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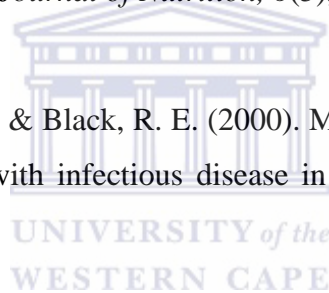
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11 APPENDICES

APPENDIX A: OpenEpi sample size calculation

OpenEpi sample size calculation for cases and controls

NB: This study refers to the sample calculated using method of Kelsey.

Sample Size for Unmatched Case-Control Study

For:

Two-sided confidence level(1-alpha)	95
Power(% chance of detecting)	80
Ratio of Controls to Cases	2
Hypothetical proportion of controls with exposure	40
Hypothetical proportion of cases with exposure:	61.54
Least extreme Odds Ratio to be detected:	2.40

	Kelsey	Fleiss	Fleiss with CC
Sample Size - Cases	64	63	70
Sample Size - Controls	127	125	139
Total sample size:	191	188	209

References

Kelsey et al., Methods in Observational Epidemiology 2nd Edition, Table 12-15

Fleiss, *Statistical Methods for Rates and Proportions*, formulas 3.18 & 3.19

CC = continuity correction

Results are rounded up to the nearest integer.

Print from the browser menu or select, copy, and paste to other programs.

Results from OpenEpi, Version 3, open source calculator—SSCC.



APPENDIX B: UWC-Ethical clearance letter



OFFICE OF THE DEAN DEPARTMENT OF RESEARCH DEVELOPMENT

07 April 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:
Ms A Piniel (Social Work)

Research Project: Factors contributing to severe acute malnutrition among the under five children in Francistown, Botswana.

Registration no: 14/10/54

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

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to action through knowledge

APPENDIX C: MOH-Botswana permission granting letter

TELEPHONE: 363 2766
FAX: 391 0647
TELEGRAMS: RABONGAKA
TELEX: 2818 CARE BD



Republic of Botswana

MINISTRY OF HEALTH
PRIVATE BAG 0038
GABORONE

REFERENCE NO: PPME 13/18/1 PS V (350)

20 May 2015

Health Research and Development Division

Notification of IRB Review: New application

Abigail Piniel
Private Bag X17
Bellville 7535
South Africa

Protocol Title:

**FACTORS CONTRIBUTING TO SEVERE
MALNUTRITION AMONG THE UNDER
FIVE CHILDREN IN FRANCISTOWN,
BOTSWANA REGISTRATION NUMBER**

HRU Approval Date: 19 May 2015
HRU Expiration Date: 18 May 2016
HRU Review Type: HRU reviewed
HRU Review Determination: Approved
Risk Determination: Minimal risk

Dear Sir/Madam

Thank you for submitting new application for the above referenced protocol. The permission is granted to conduct the study.

This permit does not however give you authority to collect data from the selected sites without prior approval from the management. Consent from the identified individuals should be obtained at all times.

The research should be conducted as outlined in the approved proposal. Any changes to the approved proposal must be submitted to the Health Research and Development Division in the Ministry of Health for consideration and approval.

Furthermore, you are requested to submit at least one hardcopy and an electronic copy of the report to the Health Research, Ministry of Health within 3 months of completion of the study.

Approval is for academic fulfillment only. Copies should also be submitted to all other relevant authorities.

Continuing Review

In order to continue work on this study (including data analysis) beyond the expiry date, submit a Continuing Review Form for Approval at least three (3) months prior to the protocol's expiration date. The Continuing Review Form can be obtained from the Health Research Division Office (HRDD), Office No. 7A.7 or Ministry of Health website: www.moh.gov.bw or can be requested via e-mail from Mr. Kgomoitso Motlhanka, e-mail address: kgmmotlhanka@gov.bw As a courtesy, the HRDD will send you a reminder email about eight (8) weeks before the lapse date, but failure to receive it does not affect your responsibility to submit a timely Continuing Report form

Amendments

During the approval period, if you propose any change to the protocol such as its funding source, recruiting materials, or consent documents, you must seek HRDC approval before implementing it. Please summarize the proposed change and the rationale for it in the amendment form available from the Health Research Division Office (HRDD), Office No. 7A 7 or Ministry of Health website: www.moh.gov.bw or can be requested via e-mail from Mr. Kgomoitso Motlhanka, e-mail address: kgmotlhanka@gov.bw . In addition submit three copies of an updated version of your original protocol application showing all proposed changes in bold or "track changes".

Reporting

Other events which must be reported promptly in writing to the HRDC include:

- Suspension or termination of the protocol by you or the grantor
- Unexpected problems involving risk to subjects or others
- Adverse events, including unanticipated or anticipated but severe physical harm to subjects.

If you have any questions please do not hesitate to contact Mr. P. Khulumani at pkhulumani@gov.bw. Tel +267-3914467 or Lemphi Moremi at lamoremi@gov.bw or Tel: +267-3632754. Thank you for your cooperation and your commitment to the protection of human subjects in research.

Yours faithfully



P. Khulumani
For Permanent Secretary



MINISTRY of HEALTH

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Values: Botho, Equity, Timeliness, Customer Focus, Teamwork, Accountability



APPENDIX D: NRH-permission granting letter

Telephone : +2672411000
Fax : +2672416706



Republic of Botswana

Nyangabgwe Hospital
Private Bag 127
Francistown

Ethical Review of Proposed Study: Factors Contributing To Severe Malnutrition among The Under Five Children In Francistown, Botswana

Name of Applicant: Abigail Piniel
Private Bag X17
Bellville 7535
South Africa


Name of Site: Nyangabgwe Referral Hospital
Decision: **Approved**
Date of Decision: 08 June 2015
Expiry Date: 18 May 2016
Risk Determination: Minimal risk

The Institutional Review Board (Research and Ethics Committee) For Human Subjects Research of Nyangabgwe Hospital is pleased to inform you that the research protocol was approved.

The study involves collection of data at Nyangabgwe Hospital; no more than minimal risk. It is a non therapeutic research and doesn't involve the use of devices for which there is limited knowledge.

The research should be conducted as outlined in the approved proposal. Any changes to the approved proposal must be submitted to the Hospital Research and Ethics Committee. In addition you are expected to submit at least one hard copy and an electronic copy of the report to the committee within three months of completion of the study.

Signed:


Dr. M. Katengua
Chairperson
Research and Ethics Committee)

Appendix E: GF-DHMT-permission granting letter

GREATER FRANCISTOWN DHMT

ALL CORRESPONDENCE TO
BE ADDRESSED TO DHMT
COORDINATOR



PRIVATE BAG F372
FRANCISTOWN BOTSWANA
TELEPHONE: 2413808
FAX: 2406178

Republic of Botswana

REF: GFHMT 1/14 III

DATE: 28th May 2015

TO: Abigail Piniel

Dear Sir/Madam

**PERMISSION TO CONDUCT RESEARCH STUDY WITH CARE TAKERS OF
CHILDREN UNDER THE AGE OF FIVE IN CLINIC AROUND FRANCISTOWN**

Reference is made to your request letter on the above mentioned subject.

This letter serves to inform you that your request to conduct the above mentioned research in the Greater Francistown health facilities has been acceded to.

Thank you.

Yours faithfully

A handwritten signature in black ink, appearing to be 'A.T. Kalonji', written over a horizontal line.

Dr. A.T. Kalonji
For Greater Francistown DHMT Coordinator

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APPENDIX F: Information sheet



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

Email: rswart@uwc.ac.za

INFORMATION SHEET

Project Title: Factors contributing to severe acute malnutrition among under-five children in Francistown, Botswana.

What is this study about?

This is a research project being conducted by Ms. Abigail Piniel at the University of the Western Cape. We are inviting you to participate in this research project because you meet the inclusion criteria for this study. The purpose of this research project is to establish the contributing factors to severe acute malnutrition among the under five children in the community of Francistown, Botswana.

What will I be asked to do if I agree to participate?

You will be asked to participate in a face-to-face structured interview which will be conducted in the hospital for the cases and at home for the controls. The interview will take about 20 minutes. The interview questions will try to obtain information on the circumstances of the child.

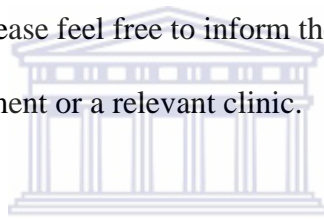
Would my participation in this study be kept confidential?

Your personal information will be kept private and confidential. To help protect your confidentiality, your name will not be included on the questionnaires and other collected data.

A coding system will be used on the questionnaires and other collected data. The researcher will be able to link your survey to your identity through the use of codes known by the researcher only. The information collected from you will be kept under lock and key cabinet and only be accessible to the researcher. A password protected computer will be used to enter your data. If we write a report or article about this research project, your identity will be protected to the maximum extent possible.

What are the risks of this research?

You may experience minimal risks such as the interview taking longer than anticipated and/or experience some discomfort from some of the questions during the interview process. Should you experience any discomfort please feel free to inform the researcher who will arrange for a referral to the counselling department or a relevant clinic.



What are the benefits of this research?

This research is not designed to help you personally, but the results may help the investigator learn more about the possible risk factors to severe acute malnutrition in children under the age of five in Francistown, Botswana. We hope that, in the future, other people might benefit from this study through improved understanding of identification of malnutrition in children and improved child nutritional interventions and policies.

Do I have to be in this research and may I stop at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

If you are negatively affected by participating in this study counselling will be provided to you at no cost.

What if I have questions?

This research is being conducted by Ms. Abigail Piniel in the Faculty of Community Health Sciences, department of Social Work at the University of the Western Cape. If you have any questions about the research study itself, please contact the researcher:

Ms. Abigail Piniel

University of the Western Cape

Private Bag X17

Bellville 7535, South Africa.

Cell number: + 27 732051430

Email: piniel_a@yahoo.com.



Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Programme: Professor Nicky Roman

University of the Western Cape

Department of Social Work

Private Bag X17

Bellville 7535, South Africa

Tel: +27219592970/2277

Cell: +27828776691

Email: nicoletteroman@gmail.com

Dean of the Faculty of Community Health Sciences: Professor José Frantz

University of the Western Cape

Private Bag X17

Bellville 7535, South Africa

Tel: +27219592631

Email: chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.



APPENDIX G: Consent form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

Email: rswart@uwc.ac.za

Consent form

Research topic: Factors contributing to severe acute malnutrition among the under five children in Francistown, Botswana.

Name of researcher: Abigail Piniel

Student number: 3417752

Position: Masters Student in Child and Family Studies, University of the Western Cape



	Tick
I confirm that I fully understand the explanation that the researcher gave me about the above study, and have had a chance to ask questions. I have read and understood the information sheet.	
I understand that the aim of the study is to investigate the factors contributing to malnutrition among the under five children in Francistown.	
I understand that the findings from this study could contribute to the development and improvement of children's nutritional interventions.	
The researcher regards the proposed study to have minimal risk to the participants and described the level of risk as low. The researcher also explained that I may receive counselling at no cost to myself, if I may experience any discomfort as a result of questions asked.	
I am fully aware that the information I will provide will remain confidential and that my personal details will not be made known.	
I understand that my participation is voluntary.	
I agree to take part in the above study.	
I disagree to take part in the above study.	

Name of participant

Signature

Date

Name of Researcher

Signature

Date



APPENDIX H: Study questionnaire



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

Email: rswart@uwc.ac.za

QUESTIONNAIRE

UNIVERSITY OF THE WESTERN CAPE

FACTORS CONTRIBUTING TO MALNUTRITION AMONG THE UNDER FIVE

CHILDREN IN FRANCISTOWN, BOTSWANA

Subject Identification (*circle appropriate subject*): **Case 1**

Control 2

I. HEALTH FACILITY NAME _____

II. CHILD INFORMATION

1. Birth registration number _____
2. Child Welfare clinic attended _____
3. Child Welfare clinic card number _____
4. Date of birth _____
5. Age (in months) _____
6. Place of birth _____
7. Place of residence _____
8. Period of residing in the place _____
9. Gender _____

- Male = 1
- Female = 2

10. Weight at birth _____

- Low birth weight (<2500grams) =1
- Normal birth weight (> or = 2500grams) =2

11. Date of admission _____

12. Diagnosis at admission _____

- Moderate malnutrition = 1
- Severe malnutrition = 2
- Control = 3

13. Has the child ever been breast-fed after birth? _____

- Yes (Breast-fed) = 1
- No (Never breast-fed) = 2
- Not sure =3

➤ Elaborate more if the answer is 2 or 3. _____

14. How long has the child been breastfed after birth? _____

- Still currently breastfeeding =1
- 0 to 3 months = 2
- 3 to 6 months =3
- 6 months to 1year = 4
- Over 1 year = 5
- Never breastfed = 6
- Not sure = 7

➤ Elaborate if the answer is 6 or 7. _____

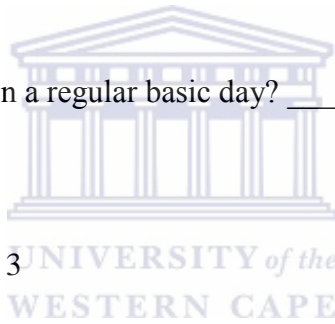
15. Was it exclusive breastfeeding or mixed feeding? _____

- Exclusive = 1
- Mixed = 2
- Exclusive for some time then mixed = 3
- Not sure = 4

16. If exclusive for some time then mixed, how long in months was the child exclusively breastfed? _____

17. How is the child's appetite on a regular basic day? _____

- Good = 1
- Satisfactory = 2
- Unsatisfactory = 3
- Not sure = 4



➤ Explain your answer. _____

18. How was the immunization status by the time of admission for malnutrition for the case or the corresponding date for the control? _____

- Up to date = 1
- Not up to date = 2
- Not sure = 3

19. Did the child ever had one of the following conditions within the 2 weeks before admission for malnutrition for the case or corresponding date for the control: (cough, diarrhoea, vomiting, fever, ear problem, or any disability)? _____

- Yes = 1
- No = 2
- Not sure = 3

20. How was the vitamin A supplementation at the time of admission for malnutrition for the case or the corresponding date for the control? _____

- Up to date = 1
- Not up to date = 2
- Not sure = 3

III. ANTHROPOMETRIC INFORMATION

1. How is the child growth chart? _____

- Up to date = 1
- Not up to date = 2
- Not sure = 3



2. How many months did the case attend the Child Welfare clinic in the last six months prior to admission or the corresponding date for the control? _____

➤ If the case has missed attendance in any month state the reason(s). _____

3. How was the weight-for height measurement for the case in at least three months prior to admission or corresponding date for the control?

- $\geq +2SD = 1$
- $\leq +2SD - 0SD = 2$
- $< 0SD - \geq 2SD = 3$
- $\leq -2SD - \geq -3SD = 4$

- $\leq -3SD = 5$
- Not sure = 5

IV.MOTHER OR CARE-GIVER INFORMATION

1. Who is the respondent to the child? _____

- Mother = 1
- Care-giver = 2

2. If the care-giver, what is your relationship to the child? _____

- Father = 1
- Stepparent = 2
- Grandparent = 3
- Sibling = 4
- Uncle / Aunt = 5
- Cousin = 6
- Other relative = 7
- Not related = 8



3. If care-giver, for how long have you been taking care of the child (in months)? _____

4. If care-giver, where is the mother? _____

- Alive and is at work = 1
- Deceased = 2
- Unknown = 3

5. If the mother is deceased, what was the cause of death?

- Disease = 1

- Accident = 2
- Unknown = 3
- Non applicable = 4

6. Did the mother attend at least 3 antenatal care consultations while she was pregnant with the study participant child? _____

- Yes (attended 3 or more antenatal care consultations) = 1
- No (did not attend or attended less than 3 antenatal care consultations) = 2
- Not sure = 3

7. If yes to item 6, what was the HIV status of the mother while she was pregnant with the study participant child? _____

- Positive = 1
- Negative = 2
- Unknown = 3



8. What is your age in years at last birthday? _____

- Young age (< 21 years) = 1
- Old age (> 21 years) = 2
- Unknown = 3

9. What is your current marital status? _____

- Living alone (single or married) = 1
- Living together (married or cohabiting) =2
- Separated or divorced = 3
- Widowed = 4

10. What is your education level? _____

- None (never been at school) = 1

- Primary (at least 1 year) = 2
- Secondary (at least 1 year) = 3
- Tertiary (at least 1 year) = 4

11. What is malnutrition? _____

- Knowledgeable (able to define) = 1
- Not knowledgeable (fails to define) = 2

12. What causes malnutrition in children? _____

- Knowledgeable (gives at least one cause) = 1
- Not knowledgeable (fails to give at least one cause) = 2

13. How can you prevent malnutrition in children? _____

- Knowledgeable (give at least one preventive measure) = 1
- Not knowledgeable (fails to give at least on preventive measure) = 2

14. Which of the following is the most appropriate about the current employment of the head of your household? _____

- Unemployed =1
- Sometimes gets temporary jobs = 2
- Regular job = 3
- Self- employed = 4
- Refused employment = 5

➤ Explain your answer. _____

15. Do you drink alcohol? _____

- Yes = 1
- No = 2

16. If yes to item 15, how often do you have a drink? _____

- Once or less in a month = 1
- 2-4 times in a month = 2
- 2-3 times per week = 3
- 4 or more times per week = 4
- Daily or almost daily = 5

17. If yes to item 15, how many drinks do you take on a typical occasion you drink? _____

- 1 or 2 = 1
- 3 or 4 = 2
- 5 or more = 3

➤ Elaborate on your answer. _____



18. Do you smoke? _____

- Yes = 1
- No = 2

19. If yes to item 18, how many cigarettes do you smoke in a typical day?

- 3 or 5 = 1
- 6 or 10 = 2
- More than 10 = 3
- Not sure = 4

20. Do you take any other habitual drugs?

- Yes = 1
- No = 2

21. If yes to item 20, specify which habitual drug you take. _____

V. HOUSEHOLD INFORMATION

1. How many people currently live in your household? _____

2. How many children under the age of five years of age are currently living in your household? _____

3. How would you describe your household food availability? _____

- Readily available = 1
- Satisfactory = 2
- Poor = 3



➤ Explain your answer. _____

4. How much money is spent on food on monthly basis? _____

- P 1 – P 500 = 1
- P 501 – P 1000 = 2
- P 1001 – P 2500 = 3
- Over P2500 = 4
- Not sure = 5
- Response not given = 6

5. Did the child go to bed hungry in the month prior today?

- Yes = 1
- No = 2

6. If yes, on how many days in that month did the child go hungry?

- < 5 = 1
- > 5 = 2
- Not sure = 3

7. What type of a house do you dwell in? _____

- Brick, concrete = 1
- Traditional mud = 2
- Plank wood = 3
- Other, specify = 4 _____



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8. Where do you get drinking water most of the time? _____

- Own tap = 1
- Communal tap = 2
- River, Dam = 3
- Borehole, Well = 4
- Other, specify = 5 _____

9. What type of toilet does the household have? _____

- Flush = 1
- Pit latrine = 2
- Bucket/ Pot = 3
- None = 4
- Other, specify = 5 _____

10. How do you dispose refuse? _____

- Removed by local authorities = 1
- Refuse dump (own/ communal) = 2
- No refuse disposal = 3
- Other, specify = 4 _____

VI.PRIMARY HEALTH CARE SERVICES

1. How would you describe the reception you get from the Child Welfare clinic attended by the child? _____

- Good = 1
- Satisfactory = 2
- Bad = 3
- Not sure = 3

➤ Explain your answer. _____



2. How often has the Child Welfare clinic attended by the child, been able to provide the necessary monthly food supplies? _____

- Always (provide every month) = 1
- Often (provide almost every month) = 2
- Not too often (provide at least once every two months) = 3
- Rarely (provide every 4 months or more) = 4
- Never (nothing provided) = 5
- Not sure = 6

3. If your answer for question 2 above is bullet 3, 4 or 5, what is the likely reason you are given for not getting regular monthly food supplies?

- The clinic has run out of food supplies = 1
- There are no supplies in all clinics across the country = 2

- Never get a reason = 3
- Not sure = 4

➤ Elaborate on your answer. _____

4. Is the child given immunizations on time as stipulated in the Child Welfare card? ____

- Yes (as per card) = 1
- No (sometimes later) = 2
- Not sure = 3

➤ When immunized later than scheduled time, are you given a reason for the delay?
 (Explain). _____

5. Does the clinic educate you on child care and child illness? _____

- Yes (every visit there is education) = 1
- No (never been educated) = 2
- Sometimes (educated on some visits) = 3
- Not sure = 4

6. Do you know of any existing home visits that are done by the primary health care providers
 in the Child Welfare clinic attendant by the child? _____

- Yes (I have heard about it) = 1
- No (it does not exist) = 2
- Not sure = 3

➤ Elaborate on your answer. _____

Thank you for your time.

DATE OF INTERVIEW _____

TIME OF INTERVIEW _____

INTERVIEWER'S NAME AND SURNAME _____



APPENDIX I: SMH-Serowe permission letter (pilot study)



MINISTRY OF HEALTH

SEKGOMA MEMORIAL HOSPITAL

10th June 2015

Sekgoma Memorial Hospital Institutional Review Board

Notification of IRB Review: New application

Ms Abigail Piniel

Protocol title: FACTORS CONTRIBUTING TO SEVERE ACUTE MALNUTRITION AMONG THE UNDER FIVE CHILDREN IN FRANCISTOWN, BOTSWANA.

Thank you for submitting your study protocol for review by Sekgoma Institutional Review Board.

Having met on the 10th June 2015, and after considering all the documents submitted being; the research proposal, letter of approval from Ministry of health headquarters, Sekgoma Memorial Hospital Institutional Review Board **approved** your request to undertake a **pilot study** of your research **with the above stated title** in the institution.

This approval is only valid for the period of your pilot study. In the event that you make changes to this proposal before the end of the pilot study you are advised to submit the proposed changes for consideration by the board.

Thank you

Dr George Nkweto Simuanza

Chairperson- the Institutional Review Board-Sekgoma Memorial Hospital

Hospital Superintendant- Sekgoma Memorial Hospital.

Appendix J: Shortage of food commodities notification-Francistown Health Facilities

FROM: Food Relief Services



TEL: 2412704

C.O. Moshabi/D.M.

FAX: 2412044

TO: All Health Facilities

Francistown

North East

REF: FRS/D3 I (150)

10th June 2015

RE: SHORTAGE OF FOOD COMMODITIES: HEALTH FACILITIES

This serves to notify you that the Department has experienced shortage of food commodities, tsabana, malutu and sunflower oil since March 2015 due to elapse of contract.

We were informed about three months interim for tsabana and malutu to rescue the situation but since then we did not receive anything.

We only received the update from Local Government Finance and Procurement after the follow ups that the tenders for Tsabana, Malufu and sunflower oil were submitted for adjudication to Ministry Tender Committee.

Thank you.

cc. District Commissioner-Francistown

Masunga