

DESA

BOTSWANA, REPUBLIC OF BOTSWANA

6 OCT - 28 DEC 1978

1981 POPULATION AND HOUSING CENSUS PROJECT PROPOSAL
DRAFTS

UNCLASSIFIED

VP/WG SEPT 2014

PLEASE RETAIN
ORIGINAL ORDER

UN ARCHIVES

| | |
|--------|-----------------|
| SERIES | <u>S-1906</u> |
| BOX | <u>5</u> |
| FILE | <u>9</u> |
| ACC. | <u>TE 311/1</u> |



Technical Assistance Recruitment Services
United Nations, New York 17, New York

Bureau européen de Recrutement pour l'Assistance
Technique, Palais des Nations, Genève, Suisse

28 December 1978

Request from the Government of the Republic of Botswana

JOB DESCRIPTION

BOT-241-8-PO1-01-X

TE 311/Bots

RECORDS CONTROL

JAN 25 1979

Post title: General Census Adviser

Duration: One year, with possibility of extension

Date required: September 1979

Duty station: Gaborone, with travel to other parts of the country

Duties: The Census Expert will assist the census authorities of the country in the planning and execution of population and housing census operations. He/she will:

1. Review census legislation and regulations;
2. Prepare and review census budget and calendar of operations;
3. Prepare questionnaires and other census forms, manuals and publicity material necessary for the census;
4. Plan and co-ordinate the cartographic work, with special attention to the delineation of enumeration areas appropriate for census and sampling requirements;
5. Prepare field operation plans;
6. Develop the census tabulation plan and classifications in consultation with users of census data;
7. Conduct the enumeration;
8. Train census personnel at all levels;
9. Process the results, working in close co-ordination with the technician in charge of processing, in order to reduce the errors and inconsistencies to a minimum;
10. Prepare and conduct an evaluation of the completeness of the enumeration;

Duties
(continued):

11. Publish the final results and a general outline of the census publication plan;
12. Submit to the United Nations (Department of Technical Co-operation for Development) and to the Government, any partial and/or final reports as may be required, within the period of services.

Qualifications:

University training in demography, sociology or statistics, administrative and field experience in the organization and execution of population censuses; experience in large-scale statistical operations in developing countries is highly desirable.

Language:

English

Background
information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician who will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

The United Nations would welcome the participation of suitably qualified male and female candidates in the technical co-operation programmes. The recipients of this job description, are, therefore, urged to make every effort to locate and nominate both male and female candidates for this vacancy.

NOMINATIONS SHOULD BE SUBMITTED BEFORE 29 FEBRUARY 1979



Technical Assistance Recruitment Services
United Nations, New York 17, New York

Bureau européen de Recrutement pour l'Assistance
Technique, Palais des Nations, Genève, Suisse

TE 3 11/1 Bots
3 January 1979

Request from the Government of the Republic of Botswana

JOB DESCRIPTION

BOT-241-8-P01-02-X

RECORDS CONTROL
JAN 25 1979

Post title: Cartographer

Duration: One year, with possibility of extension

Date required: September 1979

Duty station: Gaborone, with travel throughout the country

Duties: Under the general supervision of the United Nations Population Census Expert and in collaboration with the national cartographic experts, the expert will organize the cartographic work related to the population census. In particular, the cartographer will be responsible for the following duties:

1. Prepare an inventory of the available cartographic materials of the country;
2. Evaluate and up-date existing cartographic materials;
3. Advise on the taking and use of aerial photographs;
4. Develop methodological and instruction manuals for census cartographic work;
5. Establish the delineation of the country into enumeration areas and supervise the mapping of each such enumeration area for census and sampling activities;
6. Advise the Population Census Expert on technical issues that may arise from the cartographic operation;
7. Train local staff in various aspects of cartographic operations.
8. Submit to the United Nations (Department of Technical Co-operation for Development) and to the Government, any partial and/or final reports as may be required, within the period of services.

Qualifications:

University training in geography or cartography; experience in census cartography, the utilization of aerial photographs and the conversion of these photographs into maps.

Language:

English

Background
information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician who will be appointed as Census Officer to be the de facto head of the census Office to be created within the CSO. The Government Statistician will be the de jure head. An executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

The United Nations would welcome the participation of suitably qualified male and female candidates in the technical co-operation programmes. The recipients of this job description are, therefore, urged to make every effort to locate and nominate both male and female candidates for this vacancy.

NOMINATIONS SHOULD BE SUBMITTED BEFORE 7 MARCH 1979

UNITED NATIONS



NATIONS UNIES

INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

Pikim/Nordon

TO: Mr. K. Chhor, Chief
A: East, Southern Africa and Regional
Projects, Africa Branch, DTCD"

DATE: 1 December 1978

REFERENCE: STAT 423 BOTSWANA

THROUGH:
S/C DE:

FROM: L. A. W. Harding
DE: for S. A. Goldberg, Director
Statistical Office

Lane Dwyer

TE 311/1 BOTS

SUBJECT: BOT/78/P01: 1981 Population and housing census of Botswana
OBJET:

RECORDS CONTROL

DEC 13 1978

..... As promised in our memorandum of 31 October, we are sending
you herewith a draft job description covering the post of data
processing adviser provided for in the above-mentioned project.

cc: Lackner
Seltzer
Bentaleb
Booker

RECEIVED

DEC 5 1978

SECTION FOR SOUTHERN
AFRICA AND REGIONAL PROJECTS
AFRICA BRANCH
OTT

*cc: TARS with Request for Recruitment Action
Re: Rep (forwarding j-d.)*

Request from the Government of Botswana

DRAFT JOB DESCRIPTION

BOT-241-8-P01-03-X

Title: Census Data Processing Adviser

Duration: 18 Months

Date required: July 1980

Duty station: Gaborone, Botswana

Duties: Under the general supervision of the UN Population Census Expert and in collaboration with the national data processing staff assigned to the project, the expert will be responsible for planning and implementing the census data processing work of the 1981 Population and Housing Census of Botswana. In particular he will be responsible for the following duties:

1. Design and develop the system of computer programmes and related procedures for the editing, correction and tabulation of census data from both the pilot test and the full enumeration.
2. Ensure successful implementation of the computer programme system and procedures for census data processing.
3. Advise as necessary on all project matters related to data processing, including staff recruitment and training, organisation and methods of data processing work, procurement, installation and maintenance of supplies and equipment.

Qualifications: The expert should have thorough and proven experience in statistical data processing with strong experience in computer programming. He should be familiar with use of software packages for statistical data processing. Familiarity with use of modern small computer equipment is highly desirable.

Language: English

Background
information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

The choice of computer equipment to be used for the census remains to be made but it is possible that a new small computer offering RPG-2 and/or COBOL programming language may be procured for the project.

ORIGINAL DIRECTOR

Drafted by: R. Gordon/sk

cc. Ms. Robinson, Stat. Off.
Mr. Lackner, Stat. Off.

TE 311/1 BOTS

12 December 1978

RECORDS CONTROL

DEC 13 1978

Dear Mr. Svennevik,

Reference: BOT/78/P01 - 1981 Population and Housing Census of Botswana

..... Referring to the above-mentioned project, I am attaching a job description for the post of data processing adviser.

m I would appreciate your submitting this job description to the Government for its approval.

Yours sincerely,

Eugene Pika
Officer-in-Charge
Section for East, Southern Africa
and Regional Projects
Africa Branch
Department of Technical Co-operation
for Development

Mr. O. Svennevik
Resident Representative
UNDP
P.O. Box 54
Gaborone
Botswana

UNITED NATIONS -- NATIONS UNIES
OFFICE OF TECHNICAL CO-OPERATION

Date: 11 December 1978
File No: TE 311/1 Bots

ORIGINAL DIRECT

TO: Mr. M. Bentaleb,
Recruitment Officer, TARS

FROM: Richard Gordon, Programme Management Officer
Section for East, Southern Africa and Regional Projects
Africa Branch, DTCD

SUBJECT: Request for Recruitment Action

RECORDS CONTROL

DEC 13 1978

Expert Post Code: 30T-241-8-P01-03-X Duration of initial appointment: 18 months
Post Title: Census Data Processing Adviser

-
1. Attached is a copy of the draft job description for the above post. It has been cleared with the Substantive Office (the Project Manager if applicable).
 2. The Personnel Action (P.5)
() has been sent to TARS
(~~xx~~) will be sent to TARS _____
(state reason and estimated forwarding date)
 3. The OTC Programme Management Officer is: Richard Gordon - Rm.DC-1236 - Ext. 8370
 4. The Substantive Officer or Technical Adviser is: Mr. L.A.W. Harding,
Statistical Office
 5. It is suggested that the job description be given -
(~~xx~~) GENERAL DISTRIBUTION to all recruitment sources:
() Regular circulation () Urgent circulation () Revised j.d.
() LIMITED DISTRIBUTION ONLY because:
() Associate Expert is to be recruited _____
(name of senior supervising expert)
() Government has requested that recruitment be limited to _____
(country or region)
() NO DISTRIBUTION because
() Secretariat member is to be detailed _____
(name)
() Expert in the field is to be reassigned _____
(name)
() Requesting Government nominee is to be recruited _____
(name)

6. Remarks:

c.c. TARS Roster Unit, Room 3274
(Please include copy of draft job description)
Mr. Harding, Stat. Off.

Request from the Government of Botswana

DRAFT JOB DESCRIPTION

BOT-241-8-PO1-03-X

Title: Census Data Processing Adviser

Duration: 18 Months

Date required: July 1980

Duty station: Gaborone, Botswana

Duties: Under the general supervision of the UN Population Census Expert and in collaboration with the national data processing staff assigned to the project, the expert will be responsible for planning and implementing the census data processing work of the 1981 Population and Housing Census of Botswana. In particular he will be responsible for the following duties:

1. Design and develop the system of computer programmes and related procedures for the editing, correction and tabulation of census data from both the pilot test and the full enumeration.
2. Ensure successful implementation of the computer programme system and procedures for census data processing.
3. Advise as necessary on all project matters related to data processing, including staff recruitment and training, organisation and methods of data processing work, procurement, installation and maintenance of supplies and equipment.

Qualifications: The expert should have thorough and proven experience in statistical data processing with strong experience in computer programming. He should be familiar with use of software packages for statistical data processing. Familiarity with use of modern small computer equipment is highly desirable.

Language: English

Background
information:

The last population census of Botswana was held in 1971.

The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

The choice of computer equipment to be used for the census remains to be made but it is possible that a new small computer offering RPG-2 and/or COBOL programming language may be procured for the project.

~~ORIGINAL DIRECT~~
UNITED NATIONS - NATIONS UNIES
OFFICE OF TECHNICAL CO-OPERATION

Date: 28 November 1978

File No: TE 311/1 BOTS

TO: Mr. M. Bentaleb
Recruitment Officer, TARS

FROM: Richard Gordon, Programme Management Officer
Section for East, Southern Africa and Regional Projects
Africa Branch, TCD

SUBJECT: Request for Recruitment Action

RECORDS CONTROL

NOV 30 1978

Expert Post Code: PA-BOT-8-PO1-1101

Duration of initial appointment: One year,
with possibility of extension.

Post Title: General Census Adviser

....

1. Attached is a copy of the draft job description for the above post. It has been cleared with the Substantive Office (~~the Project Manager if applicable~~).
2. The Personnel Action (P.5)
() has been sent to TARS
(xx) will be sent to TARS _____
(state reason and estimated forwarding date)
3. The OTC Programme Management Officer is: Richard Gordon, Rm. DC-1236 - Est. 8370
4. The Substantive Officer or Technical Adviser is: Mr. L.A.W. Harding,
Statistical Office
5. It is suggested that the job description be given -
(xxx) GENERAL DISTRIBUTION to all recruitment sources:
() Regular circulation () Urgent circulation () Revised j.d.
() LIMITED DISTRIBUTION ONLY because:
() Associate Expert is to be recruited _____
(name of senior supervising expert)
() Government has requested that recruitment be limited to _____
(country or region)
() NO DISTRIBUTION because
() Secretariat member is to be detailed _____
(name)
() Expert in the field is to be reassigned _____
(name)
() Requesting Government nominee is to be recruited _____
(name)
6. Remarks:

c.c. TARS Roster Unit, Room 3274
(Please include copy of draft job description)
Mr. Harding, Stat. Off.



REQUEST FROM THE GOVERNMENT OF BOTSWANA

Draft Job Description

PA-BOT-8-PO1-1101

- Post title: General Census Adviser
- Duration: One year, with possibility of extension
- Date required: 1 September 1979
- Duty station: Gaborone, with travel to other parts of the country
- Duties: The Census Expert will assist the census authorities of the country in the planning and execution of population and housing census operations. As required the expert may be expected to advise on the following:
1. Reviewing census legislation and regulations;
 2. Preparing and reviewing census budget and calendar of operations;
 3. Preparation of questionnaires and other census forms, manuals and publicity material necessary for the census;
 4. Planning and co-ordinating of the cartographic work, with special attention to the delineation of enumeration areas appropriate for census and sampling requirements;
 5. Preparation of field operation plans;
 6. Development of the census tabulation plan and classifications in consultation with users of census data;
 7. Conduct of the enumeration;
 8. Training of census personnel at all levels;
 9. Processing of the results, working in close co-ordination with the technician in charge of processing, in order to reduce the errors and inconsistencies to a minimum;
 10. Preparation and conduct of an evaluation of the completeness of the enumeration; and
 11. Publication of the final results and a general outline of the census publication plan.

The expert is expected to prepare periodic reports and final progress reports and give his recommendations to be followed.

Qualifications: The expert must have:

University training in demography, sociology or statistics, and administrative and field experience in the organization and execution of population censuses; in addition, experience in large-scale statistical operations in developing countries is highly desirable.

/.....



- 2 -

Language: English

Background

Information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

ORIGINAL DIRECT

UNITED NATIONS - NATIONS UNIES
OFFICE OF TECHNICAL CO-OPERATION

Date: 28 November 1978

File No: TE 311/1 BOTS

TO: Mr. M. Bentaleb
Recruitment Officer, TARS

FROM: Richard Gordon, Programme Management Officer
Section for East, Southern Africa and Regional Projects

SUBJECT: Africa Branch, TCD
Request for Recruitment Action

RECORDS CONTROL

NOV 30 1978

Expert Post Code: PA-BOT-8-PO1-1102

Duration of initial appointment: One year,
with possibility of extension.

Post Title: Cartographer

1. Attached is a copy of the draft job description for the above post. It has been cleared with the Substantive Office (~~the Project Manager is applicable~~).

2. The Personnel Action (P.5)
() has been sent to TARS

(xx) will be sent to TARS

(state reason and estimated forwarding date)

3. The OTC Programme Management Officer is: Richard Gordon - Ext. 8370 Rm. DC-1236

4. The Substantive Officer or Technical Adviser is: Mr. L.A.W. Harding,
Statistical Office

5. It is suggested that the job description be given -

(xx) GENERAL DISTRIBUTION to all recruitment sources:

() Regular circulation () Urgent circulation () Revised j.d.

() LIMITED DISTRIBUTION ONLY because:

() Associate Expert is to be recruited

(name of senior supervising expert)

() Government has requested that recruitment be limited to

(country or region)

() NO DISTRIBUTION because

() Secretariat member is to be detailed

(name)

() Expert in the field is to be reassigned

(name)

() Requesting Government nominee is to be recruited

(name)

6. Remarks:

c.c. TARS Roster Unit, Room 3274

(Please include copy of draft job description)
Mr. Harding, Stat. Office



REQUEST FROM THE GOVERNMENT OF BOTSWANA

Draft Job DescriptionPA-BOT-8-PO1-1102

Post title: Cartographer

Duration: One year, with possibility of extension

Date required: 1 September 1979

Duty station: Gaborone, with travel throughout the country

Duties: Under the general supervision of the United Nations Population Census Expert and in collaboration with the national cartographic experts, the expert will organize the cartographic work related to the population census. In particular, he will be responsible for the following duties:

1. Prepare an inventory of the available cartographic materials of the country;
2. Evaluate and up-date existing cartographic materials;
3. Advise on the taking and use of aerial photographs;
4. Develop methodological and instruction manuals for census cartographic work;
5. Establish the delineation of the country into enumeration areas and supervise the mapping of each such enumeration area for census and sampling activities;
6. Advise the Population Census Expert on technical issues that may arise from the cartographic operation; and
7. Train local staff in various aspects of cartographic operations.

The expert is expected to prepare periodic and final progress reports giving his recommendations.

Qualifications: The expert should have:

University training in geography or cartography. Experience in census cartography, the utilization of aerial photographs and the conversion of these photographs into maps.

Language: English



- 2 -

Background

Information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

UNITED NATIONS



NATIONS UNIES

INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

TO: Mr. K. Chhor, Chief
A: East, Southern Africa and Regional
Projects, Africa Branch, DTCD

DATE: 22 November 1978

REFERENCE: STAT 423 BOTSWANA

THROUGH: ATTN: Mr. Gordon
S/C DE:

FROM: L. A. W. Harding
DE: for S. A. Goldberg, Director
Statistical Office

SUBJECT: BOT/78/POL: Candidates for population census vacancies
OBJET:

TE 311/1 BOTS

CONTINUED

NOV 30 1978

Further to our memorandum dated 31 October in which we conveyed our comments on the Government's request for assistance to conduct a population census we now recommend the following candidates for the population census and cartographer posts for which we provided job descriptions:

Population census adviser: Mr. O. Adegboyega (Nigeria)
Mr. R. Zollinger (Switzerland)

Cartographer: Mr. Roger Hare (UK)
Mr. U. Abayasinghe (India)
Mr. Tom Loesch (USA)

I assume you will be authorizing TARS to initiate recruitment in the near future so that the candidates may be contacted with a view to ascertaining interest and availability.

cc: Bentaleb
Gordon
Seltzer
Garcia-Frias/Maitra
Booker

RECEIVED

NOV 27 1978

SECTION FOR SOUTHERN
AFRICA AND REGIONAL PROJECTS
AFRICA BRANCH
OTC

cc: file

Drafted by: R. Gordon/sk

cc. Mr. Garcia-Frias, Stat. Off.
Ms. Robinson, " "

ORIGINAL DIRECT

TE 311/1 BOTS

28 November 1978

RECORDS CONTROL

NOV 29 1978

Dear Mr. Svennevik,

Reference: BOT/78/PO1 - 1981 Population and
Housing Census of Botswana

..... Please find attached three copies of the project document for the
above-mentioned project which we have signed and forwarded to UNFPA for
..... approval by our memorandum of 21 November 1978 (attached). We would
appreciate your submitting this project document to the Government for
its consideration and approval and returning a signed copy to us.

..... We attach also the draft job descriptions for the posts in General
Census Adviser and Cartographer, as well as the comments of the Population
..... Programmes and Projects Branch regarding the project document.

Yours truly,

Eugene Pikin
Officer-in-Charge
Section for East, Southern Africa
and Regional Projects
Africa Branch
Department of Technical Co-operation
for Development

Mr. O. Svennevik
Resident Representative
UNDP
P.O. Box 54
Gaborone
Botswana

Drafted by: R. Gordon/sk

ORIGINAL DIRECT

Cleared by: Statistical Off. (memo of 31 Octo. 78)

Popul. Div. (memo of 18 Octo. 78)

W. Butler, DAFO

K. Chhor, SESARP/AB

Dr. Nafis Sadik, Assistant Executive Director
and Chief, Programme Division, UNFPA

21 November 1978

TE 311/1 BOTS

Ernst Oppenheim, Officer-in-Charge
Africa Branch, Division of Operations, TCD

RECORDS CONTROL

NOV 29 1978

BOT/78/PO1 - 1981 Population and Housing Census of Botswana

1. I refer to your memorandum to us of 6 October 1978 requesting our comments on the above-mentioned project request.
2. The draft project request was prepared during the mission undertaken by Mr. de Graft-Johnson, Deputy Chief of ECA Statistics Division. However, some revisions were made in the budget originally prepared.
3. The project request has been well justified and the detailed plan of the institutional framework needed to build up an efficient census office and to get the back-stopping from other sources in the country for the successful execution of the census has been clearly described. The long-term and the immediate objectives of the project have been well set forth. The work plan in general has been realistically set out. The list of proposed topics follows the United Nations recommendations.
4. The request for the UNFPA inputs appears quite reasonable. The cost per person for the UNFPA contribution is estimated to be about 92 US cents. On the basis of the budget presented the cost per person for the UNFPA and the Government contributions combined is estimated as a little more than 2 US dollars. The combined average cost appears to be rather high. However, it should be noted that in a large country like Botswana which has a small population, the average cost is expected to be generally high. This is more so if the country has a difficult terrain and the census preparatory activities include necessary basic cartographic preparations. We would like to note that the project request does not clearly indicate how the inflationary increases have been taken into account in the Government contributions.
5. As noted earlier, the submitted budget differs from the original one prepared by Mr. de Graft-Johnson. The cost of engaging 5 cartographic assistants, 20 geographical enumerators, 2 senior typists and 15 drivers has now been charged to the UNFPA contribution. In addition, instead of 10 landcruisers and 10 sets of vehicle accessories, the census office will need 5 landcruisers and 10 Ford pick-ups with 15 sets of vehicle accessories. This has increased the

cc. Mr. Butler, DAFO - Mr. Lackner, Stat.
Mr. Svennevik (Pouch)
Mr. Perez-Ramirez, Pop.
Mr. Garcia-Frias, Stat. Off.
Ms. Robinson, " "
Mr. Harding, " "
Mr. Booker, ECA
Mr. De Graft-Johnson, ECA

.../...

cost by 40,000 US dollars. Considering the difficulties of transport and communications in the country we find these changes realistic in view of the cartographic work to be undertaken as well as for transporting personnel and documents. We, therefore, support the request for UNFPA assistance for engaging international and national project personnel as specified in the budget covering UNFPA contribution, expendable and non-expendable equipment, including the cost for their operations and maintenance, and reporting cost.

6. With regard to data processing, we believe that the United Nations data processing expert should arrive in post prior to the pilot census, to help ensure speedy processing of that data, and could depart when the tabulation is well underway even if not completed. Most computer work he would do is preparatory, consisting of programming and testing the edit and tabulation systems, so he should be in post well ahead of the enumeration and we changed the time table so that the data processing expert would arrive in June 1980, departing at mid-1982.

7. The list of non-expendable equipment does not include any computer or data entry equipment, but the budget provides \$65,000 in line 42-51 for data processing equipment. The text states that the Government computer centre would bear part of the costs of processing the census data at the Government computer centre. Since \$65,000 is almost sufficient to purchase a computer that could easily process the census, we believe that the planned mission of the ECA regional adviser on data processing should pay particular attention to both the equipment component and the expert post timing, revising the project request as necessary. If it is advisable to include computer equipment in the project, earliest possible delivery would be desirable and some additional training would be needed for counterpart staff.

..... 8. I would appreciate your early approval of the attached project document which we are also forwarding to the field for Government approval.

UNITED NATIONS



NATIONS UNIES

INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

TO: Mr. K. Chhor, Chief
A: East, Southern and Regional Section
Africa Branch, TCD

DATE: 31 October 1978

THROUGH:
S/C DE:

FROM: L. A. W. Harding
DE: for S. A. Goldberg, Director
Statistical Office

NOV 29 1978

REFERENCE: STAT 423 BOTSWANA

RECEIVED

SUBJECT: BOT/78/POL: 1981 Population and Housing Census of Botswana
OBJET:

SECTION FOR THE EAST SOUTHERN
AFRICA AND REGIONAL PROJECTS
AFRICA BRANCH
OTC

1. I am writing in connexion with the Draft Project Request for UNFPA assistance in the 1981 Population and Housing Census of Botswana. We have reviewed it with interest and our comments are given below.
2. The draft project request was prepared during the mission undertaken by Mr. de Graft-Johnson, Deputy Chief of ECA Statistics Division. However, some revisions were made in the budget originally prepared.
3. The project request has been well justified and the detailed plan of the institutional framework needed to build up an efficient census office and to get the back-stopping from other sources in the country for the successful execution of the census has been clearly described. The long-term and the immediate objectives of the project have been well set forth. The work plan in general has been realistically set out. The list of proposed topics follows the United Nations recommendations.
4. The request for the UNFPA inputs appears quite reasonable. The cost per person for the UNFPA contribution is estimated to be about 92 US cents. On the basis of the budget presented the cost per person for the UNFPA and the Government contributions combined is estimated as a little more than 2 US dollars. The combined average cost appears to be rather high. However, it should be noted that in a large country like Botswana which has a small population, the average cost is expected to be generally high. This is more so if the country has a difficult terrain and the census preparatory activities include necessary basic cartographic preparations. We would like to note that the project request does not clearly indicate how the inflationary increases have been taken into account in the Government contributions.
5. As noted earlier, the submitted budget differs from the original one prepared by Mr. de Graft-Johnson. The cost of engaging 5 cartographic assistants, 20 geographical enumerators, 2 senior typists and 15 drivers has now been charged to the UNFPA contribution. In addition, instead of 10 landcruisers and 10 sets of vehicle accessories, the census office will need 5 landcruisers and 10 Ford pick-ups with 15 sets of vehicle accessories. This has increased the cost by 40,000 US dollars. Considering the difficulties of transport and communications in the country we find these changes realistic in view of the cartographic work to be undertaken as well as for transporting personnel and documents. We, therefore, support the request for UNFPA assistance

/.....



- 2 -

for engaging international and national project personnel as specified in the budget covering UNFPA contribution, expendable and non-expendable equipment, including the cost for their operations and maintenance, and reporting cost.

6. With regard to data processing, we believe that the United Nations data processing expert should arrive in post prior to the pilot census, to help ensure speedy processing of that data, and could depart when the tabulation is well underway even if not completed. Most computer work he would do is preparatory, consisting of programming and testing the edit and tabulation systems, so he should be in post well ahead of the enumeration and we suggest that the time table be changed so that the data processing expert would arrive in June 1980, departing at mid-1982. A draft job description for this post will soon be sent to you.

7. The list of non-expendable equipment does not include any computer or data entry equipment, but the budget provides \$65,000 in line 42-51 for data processing equipment. The text states that the Government computer centre would bear part of the costs of processing the census data at the Government computer centre. Since \$65,000 is almost sufficient to purchase a computer that could easily process the census, we believe that the planned mission of the ECA regional adviser on data processing should pay particular attention to both the equipment component and the expert post timing, revising the project request as necessary. If it is advisable to include computer equipment in the project, earliest possible delivery would be desirable and some additional training would be needed for counterpart staff.

..... 8. Attached are job descriptions for population census and census cartography posts.

cc: Seltzer/Garcia-Frias/Maitra
Lackner
Booker



REQUEST FROM THE GOVERNMENT OF BOTSWANA

Draft Job Description

Post title: Population Census Expert

Duration: One year, with possibility of extension

Date required: 1 September 1979

Duty station: Gaborone, with travel to other parts of the country

Duties: The Census Expert will assist the census authorities of the country in the planning and execution of population and housing census operations. As required the expert may be expected to advise on the following:

1. Reviewing census legislation and regulations;
2. Preparing and reviewing census budget and calendar of operations;
3. Preparation of questionnaires and other census forms, manuals and publicity material necessary for the census;
4. Planning and co-ordinating of the cartographic work, with special attention to the delineation of enumeration areas appropriate for census and sampling requirements;
5. Preparation of field operation plans;
6. Development of the census tabulation plan and classifications in consultation with users of census data;
7. Conduct of the enumeration;
8. Training of census personnel at all levels;
9. Processing of the results, working in close co-ordination with the technician in charge of processing, in order to reduce the errors and inconsistencies to a minimum;
10. Preparation and conduct of an evaluation of the completeness of the enumeration; and
11. Publication of the final results and a general outline of the census publication plan.

The expert is expected to prepare periodic reports and final progress reports and give his recommendations to be followed.

Qualifications: The expert must have:

University training in demography, sociology or statistics, and administrative and field experience in the organization and execution of population censuses; in addition, experience in large-scale statistical operations in developing countries is highly desirable.

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- 2 -

Language: English

Background

Information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.



REQUEST FROM THE GOVERNMENT OF BOTSWANA

Draft Job Description

Post title: Expert in Census Cartography

Duration: One year, with possibility of extension

Date required: 1 September 1979

Duty station: Gaborone, with travel throughout the country

Duties: Under the general supervision of the United Nations Population Census Expert and in collaboration with the national cartographic experts, the expert will organize the cartographic work related to the population census. In particular, he will be responsible for the following duties:

1. Prepare an inventory of the available cartographic materials of the country;
2. Evaluate and up-date existing cartographic materials;
3. Advise on the taking and use of aerial photographs;
4. Develop methodological and instruction manuals for census cartographic work;
5. Establish the delineation of the country into enumeration areas and supervise the mapping of each such enumeration area for census and sampling activities;
6. Advise the Population Census Expert on technical issues that may arise from the cartographic operation; and
7. Train local staff in various aspects of cartographic operations.

The expert is expected to prepare periodic and final progress reports giving his recommendations.

Qualifications: The expert should have:

University training in geography or cartography. Experience in census cartography, the utilization of aerial photographs and the conversion of these photographs into maps.

Language: English



- 2 -

Background

Information:

The last population census of Botswana was held in 1971. The Government has planned according to the internationally recommended practice to hold the next population census in 1981. The Central Statistics Office which is headed by a Government Statistician is part of the Ministry of Finance and Development Planning. The census will be carried out by the CSO, a senior statistician of which will be appointed as Census Officer to be the de facto head of the Census Office to be created within the CSO. The Government Statistician will be the de jure head. An Executive Officer will be in charge of the administrative aspects of the census preparations. At a later stage district census offices will be set up.

TE 341/1 Botswana

Gordon

UNITED NATIONS



NATIONS UNIES

INTEROFFICE MEMORANDUM

MEMORANDUM INTERIEUR

TO: Mr. Kylin Chhor, Chief
A: East, Southern Africa and Regional
Projects Section, Division of Operations, TCD
ATTN: Mr. Richard Gordon, PMO
FROM: Gustavo Perez-Ramirez, Chief, Operations Section
DE: Population Programmes and Projects Branch, TCD
SUBJECT: BOT/78/PO1 - 1981 Population and Housing Census of Botswana
OBJET:

RECORDS CONTROL DATE: 18 October 1978
REFERENCE: SO 322 BOTSWANA
OCT 26 1978
RECEIVED
OCT 19 1978
SECTION FOR EAST SOUTHERN AFRICA AND REGIONAL PROJECTS
AFRICA BRANCH
OTC

1. We have studied the draft project request on the 1981 Population and Housing Census of Botswana and consider it a comprehensive and well prepared project proposal giving details of appropriate activities to be undertaken for proper implementation of the project.

2. We are particularly impressed with the adequate consideration given to the analysis of the census results and the provision made for the detailed assessment of the quality of the census data and publication of the analytical report.

3. We expect that the draft project proposal will be referred to the Statistical Office for comments on the project components which fall within their substantive responsibility. We have only minor remarks to make on the plans for publicity and analysis.

Publicity

4. We suggest that in addition to the use of the normal radio and the press media, as well as teaching sessions in schools to publicize the census and its objectives, talks should be given to villagers at village squares through the auspices of Village Heads. This is necessary since most of the villagers may not have access to radios or newspapers.

Analysis of census results

5. It is planned to request a UN Demographer/Analyst who will collaborate with the Demographers in the Central Statistics Office and the University of Botswana to conduct a detailed evaluation and analysis of the census results and prepare an analytical report for publication. In the process of carrying out the analysis, the national counterparts will be given on-the-job training. We fully endorse this proposition and consider the period of 18 months requested for the services of the UN Demographer/Analyst adequate for the work.

6. To provide the demographers who will conduct the analysis with guidelines on the type of data assessment and analysis as well as analytical report that could be attempted during the period, we attach a copy of a paper prepared for the ECA

Cc: Robinson
File
me (2)

Working Group on Recommendations for the 1980 Round of Population and Housing Censuses in Africa held at Addis Ababa, 10-14 July 1978. It should be noted that most of the recommendations made in this paper were endorsed after they were discussed at the Working Group Meeting.

7. On page 4 D. of the project document, it is mentioned that a demographer will be appointed to the Department of Sociology, University College of Botswana to undertake research on census and other data. The Government should be informed about the assistance provided by the United Nations to national universities to develop demographic research, teaching and training programmes. Should the Government request it, such assistance can be given to recruit a demographer for the Department of Sociology and to develop a comprehensive programme for teaching, training and research in demography at the university.

Equipment

8. To facilitate work on analysis of the census results, consideration should be given to providing, at least, one electronic desk computer and two electric desk calculators for the Central Statistics Office. There is no indication that these are available for use in connection with the project.

DRAFT PAPER FOR DISCUSSION AT THE
WORKING GROUP ON RECOMMENDATIONS FOR
THE 1980 ROUND OF POPULATION AND HOUSING
CENSUSES IN AFRICA, ECA, ADOM, AEADA

10-14 JULY 1978

Prepared by Charles Ejiogu
Population Affairs Officer
Population Division, New York

Demographic Evaluation and Analysis of Population Census Data *

* This paper was prepared to serve as a basis for discussion of Agenda item on Analysis of Census Results. It is expected that the paper will be revised and expanded, in the light of the discussion, to serve the purpose among others of the Training Workshop on the 1980 Round of Censuses.

WORKING GROUP ON RECOMMENDATIONS FOR THE 1980 ROUND OF POPULATION
AND HOUSING CENSUSES IN AFRICA, ECA, ADDIS ABABA

(10-14 July 1978)

Demographic evaluation and analysis of population census data

Introduction

1. In the recommendations for the 1970 population censuses, a census of population has been defined as "the process of collecting, compiling, evaluating, analysing and publishing demographic, economic and social data pertaining, at a specific time, to all persons in a country...".^{1/} This implies that a census of population cannot be regarded as complete until the results have been analysed and reported in a form making them readily available to the users.

2. The place of evaluation, analysis and utilisation of census results as integral parts of a census has been emphasized in almost all United Nations resolutions on population census operation.^{2/} It is important therefore to make adequate provision in the census plan for the analysis of census results. In fact, one of the major goals of any Population Census Programme is the provision through evaluation and analysis of the data, materials that can be utilised by Government in sound decision-making on questions of population policy and of planning for economic and social action.

3. However, despite the widely recognised importance of evaluation and analysis of census results as integral part of a complete census operation, provision was not made in the 1970 round of censuses of many African countries for the analysis of the census results. As a result of this omission, the demographic analysis of census data was attempted on a merely ad hoc basis when the need arose at a later stage after the data tabulation had been completed.

- 1/ U.N. Principles and Recommendations for the 1970 Population Censuses ST/STAT/SER M/44 Sales No. E. 67. XXXII.3 New York 1969.
- 2/ ECOSOC Resolution 8208 (XXXI) of April 1961.
G.A. Resolution 1710 (XVI) of 19 December 1961; ECOSOC Resolutions 1054B (XXXIX) of 16 July 1965, 1215 (XLII) of 1 June 1967, 1566 (L) of 10 May 1971 and 1903 (LVII) of 1 August 1974.

4. In this paper, proposals are made, based on the experiences of the 1970 census round, as to how a system of evaluation and analysis can be built from the outset into the processes of population census data collection, processing and tabulation. Some suggestions are also made as to programmes techniques of analysis that should be carried out within a minimum period after the completion of data processing and tabulation, in order to provide as rapidly as possible data needed for planning.

Objectives of evaluation and analysis

5. Since the data collected in most population censuses and demographic surveys are subject to different types of errors, biases and deficiencies, it is essential to detect and indicate their approximate magnitude through evaluation and analysis so that the users may be aware of the limits of accuracy of the data they are using. Indeed, in some serious cases, the quality of data produced has proved to be so poor that users and planners have been advised ~~not~~ to use the data ^{with caution} ~~with caution~~. If the quality of such data is not properly assessed through evaluation and analysis, their use in planning may be very misleading. The basic objectives of this exercise are to determine the level of accuracy of the data, indicate their limitations, isolate types of errors and identify their probable causes. Moreover, it is evident that demographic evaluation and analysis of the census data are the logical and scientific means not only to assess their quality, but also to digest the raw data for computing different demographic measures capable of application to planning for economic and social development, thus justifying the heavy investment made in census operations. The experience gained in this exercise will be utilised in future population censuses to improve on the quality of data collected.

Processes of evaluation and analysis

6. In measuring the quality of census data, it is essential to maintain a clear distinction between statistical evaluation of population census results and demographic evaluation and analysis of the census data. The evaluation of census results discussed in para. 145-147 of the Principles and Recommendations for the 1980 Population and Housing Census deals mainly with statistical methods that can be applied in evaluating the coverage and content errors; the post-enumeration survey as a process of evaluation and

other quality control studies directed to the evaluation of census operations.

7. On demographic analysis of the results, recommendations were made for "a comprehensive and coordinated programme of analytical studies, phased over a period of several years", to be drawn up "in order to ensure the fullest possible utilisation of census results ..." (para. 149-150). While this approach to analysis of census data leads to the ultimate goal of the process, the experience of many African censuses shows that such a goal is not easy to attain because of the lack of national resources to prepare a detailed programme and to conduct the analytical studies.

8. For this reason, and in order to serve the immediate purpose of establishing the quality of important demographic and socio-economic variables collected in the census, it has been advisable to prepare a programme of analysis which concentrates on broad areas of the major components of population change, and to carry out the evaluation and analysis of basic data relating to fertility, mortality, migration, economic characteristics and preparation of population projections. The work on the analysis, and the analytical report, could be completed in a period of one year, or possibly less, after the census data have been tabulated. This initial evaluation and analysis can be carried out by the demographers in the Census Office or with external assistance where it is needed. More detailed analytical studies, to be spread out over many years, can be planned and carried out with the assistance of specialists in research institutions and other organisations.

Methods of census evaluation and analysis

9. In order to conduct the type of evaluation and analysis described above it is essential to prepare a programme taking into consideration the quantity of data available from the census tabulations and from other sources, such as vital registration system, post-enumeration check, migration statistics and demographic surveys. Where a census was planned without a clear idea of the data analysis that would be required, the preparation of additional tabulations may be necessary. To be effective in this, the system of evaluation and analysis should be built into the process of data collection, editing and tabulation right from the start of the census planning and operation. Experience in the 1970 census shows that in many countries, no provision was made in the census plan for analysis of the results, and as a consequence, the data processing

and tabulation had to be carried out without consideration for subsequent evaluation and analysis. As a result, the programme of analysis was drawn up within the scope of tabulated data available and where additional tables were needed, there was considerable difficulty and delay in preparing them if indeed, it was possible at all.

10. Since one of the major objectives of evaluation and analysis of census results is to provide the Government with relevant data for planning, it is necessary to discuss with the planners in various departments their immediate needs for population data at the planning stage of the analysis programme so that the relevant data will be analysed to meet their requirements.

11. The programme of census analysis proposed below includes suggestions as to the expected techniques to be applied in the analysis of different population components, as well as the relevant reference material to serve as guidelines in the data evaluation and analysis. However, as mentioned above, the depth of analysis to be attempted depends very much on the quantity of available data so that the programme should be prepared within the scope of data available from the census operation and from other sources. Moreover, as the output of the analysis will be directed to the needs of planning and implementation of development programmes and policies, two UN publications will be particularly useful for the purpose of planning the work viz, "National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy Making" and "General Principles for National Programmes of Population Projections as an Aid to Development Planning".

Evaluation of age and sex data

12. In this section, the census coverage can be evaluated, as described in the Recommendations cited in para. 6 above, through comparison with past censuses, expected totals obtained from various estimates and the post enumeration check. The consistency of results of computation of intercensal growth rates would be compared with rates from other methods. The census count by age and sex can be compared with the age-sex composition of model populations with similar fertility, mortality and migration levels. Appropriate demographic techniques, such as those developed by the United Nations^{3/} could be applied to adjust and smoothe age-sex data for over-statement and irregularities,

^{3/} See reference in Appendix

e.g., methods for testing digital preference in age statement, age-grouping, age ratios and sex ratios, smoothing of data by such formulas as three and five-group moving averages, reverse survival methods and comparison of results.

13. For different types of tests for the appraisal of quality and completeness in age-sex data, reference should be made especially to methods described in UN Manual II, Chapters 1, 2 and 3; and to the Brass methods for adjusting and graduating irregular age distribution data. A suggested outline of analysis programme and the analytical report is presented in the Appendix. In applying these techniques, caution should be exercised to ensure that any method of adjustment of the sex-age data does not over-correct, as the particular sex-age composition in a country, even after corrections of inaccuracies of age reporting, arising from digital bias or ignorance about age, may be an inherent characteristic of the population, stemming, for example, from sex-age selective migration streams. The relevance of this observation to the population characteristics being analysed should be examined.

Fertility analysis

14. The analysis of fertility data could begin with the examination of past findings and other data on fertility arising from previous censuses, vital registration, hospital records, (where they are available), and surveys. This should be followed by the evaluation of the census age-sex data, data on children ever born and births in previous years through comparison with findings obtained from other sources, and the application of appropriate stable and quasi-stable population models. Fertility indices and urban-rural differentials, crude birth rates, age-specific birth rates, general fertility, and gross reproduction rates, total fertility rates and average size of completed family based on census and non-census data sources, should all be computed. Fertility levels from age-sex statistics and data on children ever born and births in recent years through the application of such techniques as reverse survival methods, Coale-Demeny methods based on cumulated age distribution, and Brass P_1/F_1 method based on P_1/P_2 and P_2/P_3 values; and Brass birth order technique for defective vital registration data should be obtained. Fertility patterns, trends and differentials over intercensal periods from past censuses and surveys should be analysed (See Appendix).

15. Analysis of fertility differentials among sub-groups on the basis of children ever born and trends by region, urban and rural social groups has produced data needed for planning purposes, and the Brass-type methods approach

and Lee Jay Cho's method for estimating age-specific birth rates are all useful techniques in this regard. For the purpose of the preliminary analysis proposed, it may be necessary to concentrate on estimation of current and past levels of fertility.

Mortality analysis

16. As in fertility analysis, the evaluation of mortality data can be conducted by first examining past findings and other data on mortality available from previous censuses, surveys and vital registration records where available. Then evaluate the quality of the census data on mortality by the computation of mortality rates -- various death and mortality rates, ratios and levels by age and sex. Estimate mortality levels and patterns from age-sex data using such techniques as Brass child survivorship methods, and other methods for estimating infant mortality.

17. The quality of mortality (and fertility) data can also be evaluated through the construction of life tables using survival ratios and models, comparison of enumerated age-sex groups with related models, comparison of observed age distribution with corresponding stable population distribution. In this analysis, investigate the appropriateness of West, North, General Standard or African Standard life table (after correction for migration).

18. In the past decade, various techniques have been developed for the estimation of fertility and mortality which may require additional census tables in order to apply them. For example, the use of the "own children" technique to estimate age-specific birth rate requires the matching of children enumerated in a household with their mothers (enumerated in the same household). Relationship codes of members of the household, which are the tools for matching, may not be present in the tabulation programme. In this connexion, it is essential to make adequate provision during data processing, to produce the required tables to ensure that adequate evaluation and analysis can be carried out on different population components. To do this effectively requires the involvement of a demographer/analyst at the data processing stage of the census work.

Migration analysis

19. It will be useful here to examine past data and findings on migration from censuses, surveys, external migration statistics collected from embarkation and disembarkation records, with breakdown by sex and age where available. Patterns of internal migration can be established through

cross tabulation of place of birth by place of enumeration, or place of usual residence by place of previous residence; and from intercensal changes in cohort size of population after adjustment for mortality. Life time migration can be estimated by place of birth statistics method and survival ratio technique; and estimate internal migration by province, age and sex can be made. If good estimates of age-specific mortality can be computed, and good national life tables constructed, the survival ratio technique would provide a good measure of net internal migration.

For external migration, either the survival ratio technique or the balancing equation (or population growth) method is probably the only suitable method if statistics on emigration are unreliable, as is the case in many African countries. Urbanisation can be measured through the analysis of growth of urban areas during the intercensal period, and by comparison of change in urbanisation over the period. To understand the changes which have occurred during the period, a constant definition of an urban place, preferably the internationally recommended size-place of 20,000 and over, should be used in the analysis.

Analysis of economic and social data

20. For the limited time available for the kind of work proposed in this paper, only the analysis of data on the economically active population and education may be attempted. The data from censuses on economically active population by age (15 years and over) and sex should be compared with findings from other sources, especially the post-enumeration and other surveys. The analysis of the economically active population should also be cross-tabulated by occupation. The analysis of education may involve the calculation of percentage of school age attending school, and of educational attainment by age and sex and the comparison of the trends over intercensal periods. The quality of data can be assessed by comparing with results from the PES and other records of school attendance and educational attainment in the country. Data on education from two censuses or more will allow computation of attrition rates and progression rates by cohort, which are often more instructive than simple stock analyses.

21. It may be desirable to perform separate analysis of urban and rural areas on economically active population. Such analysis, for example,

may highlight problems of urban unemployment or identify a swollen urban service sector. In the same way, the contribution of females in agricultural areas may deserve special treatment.

Population projections

22. To calculate new population projections starting from the census base year, there is need to carry out some background analysis to determine the most reasonable assumptions of fertility, mortality and migration trends. Projections up to a specified year, e.g. year 2000, can be made using a range of alternative assumptions of future trends. In consequence, exact specifications can be given only when fertility, mortality and migration analyses have been conducted. Since a great amount of calculation will be required, Frederic Shorter's computer programme for population projections^{4/} and the UN Population Division's computer programme^{5/}, will be very useful for this purpose. The Shorter computational methods are particularly recommended since they include more processes of data evaluation and adjustment and programmes for urban population and migration projections. It is advisable for the projections to be based on five-year age groups for the total population urban and rural population, rates of economic activity by age and sex, projections of school-age population and future school enrolment. Compare results with any previous projections and account for discrepancies.

Household projections

23. The importance of household projections for the assessment of future housing needs in a modernising country cannot be overemphasized. For this purpose, the tabulation of census data should include items on sex and marital status of heads of household and household composition to be used for household projections. The household projections will be based on assumptions of future trends in household units, size of households and headship rates by age, sex and marital status applicable to the country. Projections can be prepared for average size of households and headship rates by age, sex and marital status for a ten-year period or up to year 2,000.

4/ Frederic G. Shorter with David Pasta, Computational Methods for Population Projections, Population Council, 1974.

5/ U.N. Methods of Population Projections by age and sex, ESA/P/WP. 50, 29 June 1973.

Software package computer programmes for demographic evaluation and analysis

25. In order to facilitate the process of census data analysis and the production of findings within the shortest time possible after data processing, some computer programmes for preliminary analysis similar to the COCENT and CENT programmes for data processing can be used. A review of available software package programmes for population analysis shows that a considerable number of computer programmes have been developed for the analysis of simple demographic variables such as smoothing of age-sex data, fertility, mortality data analysis and population projections. In this connection, there are some computer programmes which the United Nations Population Division can make available for basic data analysis. However, since it would be very expensive and unnecessary to send all available package programmes at the same time to requesting countries, it would be more reasonable for the countries to become familiar with the programmes and their functions before requesting those they need for the analysis of their census or other demographic data. The Training Workshop on the 1980 Population Censuses could provide the opportunity to introduce courses on the available computer programmes for analysis.

26. a) The package programmes prepared by the International Statistical Programme Centre, Bureau of the Census, of the U.S. Department of Commerce are perhaps the best available assemblage of computer programmes for demographic analysis. They contain a score of subroutines for curve fittings, smoothing and graduation of population data, evaluation and analysis of fertility and mortality data, demographic projections, construction of stable population, etc.

b) The computer programmes developed by Cornell University include, for example, programmes for elementary calculations for the construction of life tables, calculation of age-specific and total fertility rates, gross and net reproduction rates, standardization and use of stable population models.

c) The National Opinion Research Centre of the University of Chicago has developed a Statistical Package for the Social Sciences (SPSS) which contains computations for multiple regression and analysis, discriminate analysis, Cuttman Scale Analysis, etc. Although this programme has no direct bearing upon population

analysis it provides a good integration of individual programmes which can be usefully applied in the analysis of interrelations of population and socio-economic variables.

d) The United Nations Population Division has prepared computer programmes for population projections by the cohort-component method used in the United Nations projections (ESA/P/WP.50, 29 June 1973).

e) A similar programme for population projections which includes more processes of data evaluation and adjustment, urban population and migration projections, has been prepared by Frederic Shorter. A recently published manual entitled Computational Methods for Population Projections, prepared by Shorter and David Pasta, explains how to formulate computerized population projections for development planning and research purposes. The manual is designed for use with the special computer package and the system is user-oriented, transportable and easily installed on a variety of computers.

f) There are also computer package programmes developed for population simulation (POPSIM) which contains several modules on population dynamics and fertility analysis including evaluation of family planning programmes. Although this seems to be the most comprehensive package available for demographic simulation, particularly micro-simulation, the programme requires a very extensive list of data that are not readily available in many developing countries and may not therefore be commonly used in these regions for lack of sufficient data.

27. It should be noted that most of the programmes cover only fragmentary portions of known techniques of evaluation and adjustment of inadequate demographic data and population analysis. As a result, many elements in evaluation and analysis will still depend on manual operation, human judgement and experiences, thereby making impracticable the computerization of all processes of population data analysis. It is therefore essential, in using the packages in the region to apply and adjust them to suit the data conditions in the respective countries. In particular, as warned earlier, caution has to be exercised to ensure that any method for the adjustment of the sex-age and other data does not over-correct. The immediate task of the United Nations Population Division is to familiarize the developing countries with the available programmes through the regional

workshops and seminars and advisory services to help them choose those that will meet their needs for the analysis of population census and demographic survey results.

Report of census analysis

28. As the major objective of demographic evaluation and analysis is to assess the quality of data collected in the census and to establish the amount of confidence that should be placed on the data for planning purposes, the results of the analysis should be presented in simple terms with explanations of techniques applied and elaborate statistical tables should be given in the appendix. In addition, attempts should be made to relate the trends observed to the social, economic and cultural situation of the country. It may also be useful to discuss the socio-economic implications of the results for policy formulation, and the future prospects of specific population components. There is also the need to make recommendations on the basis of present experience on future requirements for analysis of data needed for planning and other purposes. In general, the report should be prepared with the users in view, and should be published within a short time after the census so that the analyzed data are made available as early as possible.

Machinery for demographic analysis

29. Our experience with the African Census Programme showed that many countries failed to make provision for the analysis of the data collected in the 1970 round of censuses probably for lack of awareness on the part of government officials of the purpose of demographic analysis, since many were carrying out a complete census enumeration for the first time. This aspect of census work is often disregarded by Government Census Officers and their advisers at the planning stage. In consequence, only a few countries have set up any machinery within the Census Office for the analysis of demographic data. Moreover, the ECA Population Division, which is responsible for providing advisory services to the countries on census analysis, could not give the needed advice because there was no Regional Adviser on Demographic Analysis as there were Regional Advisers on Census Organizations, Sampling, Cartography and Data Processing. In order to give effective advice on all aspects of the

census operations however, there is need for collaboration, at all levels, between the ECA Statistical and Population Division, and the Regional and Interregional Census and Demographic Advisers.

30. For the 1980 round of censuses, it is recommended that the service of a Regional Adviser on Demographic Analysis be provided for each group of the Francophone and Anglophone African countries to assist, as requested by the governments, on the analysis of data from the 1980 censuses and surveys. It is also expected that Interregional Demographic Advisers will be made available to the countries by the new U.N. Department of Technical Co-operation for Development at Headquarters to supplement the services provided by the ECA Regional Advisers.

31. However, the ultimate goal of such advisory services and assistance is to train the nationals of the respective countries who will undertake the work and to build up a permanent capability for the analysis of population and related data on a continuous basis. In this regard, only a few African countries have set up the machinery for the analysis of demographic data by establishing Demographic Units staffed with qualified demographers. For this purpose, it is recommended that a Unit of Population Studies and Demographic Analysis be developed in every national Central Statistical Office that is responsible for population census and other data collection and processing, and provided with trained demographers. Such an arrangement is necessary so that the personnel of the Unit may be involved in the processes of collection and processing of the data to be analyzed. The Unit may require a minimum of two national demographers, two research assistants, one computer programmer and a secretary to staff initially. However, the number of technicians needed by the Unit will depend on the needs of individual countries and the amount of data to be analyzed. The Unit may also need, at least, some electronic desk computers, electric desk calculators, a typewriter, some office equipment and supplies and relevant publications, reports and manuals on evaluation and analysis of demographic data. It is also expected that the Government will provide the Unit with appropriate office space and furniture. The assistance of the United Nations should be sought for setting up such a Unit. The Regional Demographic Centres will play a major role in arranging special training programmes on demographic analysis for the countries they serve in order to satisfy this need.

32. As many African countries which have taken censuses in the 1970's and those which want to do so in the 1980's do not have the capability for the analysis of census results, they may wish to request the assistance of the United Nations through the Regional Demographic Advisers, Inter-regional Demographic Advisers, the Regional Demographic Centres or the services of experienced demographers provided by the United Nations to assist not only in analyzing the data to be collected, but also to give on-the-job training to national counterparts and help in establishing a permanent Unit for analysis. In this respect, countries which are planning to take censuses in the 1980's are advised to request, as early as possible, the United Nations fellowships to train their nationals in population analysis so that they may undertake the work themselves at the appropriate time. For immediate purpose, however, they may seek the assistance of the Regional Demographic Institutes - RIPS, IFORD, CDC or CREP/UDEAC - to organise in-service training, on country basis for national personnel on demographic analysis. Consideration should also be given to the exchange of demographer/analysts from countries with more experience in the field of census operation to less experienced countries and the provision of in-service training programmes for the staff from less developed countries in the more developed countries of the region could be organized and financed by the United Nations under its programme of Technical Co-operation among Developing Countries.

APPENDIX

Suggested Outline of Census Analysis Programme and Report

I. COUNTRY PROFILE

- a. Introduction
 - Importance of information on land and people for census data collection, analysis, interpretation and utilisation.
- b. The land, people and population
 - Overview of geography, history, population growth and distribution of the country.

II. EVALUATION OF AGE SEX DATA

- a. Census coverage. Comparison with past censuses. Growth rates. Census survival ratios.
- b. Population composition - age, sex.
- c. Growth rate, consistency of results.
- d. Growth rates from other methods, comparison with past findings.
- e. Population composition. Comparison with models. Child woman and other ratios. Percentage age distribution and cumulated percentage age distribution. Mean age of the population.
- f. Single year of age sex data - digit preference, age preference, age grouping, age ratio, sex ratio.
- g. Derivation of vital parameters - Coale-Demeny, and other methods, checking consistency of various results.
- h. Smoothing of data by such methods as three and five group moving averages, curve formula, survival, population models, and compare results.
- i. Adjustment of population by age - sex.

Suggested Reference

- (1) UN Manual II: Methods of appraisal of basic data for population estimates, ch. 1, 2 and 3.
- (2) Methods and Materials of Demography - Shryock and Siegel, Vol. 1, Part 1.
- (3) A.J. Jaffe -- Handbook of Statistical Methods for Demographers.
- (4) Manual IV: Methods of estimating basic demographic measures from incomplete data.
- (5) Morton Miller: Elements of graduation.

- (6) Brass et al: On Brass methods of adjustment and graduating irregular age distribution data.
- (7) The concept of a stable population: Application of the study to population of countries with incomplete demographic statistics.

III. MORTALITY ANALYSIS

- a. Introduction
- b. Past findings and other data on mortality in the country from past censuses and surveys.
- c. Census - age sex data and the data on child and parent survival.
- d. Evaluation of quality of census data on mortality.
- e. Estimation of mortality level from age sex data and child and parent survival - census survival ratios, Coale-Demeny, Brass, Brass-Hill methods.
- f. Mortality pattern - age sex, Ramaniuk, Coale-Demeny, standardised deviation methods.
- g. Life tables by sex, rural-urban, regional (select appropriate regional level).
- h. Mortality differential-socio-economic, geographic-and ecological.
- i. Trend of mortality - from censuses.
- j. Factors affecting mortality - environmental, socio-economic, some data on mortality and causes of death - Explanation of mortality levels, patterns and trends.
- k. Future prospects of mortality.

IV. FERTILITY ANALYSIS

- a. Introduction
- b. Past findings and other data on fertility in the country from past censuses and surveys.
- c. Census - age sex data and data on children ever born and births in previous years.
- d. Evaluation of quality of census data.
- e. Estimation of fertility levels from age sex statistics and children ever born and births in recent years - reverse survival, child-woman ratios, Coale-Demeny method based on cumulated age distribution, Coale-Demeny formula for TFR and Brass modification and those based on logistic curves, Brass P/F ratio method based on P_1/P_2 and P_2/P_3 values.
- f. Fertility pattern - age at marriage, proportion single, widowed, divorced, etc., mean age of fertility schedule based on specific fertility rates, parity and marital status distributions.

- g. Fertility differentials - socio economic, geographic-ecological and direct correlations.
- h. Trend of fertility - traced from past censuses and surveys to census year.
- i. Factors affecting fertility socio-economic, sterility, infertility - explanation of fertility levels, patterns and trends.
- j. Future prospects of fertility.
- k. Conclusions.

References for mortality and fertility analysis

- (1) UN Model Life Tables for Under-developed Countries Series A/22 (1955).
- (2) Coale and Demeny: Regional Model Life Tables and Stable Population (1966).
- (3) UN: Concept of Stable Population Application to the Study of populations of countries with incomplete data, Series A/39 (1968).
- (4) W. Brass, Methods for estimating fertility and mortality from limited and defective data.
- (5) UN Population Bulletin No.6: The Situation and Recent Trends of Mortality in the World.
- (6) Measurement of Mortality by Genshenson.

V. MIGRATION ANALYSIS

- a. Introduction
- b. Importance and need for migration studies in the country.
- c. Factors affecting population movement - geographical, physical, socio-economic, political.
- d. Evidence of population mobility - densities, man-land ratios. Population growth of provinces - differential rate, population of provinces as ratio of the national total, growth of towns and urban areas.
- e. Past data and findings - from censuses and surveys.
- f. Census data on place of birth, place of residence.
- g. Evaluation of data.
- h. Estimation of life time migration by age-sex and provinces. Migration streams. Net migration by survival ratios in intercensal period.
- i. Urban growth by provinces, urbanization, growth of towns.
- j. Correlation of migration with socio-economic characteristics.
- k. Consequences of migration - housing, education, employment.
- l. Foreign population and international migration.
- m. External migration - brain drain.
- n. Future prospects of migration and urbanisation in the country.
- o. Summary and conclusions.

References

- (1) UN Manual VI: Methods of Measuring Internal Migration.
- (2) Methods and Materials of Demography.

VI. POPULATION PROJECTION

- a. Examine future trends to select reasonable assumptions of fertility, mortality and migration trends to calculate population projections starting from the census year base to the year 2000.
- b. Projections of total population by age and sex 1980-2000.
- c. Projections of urban and rural population by age and sex 1980-2000.
- d. Projection of economically active population by age and sex 1980-1990. (Compare results with any previous projections and account for discrepancies).
- e. Household projections:
 - (i) Projected population of households by age, sex and marital status, 1980-1990.
 - (ii) Projections of heads of household by age and sex.
- f. Projections of school age population and future school enrolment.
- g. Socio-economic implications of results for future age-sex characteristics, manpower development, school enrolment, etc.
- h. Summary and conclusions.

References

- (1) UN Manual III: Methods for Population Projections by sex and age.
- (2) UN Manual V: Methods of projecting the economically active population.
- (3) UN Manual VIII: Methods of Projections of Urban and Rural Population.
- (4) UNESCO, Methods of Projecting School Enrolment in Developing Countries, Current Studies and Research in Statistics, UNESCO 1976.

V. CONCLUSIONS

- a. Summary of major findings on population growth, fertility, mortality and migration levels.
- b. Policy implications of findings.
- c. Recommendations for future data collection and analysis.

UNITED NATIONS
DEVELOPMENT PROGRAMME

UNITED NATIONS
FUND FOR POPULATION ACTIVITIES



UNITED NATIONS
NEW YORK

PROGRAMME DES NATIONS UNIES
POUR LE DEVELOPPEMENT

FONDS DES NATIONS UNIES
POUR LES ACTIVITES EN MATIERE DE POPULATION

TELEPHONE: 754-1234

INTEROFFICE MEMORANDUM

CONTROL

OCT 24 1978

CABLE ADDRESS: UNDEVPRO • NEW YORK

OCT 13 1978

Date: 6 October 1978

Director, OTC

BOT/78/P01

FILE NO.:

SENDER'S TELEPHONE EXTENSION: 8188

TO: Mr. Findley Burns Jr., Director
Department of Technical Co-operation for
Development
United Nations

FROM: Nafis Sadik, Assistant Executive Director
and Chief, Programme Division

SUBJECT: BOT/78/P01 - UNFPA Draft Project Request - 1981 Population and
Housing Census of Botswana

*cc: Mr. Oppenheim
Mr. Cabello
Mr. Chhor*
13/10

..... Please find attached a copy of the above Draft Project Request
submitted by the Resident Representative in Botswana.

We should be grateful if you would, as a matter of urgency,
send us any comments that might be useful in making a decision on
the project.

RECEIVED

OCT 13 1978

SECTION FOR EAST SOUTHERN
AFRICA AND REGIONAL PROGRAMS
OTC

*cc = Robinson for comments
O'Brien " "
file
me (cover page)*

*sent
16/10/78 -SK*

DRAFT PROJECT REQUEST FOR
UNITED NATIONS FUND FOR POPULATION ACTIVITIES

Date of Submission: June 1978

Project Number: BOT/78/POI

Country: Botswana

Project Title: 1981 Population and Housing Census of Botswana
UNFPA Work Plan'

Categories: 110 Population Censuses

Requested by: Central Statistics Office

Executing Agency: United Nations

Project Duration: 4 years

Starting Date: 1 July 1979

UNFPA Contribution: US\$ 775,412

1. BACKGROUND AND SUPPORTING INFORMATION

A. Justification for the Project

The last population census was undertaken in Botswana in 1971. It was the eighth population census to be held in the country. The previous census had been carried out in 1964. The 7-year intercensal period, instead of the usual 10 or 5 years, was decided upon in view of the rapid changes which had taken place in Botswana since 1964 and the need to have up-to-date statistical data on the characteristics of the population as an aid to development planning. However the Government now plans to keep to a pattern of decennial censuses.

The 1971 census showed that Botswana had a population of 630,379 (including 24,012 persons who were absent for less than one year, 21,723 persons absent for more than one year and an estimated total of 10,550 for nomads). The crude birth rate derived from the analysis of the data was 44.5 per thousand, if the absentees are included and 45.3 per thousand if they are excluded. The corresponding crude death rates are 13.7 per thousand and 14.5 per thousand respectively. The estimated rate of natural increase, assuming that absentees are included is therefore 3.1 per cent per annum. The intercensal growth rate is 2.0 per cent per annum. The census authorities attributed the difference between the natural increase and inter-censal growth to migration and lower fertility in the decade preceding the census.

However doubts have been cast recently on the degree of accuracy achieved in the coverage of the census and also on the estimates of mortality levels derived. It is felt by some that the 1971 census had a significant under-coverage error and that the rates of mortality obtained are not plausible.

In order to up-date the information on the characteristics of the population and to obtain more accurate data on the total population and the levels of fertility and mortality, the Central Statistics Office plans to conduct a census of population and housing in 1981. The inclusion of housing in the census is justified on the grounds that many of the topics recommended for investigation in a population census are also suggested for inclusion in housing censuses. By combining the population and housing censuses into one enquiry, the Botswana Government hopes to cut down on costs without sacrificing the quantity and quality of the data to be collected.

A problem of concern to Botswana is the out-migration of its nationals to neighbouring countries. Realistic estimates of the size, direction and other characteristics of the migration flows are not at present available. A migration survey is being conducted to obtain relevant information. Information from this survey together with the census data will give an up-to-date picture of the demographic, social and economic characteristics of the population.

The Government has recently embarked on a programme of preparing District Development Plans. One of the major obstacles encountered in this exercise has been the great dearth of data at the district level. There is thus the need to fill these data gaps partially by conducting a population and housing census some of the results of which will be published at the district level.

It should be noted that the mid-1981 estimate of the population of Botswana is 843,000 (410,000 males and 433,000 females)

B. Institutional Framework

The census will be carried out by the Central Statistics Office, which is a department within the Ministry of Finance and Development Planning. It is expected that at a later stage in the preparations for the census, district census offices will be set up in each of the 10 districts, including the 4 Town Council areas. This will help the control of operations at the district level.

A senior statistician will be appointed as Census Officer to be the de facto head of the Census Office. The Government Statistician will be the de jure head. An Executive Officer will be appointed to take charge of the administrative aspects of the census preparations. For the proper functioning of the Central Census Office, it will be divided into four sections:

- (a) The Planning Section, which will be responsible, inter alia, for statistical planning including design of questionnaires and tabulation plans, preparation of manuals, screening of questionnaires, coding and preparation of tables for publication together with data analysis;
- (b) The Field Organization, which will also include publicity. This section will be responsible for the recruitment, training and deployment of interviewers and for the overall control of field operations;
- (c) The Cartographic Section which will be responsible for dividing the country into Enumeration Areas (E.A.'s);
- (d) Data Processing Section which will be responsible for the keying and tabulation of the data.

It is expected that three committees will be set up with the following membership:

(a) Central Census Committee

The P.S. of Finance and Development Planning (Chairman)
The P.S. of Education
The P.S. of Health
The P.S. of Agriculture
The P.S. of Home Affairs
The P.S. of Local Government and Lands.

The Government Statistician will be in attendance and will act as Secretary of the Committee.

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(b) Technical Advisory Committee

Government Statistician (Chairman)
A representative of the Ministry of Education
A representative of the Ministry of Finance and Development Planning
A representative of the Ministry of Local Government and Lands
A representative of the Ministry of Agriculture
A representative of the Ministry of Health
A representative of the Ministry of Labour
The WHO Statistician, Ministry of Health and Central Statistics Office
The Head, Department of Economics, University of Botswana
The Head, Statistics Department, University of Botswana
The Head, Department of Sociology, University of Botswana
The Census Officer (Secretary)

(c) The National Communications Committee

The Census Officer (Chairman)
The Census Executive Officer
A representative of the Ministry of Information
A representative of the Ministry of Education
The Head, Radio Botswana
A representative of the Ministry of Local Government

The UN Advisers will participate in meetings of both the Technical Advisory Committee and the National Communications Committee.

The Central Census Committee which will be an inter-ministerial committee will deal with the major policy issues involved in the census operations. The Technical Advisory Committee will advise the Government Statistician on the content of the questionnaire, the concepts, definitions, and classifications to be used in the census, the tabulation, evaluation, analysis and publication programmes of the census. Finally, the Communications Committee will devise and supervise the implementation of a plan for disseminating census information to all sectors of the Botswana Community. It is expected that in furtherance of this objective District Communications Committees will be set up. To help the Committee to devise an effective programme, the Government plans to request UNFPA's assistance for a Consultant in census communications to visit Gaborone as soon as this project is approved. No provision for the services of this consultant has been included in this project. In accordance with the practice followed in other countries, a separate project document will be submitted to UNFPA in due course to cover this request.

C. Provision for Government Follow-up

The Central Statistics Office will undertake intercensal surveys which will include topics relating to demographic and social surveys. A tentative programme of household surveys for the period 1981 to 1991 is being drawn up. This programme will be subject to amendment due to changing priorities.

D. Other Related Activities

The population and housing census and the household survey programme will be two important elements in an integrated programme of demographic and socio-economic data collection. Another important element will be the use of administrative records such as information collected through civil registration, migration and employment reporting mechanisms. It is expected also that a demographer will be appointed to the Department of Sociology, University College of Botswana and that the research work undertaken by this demographer will be related to the types of data made available by the Central Statistics Office.

E. Future UNFPA Assistance

The Government also intends submitting requests for assistance in: (a) Carrying out a foetal, infant and child mortality survey and fertility patterns, and (b) making the services of a UN demographer available to the University of Botswana and Swaziland (Botswana Campus). This demographer would in addition to his University work, be available to assist at all stages of the preparation and analysis work connected with the census. In addition to these two requests, the Government intends to request at a later date, possibly after the census enumeration, assistance in expanding and improving the civil registration system in this country. Prior to this request, the Government may request funds for a study tour by the Registrar of Births and Deaths to selected African countries to see how the civil registration system is operated in these countries. Finally, the funding of an intercensal demographic survey, probably in 1985/86, may be requested.

F. Other Sources of Funding

At present, the only source of funding contemplated are UNFPA and the Botswana Government itself. However, the possibility of the Botswana Government seeking bilateral assistance to meet part of its expected contribution to the total cost of the census should not be ruled out.

II. OBJECTIVES OF THE PROJECT

A. Long-term Objectives

The census is being undertaken in order to provide demographic, social and economic data vital for long-term planning. The census will also provide an efficient sampling frame for other surveys and help in training field staff some of whom can be used for the household surveys planned for the intercensal period. The training of other staff such as professional officers, programmers, key operators, coders, etc., will also help to provide trained personnel in census and survey organization at various levels.

B. Immediate Objectives

The census will provide demographic and related socio-economic data vital for both development planning and administrative decision-making in the short-term. It will provide information on the rate of population growth and on its components. The data will also help government to prepare more realistic District Development Plans.

It is expected that the following topics will be covered in the census on either a full coverage or sample basis:

- Sex
- Age
- Relationship to head of household
- Birth place
- Nationality
- School attendance
- Education level attained
- Type of activity
- Occupation
- Industry
- Employment Status
- Marital Status
- Fertility
- Mortality
- Housing Conditions

The final choice of questions will be discussed by the Technical Advisory Committee (TAC) and is subject to Government approval.

III. WORK PLAN

The following are the main activities to be undertaken:

- (a) Cartographic Preparations: Botswana which covers an area of approximately 582,000 sq.km. is to be divided up into about 1250 Enumeration Areas (E.A's). Sections of the country are at present covered by the following series of maps:
 - (i) 1:250,000 - a series of topographical maps with or without colour tinting relief data;
 - (ii) 1:250,000 Joint Operations Graphic - a multi-coloured series with relief shown by contours, formlines, hachures and colour tints;
 - (iii) 1:125,000 - a small-scale series compiled from photography taken during 1948-1961 and printed between 1955 and 1966;
 - (iv) 1:100,000 - work on this to be undertaken in the very near future;
 - (v) 1:50,000 - standard medium scale map series, compiled from aerial photography, usually in six colours with relief shown by contours;
 - (vi) Photographic Print Laydowns (P.L.D's) - produced between 1953 and 1971, on a scale of 1:125,000 with some areas also on a scale of 1:50,000. The P.L.D's are made to conform as closely as possible to the geographical lines of the conventional mapping;

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- (vii) Mosaics - available for some areas. The areas, scales and year of photography are as follows:

| <u>Area</u> | <u>Scale</u> | <u>Date of Photography</u> |
|---------------------|--------------|----------------------------|
| Kule Ncojane | 1:70,000 | 1971 |
| Eastern-Kalahari | 1:70,000 | 1974 |
| South-east Kalahari | 1:50,000 | 1975 |
| South-west Kalahari | 1:70,000 | 1976 |
| Bokspits-Tshabong | 1:50,000 | 1976 |
| Jwaneng | 1:50,000 | 1975 |

- (viii) Small and medium scale aerial photography covering the following areas:

| <u>District</u> | <u>Year</u> | <u>Scale</u> |
|---------------------------------|-------------|--------------|
| Ngamiland and Chobe | 1951 | 1:30,000 |
| Central | 1956 | 1:40,000 |
| Ngamiland and Ghanzi | 1957 | 1:40,000 |
| Ngamiland | 1961 | 1:50,000 |
| Kgalagadi, Southern and Kweneng | 1961 | 1:50,000 |
| Ngamiland and Chobe | 1962 | 1:40,000 |
| South-East, Kweneng and Central | 1963 | 1:40,000 |
| Ghanzi and Kgalagadi | 1964 | 1:70,000 |
| Central and North-East | 1964 | 1:40,000 |
| Ngamiland and Central | 1969 | 1:40,000 |
| Central and North-East | 1971 | 1:50,000 |
| Ghanzi | 1971 | 1:50,000 |
| Ngamiland (Okavango Delta) | 1973 | 1:40,000 |
| Central, Chobe and Ngamiland | 1973 | 1:40,000 |
| Ngamiland (Okavango Block A) | 1973 | 1:70,000 |
| Ngamiland (Okavango Block B) | 1974 | 1:70,000 |
| Ngamiland (Okavango Block C) | 1974 | 1:40,000 |
| Ngamiland (Okavango Block D) | 1974 | 1:40,000 |
| Kweneng, Ghanzi and Central | 1974 | 1:40,000 |
| Ghanzi | 1975 | 1:70,000 |
| Southern, Kweneng and Central | 1975 | 1:50,000 |
| Southern, Kweneng and Kgalagadi | 1975 | 1:50,000 |
| Kgalagadi | 1976 | 1:70,000 |
| Ngamiland and Chobe | 1977 | 1:50,000 |

- (ix) Large scale aerial photography covering the following areas:

| <u>Area</u> | <u>Scale</u> | <u>Date</u> |
|-----------------|--------------|-------------|
| Gaborone | 1:10,000 | 1974 |
| Gaborone Area 1 | 1:17,000 | 1976 |
| Area 2 | 1:10,000 | 1976 |
| Area 3 | 1:7,500 | 1977 |
| Francistown | 1:15,000 | 1962 |
| | 1:17,000 | 1976 |
| Lobatse | 1:15,000 | 1970 |
| | 1:7,000 | 1974 |
| | 1:15,000 | 1976 |

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| <u>Area</u> | <u>Scale</u> | <u>Date</u> |
|------------------------|--------------|-------------|
| Kanye | 1:15,000 | 1973 |
| Kasane | 1:10,000 | 1972 |
| Selebi-Phikwe | 1:15,000 | 1973 |
| | 1:17,000 | 1976 |
| Mnadinare | 1:15,000 | 1976 |
| Mosopa | 1:10,000 | 1966 |
| Maun | 1:15,000 | 1971 |
| | 1:15,000 | 1977 |
| Mahalapye | 1:15,000 | 1971 |
| | 1:15,000 | 1972 |
| | 1:15,000 | 1974 |
| | 1:15,000 | 1977 |
| Mochudi | 1:15,000 | 1973 |
| | 1:15,000 | 1976 |
| Ghanzi | 1:10,000 | 1966 |
| | 1:15,000 | 1974 |
| Tonota-Shashe | 1:15,000 | 1969 |
| | 1:15,000 | 1974 |
| Serowe | 1:15,000 | 1971 |
| | 1:15,000 | 1974 |
| Palapye | 1:15,000 | 1971 |
| | 1:15,000 | 1974 |
| Molepolole | 1:15,000 | 1973 |
| Ranotswa | 1:10,000 | 1966 |
| | 1:15,000 | 1974 |
| Bobonong | 1:15,000 | 1976 |
| Dukwe Development Area | 1:7,000 and | |
| | 1:12,000 | 1974 |

In addition to the above more standard maps which can form the basis of the census mapping, there are contact prints at a scale of 1:1,000,000 made from imagery obtained from American satellites orbiting 920 kilometres above the earth and also a standard series of geological mapping at a scale of 1:125,000.

Thus Botswana is covered by one or more of the maps listed above. Also since there is an active programme of aerial photography, updating of some of these maps prior to the 1981 census is possible.

Detailed field work is also necessary if the enumerators are to be able to identify the boundaries of the E.A.'s. The geographical field teams will be five with each team consisting of an assistant cartographer and four geographical Enumerators. Due to the prevailing conditions in the country, camping equipment in addition to a large number of vehicles will be required for this phase of the census work.

The information collected from the field will be transferred on to the appropriate map sheets by the draughtsman. Each enumerator will be provided with a map showing the boundaries of his E.A., together with information on the adjoining areas.

It should be mentioned that during the field missions, information on the following community level variables will be obtained:

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Availability of court
Availability of church(es)
Health facilities provided
Availability of stores
Source of water-supply

The above information, together with relevant data provided from the census, will form the basis for the updating of the Botswana Government publication, entitled: "Guide to the Villages of Botswana."

It should also be mentioned that each town E.A. would contain approximately 170 households, each rural nucleated settlement E.A. 150 households and 100 to 130 households would comprise each E.A. in the areas of dispersed settlements such as the cattle posts.

(b) Questionnaire Content and Design

As indicated earlier, some demographic and socio-economic data will be collected in the census. A preliminary list of these items is given in Section IIB of this document.

The list will be considered in detail by the T.C with respect to the usefulness of each item, its suitability for investigation in a census and whether it is needed at national, district or small area basis. A field pretesting of the Questionnaire before the Pilot census is envisaged. The final choice of questions and the format of the questionnaire will be submitted to the Central Census Committee for formal approval.

(c) Field Organization

It is expected that a Field Organizer (F.O) who will be in charge of field operations will be appointed. The F.O. will be a senior education officer who will be seconded to the CSO for this purpose.

Under the F.O. will be ten district census officers (D.C.O.'s). It is planned to include each of the 4 town council areas within the districts in which they geographically lie, for the purposes of the census field organization. Under the D.C.O. will be supervisors who will be in charge of an average of five enumerators each. It is expected that there will be 1250 enumerators and 250 supervisors.

The D.C.O.'s will be trained in Gaborone while the D.C.O. with the assistance of some of the field supervisors (who will be used as enumerators for the pilot census) will carry out the training of the supervisors and enumerators at the district level. The training course should last 10-14 days. The enumerators would be primary school teachers and senior pupils while the supervisors would be mainly headteachers.

(d) Publicity

The normal publicity media, namely radio and the press will be used. In addition school lesson notes will be prepared on the objectives and scope of the census and these notes will be used as teaching material in primary and secondary schools. An education officer or inspector of schools specialised in the preparation of lesson notes is expected to be seconded to the CSO to help in carrying out this assignment.

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(e) Preparation of Manuals, etc.

The following manuals are expected to be prepared:

- (i) Enumerator's manual
- (ii) Field Supervisor's manual and record book
- (iii) A training Guide for District Census Officers

In addition, an Enumerator's Visitation Record which will serve as a control of the enumeration will be prepared.

(f) Pilot Census

A Pilot Census to cover about 100 E.A.'s will be carried out in August 1980 i.e. one year before the census. The Pilot Census E.A.'s will be selected purposely to cover all regions and to reflect the different types of E.A.'s and problems likely to be encountered in the main census. The results of the pilot census will be processed and analysed and will help to determine the final content and format of the questionnaire and also the enumeration procedures to be adopted.

(g) The Enumeration

The field enumeration is expected to take about two weeks in most areas. In a few instances, the enumeration may drag on for another two weeks.

(h) Data Processing

As at present planned, the questionnaire items will be coded and verified, using standard quality control techniques. It is expected to key the data using either key-edit machines or the conventional punch card equipment.

The data processing plans including automatic editing and tabulation, will be finalized after the visit of the ECA Regional Adviser in Data Processing. A UN data processing expert is being requested under this project.

(j) Analysis of Results

The census results will be analysed in detail. For this purpose, the services of a UN Demographer/Analyst are being requested as part of this project.

(l) Publication and Dissemination of Results

It is expected that a number of volumes will be published as a result of the census. The following is the tentative list:

- Vol. I: Guide to the Villages of Botswana
- Vol. II: Detailed demographic, social and economic tables
- Vol. III: Analytical Report
- Vol. IV: Administrative Report

The census results contained in these reports will be widely disseminated.

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The following is the detailed time-table of operations:

| <u>Activity</u> | <u>Location</u> | <u>Starting Date and Duration</u> |
|--|---|--|
| A. <u>Pre-enumeration</u> | | |
| (1) Cartographic Preparations | Gaborone (with field trips to various localities) | 1 Feb. 1980 (24 months, including 6 months of post-enumeration work). |
| (2) Questionnaire | | |
| (a) 1st draft for consideration by TAC | Gaborone | September 1979 |
| (b) 2nd draft for field tests | | January 1980 |
| (c) 3rd draft for Pilot Test | | April 1980 |
| (d) Final draft | | January 1981 |
| (3) Field Organization | | |
| (a) Appointment of field Organizer | Gaborone | February 1, 1980 (20 months) |
| (b) Recruitment and briefing of District Census Officers | Gaborone | May 1980 (1 month) |
| (c) Recruitment of Pilot Census Enumerators | Gaborone | June 1980 (1 month) |
| (d) Training of Pilot Census Enumerators | Gaborone | August 1980 (2 weeks) |
| (e) Recruitment of Supervisors and Enumerators (main Census) | Gaborone and District HQs | 1 March 1981 (1 month) |
| (f) Training of Field Staff | Gaborone and District HQs | August 1981 (2 weeks) |
| (g) Despatch of Census documents, etc. | Gaborone | May 1981 (3 months) |
| (4) Publicity | All areas | January 1980 (20 months) |
| (5) Preparation of manuals, etc. | | |
| (a) Pilot Census | Gaborone | April 1980 (3 months) |
| (b) Main Census | Gaborone | January 1981 (3 months) |
| (6) Pilot Census | | |
| (a) Enumeration | Selected EA's | August 1980 (2 weeks) |
| (b) Processing and analysis of data | Gaborone | September 1980 (3 months) |

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| <u>Activity</u> | <u>Location</u> | <u>Starting Date and Duration</u> |
|---|-----------------|-----------------------------------|
| B. <u>Enumeration</u> | | |
| (1) Field Enumeration | All EA's | August/Sept. 1981 (1 month) |
| (2) Receipt of completed Questionnaires and other documents | Gaborone | September (6 weeks) |
| C. <u>Post-Enumeration</u> | | |
| (1) Data Processing | | |
| (a) Coding and verification of coding | Gaborone | October 1981 (6 months) |
| (b) Keying and automatic editing | Gaborone | October 1981 (6 months) |
| (c) Tabulation | Gaborone | November 1981 (9 months) |
| (2) Coverage Error evaluation (field) | Selected EA's | September 1981 (2 weeks) |
| (3) Analysis of results | Gaborone | March 1982 (12 months) |
| (4) Publication of results | Gaborone | 1 July 1982 (12 months) |

| DESCRIPTION | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | |
|--|------|---|------|---|------|---|------|---|------|---|
| | S | D | J | F | M | A | M | J | J | A |
| A. Pre-enumeration activities | | | | | | | | | | |
| (1) Appointment of- | | | | | | | | | | |
| (a) UN General census Expert | | | | | | | | | | |
| (b) UN Census Cartographic Expert | | | | | | | | | | |
| (2) Cartographic preparations | | | | | | | | | | |
| (3) Questionnaire - | | | | | | | | | | |
| (a) 1st draft for consideration by TAC | | | | | | | | | | |
| (b) 2nd draft for field tests | | | | | | | | | | |
| (c) 3rd draft for pilot test | | | | | | | | | | |
| (d) Final draft | | | | | | | | | | |
| (4) Field Organization: | | | | | | | | | | |
| (a) Appointment of field organizer | | | | | | | | | | |
| (b) Recruitment and briefing of District Census Officers | | | | | | | | | | |
| (c) Recruitment of Pilot Census Enumerators | | | | | | | | | | |
| (d) Training of Pilot Census Enumerators | | | | | | | | | | |
| (e) Recruitment of Supervisors and Enumerators (main Census) | | | | | | | | | | |
| (f) Training of Field staff | | | | | | | | | | |
| (g) Despatch of Census documents, etc. | | | | | | | | | | |
| (5) Publicity | | | | | | | | | | |
| (6) Preparation of manuals, etc.: | | | | | | | | | | |
| (a) Pilot Census | | | | | | | | | | |
| (b) Main Census | | | | | | | | | | |

WORK PLAN - BAR CHART (CON'D)

[illegible]

IV. DESCRIPTION OF UNFPA INPUT

1. Assignment of International Staff

The international staff of the project will comprise a General Census Adviser who will be the Project Team Manager, a Cartographer, a Data Processing Expert and a Demographer/Analyst. The experts will be provided at different times as shown in the proposed budget.

The General Census Adviser will under the general direction of the Government Statistician advise the Census Officer on all aspects of the census organisation. He will assist in revising the draft plans for the Census, including the preparation of a more detailed Work-Plan and time-table, help in the design of the Questionnaire and in the preparation of relevant manuals for all levels of the field staff and collaborate with other staff in preparing the tabulation programme for the Census.

The Cartographer will be responsible, under the general direction of the Government Statistician and, de facto, under the General Census Adviser, for the division of the country into supervision and enumeration areas and the preparation of the relevant maps.

The Data Processing Expert will assume responsibility for the processing of the Census data and the preparation of the tables in a form suitable for photo offset printing.

Finally the Demographer Analyst will, in collaboration with the Demographer(s) in the Central Statistics Office and the University of Botswana and Swaziland (Botswana Campus), assume responsibility for the analysis of the Census results and the publication of these results.

All four UN experts will assist in the training of counterpart and other personnel.

2. Provision of Sub-contractual Services

Not applicable

3. Training Provisions

Fellowships for two staff members in programming are provided. Each fellowship is for a period of 12 months. Candidates for these fellowships will be expected to have been trainee programmers for at least one year in an installation in Botswana. The fellowships will be tenable in the United Kingdom, Canada, or the United States.

It should be noted that additional fellowships for two candidates for study in the Regional Institute for Population Studies in Legon or the Cairo Demographic Centre are planned. These are not included in this project since there are separate funds for such fellowships.

4. Equipment

The following is a list of equipment to be requested for this project:

15/.....

(a) Expendable Equipment

- Cartographic supplies
- Enumerators' and field supervisors' kits
(clipboards, ballpens, pencils, notebooks, identity cards).
- Punch cards and/or tapes
- First aid kits

(b) Non-expendable Equipment

- 5 landcruisers
- 10 Ford pick-ups (4 x 2)
- 15 sets of vehicles accessories (safari kits, bushguard, water containers, long-range petrol tanks)
- 1 HP-67 calculator
- 3 Canon Canola MP 1212 calculators
- Camping Equipment (Tents, axe, buckets, spades, bag-water lantern, torch-flashlight, batteries, mattresses, illuminating paraffin, tarpaulines)
- 1 Typewriter
- 14 large metal containers for questionnaires
- 3 Map Storage Cases

5. Local Staff

Funds to meet personnel emoluments and wages of the Administrative Support and temporary staff who will be engaged for the duration of the projects.

(a) Administrative Support Staff

Per person

- | | |
|------------------|-----------------|
| 2 Senior Typists | - \$ 2664 x 216 |
| 15 Drivers | - \$ 1008 |

(b) Temporary Staff

- | | |
|-----------------------------|--------------|
| 5 Cartographic Assistants | - \$ 1814,40 |
| 20 Geographical Enumerators | - \$ 1382,40 |

PROJECT BUDGET COVERING UNFPA CONTRIBUTION
(in US DOLLARS)

[illegible]

| DESCRIPTION. | Total n/n \$ | 1979 n/n \$ | 1980 n/n \$ | 1981 n/n \$ | 1982 n/n \$ | 1983 n/n \$ |
|---|-----------------|----------------|----------------|----------------|----------------|----------------|
| 42-04 Vehicles and Accessories | 121,000 | 121,000 | | | | |
| -05 Office Equipment | | | | | | |
| - 51 Data Processing | 65,000 | 5,000 | - | 5,000 | 55,000 | - |
| 42-98 Non-expendable equipment | 11,400 | 11,400 | - | - | - | - |
| 42-99 Sub-total | 197,400 | 137,400 | - | 5,000 | 55,000 | - |
| 49 Component total | 222,000 | 142,000 | 5,000 | 20,000 | 55,000 | - |
| 50 <u>Miscellaneous Component</u> | | | | | | |
| 51 Operations and Maintenance of Equipment | 75,000 | 12,500 | 37,500 | 25,000 | - | - |
| 52 Reporting Cost | 3,500 | 500 | 1,000 | 1,000 | 500 | 500 |
| 59 Component total | 78,500 | 13,000 | 38,500 | 26,000 | 500 | 500 |
| GRAND TOTAL | 775,412 | 189,595 | 193,396 | 193,143 | 156,145 | 28,133 |

V. DESCRIPTION OF BOTSWANA GOVERNMENT'S INPUTS

The Botswana Government will be responsible for census costs not specifically assigned to UNFPA. In particular, they will be responsible for the following:

1. Personnel Emoluments, Wages and Allowances, etc.

(a) Permanent Staff

| | |
|---|------------------|
| 1 Government Statistician | - P. 10,896* |
| 1 Statistician (Census Officer) | - P. 6,372 x 240 |
| 1 Senior Education Officer (Field Organizer) | - P. 7,632 x 362 |
| 1 Executive Officer | - P. 2,328 x 180 |
| 1 Clerical Officer | - P. 1,368 x 120 |
| 1 Information Officer (Census Publicity Officer) | - P. 5,508 x 300 |
| 1 Inspector of Schools (Census Education Officer) | - P. 5,652 x 240 |
| 1 Programmer | - P. 3,708 x 240 |
| 2 Statistical Officers | - P. 3,708 x 240 |
| 1 Draughtsman | - P. 3,720 x 240 |

(b) Temporary

| | |
|-----------------------|----------------------|
| 1 Messenger | - P. 840 |
| 6 Punch/Key Operators | - P. 1,368 x 120 |
| 1250 Enumerators | 60 Pula (Honorarium) |
| 250 Field Supervisors | 75 Pula " |
| 25 Coders/Verifiers | - P. 1 512 |

(c) Night Allowances @ P2 a night

(d) Sandwich Allowance @ P.75 a night

2. Vehicles and Accessories

100 Bicycles at P.100 each

(In addition 150 vehicles will be needed for 1 month during enumeration).

3. Office Furniture

| |
|--------------------------------|
| 10 Desks at P.72 |
| 10 Chairs at P.44 |
| 25 Tables at P.48 |
| 25 Chairs at P.15 |
| 1 Draughtsman's Table at P.150 |
| 1 Draughtsman's Chair at P.100 |
| 2 Typists desk at P.35 |
| 2 Typists chairs at P.34 |

4. Office Supplies

Typing ribbons
Typing paper
Typing correction fluid
Stencils

* The Government Statistician will not work full-time on the census but will be budgeted full-time in lieu of services rendered by other staff members not included.

4. Office Supplies cont.

Duplicating paper
Duplicating fluid
Duplicating corrections
Photocopy paper
Sundries (pens, pencils, etc)
Note books
Map tubes
Inks
Carbon paper
Stapler
Staples
Envelopes
Index cards
Writing paper

5. Maintenance and repair of vehicles

30t per kilometre per vehicle
(a) Cartographic Preparations
10 Vehicles at P.4800 per annum
(b) During Enumeration
150 Vehicles at P.480 per month = P.72,000

6. Office Accommodation

P.250 per month

7. Office Expenses

Postal, telephone and other charges will be borne by the Government.

8. Computer Charges and Other Contractual Expenses

It is expected that the Census data will be processed on the Computer of the Botswana Government's Computer Bureau. Part of this cost is at present chargeable to the Botswana Government.

9. Training

This item covers the cost of training of all levels of field staff from the district census officer to the enumerator level. The night allowances are excluded.

10. Miscellaneous

The miscellaneous category comprises, inter alia, the cost of printing census questionnaires and manuals, posters, etc. and the cost of training guides.

11. Contingency

A contingency element of 10 per cent of total estimated Government contribution is included since not all items of census expenditure can generally be foreseen at the time of the preparation of a project document.

PROJECT BUDGET COVERING BOTSWANA GOVERNMENT CONTRIBUTION
(in Pula)

| DESCRIPTION | Total | | 1979/80 | | 1980/81 | | 1981/82 | | 1982/83 | | 1983/84 | |
|---|-------|---------|---------|-------|---------|--------|---------|---------|---------|-------|---------|-------|
| | n/n | P | n/n | P | n/n | P | n/n | P | n/n | P | n/n | P |
| .. DIRECT EXPENDITURE | | | | | | | | | | | | |
| 1. <u>Personal Emoluments, Wages and allowances, etc.</u> | 1885 | 157,448 | 9 | 9,130 | 136 | 21,340 | 1692 | 121,410 | 49 | 5,358 | 6 | 210 |
| (a) temporary staff | 1885 | 151,448 | 9 | 630 | 136 | 8,340 | 1692 | 116,910 | 49 | 5,358 | 6 | 210 |
| 1 Messenger | 48 | 3,360 | 9 | 630 | 12 | 840 | 12 | 840 | 12 | 840 | 6 | 210 |
| 6 Punch/Key Operators | 42 | 4,788 | - | - | - | - | 30 | 3,420 | 12 | 1368 | - | - |
| 250 Field Supervisors | 270 | 20,250 | - | - | 20 | 1,500 | 250 | 18,750 | - | - | - | - |
| 1250 Enumerators | 1350 | 81,000 | - | - | 100 | 6,000 | 1250 | 75,000 | - | - | - | - |
| 25 Coders/Verifiers | 175 | 22,050 | - | - | - | - | 150 | 18,900 | 25 | 3,150 | - | - |
| (b) <u>Night Allowances</u> | | 24,000 | | 8,000 | | 12,000 | | 4,000 | | - | | - |
| (c) <u>Sandwich Allowance</u> | | 2,000 | | 500 | | 1,000 | | 500 | | - | | - |
| 2. <u>Bicycle Allowance</u> | | 4,500 | | - | | 500 | | 4,000 | | - | | - |
| 3. <u>Vehicles and Accessories</u> | | 10,000 | | - | | - | | 10,000 | | - | | - |
| (a) Purchase of Bicycles (100) | | 10,000 | | - | | - | | 10,000 | | - | | - |
| (b) | | | | | | | | | | | | |
| 4. <u>Office Furniture</u> | | 3,113 | | 1,538 | | - | | 1,575 | | - | | - |
| 5. <u>Office Supplies</u> | | 16,000 | | 2,500 | | 5,000 | | 5,000 | | 2,500 | | 1,000 |
| 6. <u>Maintenance and repair of vehicles (including fuel)</u> | | 148,950 | | 8,100 | | 48,600 | | 92,250 | | - | | - |
| (a) Cartographic Preparations | | 76,950 | | 8,100 | | 48,600 | | 20,250 | | - | | - |
| (b) Enumeration | | 72,000 | | - | | - | | 72,000 | | - | | - |

| | Total | | 1979/80 | | 1980/81 | | 1981/82 | | 1982/83 | | 1983/84 | |
|--|-------|---------|---------|--------|---------|---------|---------|---------|---------|--------|---------|--------|
| | m/n | P | m/n | P | m/n | P | m/n | P | m/n | P | m/n | P |
| 7. <u>Office Expenses</u> | | 4,200 | | 900 | | 1,000 | | 1,000 | | 1,000 | | 300 |
| 8. <u>Training</u> | | 5,000 | | - | | 1,000 | | 4,000 | | - | | - |
| 9. <u>Office Accommodation</u> | | 12,000 | | 2,250 | | 3,000 | | 3,000 | | 3,000 | | 750 |
| 10. <u>Computer Charges</u> | | 30,000 | | - | | - | | 15,000 | | 15,000 | | - |
| Sub-total | | 391,211 | | 24,418 | | 80,440 | | 257,235 | | 26,858 | | 2 260 |
| <u>Contingency</u> | | 39,121 | | 2,442 | | 8,044 | | 25,723 | | 2,686 | | 226 |
| SUB-TOTAL | | 430,332 | | 26,860 | | 88,484 | | 282,958 | | 29,544 | | 2,486 |
| Inflation | | 130,153 | | 2,686 | | 18,582 | | 93,659 | | 13,708 | | 1,518 |
| Inflated Sub-total | | 560,485 | | 29,546 | | 107,066 | | 376,617 | | 43,252 | | 4,004 |
| <u>IMPUTED AND INDIRECT EXPENDITURE</u> | | | | | | | | | | | | |
| 1. <u>Personal Emoluments of Permanent Staff</u> | 360 | 155,058 | 41 | 18,251 | 123 | 52,581 | 109 | 46,385 | 75 | 32,061 | 12 | 5,780 |
| 1 Government Statistician | 48 | 43,584 | 9 | 8,172 | 12 | 10,896 | 12 | 10,896 | 12 | 10,896 | 3 | 2,724 |
| 1 Census Officer | 48 | 27,168 | 9 | 4,779 | 12 | 6,612 | 12 | 6,852 | 12 | 7,092 | 3 | 1,833 |
| 1 Field Organizer | 21 | 14,076 | 3 | 1,908 | 12 | 7,992 | 6 | 4,176 | - | - | - | - |
| 1 Executive Officer | 48 | 10,572 | 9 | 1,746 | 12 | 2,508 | 12 | 2,688 | 12 | 2,868 | 3 | 762 |
| 1 Clerical Officer | 48 | 6,293 | 9 | 1,026 | 12 | 1,482 | 12 | 1,602 | 12 | 1,722 | 3 | 461 |
| 1 Publicity Officer | 18 | 8,862 | - | - | 12 | 5,808 | 6 | 3,504 | - | - | - | - |
| 1 Census Education Officer | 9 | 4,479 | - | - | 6 | 2,946 | 3 | 1,533 | - | - | - | - |
| 1 Programmer | 24 | 8,256 | - | - | 9 | 2,961 | 12 | 4,188 | 3 | 1,107 | - | - |
| 2 Statistical Officers | 72 | 23,688 | - | - | 24 | 7,416 | 24 | 7,896 | 24 | 8,376 | - | - |
| 1 Draughtsman | 24 | 8,080 | 2 | 620 | 12 | 3,960 | 10 | 3,500 | - | - | - | - |
| 2. <u>Miscellaneous</u> | | 9,400 | | - | | 400 | | 4,000 | | 2,500 | | 2,500 |
| Sub-total | | 164,458 | | 18,251 | | 52,331 | | 50,385 | | 34,561 | | 8,280 |
| Contingency | | 16,446 | | 1,825 | | 5,298 | | 5,039 | | 3,456 | | 828 |
| SUB-TOTAL | | 180,904 | | 20,076 | | 58,279 | | 55,424 | | 38,017 | | 9,108 |
| Inflation | | 55 792 | | 2,008 | | 12,239 | | 18,345 | | 17,640 | | 5,560 |
| Inflated Sub-total | | 236,696 | | 22,084 | | 70,518 | | 73,769 | | 55,657 | | 14,668 |
| Inflation | | 185,944 | | 4,694 | | 30,820 | | 112,004 | | 31,348 | | 7,078 |
| GRAND TOTAL | | 797,180 | | 51,630 | | 177,583 | | 450,386 | | 98,909 | | 18,672 |

Annex I

DEPARTMENT OF SURVEYS AND LANDS

ESTIMATE OF COST OF MAPS AND AIR PHOTOGRAPHS FOR 1981 CENSUS

A. Mapping

| Scale | | Numbers | Cost/Item | Cost/Set | Remarks |
|--------------------------|------------|---------|-----------|----------|---|
| 1. Small | 1: 5M | 1 | P.1.50 | P. 1.50 | Printed Sheet |
| | 1: 500 000 | 11 | P.0.25 | P. 2.75 | Dyeline Editions |
| 2. Medium | 1: 250 000 | 26 | P.1.00 | P.26.00 | Printed & Dyeline Editions |
| | 1: 100 000 | 25 | P.1.00 | P.25.00 | In production, should be available 1980 |
| | 1: 50 000 | /#220 | P.0.70 | P.154.00 | In production, Standard map scale |
| 3. Large (OPMS) | 1: 5 000 | /#100 | P.1.00 | P.100.00 | In production for urban areas |
| 4. Census Maps. District | | 12 | P.1.50 | P.18.00 | Produced by 1971 Census Office |
| (Various scales) Village | | 29 | P.1.50 | P.43.50 | " " " " " |

B. Air Photographs

| | | | | | |
|-----------|----------------------------|---|--------|---|---|
| 1. Medium | 1: 70 000 | - | P.0.50 | - | } Standard Cost per print Actual estimate of print numbers cannot be made Census staff to assess numbers |
| | 1: 40 000 | - | P.0.50 | - | |
| 2. Large | 1: 15 000 } 1: 10 000 } | - | P.0.50 | - | |

C. Air Photo Enlargements

| | | | | | |
|----------------|--|---|--------|---|--|
| Various scales | | - | P.5.00 | - | See B above Max. Enlargement factor + Seven (7) |
|----------------|--|---|--------|---|--|

D. Mosaics

| | | | | | |
|--------|-----------|--------|--------|----------|----------------|
| Medium | 1: 70 000 | /# 200 | P.1.00 | P.200.00 | Dyeline Prints |
| | 1: 50 000 | /# 80 | P.1.00 | P. 80.00 | |

NB. No attempt has been made to estimate the actual numbers of items required.

From: Government Printer
To: Government Statistician
Ref. No. GP. 3/5/1

E.W. Warner

12th May 1978

BOTSWANA NATIONAL CENSUS - PRINTING

I refer to the discussion between us, Government Statistician/Government Printer, in my office on Tuesday 9th May, 1978. Below are the estimated cost for the five items of print as you have outlined them to me.

- 1) 150,000 Leaflets - size A4 printed
black ink both sides on white typek
bond/70 gsm. paper including for setting.

cost P. 600,00

- 2) 1,000 copies Census Document Vol. 1
each 400 pp printed black with drawn-on
4 pp cover. Camera-ready copy to be
supplied.

cost P. 2300,00

- 3) 1,000 copies Census Document Vol. 2
each 200 pp printed black drawn-on 4 pp
cover. Camera-ready copy to be supplied.

cost P. 1220,00

- 4) 1,000 copies Analytical Vol. 3 each
152 pp printed black with drawn-on 4 pp
cover. Camera-ready copy to be supplied.

cost P. 980,00

- 5) 2,000 copies Office Manual - each 96 pp
printed black with drawn-on 4 pp cover.
Camera-ready copy to be supplied.

cost P. 850,00

Time allowance for printing the above items is:

- | | | |
|----|-------|-----------|
| 1) | allow | 2/3 weeks |
| 2) | " | 6/8 weeks |
| 3) | " | 4/6 weeks |
| 4) | " | 3/4 weeks |
| 5) | " | 3/4 weeks |

Annex III

HOUSEHOLD SURVEYS - 1978/79 TO 1987/88

| | |
|---------|--|
| 1978/79 | - National Migration Study Household Expenditure Survey Agricultural Survey |
| 1979/80 | Mortality, morbidity and fertility survey Agricultural Survey RIDS (incorporating in-kind income and own-consumption, nutrition) |
| 1980/81 | Agricultural Survey RIDS (incorporating in-kind income and own-consumption, nutrition) |
| 1981/82 | Population and housing Census Agricultural Census |
| 1982/83 | Mortality, fertility, family planning Social perspectives |
| 1983/84 | Income, consumption and expenditure - incorporating nutrition |
| 1984/85 | Labour force and migration |
| 1985/86 | Mortality, fertility, family planning |
| 1986/87 | Inter-censal Base-line Agricultural Survey |
| 1987/88 | Labour force and migration |

A core questionnaire incorporating basic demographic, migration, Labour force, income, expenditure, assets, health, etc. questions would be introduced in, say, 1979/80 or 1980/81.

The surveys referred to above would be base-line studies to measure absolute levels, whilst in other years changes only would be established. The base-line surveys would be added as separate modules to the continuous core questionnaire. The base-line surveys would be carried out as follows:-

- 3 - yearly - Mortality, fertility, family planning/labour force and migration
- 5 - yearly - Income, consumption and expenditure/nutrition/Agricultural (intercensal) Survey.
- 6 - yearly - Social perspectives - attitudes to policies etc.

The agricultural survey would be incorporated with the core questionnaire to be conducted continuously.