

UNITED NATIONS
ECONOMIC COMMISSION FOR AFRICA

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REPORT ON A MISSION TO LESOTHO
(14 April - 5 May 1984)

By

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Addis Ababa

This report is the sole responsibility of the writer. It has been submitted to the Department of Technical Cooperation, United Nations, which may alter or supplement these findings.

1. Summary. The next population census is scheduled to take place in April 1986, and the Bureau of Statistics (BOS) wish to set up a small census cartographic unit in their Demographic and Social Statistics Section to undertake the cartographic preparations. The Regional Adviser was able to put forward some recommendations on this and other cartographic aspects.

2. Although BOS have submitted cost estimates to the government they have been unable to start census preparations in earnest because no census budget has been allocated for the current financial year, which began in April. But initial census planning is being made on the assumption of an April 1986 enumeration.

3. Initial planning included the devising of a project work plan by the ECA Regional Adviser in Demographic Statistics who was participating in a UNFPA Basic Needs Assessment at the time of the cartographic mission. Proposed starting dates and the anticipated duration of each activity in the work plan were later filled in by senior BOS staff. But no project document requesting UNFPA or other external assistance has so far been formulated.

4. The census Enumeration Area (EA) frame is based on the 60 Constituencies and was originally devised for the 1960 census. The same EA's were also used for the 1976 census, so as there has been population growth, resettlement and the introduction of designated urban areas since then the EA's now require modification and restructuring. The Constituency boundaries themselves do not always coincide with the District boundaries and the Constituencies contain a widely differing number of inhabitants (and thus voters). It is the government's intention to revise the constituencies which can be done through the population census.

5. During the mission the Regional Adviser discussed the proposed field mapping activities with the Director and Deputy Director of BOS, and made fact-finding visits to other government departments and to the National University. The mission ended with a round-up meeting with the UNDP Deputy Resident Representative, who was informed of the mission's findings.

I. INTRODUCTION

6. The mission. The mission was undertaken at the request of the Bureau of Statistics, Ministry of Planning, Employment and Economic Affairs, Maseru. The terms of reference were defined by the Director of BOS as:

- a) to assess the needs of BOS in cartographic work relating to the 1986 population census;
- b) to cost the above needs for inclusion in a census project document;
- c) to look into future possible cooperation with relevant government departments in relation to this cartographic work;
- d) to prepare enumeration maps for the Maseru urban complex as an example for future such work to be undertaken by BOS in other urban centres.

II. CONSULTATIONS

7. During the mission discussions were principally held with the persons whose names are given in Annex I.

III. BACKGROUND

8. The most recent census was undertaken in April 1976 during which a total population of 1.2 million was recorded. Previous to this, censuses were held in 1956 and 1966, so in keeping with the 10-year cycle, the next census is proposed for April 1986, by which time it is expected the population will have risen to 1.5 million.

9. Administrative Structure. At the time of the 1976 census there were 9 districts, but in 1979 it was increased to 10 with the creation of Thaba Tseka District. All districts have the same name as their district headquarters except Leribe District whose headquarters is Hlotse (also known as Leribe), and Berea District whose headquarters is Teyateyaneng, known locally as T-Y.

10. Urban Areas. Each of the 10 district headquarters was declared an urban area under the Land Act, 1979. In addition there are another 6 urban areas (Maputsoe, Peka, Roma, Morija, Mapoteng and the new Maseru International Airport and its surrounding area) making a total of 16. During the mission the Regional Adviser obtained maps (mostly at 1:20,000) of each of the urban areas from Lands and Surveys which show the designated boundaries, and made out a list of 1:5,000 sheets that BOS should obtain for urban area census mapping. The list is shown in Annex II.

11. Wards or Principal Chiefs Areas. The 9 original districts are sub-divided into 24 wards, each headed by a ward (principal) chief. (Below this ward chiefs are 508 area chiefs and then come the village chiefs and headmen). The problem is that the wards do not always coincide with the district boundaries; this is particularly the case as regards Theba Tseka district which is made up of parts of four wards. The situation is as follows:

<u>District</u>	<u>No. of Wards</u>
Butha-Buthe	2
Leribe	2
Berea	3
Maseru	5
Mafeteng	4
Mohale's Hoek	4
Quthing	1
Qacha's Nek	1
Mokhotlong	2
Thaba Tseka	Parts of 4 wards

12. The Constituencies There are 60 Constituencies; these are based on the Ward (Principal) Chiefs boundaries, and consequently in some cases they also do not coincide with the district boundaries. Of the 60 Constituencies, 16 are split between 2 districts and 3 are split between 3 districts.

13. The Constituencies were formed in 1964 and the 1966 and 1976 census maps and EA codes are based on the Constituencies. Since the Constituencies were delimited there has been population growth and much resettlement, so now the Constituencies have widely differing numbers of inhabitants. In 1976 this ranged from a total population of 7,779 in Constituency 22 to 48,115 in Constituency 32.

14. Parliament Act 1983. As the Constituencies cross district boundaries and contain such a wide range of population, (and thus voters) the government wishes to revise them. Under the Parliament Act 1983 there should be a Constituency Delimitation Commission consisting of a Chairman and two other members, but the Commission has so far not been formed. The Parliament Act states under Section 17:

"Lesotho shall be divided into 60 constituencies... All Constituencies shall contain as nearly equal numbers of inhabitants of or above the age of 21 years as appears to the Commission to be reasonably practicable... Provided that the number of inhabitants of or above the age of 21 years of any constituency shall not exceed or fall short of the population quota by more than 10 per cent... "the population quota" means the number obtained by dividing by 60 the number of inhabitants of Lesotho of or above the age of 21 years".

15. In a brief study the Regional Adviser found that by taking the 1976 total population as the basis, only 20 constituencies are within the population quota range, and of those only about 12 are within one district. There is, therefore, a great need to rationalise the constituencies; this should be done through the next census.

16. In late 1983 the government approached BOS with a view to undertaking a 1984 population quick-count in order that the constituencies could be rationalised before the next elections. BOS submitted a budget for this, the amount of which was similar to their proposed 1986 census budget (C.M. 1 Million or \$800,000). It is the Regional Adviser's impression, however, that the idea of a population quick-count has now been dropped because of funding difficulties.

IV. PROGRESS

A) BOS Needs in Census Cartography

17. The Existing Situation. The EA frame was originally prepared for the 1966 census using the First Edition of the Lands and Surveys 60 sheets at 1:50,000, which cover the entire country. In 1976 the same frame was used with census staff updating the village list prior to the enumeration. The basis of each census map was a Constituency and each Constituency Supervisor used the master copy during the enumeration. No maps were issued to enumerators.

18. Cartographic and Related Problems. With reference to mapping a number of difficulties were encountered in the 1976 census. The main shortcomings and suggested remedial action is as follows:

a) Enumeration Area Size. Considering the mountainous terrain over most of the country and that horses are often the only possible means of transportation, the EA's are rather large in both population and area terms. The average population size was 1,129 persons, and even though two enumerators were assigned to each EA, it is not clear how duplication and omissions were avoided. There is, therefore, a need to modify the existing EA structure, so that each EA contains 100-150 households, which on an average household size of 4.7, gives a range of 470-705 persons.

b) Supervisors. The level of supervision was rather low with about 11 enumerators per supervisor; thus probably very little checking was done. For the forthcoming census the level of supervision should be brought up to 5 enumerators per supervisor.

c) EA Codes. The EA's are coded by constituency number (from 01-60) and EA number. But the coding is neither unique nor consecutive, and as constituencies cross district boundaries, duplication and omission may have occurred. The Regional Adviser found that duplication of an EA code number occurs 28 times, and one EA code (23.03) is triplicated, occurring in Maseru, Mohale's Hoek and Mafeteng districts. There, is therefore, a great need to completely renumber the EA's but with a "comparative list" of old and new EA numbers being made at the time.

d) EA maps. No actual redrawing of the topographic base maps for census purposes has been done; the constituencies, Supervisor's Areas and the EA's were drawn on a master copy with marking pens and pencil. The first Edition of the 1:50,000 sheets (produced in the 1950's) is almost totally devoid of village names, thus villages are not shown on the census maps, but their approximate positions are marked A, B, C etc..., with the letters referring to a village list. There are now revised editions of the entire 1:50,000 series produced from 1975-76 photography and published from 1980-83. These should be used as the basis for a complete revision of the rural EA's.

The 1:5,000 series and 1:2,500 orthophotos should be used for the urban areas, where completely new EA's should be demarcated. This is because of the introduction of designated urban boundaries since the last census which do not coincide with the present EA's.

19. Need for a Census Cartographic Unit. Considering the four major tasks described in the previous paragraph, plus the need for the Constituency Delimitation Commission to revise the constituencies (which would be based on census mapping and the census itself) it is clear that BOS have a real need to set up a census cartographic unit.

20. Space Requirements. Two rooms would be required:

Room 1: The drawing office. In this case it is suggested that the space in the centre of the present Demographic and Social Statistics office is sufficient for two drafting assistants. Each person should have a drawing table, chair and side-cupboard for equipment. Horizontal map cabinets, (2 pairs) which hold the paper copies of the maps, a light table and a large planning table should also be located here.

Room 2: The printing room. This should have black curtains on the windows to cut down the light when required. There should be a plan printing machine (small/medium semi-dry type), an A3 photocopier, a plan trimmer, two vertical plan cabinets for the original drawings or master copies, and two tables for cutting printing paper and piling newly printed maps.

21. The site of the drawing office is particularly suitable as it is next to the Office of the Deputy Director (and Head of Demography) who would supervise mapping operations. The Deputy Director has never received any formal training in cartography, but he is able to read maps easily and is well versed in census mapping techniques, particularly in producing "master copies" from topographic base maps.

22. Staff Requirements. The maximum number of relatively inexperienced tracers that a supervisor can efficiently handle is about 4 persons. If any more are employed they will inevitably be kept idle for part of the time waiting for the senior officer to prepare work for them to do. It is suggested, therefore, that two drafting assistants work under the Deputy Director, at least until the unit is fully operational; the staff and workload can then be reassessed. It should be pointed out that if more staff are employed, then more equipment would be required (tables, chairs, technical pens, etc) and thus more funds are needed.

23. Training Requirements. Local training that can be adapted to the specific needs of BOS would be preferable to an overseas course at this stage. When the project document is formulated consideration can be given to including an overseas census cartographic fellowship. Suitable courses are available in UK and USA, but at the moment there is no candidate to undertake such a course.

24. Training at Lands and Surveys. During the mission the Regional Adviser had an informal discussion with the Senior Surveyors and the Senior Cartographer at the Department of Lands and Surveys on whether it would be possible for the Senior Cartographer to hold a basic training course in cartography for two persons from BOS for a period of one month.

25. The Senior Cartographer noted that formal arrangements would have to be made through the normal channels, but he agreed in principle that such a course could be held. He pointed out, however, that he would be returning to the Directorate of Overseas Surveys (UK) in October 1984, so it would be preferable from his point of view that the training start as soon as possible. This information was conveyed to the Director and Deputy Director of BOS who noted that they would select two candidates from their staff and follow up the matter with the Commissioner of Lands and Surveys.

26. Training Curriculum. A preliminary curriculum was discussed with the Senior Cartographer. It would be preferable if the training could be practical and tailored to BOS needs. The following was suggested:

- a) Basic drawing, hand lettering and stencilling on drafting film and tracing paper, using technical pens;
- b) General map reading and appreciation of scales, particularly using 1:50,000 and 1:5,000 maps and 1:2,500 orthophoto maps;
- c) Use of the Map-o-Graph (map projector). The production of Thaba Tseka urban area maps at 1:5,000 was put forward as a training exercise;
- d) Use and general maintenance of an Oce semi-dry diazo printing machine;
- e) A short final test.

27. Field Mapping Work. As new government posts are frozen, BOS would have to use their existing field staff to do the cartographic field work. This would mean that most of the present Agricultural Production Survey staff consisting of 56 Enumerators, 15 Supervisors and 4 Senior Supervisors, would have to be trained and employed on census mapping.

28. It was initially hoped that by spreading the programme out the field staff would be able to do their present agricultural survey and the census mapping at the same time, but the Director of BOS thought this would not be possible; because of the heavy workload neither would be done properly. He affirmed, therefore, that when the census mapping started, then the agricultural survey would have to stop.

29. Personnel, Time and Vehicles for Field Work. A one-week training course in field mapping and household pre-numbering should be held prior to the start of field activities. A suitable starting date for census mapping would be August or September 1984, as the agricultural

year ends in July. It is suggested that each field team should consist of four field assistants, a supervisor, a driver and a Land Rover. But it is estimated that if the work (both urban and rural) is to be completed in 9 months, as stated in the work programme, then practically all the 75 field staff, plus 12 drivers and 12 vehicles would be required. A comparative table based on work rates achieved elsewhere in the region is shown below:

Field Work with Household Counts and House Numbering

<u>Teams and Supervisors Required</u>	<u>Field Assistants Required</u>	<u>Vehicles Required</u>	<u>Time Required to complete mapping</u>
6	24	6	18 months
7	28	7	15 months
9	36	9	12 months
11	44	11	10 months
12	60	12	9 months

30. Methodology for Field Mapping and Production of Census Maps. The rural areas should be tackled first, but to start with all teams should work near Maseru so that early problems can be easily dealt with. Actual methods were not discussed in detail during the mission but some suggestions are given in the following paragraphs.

31. It is thought there will not be time to complete the drawing of census maps on drafting film before the census. The aim should be, therefore, to have a complete set of "master copies" of the base maps that can be photocopied, or "master transparencies" that can be diazo-printed or photocopied.

32. Office Preparations for the Rural Areas: a) Two sets of the 1:50,000 sheets should be obtained to start with, individual sheets can then be purchased as required. These are cut along the margins and stuck together to form constituency maps, i.e. so that each rural constituency has a mosaic base map of its own. Note: these should not be "cut-outs" (cutting along the constituency boundary lines). Cutting should be along the sheet grid lines to form "rectangular" mosaics.

b) The existing constituency and EA boundaries and designated urban boundaries are marked on these new constituency maps with marking pens. The team supervisors should be given the original mosaic map to use in the field, whilst two photocopies are made for the team members, (one photocopy for each pair) so that one field assistant does household counts and the other mapping.

34. Field Work in the Rural Areas: a) Work should be on a basis of 100-150 households per EA (470-705 persons): if the household count gives a higher figure then the EA is sub-divided, if it is within the range it is left as it is, if below, it is amalgamated with another EA.

b) The 1:50,000 constituency maps are updated in the field; the positions of correctly named villages are checked, new villages are plotted and named, abandoned villages are deleted. New roads, tracks and footpaths are plotted, prominent stores and all schools are shown; hills, streams and area names are recorded.

c) On the field forms at each village: record the name of the village, number of households and the estimated population.

d) At each household: record the number of residents and number the household (e.g. with chalk) with the numbers being shown as a fraction - EA number at the top, household number underneath.

e) Write new EA boundary descriptions and prepare "comparative lists" showing the old and new EA numbers.

f) When a constituency has been restructured in this way, the Supervisors' Areas are delineated on the basis of 5 EA's to a Supervisor's Area.

35. Field Work in the Urban Areas. The same general procedure is followed except that:

a) Up-to-date 1:2,500 orthophoto maps (where available) are used to identify the features; the features are then plotted on the 1:5,000 line maps;

b) When the urban area boundary has been plotted; enumeration blocks (identifiable areas) are defined first, then new EA's are delineated within the blocks.

B) Cartographic Equipment

36. A list of suggested cartographic equipment is shown in Annex III. The amounts are considered to be the minimum requirements for two drafting assistants.

37. A preliminary list was compiled during the mission, and a copy was left with BOS. Now that more information on prices and specifications has been obtained, the Regional Adviser has made certain changes to the list (eg a cheaper photocopier). The list in Annex III, therefore, succeeds the earlier version. Note: Due to its short shelf life; Item 96-Intermediate Polyester Transparency Film, should not be purchased until it is required for use.

C) Cooperation with Other Government Departments in Cartography

38. If the field mapping programme and the census result in a good set of maps they will be in much demand by other government departments and agencies. This applies particularly to the rural areas, where although the 1:50,000 Lands and Surveys sheets do show village names, they may be incorrect. This is because field completion of the maps was of varying quality, being partly done by university students during summer holidays, and partly by Lands and Surveys staff.

39. Cooperation can be considered between the following in particular;

a) Department of Lands and Surveys. The proposed link with Surveys regarding training and the acquisition of their base maps has been previously mentioned. Being the authority for mapping in the country, Lands and Surveys should receive a copy of every census map produced so they can update their own material. In return it would be worthwhile to see if an agreement on "free exchange" could be arranged, i.e. that in return for census maps, BOS receive their maps free of charge (up to six copies of each) from Lands and Surveys. (At the moment BOS pay E1-50 (\$1-20) for each copy).

b) Town and Country Planning Division. The Acting Chief Physical Planner noted that a comprehensive town plan for Maseru with SIDA and UN Habitat assistance has been proposed. It may be possible (for example) for BOS to assist the project by releasing provisional field mapping household counts for internal use only. In return Town Planning (and Lands and Surveys) should keep BOS informed of any changes to urban boundaries.

c) Land Use Planning Institution. The Land Use Planning Project (with FAO assistance) has a small drawing office with a UN volunteer Cartographer. If Phase II of their project goes ahead and the UNV returns from home leave, he may be able to offer advice on setting up the BOS Cartographic Unit. Again, a free exchange of maps and information would be useful. The UNV Cartographer has produced a map showing ward chiefs' boundaries at 1:250,000; a copy should be obtained.

d) National University of Lesotho. The Geography Department at the University assisted BOS with the production of the 1976 population density report map and calculation of the density figures by EA. As in the past, the Department of Geography would be extremely interested in the field mapping; they in fact have been doing some themselves in conjunction with the university's. District Level Planning and Rural Development Project. It is also suggested that the Head of the Documentation and Publication Division (Mr. David Ambrose) be informed of the progress of the field mapping. He is an authority on field mapping and on Lesotho itself (having written the definitive guide-book) and may be able to offer advice.

D) EA Maps for Maseru

40. Due to a shortage of time and transport, no enumeration area maps were prepared for Maseru during the mission. But the Regional Adviser did manage to make a preliminary study of the Maseru Urban Area situation. The problem is to find a basis for census and household survey mapping. Unlike the rural areas where the existing EA structure will be modified, the urban area EA's, and particularly Maseru, will have to be demarcated from scratch. The present situation for the Maseru Urban Area, using the 1976 EAs is as follows:

<u>Maseru Urban Area - 1976 EA Totals</u>	
<u>EA</u>	<u>Population</u>
32.01	966
32.02	1,455
32.03	3,662

<u>EA</u>	<u>Population</u>
32.04	7,794
32.05	9,410
32.06	5,927
32.07	550 (another 32.07 is in Berea District)
32.08	1,942
32.09	13,505
	<hr/>
	45,211 (Constituency total)
30.01	2,348
30.02	2,655
30.03	460 (Masianokeng village only)
Maseru Grand total	50,674

41. So Maseru consists of one Constituency and a portion of another. It can be seen that the EA's contain widely differing totals, and that 30.03 is cut in half by the urban boundary.

42. Last year, as part of preliminary planning for an Income and Expenditure Survey, the Deputy Director devised 27 "Enumeration Blocks" which could later be sub-divided into EA's and segments. Due to funding problems he was only able to cover the main built up area. This is in fact only a small proportion of Maseru Urban Area, which also contains traditional villages and agricultural land.

43. The BOS Enumeration Blocks do not coincide with the 1976 EA's nor with the Lands and Surveys Registration Districts (which often follow plots of land rather than roads) but the Enumeration Blocks seem to be the most viable basis for statistical mapping in Maseru.

44. In order to visualise the existing situation better the Regional Adviser drew (with coloured marking pens) all the different boundaries on a 1:20,000 map of Maseru Urban Area. These were the following:

- 1967 Lands and Surveys Land Registration Districts
- 1976 District boundary (Maseru and Berea Districts).
- 1976 Constituency boundaries
- 1976 EA boundaries
- 1979 (Land Act) Maseru Urban Area Boundary
- 1979 District Boundary
- 1983 BOS Enumeration Blocks.

45. Relatively few of the lines coincided. The problem is that there are no wards or town councillor's areas in Maseru, only an Urban Land Committee and the Town Clerk's Office. Outside the central built up area (but still within the designated urban area) the chiefs still have influence over land distribution, and the village and location boundaries will have to be plotted with the assistance of the chiefs. The Deputy Director noted that in the absence of any legally defined boundaries in Maseru Urban Area, he would continue with the delineation of Enumeration Blocks, but

added that he would consult the relevant town and traditional authorities as he did so. It would also be advisable to inform them that the Enumeration Blocks are being formed for census and household survey purposes only, and have no other significance.

V. CONCLUSION

55. It will be apparent from the report that there is a great need for preparatory census activities to be started, otherwise they will be rushed and the quality may suffer.

56. A Donor's Conference is being held in Maseru in June 1984, at which government Ministries are presenting their accomplishments and problem areas which need assistance. The Ministry of Planning, Employment and Economic Affairs are forwarding proposals for assistance with the census and household survey projects. It is the Regional Adviser's impression that the government is awaiting the outcome of the conference before proceeding further with funding for these projects.

57. Provided that the government gives approval for census preparations to start this year, it was provisionally agreed with the Director of BOS that the Regional Adviser would undertake a mission to prepare a manual for field mapping teams and assist with the training programme.

ANNEX I

LIST OF PERSONS WITH WHOM DISCUSSIONS WERE HELD

Bureau of Statistics

Mr. L.T. Tuoane, Director
Mr. A.M. Mpiti, Deputy Director, Head of Demography and Social Statistics Section
Ms. Mpho Morojele, Statistician/Demographer
Mr. L. Phamotse, Head, Data Processing Section
Mr. J.N. Mohapi, Senior Statistician (Agricultural Statistics)
Mr. P. Nthabana, Senior Field Officer
Mr. Kelebone Nyokong, Senior Statistician (Foreign Trade)
Mrs. N. Modise, Statistical Officer

Department of Lands, Surveys and Physical Planning, Ministry of Interior

Mr. Sello Mosisili, Chief Surveyor
Mr. Jim McCulloch, Senior Surveyor (Topographic)
Mr. Mike Curtis, Senior Surveyor (Cadastral)
Mr. Gordon Stredwick, Senior Cartographer

Town and Country Planning Division, Ministry of Interior

Mr. Steve Kingsley, Acting Chief Physical Planner
Mr. Makalo Theko, Town Planning Officer

Ministry of Interior

Mr. Z.J. Peko, Chieftainship Affairs Officer

National University of Lesotho

Mr. Qalabane Chakela, Head, Department of Geography
Mr. David Ambrose, Head, Documentation and Publication Division, Institute of Southern African Studies
Mr. L.V. Leotlela, Cartographer, Department of Geography

Lesotho Business Services (Pty) Ltd.,

Mr. C.D. Sykes, Director
Mr. Rhys Williams, Sales Manager

United Nations

Mr. Jacques Godfrin, Deputy Resident Representative UNDP
Mr. O.M.A. Mukhtar, Team Leader, Land Use Planning Project (FAO)
Mr. F.R. Berding, Land Use Planner, Land Use Planning Project (FAO)

ECA

Mr. E.A. Colecraft, Regional Adviser in Demographic Statistics.

ANNEX II

PURCHASE OF 1:5,000 MAPS FROM DEPARTMENT OF LANDS, SURVEYS AND
PHYSICAL PLANNING - 1 PRINT OF EACH

- | | |
|---|---|
| 1. MASERU - (MISSING SHEETS - OTHER
C/5-400480 20 SHEETS ALREADY
C/5-440390 OBTAINED)
C/5-440480
C/5-480480 | 7. MORIJA
C/5-440750 (OPTIONAL)
C/5-440780
C/5-480750
C/5-480780 |
| 2. MAPUTSOE
N/5-840940
N/5-840970
C/5-840000 (OPTIONAL)
N/5-880940
N/5-880970
C/5-880000 | 8. ROMA
C/5-640570
C/5-680540
C/5-680570
C/5-680600
C/5-720540 (OPTIONAL)
C/5-720570 (OPTIONAL)
C/5-720600 |
| 3. LERIBE
N/5+960910
N/5+960940
C/5+960970
N/5+920910
N/5+920940
C/5+920970 (OPTIONAL) | 9. MOHALE'S HOEK
S/5-400350
S/5-400380
S/5-440350
S/5-440380 |
| 4. BUTHA-BUTHE
N/5+760790
N/5+760820
N/5+760850
N/5+720790
N/5+720820 | 10. MAFETENG
C/5-200960
C/5-200990
S/5-200020
C/5-240960
C/5-240990 |
| 5. PEKA
C/5-680030
C/5-680060 (OPTIONAL)
C/5-720030
C/5-720060
C/5-760030
C/5-760060 | 11. MOKHOTLONG
C/5-040360/29
C/5-040390/29
C/5-040420/29
C/5-080360/29 (OPTIONAL)
C/5-080390/29
C/5-080420/29 |
| 6. TEYATEYANENG
C/5-680210
C/5-680240
C/5-680270
C/5-720210
C/5-720240
C/5-720270 | 12. THABA-TSEKA
NON-STANDARD 1:5000 SINGLE SHEET
C+380645 (1:2500)
C+380660 (1:2500)
C+380675 (1:2500)
C+360645 (1:2500)
C+360660 (1:2500)
C+360675 (1:2500) |

13. QUTHING

S/5-640620
S/5-640650
S/5-640680 (OPTIONAL)
S/5-680620
S/5-680650
S/5-680680 (OPTIONAL)

14. QACHA'S NEK

S/5+360290
S/5+360320
S/5+320290
S/5+320320

15. MAPOTENG

No 1:5000 (or 1:2500) MAPPING
AVAILABLE. THE 1:20,000 MAP
SHOWING THE URBAN AREA BOUNDARY
SHOULD BE USED.

16. INTERNATIONAL AIRPORT

1:5000 MAPPING AND ORTHOPHOTOS
ARE AVAILABLE, BUT THEIR USE IS NOT
RECOMMENDED. THE 1:20,000 MAP
SHOWING THE URBAN AREA BOUNDARY SHOULD
BE USED.

ANNEX III

LESOTHO: CARTOGRAPHIC EQUIPMENT LIST
(LOCAL AGENTS FOR OZALID AND NASHUA)

AVAILABLE FROM:

LESOTHO BUSINESS SERVICES (PT4) LTD
LBS HOUSE, P.O. BOX 949,
KINGSWAY
MASERU, LESOTHO

ITEM NO	ITEM	QUAN- TITY	UNIT	SPECIFICATION	UNIT COST MALUTI	TOTAL COST MALUTI
1.	PLAN PRINTING MACHINE	1	-	OCE 200 SEMI DRY-WITH STAND	2,980	2,980
2.	PLAN TRIMMER	1	-	OCE 911 1500 mm (59") CUT-WITH STAND	455	455
3.	PRINTING PAPER	10	ROLLS	OZALID SEMI DRY XPAPER - NORMAL WEIGHT BLACKLINE - 7.62 mm (30")x20 metres	13	130
4.	PRINTING PAPER	10	ROLLS	OZALID SEMI DRY XL PAPER NORMAL WEIGHT BLACKLINE - 1016mm(40")x20 metres	16	160
5.	DEVELOPER	5	CARTONS	DEVELOPING POWDER TYPE XL - BLACKLINE - 10 LITRE CARTONS	23	115
6.	DRAWING STANDS	2	-	OZALID 'PH' STAND	125	250
7.	DRAWING BOARDE	2	-	NOVALID.SIZE 1070x800mm(42.1" x31.5") SUPPLY WITH FIXING SCREWS NOTE: PARALLEL MOVEMENT FITTINGS AND STRAIGHT EDGE <u>NOT</u> REQUIRED	73	146
8.	DRAFTING/ OFFICE CHAIRS	2	-	4 STAR DRAFTING/OFFICE CHAIR	120	240
9.	PENCIL TRAYS	2	-	ROGA PENCIL TRAYS (FOR DRAWING BOARDS)	23	46
10.	VERTICAL MAP CABINETS	2	-	MULTIPRONG TYPE. REF N° AO-H46	835	1,670
11.	PLAN HANGING TAPE	5	ROLLS	PRE-PUNCHED TAPE - 42mmx55 metres-REF.N°4255	13	65
12.	HORIZONTAL MAP CABINETS	2	-	10-DRAWER PLAN CABINET REF No.AO-10	1,230	2,460
13.	STANDS FOR ABOVE UNIT	2	-	FOR AO-10	60	120
14.	LIGHT TABLE	1	-	MODEL A1. 1030x825 mm. (40.5"x32.5")	515	515
15.	STAND FOR ABOVE UNIT	1	-	FOR MODEL A1	77	77

ITEM NO	ITEM	QUAN-TITY	UNIT	SPECIFICATION	UNIT COST MALUTI	TOTAL COST MALUTI
16.	DRAFTING FILM	10	ROLLS	OZATEX DOUBLE MATT 0.08mm (0.003") 762mm(30") x 20 metres CAT No.A3.01A17	102	1,020
17.	DRAFTING FILM	10	ROLLS	OZATEX DOUBLE MATT 0.08mm (0.003") 1016mm(40") x 20metres CAT No.A3.01A19	121	1,210
18.	TRACING PAPER	5	ROLLS	GATEWAY 90 G.S.M. 762mm(30")x20metres CAT No.A4.01C07	24	120
19.	TRACING PAPER	5	ROLLS	GATEWAY 90 G.S.M. 1016mm(40") x 20 metres CAT No.A4.01-C-09	29	145
20.	GRAPH PAPER	2	ROLLS	SECTIONAL MATERIAL DRAWING PAPER-GREEN 750 mm (29.5")x10 metres REF No.596-CAT.No.A4. 01G01	14	28
21.	GRAPH PAPER	1	PAD	SECTIONAL MATERIAL DRAWING PAPER-GREEN SIZE A2.420x594 mm REF No.406L-CAT No.A4.01H01	11	11
22.	GRAPH PAPER	1	PAD	SECTIONAL MATERIAL DRAWING PAPER - GREEN SIZE A4. 210x297 mm REF No.406 ¹ / ₄ L - CAT No.A4.01H06	4	4
23.	ROTRING 2000	2	-	0.18 mm REF No.151-018	16	32
24.	ISOGRAPH <u>PENS</u>	2	-	0.25 REF No.151-025	15	30
25.	"	2	-	0.35 REF No.151-035	13	26
26.	"	2	-	0.5 REF No.151-050	13	26
27.	"	2	-	0.7 REF No.151-070	13	26
28.	"	2	-	1.0 REF No.151-100	13	26
29.	"	2	-	1.4 REF No.151-140	13	26
30.	"	2	-	2.0 REF No.151-200	13	26
31.	ROTRING 2000	10	-	0.18 mm REF No.751-018	12	120
32.	ISOGRAPH <u>CONES</u>	10	-	0.25 REF No.751-025	9	90
33.	"	5	-	0.35 REF No.751-035	8	40
34.	"	3	-	0.5 REF No.751-050	8	24
35.	"	3	-	0.7 REF No.751-070	8	24
36.	"	3	-	1.0 REF No.751-100	8	24
37.	"	3	-	1.4 REF No.751-140	8	24
38.	"	3	-	2.0 REF No.751-200	8	24

ITEM NO	ITEM	QUAN-TITY	UNIT	SPECIFICATION	UNIT COST MALUTI	UNIT COST MALUTI
39.	ROTRING 2000 ISOGRAPH PEN HOLDERS	20	-	SINGLE REF No. 515-207	2	40
40.	ROTRING PEN CLEANING UNIT	1	-	REF No. 585-281	12	12
41.	ROTRING CLEANING CONCENTRATE	4	PKTS	REF No.585-270	9	36
42.	ROTRING DRAWING INK	4	BOTTIES	B LACK"TT" - 29 ml. REF No. 595-217 6083	3	12
43.	ROTRING DRAWING INK	4	BOTTLES	BLACK "TT" -250 ml. REF No. 595-317	24	96
44.	PENCILS	1	BOX	STAEDTLER MARS LUMOGRAPH-LOCAL 2B - REF No.100	8	8
45.	PENCILS	1	BOX	STAEDTLER MARS LUMOGRAPH-LOCAL B- REF No.100	8	8
46.	PENCILS	2	BOXES	STAEDTLER MARS LUMOGRAPH - LOCAL HB -REF No.100	8	16
47.	PENCILS	1	BOX	STAEDTLER MARS LUMOGRAPH- LOCAL H-REF No.100	8	8
48.	PENCILS	1	BOX	STAEDTLER MARS LUMOGRAPH - LOCAL 2H -REF No.100	8	8
49.	COLOURED PENCILS	1	CASE	EAGLE VERITHIN - 12 ASS. SHADES - REF No.797	6	6
50.	MARKING PEN	1	-	PENTEL WHITE - REF No. 100W.S	4	4
51.	PENCIL SHARPENERS	12	-	M + M MINI-SAFE REF. No. 679/6	2	24
52.	MARKING PENS	1	PKT	SAKURA SOLID MARKERS -- 9 ASS. COLOURS REF. X.S.C.	3	3
53.	ROTRING ERASERS	40	-	TB-20 REF No.551-320	2	80
54.	ROTRING ERASERS	2	-	B1-RASOR HOLDER REF.No.551-100	2	4
55.	ROTRING ERASERS	1	BOX	B1-RASOR INK REFILLS.REF.No.551- 105	1	1
56.	ROTRING ERASERS	1	BOX	B1-RASER PENCIL REFILLS. REF No.551-110	1	1
57.	OLFA CUTTER	1	-	TYPE A - CAT No. A1.06A14	3	3
58.	OLFA CUTTER	1	-	ART KNIFE-CAT No.A1.06A15		
59.	SPARE CUTTING BLADES (10 PER PKT)	1	PKT	TYPE A - CAT No.A1.06A27	2	2
60.	SPARE CUTTING BLADES (25 PER PKT)	1	PKT	TYPE ART-CAT No.A1.06A28	2	2
61.	SCISSORS	1	-	LENGTH 178 mm (7") CAT No. A1.06B07	9	9

ITEM NO	ITEM	QUAN-TITY	UNIT	SPECIFICATION	UNIT COST MALUTI	TOTAL COST MALUTI
62.	PLANIMETER	1	-	KOIZUMI PLANIMETER WITH ZERO SETTING DEVICE. REF. NO. KP27	165	165
63.	TEE SQUARE	1	-	UCHIDA-LENGTH 900 mm (35") REF No. 806-5090	13	13
64	ROTRING PROTRACTOR	1	-	150 mm(6") CIRCULAR REF No.821-425	2	2
65.	RULERS	2	-	LINEX 300 mm(12") REF. No. S30 M	4	8
66.	STEEL RULER	1	-	ULMER GRADUATED MM/CM - 300 mm(12") - CAT.No. A1.09D09	17	17
67.	STEEL RULER	1	-	ULMER GRADUATED MM/CM - 1000 mm (1 METRE) - CAT No. A1.09D12.	61	61
68.	STEEL STRAIGHT EDGE	1	-	ULMER <u>NOT</u> GRADUATED - 1500 mm - CAT No.A1.09.D.19	56	56
69.	STEEL STRAIGHT EDGE	1	-	ULMER <u>NOT</u> GRADUATED - 500 mm (20") - CAT No. A1.09D16	23	23
70.	ROTRING CIRCLE TEMPLATE	1	-	1-24 mm - REF No.840-629	8	8
71.	ROTRING FRENCH CURVES	2	SETS	REF. No.830-550	3	6
72.	ROTRING LETTERING STENCILS - UPRIGHT	6	-	1.8 mm REF No.340-018	14	84
73.	-UPRIGHT	4	-	2.5 mm REF No.340-025	13	52
74.	"	2	-	3.5 mm REF No.340-035	13	26
75.	"	2	-	5.0 mm REF No.340-050	15	30
76.	"	1	-	7.0 mm REF No.340-070	15	15
77.	ROTRING LETTERING STENCILS - INCLINED	2	-	1.8 mm REF No.341-018	14	28
78.	"	1	-	2.5 mm REF No.341-025	13	13
79.	"	1	-	3.5 mm REF No.341-035	13	13
80.	"	1	-	5.0 mm REF No.341-050	15	15
81.	"	1	-	7.0 mm REF No.341-070	15	15
82.	ROTRING STENCIL GUIDES	2	-	LENGTH 350 mm REF No. 545-635	17	34
83.	ANGLE-POISE	2	-	LUXO EQUIPOISED - WHITE- LENGTH 800 mm - REF No.L2	44	88
84	LUXO TABLE CLAMPS (FOR ABOVE UNITS)	2	-	WHITE - BRACKET A -	9	18

ITEM NO	ITEM	QUAN- TITY	UNIT	SPECIFICATION	UNIT COST MALUTI	TOTAL COST MALUTI
85	RUBBER CEMENT	1	-	SIZE 250 ml.	2	2
86	PENTEL ROLL-ON GLUE	1	-	SIZE 30 cc	2	2
87	CELLOTAPE	10	ROLLS	25 mmx66metres REF No.600	3	30
88	MAGIC MENDING TAPE	5	ROLLS	24 mm x 50 metres REF No.810	5	25
89	MASKING/DRAFTING TAPE	10	ROLLS	24 mm x 40 metres REF No.230 B	3	30
90	MASKING/DRAFTING TAPE	2	ROLLS	48 mm x 40 metres REF No.230 B	6	12
91	PAPER WEIGHTS	2	-	SMALL-76x50x25 mm - REF. A1.11D10	17	34
92	PAPER WEIGHTS	2	-	LARGE-152x76x25 mm - REF.A1.11D11	26	52
93	CUTTING MAT	1	-	UCHIDA (GREEN)90x60 cm (35x24") CAT.A1.06.D.03	48	48
94	MARKING PENS	10	-	ARTLINE 70-BULLET POINT-RED	1	10
95	ERASERS	40	-	LAUFER FOR PENCIL WORK-- REF. 8801	0.12	5
96	INTERMEDIATE POLYESTER TRANSPARENCY FILM	10	ROLLS	OZALYNE/XPLF FILM 0.05 mm (0.002") SEMI-DRY - 762 mm (30")x20m	108	1080
97	PLAIN PAPER COPIER	1	-	NASHUA MODEL 4310 MAXIMUM COPY SIZE A3 -	4900	4900
98	CABINET	1	-	FOR ABOVE NASHUA 4310	250	250
99	COPY PACKS	2	-	FOR THE ABOVE	100	200
100	PLAIN BOND PAPER	10	REAMS	SIZE A3	14	140
101	PLAIN BOND PAPER	10	REAMS	SIZE A4	7	70
102	STEEL STATIONARY CUPBOARD	1	-	KROST - 2 x 1 x 0.5 metres	169	169
TOTAL						20,791
PLUS 10% INFLATION COSTS						2,079
GRAND TOTAL						22,870
M.22,870 ÷ 1.25						
= <u>US\$18,296</u>						