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Groundtruthing data collection and stakeholder engagement Report

Project title

Statistics from Space: Next-Generation Agriculture Production Information for Enhanced Monitoring of Food Security in Mozambique

Submitted by:

Centre of Excellence in Agri-Food Systems and Nutrition (CE-AFSN)

To:

International Food Policy Research Institute (IFPRI)

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SECRETARIA ADMINISTRATIVA
DA LOCALIDADE DE NAUELA-MUGEMA

Technical Team - available upon request

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Abbreviations

CE-AFSN – Centre of Excellence in Agr-Food Systems and Nutrition

DPP – Directorate of Planning and Policies

IFPRI – International Food Policy Research Institute

INE – National Institute of Statistic

ITC – Faculty of Geo-information Science and Earth Observation, University of twente

MADER – Ministry of Agriculture and Rural Development

MAFRA - Ministry of Agriculture, Food and Rural Affairs

SA – Sampling areas

SDAE – District Services of Economic Activities

SFS – Statistics from Space Project

SNU – Seoul National University

UEM – Eduardo Mondlane University

1. INTRODUCTION

The Statistics from Space project (SFS) seeks to support the Government of Mozambique to produce and disseminate accurate crop production statistical data leveraging satellite remote-sensing data and artificial intelligence augmented analytics. The project, funded by the Government of the Republic of Korea (Ministry of Agriculture, Food and Rural Affairs; MAFRA), aims to provide the Mozambican Ministry of Agriculture and Rural Development with production estimates of major crops across three provinces namely Gaza, Manica and Zambezia in a sufficiently timely manner so that all market participants can use the information for decision-making.

SFS is a three years project and has four main components: (1) Stakeholders engagement for impacts, led by International Food Policy Research Institute (IFPRI); (2) Enhanced area sampling frame led by ITC/University of Twente; (3) Digital collection of groundtruthing data, led by Centre of Excellence in Agri-Food Systems and Nutrition (CE-AFSN) at Eduardo Mondlane University; and (4) Analytical framework, led by Seoul National University (SNU).

This Report is part of component 3 of the SFS project and has an overall objective to depict all activities carried out during the data collection process in the several districts of Gaza, Manica and Zambezia provinces which are the target regions of the project. The report also includes the methodology approach used since the interaction and involvement of local stakeholders. At the last sections, the report includes the main findings from the data collection process, challenges and constraints, lessons learnt and the next steps.

2. METHODOLOGY

The assignment consisted of carrying out a groundtruthing data collection by conducting field observations in 93 sampling areas (SA) in Gaza, 100 SA in Manica and 108 SA in Zambezia provinces. These SA corresponds to units of 500m x 500m blocks and within each SA there are several segments of cultivated and non-cultivated areas. The data collection also aimed in conducting interviews to farmers who have plots in the selected SA. Three main phases were carried out in the assignment: (i) Field work plan and preparation (ii) Recruitment and training of enumerators; (iii) Field data collection in selected sampling areas (blocks of 500m x500m).

2.1. Field work plan and preparation

Before the implementation of the data collection process, IFPRI team validated the submitted fieldwork plan after discussions with the entire project team. The preparation activities included: (1)

Interaction with local stakeholders; (2) Data collection app development, (3) sample design, (4) selection and training of enumerators and supervisors, (5) Pre-testing of the data collection app, and (6) detailed plan of work and logistics preparation. This was not the actual chronological sequence of events, but rather major important steps taken prior to the data collection.

2.1.1 Interaction with local stakeholders

Prior to the fieldwork data collection, a set of activities was carried out in order to guarantee the involvement of the local stakeholders.

At the local level, the interactions involved the agricultural authorities at district level through the District Services of Economic Activities (SDAE) in all districts of Gaza, Manica and Zambezia province where the data collection would be conducted. At the first stage, interactions by phone calls with these institutions was the main channel to explain the objectives of the project and ask for their collaboration in advance during the data collection phase. In the second stage, personal interaction occurred at the ground during the data collection process. This allowed the field teams to have strong collaboration of the agricultural extension agents at the ground (Figure 1).

Figure 1. Field Teams in Zambezia at SDAE

Still at local level, coordination and interaction with community leaders was also crucial to have them on board during the data collection and explain them the importance and objectives of the assignment. The involvement of academia was also another group of strong stakeholders during the process. The team accounted with collaboration of other units from Eduardo Mondlane University (UEM) such as Faculty of Agronomy and Forestry Engineering (FAEF), Higher School of Business and Entrepreneur of Chibuto (ESNEC) and Higher School of Rural Development (ESUDER) in which their lecturers participated as supervisors during the training workshop and the fieldwork. The Higher Polytechnic

Education Institute of Manica (ISPM) and the University of Zambezia (UniZambeze) were also another key stakeholders in the group of academia by providing their undergraduate students to participate as enumerator's during the data collection process. Lecturers of ISPM and UniZambeze also participated in the assignment as field supervisors during the data collection.

2.1.2 Data collection tool development

The ITC team from University of Twente developed the *Collect Plus* data collection app for both farm field observations and farmers interviews.

The *Collect Plus* data collection tool aimed to collect different data such as production systems, types of cultivated crops, planted areas, planting dates, etc.

The tool was designed in a way that:

(i) enables collection of the most accurate information to meet data needs in a timely basis;

(ii) facilitates data collection, data processing and tabulation;

(iii) ensures economy in data collection, that is, avoid collection of any non-essential information; and

(iv) allows comprehensive and meaningful analysis and purposeful utilization of the collected data.

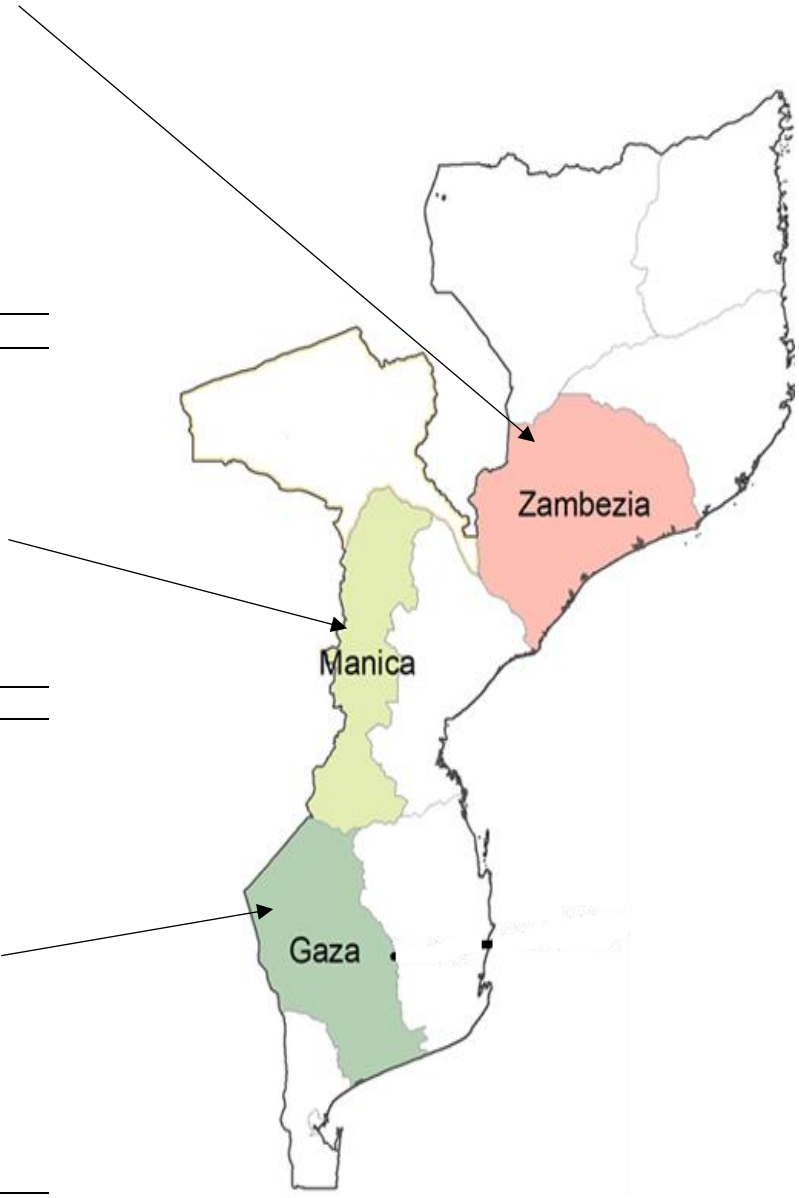
2.1.3 Sample Design

The ITC team of University of Twente sampled about 301 sampling areas of 500m x 500m across several district in Gaza, Manica and Zambezia Provinces, which constitutes the primary sample used for data collection. In addition, a list of replacement SA was provided as backup in cases of inaccessibility of some sites from the primary sample. Table 1 depicts the sample size distribution (number of SA) in each District within the three provinces.

Reaching the above targeted SA on the ground was accomplished using the *MAPS.ME app* with appropriate coordinates of each location. Furthermore, the locations were reached with strong support and collaboration of community leaders and the agricultural extension agents at district level. Therefore, meetings with district authorities were organized as well as with the community leaders to explain the objectives of the assignment and ask for their collaboration.

Table 1. Distribution of the Sampling Areas per district within the three provinces

Province	District	# of Sampling Areas
Zambezia	Milange	16
	Lugela	1
	Gurue	10
	Mocubela	6
	Ile	4
	Mocuba	7
	Maganja	2
	Alto Molocue	8
	Morrumbala	12
	Derre	2
	Molumbo	15
	Mulevala	6
	Namacura	3
	Namaroi	3
	Nicoadala	5
	Pebane	6
	Chinde	1
	Quelimane	1
	Sub-Total	108
Manica	BARUE	10
	Guro	13
	Tambara	1
	Gondola	10
	Manica	12
	Vanduzi	3
	Macate	4
	Mussorize	16
	Machaze	13
	Sussundenga	18
	Sub-Total	**100**
Gaza	Chokwe	12
	Chibuto	14
	Chicualacuala	5
	Chigubo	5
	Mapai	7
	Massangena	3
	Guija	7
	Mabalane	6
	Massingir	5
	Mandlakazi	5
	Xai-Xai	3
	Chongoene	2
	Limpopo	9
	Bilene	12
	Sub - Total	93
	Total	**301**



2.2 Enumerators' Recruitment and Training

The recruitment of enumerators took place in three provinces, namely in Maputo, Manica and Zambezia. Two weeks prior to the training of enumerators, a selection process of potential enumerators was carried out based on the evaluation of their curriculum and experience in conducting field data collection. The first group of potential enumerators were recruited in Maputo among undergraduate students from the Faculty of Agronomy and Forestry Engineering of Eduardo Mondlane University (FAEF). The second and third groups were selected respectively among students of Higher Polytechnic Institute of Manica (ISPM) and from University of Zambezia. Preference of enumerators from these institutions was given to ensure that enumerators could have background in agriculture to accomplish the task. Potential enumerators were composed by undergraduate students who have successfully completed the curricular part of their programs. The enumerator's recruitment process also encouraged the participation of female students in order to promote gender inclusiveness.

The enumerators training took place in three different locations. The first group was trained in Maputo at Faculty of Agronomy from 04th to 06th February and the second group of enumerators was trained in Chimoio city at Hotel Chimoio from 12th to 14th February. The last training was carried out at the headquarters of the Faculty of Agronomic Engineering and Forest of University of Zambezia in Mocuba city from 06th to 08th March. A total of 36 enumerators and 12 lecturers of UEM, ISPM and UniZambeze who would have the role of supervisors during the data collection participated in the training. It is important to mention that a training of trainer approach was used. First the ITC team conducted an online training to the CE-AFSN staff who also delivered the training at local level in the three provinces early mentioned. The training activities were facilitated by CE-AFNS team. (Figure 2).

(a) (b)

(c)

Figure 2. Enumerators training session in: (a) Manica, (b) Maputo, (c) Zambezia

The main objective of the enumerators' training was to familiarize the enumerators with the data collection app (collect plus) and its structure as well as with what was intended with each question so that information would be collected efficiently and accurately. Classroom training last about three days including one day of field work to test the data collection tool (figure 3). This allowed further refinement of the app in terms of errors, omissions, and the time taken to accomplish the task in each site.

(a) (b)

Figure 3. Two enumerators testing the field data collection app during the pre-test in (a) Maputo, (b)Zambezia

CE-AFSN facilitators led the enumerator's training in all provinces. Table 2, reports the enumerators training workshop agenda.

Table 2. Enumerators training agenda

Day 1		
Time	**Activity**	**Facilitator**
8:30 – 9:00	Participant's registration	Secretariat
9:00 – 9:05	Welcome Remarks	CE-AFSN – Lourenço
9:05 – 10:30	Introduction to collect plus app	
10:30– 10: 45	Break – Coffee	Secretariat
10:45 – 12:30	The field data collection app (part I)	CE-AFSN – Lourenço
12:30 – 13:30	Break – Lunch	Secretariat
13:30 – 15:30	The field data collection app (part II)	CE-AFSN – Lourenço
15:30 – 15:45	Coffee Break	Secretariat
15:45 – 17:00	The field data collection app (practice I)	CE-AFSN – Lourenço
17:00	End of Session	

Day 2		
Time	**Activity**	**Facilitator**
9:00 – 10:30	The field data collection app (practice II)	CE-AFSN – Lourenço
10:30 – 10: 45	Coffee Break	Secretariat
10:45 – 12:30	The farmers interview app	CE-AFSN – Lourenço
12:30 – 13:30	Lunch Break	Secretariat
13:30 – 15:00	The farmers interview app – practice I (interview between 2 enumerators, one acting as a farmer)	CE-AFSN – Lourenço
15:00 – 15:30	Coffee Break	Secretariat
15:30 – 17:00	The farmers interview app – practice II (enumerators switch their roles) The Maps.Me app Practice in the use Maps.Me app	CE-AFSN – Lourenço
17:00	End of Session	

Day 3		
Time	**Activity**	**Facilitator**
8:30 – 10:30	Field work • Pre - test of field data collection app • Pre – test of farmers interview tool	CE-AFSN – Lourenço
10:30 – 11: 00	Coffee Break	Secretariat
11:00 – 12:30	Discussion and feedback	CE-AFSN – Lourenço
12:30 – 13:30	Lunch	Secretariat
13:30 – 15:20	Selection of Enumerators Field work teams Logistics Field work plan Review of orthomosaic creation	CE-AFSN – Lourenço
15:20 – 15:30	Closing remarks	CE-AFSN – Lourenço
15:30	End of the training	

2.3 Workplan, equipment and logistics

Before data collection started, detailed work plans were prepared. For field guidance, routes were generated in map format, supported by tables of planned sites within the target districts visited per day. These plans allowed for a better organization and coordination of the field teams as the work progressed (annex 1).

The team secured office and computer equipment for survey management. Arrange for transportation and equipment related to farm field observations and interviews, ensuring proper maintenance and functionality of all vehicles and equipment including Smartphones, and prepare all field supplies required for field staff. Supervisors were equipped with a laptop and modem devices of internet access to facilitate contact between the teams and guarantee that the data collected would be uploaded in the server of ITC/University of Twente. Enumerators were also supplied with airtime credit to facilitate communication.

2.4 Data Collection

Data collection occurred in three different moments, i.e, from 14th February to 01st March in Manica, from 08th To 22nd March in Zambezia and 14th to 28th April in Gaza province. It was organized in a way that limited available resources were utilized efficiently without compromising quality to achieve the objective of the assignment. In addition to the field observations survey implemented in the selected SA, a questionnaire was also administered to farmers with plots in those SA in each district covered by the study. A set of four teams labeled, as “orange, green, black and blue” were created based on the spatial distribution of the target sites to be visited within the 3 provinces.

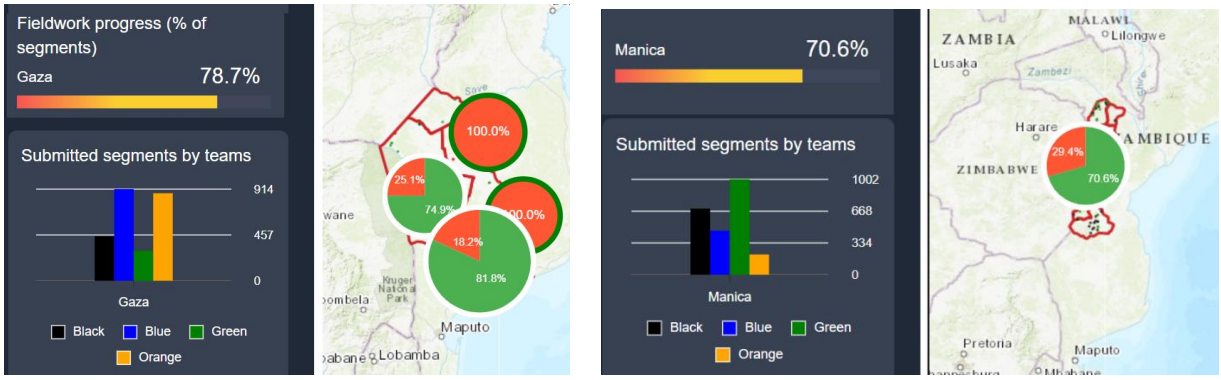
One supervisor, three enumerators and one driver composed each team. Supervisors were recruited among lecturers from different units of Eduardo Mondlane University with strong experience in fieldwork and holding at least a Master degree level. Lecturers from the Higher Polytechnic Institute of Manica (ISPM) and University of Zambezia were also part of the supervisors and they led the teams and were responsible for organizing the field-visits in terms of contacting local authorities and pre-site identifications.

The teams accounted with collaboration of the agricultural extension agents at district level and strong support from the community leaders at local level (targeted SA). The community leaders played an important role in providing authorization to the teams to get in the fields as well as by helping them to identify the target SA.

3. FINDINGS

The results shows that all teams were able to visit and collect data in most of the targeted SA specially in Gaza and Manica provinces. In terms of accomplishes Gaza province presented the highest percentage of segments visited with approximately 80% of the targeted segments followed by Manica and Zambezia provinces with 71% e 38%, respectively (Figure 4). The details on the specific SAs where the data collection was completed and not completed (as well as the reasons for not completion) are presented in Annex 2.

(a) (b)



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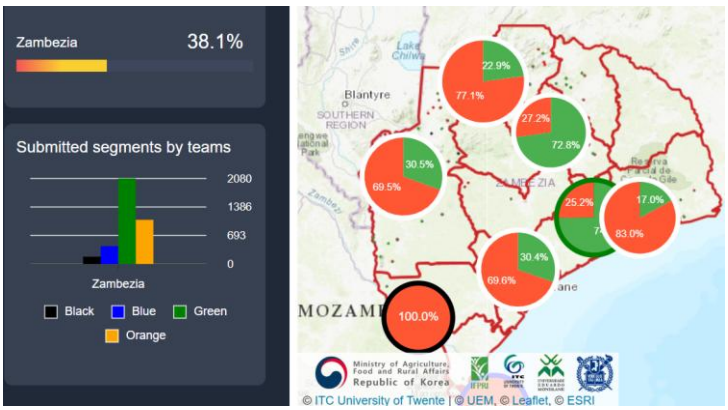
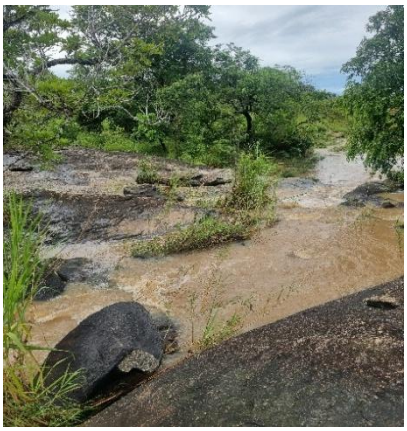


Figure 4. Number of visited segments per team in each province: (a) Gaza; (b) Manica; (c) Zambézia

During the data collection process, all teams faced different problems of inaccessibility of some sites due to various reasons. The main factors that led to low rate of accomplish specially in Zambezia province were the heavy rains caused by Jude Cyclone and the national political instability in Mozambique throughout the data collection period. These factors were also aggravated by the poor road conditions turning the access the SAs challenging and time consuming but also by the excessive bureaucracies to get the necessary clearance to conduct the surveys. For instance, all the SAs in Lioma (Gurué) were not visited due to the chaotic political conflict taking place in the area. The local

authorities (SDAE and Administration) advised the teams not to enter the area since even the Lioma Chief of Posto had abandoned the area due to population threats to his family. It was also explained that a military squad had moved to the area to control the situation that had escalated to horrific levels, including the brutal murder of the elder son of a traditional leader by the community. Secondly, the field teams did their best to reach the majority of the SAs, from which some of them were not accessible due to heavy rain and floods which was also observed to most of the replacement SAs (Figure 5 A - O). The combination of these challenges made it only possible to complete the work in 38% in Zambezia, although, in reality, the number of visited segments was more than 3000.

A



B

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Figure 5: Difficult access to the SAs due to rain - A-E; F-H in Ile district one of the SA was in the midst of a water canal with a concrete bridge over it and high density of reeds; I and J in Alto Molócuè, K-O in Gurué where two of the bridges were broken and access to the other side where the SAs were located was impossible.

The challenge of inaccessibility of sites was more severe for team green in Gaza given that most of the selected SA (main and replacement list) fall within the national park of Limpopo with expressive wild life which would put the team in risk to conduct field observations. For this reason, SA in such areas were not visited. However, in general data collection occurred in 85 out of 92 targeted sites corresponding to 92% of accomplishment. This represents an attrition rate of 8%, which is acceptable for field data collection under different challenges and constraints, especially in developing countries such as Mozambique.

3.1 Challenges and Constraints

- The data collection occurred during the rainy season which affected the accessibility of the SAs.
- Occurrence of Cyclone Jude that affected the North part of Mozambique including Zambezia province where data collection took place;
- Occurrence of floods in Gaza province;
- Political Instability;
- Although the teams were equipped with GPS tools, the lack of updated administrative and roads layers made the process tricky! The teams relied on extension agents experience and local guides knowledge of the area;
- SAs Areas within Natural Reserve were not visited specially in Gaza (National Park of Limpopo, Banhine, Massingir) and Manica (Park of Chimanimane).
- Some SA fall in non-agricultural areas (figure 6).
- Poor internet connection.
- Poor road conditions (figure 7).
- Destroyed bridges

Figure 6. Enumerators in a non-agricultural area

Figure 7. Example of poor road condition

3.2 Lessons learnt

- The data collection tool "*collect Plus app*" was friendly and easy to use.
- Coordination with SDAE was crucial for the success of the activities;
- Integration of extension agents made it easier to get acceptance from the farmers and local leaders. SDAEs were able to identify extension agents working in the areas where the plots are located;

- There was a general sense that the segments could have been merged into a small number. In many cases, there were many small segments representing the same type of land cover.

ANNEXES

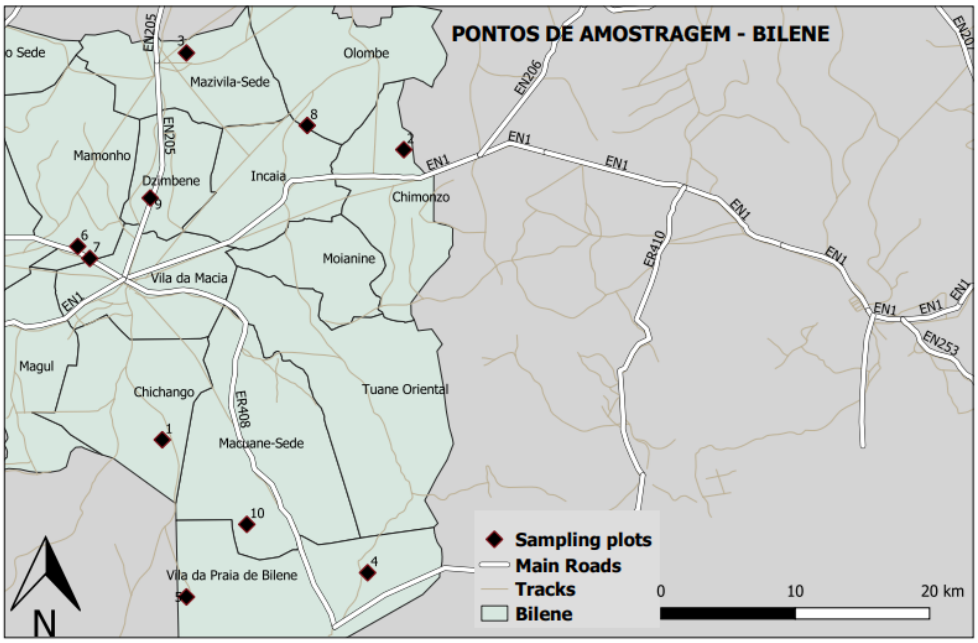
Annex 1. Detailed work plan and road maps

Table 3. Detailed workplan for Gaza province

Activity	November - 2024				December - 2024				January - 2025			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
1. Assessment of sites' accessibility												
2. Interaction with local stakeholder for engagement												
3. Recruitment of potential enumerators												
4. Identification of the venue for training and procurement.												
5. Delivery of enumerators training												
6. Pre-test of the app and use of drone												
7. Selection of enumerator and teams creation												
8. Logistics for field work implementation												
9. Data collection in Chockwe and Chibuto – Team 1												
10. Data collection in mapai, chigubo, massangena – Team 2												
11. Data collection in Massingir, Mabalane and Guija – team 3												
12. Data collection in bilene, xai xai, Limpopo, chongoene – team 4												

Table 4. Detailed workplan for Manica and Zambézia provinces

Activity	February – 2025				March - 2025				April - 2025			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
1. Assessment of sites' accessibility												
2. Interaction with local stakeholder for engagement												
3. Recruitment of potential enumerators												
4. Identification of the venue for training and procurement.												
5. Delivery of enumerators training												
6. Pre-test of the app and use of drone												
7. Selection of enumerator and teams creation												
8. Logistics for field work implementation												
9. Data collection in Manica Province												
10. Data collection in Zambézia Province												
11. Field work Report												


PONTOS DE AMOSTRAGEM - BILENE
Olombe
Mazivila-Sede
Mamonho
Dzimbene
Incaia
Chimonzo
Moianine
Vila da Macia
Magul
Chichango
Tuane Oriental
Macuane-Sede
Vila da Praia de Bilene
EN205
EN206
EN1
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ER408
EN253
Sampling plots
Main Roads
Tracks
Bilene
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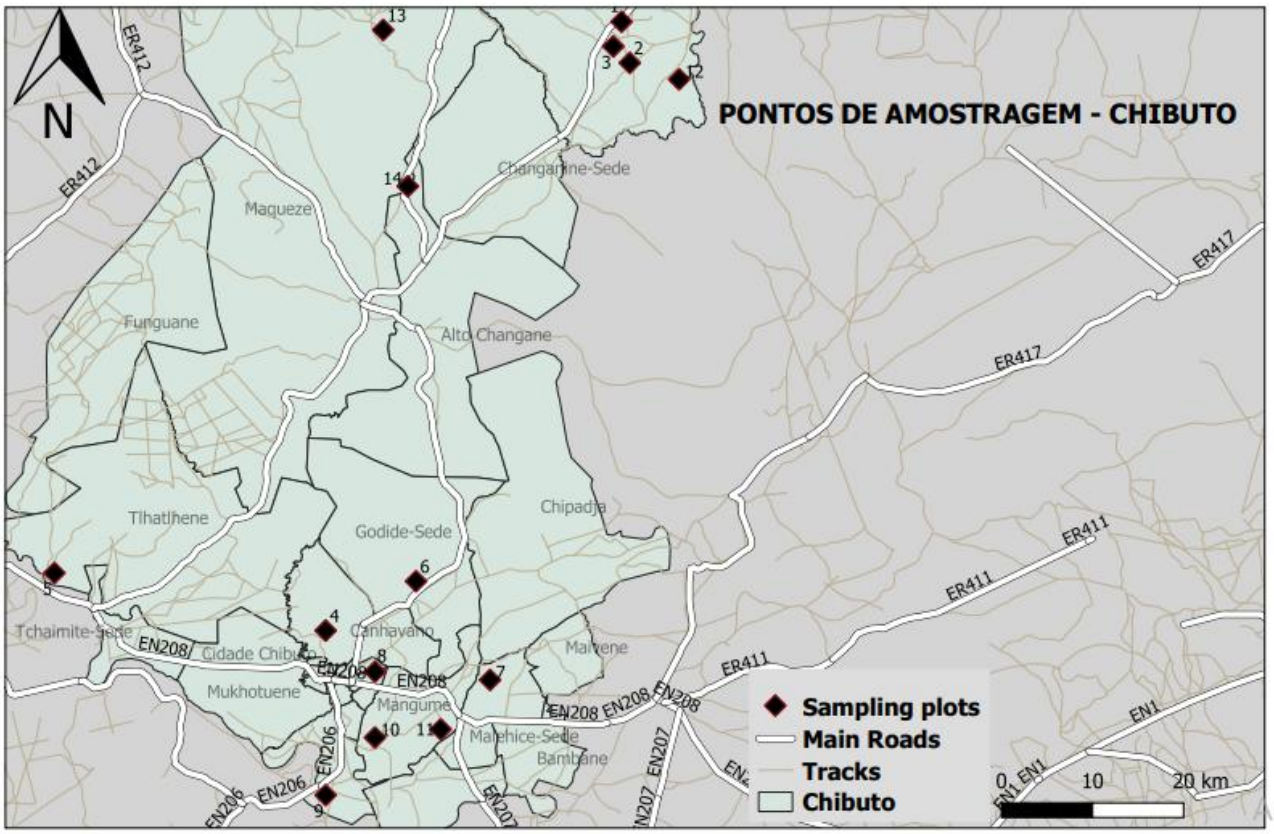
PONTOS DE AMOSTRAGEM - CHIBUTO
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Funguane
Alto Changane
Tlhatlhene
Godide-Sede
Chipadja
Tchaimite-Sede
Canhavano
Cidade Chibuto
Mukhotuene
Mangume
Malehice-Sede
Bambane
Marrene
ER412
ER417
ER411
EN208
EN206
EN207
EN1
Sampling plots
Main Roads
Tracks
Chibuto
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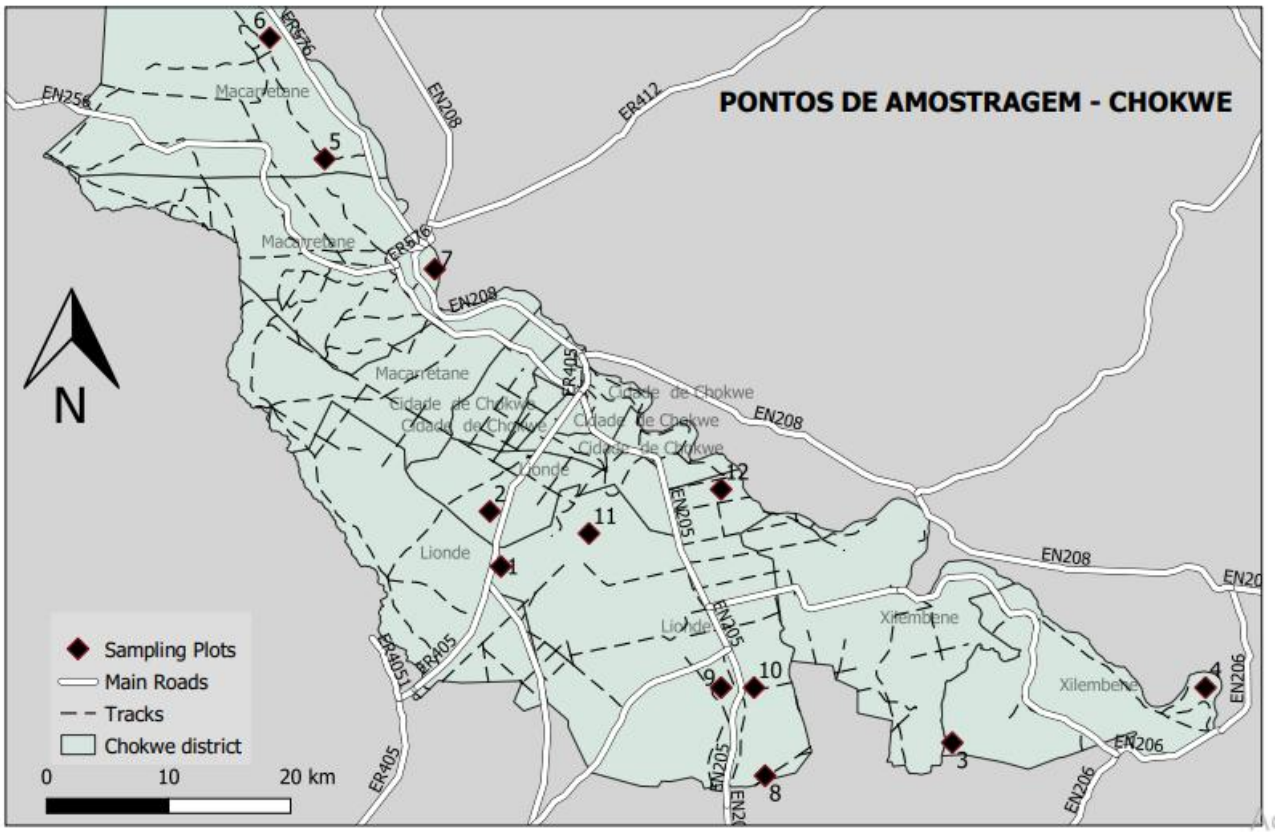
PONTOS DE AMOSTRAGEM - CHOKWE
N
Sampling Plots
Main Roads
Tracks
Chokwe district
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ER576
EN208
ER412
ER405
EN205
EN206
Macarretane
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Xilembene
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12

Annex 2. Reasons for non-accomplishment of some SA

District	Posto	Stratum	Plotid	Observation
Main Sampling Area				
Milange	Milange	common pedi	15466426	Completed
Milange	Milange	scarce hill	16006438	Non-completed – mountain zone
Milange	Milange	common pedi	16246384	Completed
Milange	Milange	early hill-pedi	16246474	Non-completed – mountain zone
Milange	Milange	common pedi	16326426	Non-completed – lack of accessibility due to river
Milange	Milange	common pedi	16366396	Non-completed – lack of accessibility due to river
Milange	Milange	broad valley	16366486	Non-completed – lack of accessibility due to river
Milange	Milange	common pedi	16386375	Completed
Milange	Milange	central pedi	16486378	Non-completed – lack of accessibility due to river
Milange	Milange	common pedi	16566437	Non-completed – lack of accessibility due to river
Milange	Milange	central pedi	16706360	Non-completed – lack of accessibility due to river
Milange	Milange	central pedi	16906357	Feito
Milange	Milange	late hill-pedi	16946378	Non-completed – lack of accessibility due to river - Replaced by 17046375 (Milange)
Milange	Molumbo	common pedi	16486519	Non-completed – lack of accessibility due to river
Milange	Molumbo	common pedi	16506504	Completed
Milange	Molumbo	common pedi	16546486	Non-Completed – Political Instability at local level
Milange	Molumbo	common pedi	16646534	Completed
Milange	Molumbo	common pedi	16706456	Non-Completed – Political Instability at local level
Milange	Molumbo	northwestern pedi	16706540	Completed
Milange	Molumbo	western alluvial	16766441	Non-Completed – Political Instability at local level
Milange	Molumbo	common pedi	16906522	Non-completed – poor road conditions – replaced by 17046531 (Molumbo)
Milange	Molumbo	common pedi	16966492	Non-Completed – Political Instability at local level
Milange	Molumbo	common pedi	17226516	Non-Completed – Political Instability at local level
Milange	Molumbo	common pedi	17246510	Non-completed – political instability – replaced by 16106417 (Milange)
Milange	Molumbo	common pedi	17286492	Non-completed – political instability – replaced by 17046531 (Molumbo)

Milange	Molumbo	common pedi	17546564	Non-completed – political instability – replaced by 17366576 (Molumbo)
Milange	Mongue	early hill-pedi	15346348	Non – completed – increase of the River flow Mola causing inaccessibility of the SA
Milange	Mongue	early hill-pedi	15506345	Non-completed – Floods caused by Jude Cyclone
Milange	Mongue	late hill-pedi	15786344	Non – completed – increase of the River flow Mola causing inaccessibility of the SA
Replacement Sampling Areas				
Milange	Milange	common pedi	16106417	Completed
Milange	Milange	common pedi	16206462	Non-Completed – Political Instability at local level
Milange	Milange	common pedi	16526405	Non-Completed – Political Instability at local level
Milange	Milange	central pedi	16626378	Non-Completed – Political Instability at local level
Milange	Milange	central pedi	16626387	Non-Completed – Political Instability at local level
Milange	Milange	late hill-pedi	17046375	Non-Completed – Political Instability at local level
Milange	Molumbo	common pedi	16826570	Non-completed – Floods caused by heavy rain
Milange	Molumbo	common pedi	17046531	Completed
Milange	Molumbo	common pedi	17366576	Completed
Milange	Mongue	common pedi	15546384	Non-completed – Floods caused by Jude Cyclone
Alto Molocue	Alto Molocue	scarce pedi	19506498	Non-completed (no access/rain)
Alto Molocue	Alto Molocue	scarce pedi	19626528	Completed
Alto Molocue	Alto Molocue	common pedi	19926498	Completed
Alto Molocue	Nauela	scarce hill-pedi	19286537	Non-completed (no access/rain)
Alto Molocue	Nauela	scarce pedi	19526534	Completed
Alto Molocue	Nauela	scarce hill-pedi	19526549	Non-completed (no access/rain)
Alto Molocue	Nauela	scarce pedi	19906561	Non-completed (no access/rain)
Alto Molocue	Nauela	scarce pedi	19966555	Non-completed (no access/rain)
Gurue	Gurue	early hill-pedi	18126582	Non-completed (no access/rain)
Gurue	Gurue	scarce hill-pedi	18746579	Completed
Gurue	Gurue	scarce hill-pedi	18986609	Non-completed (no access/rain)
Gurue	Lioma	early hill-pedi	17566606	Non-completed (political instability)
Gurue	Lioma	early pedi	17706603	Non-completed (political instability)

Gurue	Lioma	early pedi	17766600	Non-completed (political instability)
Gurue	Lioma	northwestern pedi	17766636	Non-completed (political instability)
Gurue	Lioma	early hill-pedi	18886618	Non-completed (political instability)
Gurue	Mepuagiua	central pedi	18486513	Completed
Gurue	Mepuagiua	common pedi	18666537	Completed
Gurue	Mepuagiua	early hill-pedi	19006588	Non-completed (no access/rain)
Gurue	Mepuagiua	scarce hill-pedi	19026582	Non-completed (no access/rain)
Ile	Ile	common pedi	19426423	Non-completed (no access/rain)
Ile	Ile	common pedi	19566423	Completed
Ile	Mulevala	scarce pedi	19646360	Completed
Ile	Mulevala	scarce pedi	19766426	Completed
Ile	Mulevala	common pedi	19786384	Completed
Ile	Mulevala	common pedi	19806423	Completed
Ile	Mulevala	scarce pedi	20026393	Completed
Ile	Mulevala	scarce pedi	20126372	Non-completed (no access/rain)
Ile	Mulevala	common pedi	20166369	Completed
Alto Molocue	Alto Molocue	scarce pedi	19586489	Non-completed (no access/rain)
Alto Molocue	Nauela	early hill-pedi	19366624	Non-completed (no access/rain)
Alto Molocue	Nauela	common pedi	19526612	Non-completed (no access/rain)
Alto Molocue	Nauela	early hill-pedi	19566582	Non-completed (no access/rain)
Alto Molocue	Nauela	scarce pedi	19946564	Non-completed (no access/rain)
Ile	Mulevala	scarce pedi	20086372	Completed

Annex 3. Photos

Photo 1: Unacceptable SA in Milange district.

Photo 2. Interview with a farmer in Mocuba District.

Photo 3: SDAE technician in Mocuba district introducing the team to community leader.

Photo 4: Enumerator pre-testing the app in Mocuba district.

Photo 6: Field team with extension agent of SDAE in Derre, district.

Photo 7. River Liciro

Photo 8. River Cochane

Photo 9. River Mola blocking access to one of the SA in Administrative Post of Mongue

Photo 10. Lack of accessibility to SA 16366396 in Chefunde

Photo 11. Mountain zone with low visibility in one of the SA in Milange district

Photo 12. Poor road condition