	9	18	9	18
13	Lewa	33	31	25	24	25	24
14	Quipela	5	12	0	0	0	0
14	Samba Caringa	15	27	12	20	12	20
15	Quissongo	65	62	56	55	56	55
15	Cabuco + Kindemba	20	15	4	3	4	3
	Total Sample Size	1978	Female Sample Size	935	Male Sample Size	1043	
	Programme Reach	64%	Female Programme Reach	60%	Male Programme Reach	69%	
	Survey Coverage	64%	Female Survey Coverage	59%	Male Survey Coverage	69%	



Appendix 6: Libolo (PZQ) CES

Drug: **Praziquantel**

Strata	Subunit Name	No. Females Interviewed	No. Males Interviewed	No. Females Offered Praziquantel	No. Males Offered Praziquantel	No. Females Swallowed Praziquantel	No. Males Swallowed Praziquantel
1	Caxica	19	24	17	20	0	0
1	Hengue	4	8	4	8	4	8
2	Tando	17	28	4	11	4	10
2	Catanda	32	50	21	36	20	36
3	Bimbi	28	28	9	15	9	15
3	Mussafo (2 de 3)	67	51	41	33	41	33
4	Candemba (1 de 3)	28	29	23	26	23	26
4	Candemba (3 de 3)	32	33	29	28	29	28
5	Banza Dambo (2 de 3)	54	57	44	53	44	53
5	Bairro Azul (1 de 2)	25	25	19	19	19	19
6	Cabota 1 (1 de 2)	44	52	25	32	25	32
6	Cabota 2 (1 de 2)	36	44	20	29	20	29
7	Cahomba (1 de 2)	15	23	6	12	6	12
7	Dala- Uso (1 de 2)	47	51	38	45	38	45
8	Capemba (2 de 2)	44	45	20	27	20	27
8	Cacula	52	46	24	21	24	21
9	Caxinga	55	60	16	31	16	31
9	Cassequel	52	61	39	38	39	38
10	Gulungo	33	34	5	12	5	12
10	Mucula	9	11	8	10	8	10
11	Pungo	11	11	1	5	1	5
11	Caxilo	8	6	6	6	6	6
12	Bingue Mussende + Kiteque	29	50	18	42	18	42
12	Catoto	32	42	21	38	21	38
13	Candemba	24	27	9	18	9	18
13	Lewa	33	31	25	24	25	24
14	Quipela	5	12	0	0	0	0
14	Samba Caringa	15	27	12	20	12	20
15	Quissongo	65	62	56	55	56	55
15	Cabuco + Kindemba	20	15	4	3	4	3
Total Sample Size		1978	Female Sample Size	935	Male Sample Size	1043	
Programme Reach		65%	Female Programme Reach	60%	Male Programme Reach	69%	
Survey Coverage		63%	Female Survey Coverage	58%	Male Survey Coverage	67%	

Appendix 7: Field Assessment Kibala (Subjective to the Survey team assessment at field level)

Subunites	Survey Population participation (total, parcial, reduzido)	Accessibility (B;M;I)	School (P;N;I)	Teacher (P;N;I)	Distance to the nearest School (-5Km;5Km-10Km;+10km)	Survey Acceptability (B;M;I)
Bondo Grande	Parcial	good	Present	Present	-5km	Good
Mamão Verde	Parcial	bad	No	No	+10km	avarage
Kitula Hanza	Parcial	good	Present	Present	-5km	good
Kitula Kiambole	Parcial	good	No	Present	-5km	Good
Ndala Cachibo	Parcial	avarage	Present	Present	-5km	Good
Somue	Parcial	bad	No	No	+10km	Good
Cavunge	Reduced	bad	No	Absent	-5km	Good
Songue	Parcial	good	Absent	Absent	-5km	Good
Kicole	Parcial	Bad	Absent	Informal	-5km	Good
Mungango	Parcial	Good	Present	Present	-5km	Good
Zemba	Parcial	bad	Absent	Present	-5km	good
Vila Alice	Reduced	Bad	Absent	Present	5 a 10km	avarage
Mumba	Reduced	bad	Absent	Present	+10km	avarage
Mabulo 2	Parcial	Good	Absent	Present	+10km	good
Mbanza cariangó	Reduced	Good	Absent	Present	+10km	good
Silêncio	Parcial	good	Present	Present	-5km	good
Santo Anjo	Reduced	bad	Absent	Present	5 a 10 km	avarage
Maria Guabi A	Parcial	good	Present	Present	-5km	good
Maria Guabi B	Parcial	Good	Present	Present	-5km	Good
Cambango	Parcial	Good	Present	Present	-5km	Good
Kifangondo Miseria	Parcial	Good	Present	Present	-5km	good
Kigangondo Palanga	Parcial	Good	Absent	Present	-5km	avarage
Kifangondo Zero	Parcial	Good	Present	Present	-5km	good
Kacungulo	Parcial	Good	Present	Present	-5km	Good
Cabezo	Parcial	good	Present	Present	-5km	Good
Kambumba Oeste	Reduced	good	Absent	Present	-5km	Good
Kifangondo B	Parcial	bom	Absent	Present	-5km	Good
Kifangondo Bandeira	Parcial	good	Absent	Present	-5km	Good
Mbanza Lubuco	Parcial	bad	Absent	Informal	-5km	good
Kissengue	Parcial	good	Present	Present	-5km	good



Appendix 8: Field Assessment Libolo (Subjective to the Survey team assessment at field level)

Subunites	Survey Population participation (total, parcial, reduced)	Accessibility (B;M;I)	School (P;N;I)	Teacher (P;N;I)	Distance to the nearest School (-5Km;5Km-10Km;+10km)	Survey Acceptability (B;M;I)
Caxica	Parcial	avarage	Present	Present	-5Km	good
Hengue	Reduced	Bad	Present	Present	-5Km	good
Tando	Parcial	Bad	Absent	Absent	<10Km	good
Catanda	Total	avarage	Present	Present	-5Km	good
Bimbi	Total	avarage	Present	Present	5-10Km	good
Mussafo	Total	Good	Present	Present	-5Km	Good
Camdemba (1 de 3)	Parcial	avarage	Present	Present	-5Km	Good
Camdemba (2 de 3)	Parcial	avarage	Present	Present	-5Km	Good
Banza dos Dembos	Total	avarage	Present	Present	-5Km	Good
Bairro Azul	Parcial	avarage	Present	Present	-5Km	Good
Capopa 1	Total	avarage	Present	Present	-5Km	Good
Capopa 2	Parcial	avarage	Present	Present	-5Km	Good
Cahomba	Reduced	avarage	Absent	Absent	-5Km	Good
Dala Uzo	Total	avarage	Present	Present	-5Km	Good
Capemba	Total	avarage	Present	Present	-5Km	good
Cacula	Parcial	Good	Present	Present	-5Km	avarage
Caxinga	Parcial	Good	Present	Present	-5Km	avarage
Cassequel	Total	Good	Present	Present	-5Km	good
Gulungo	Total	avarage	Present	Present	-5Km	good
Pungo	Total	avarage	Present	Present	-5Km	good
Mucula	Total	avarage	Absent	Absent	5-10Km	good
Caxilo	Parcial	avarage	Present	Present	-5Km	avarage
Bingue+Kiteque	Parcial	avarage	Present	Present	-5Km	good
Catoto	Total	avarage	Absent	Absent	<10Km	avarage
Lewa	Total	avarage	Present	Present	-5Km	good
Quipela	Parcial	Bad	Ausent	Absent	<10Km	good
Samba Caringe	Total	avarage	Present	Present	-5Km	good
Quissongo	Total	Bad	Present	Present	-5Km	good
Cabuco+Kindemba	Parcial	Bad	Absent	Absent	5-10Km	good
Candemba	Parcial	Bad	Absent	Absent	-5kKm	good

Appendix 9: Pictures



