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**INVENTORY OF SOFTWARE UTILIZED
FOR STATISTICAL DATA PROCESSING IN AFRICA**

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INTRODUCTION

This inventory represents the second attempt by the Statistics Division of the United Nations Economic Commission for Africa to document the availability and usage of statistical software packages in the African region. It was thought that a collation of information such as this would serve as a good indicator of the pervasiveness of computer technology in the region as well as the degree of willingness to use such technology in the performance of statistical functions. The aim was not only to look at the usage of computer software in National Statistical Offices (NSO's), but also to examine their utilization in other government agencies, universities and other institutions where statistical and/or database functions are being performed.

To this end, questionnaires requesting EDP details were sent out during the second half of 1993 to all the known Statistical EDP centres in the region. The questionnaire addressed subjects such as type of personnel available in these offices, hardware availability and application software usage. Where responses were not received for the questionnaire, relevant data from the previous survey (1991) were used. In addition, the survey was used to produce the 1993 edition of the Directory of Electronic Data Processing Centres and Experts in Africa, which gives a much more detailed listing of hardware/software utilized by these centres.

The results of this examination bear out the fact that statistical software packages are not the predominantly used ones in this region. While some forty three packages were reported to be in common usage, only seventeen of those mentioned were packages designed primarily for statistical applications. It would appear from these findings that the software packages of pre-eminent popularity in EDP centres in the region are the widely available DBASE III/IV, LOTUS 1-2-3 and WORDPERFECT which among them account for approximately 44% of the software packages that have been reported as being used in the region. Further more, these packages appear to be used extensively in the places where they occur, with some 60% of respondents indicating that they used these packages frequently.

With regard to the statistical packages being used, the "tool of choice" appears to be the SPSS/SPSS PC package. Of the EDP centres which reported using any statistical packages, 43% indicated that they use SPSS/SPSS PC, with one half of those respondents indicating extensive usage of the software. The next most popularly used package was IMPS which was reported by 10% of respondents to be one of the software packages which they utilized at their centre.

It is not clear what inferences should be drawn by the apparent preference of EDP centres in Africa for DBASE and LOTUS as well as other slightly less popular and more general office-automation type commercial software such as WORD, HARVARD GRAPHICS, EXCEL, etc. It may be inferred that these software packages are usually cheaper and easier to acquire than statistical packages which in many instances require a significant initial outlay as well as annual licencing charges. What is more, some statistical packages are not available because of a lack of distribution centres in the region, from which they can be supplied. Of some importance also, is the fact that some of the statistical software is provided by projects and may therefore may be project specific. A good example of this is software that is provided for census purposes, like CENTS/COCENTS.

A contention may also be made that these more widely used packages may be more user friendly and require less training prior to usage. Whatever the reasons, the inquiry does serve to demonstrate the need for:

- closer statistical computing linkages between member states,
- EDP experience sharing between National Statistical Offices,
- creation of statistical software user groups within the region,
- circulation of a comprehensive inventory of statistical software packages available, and
- formulation of recommendations for "statistical software of choice" for the region which makes for comparability of output and ease of acquisition and dissemination of data among member countries.

ORGANIZATION OF THE INVENTORY

The inventory is organised in the form of tables, the first providing a summary of package features , the second a countrywise inventory of the statistical packages used in Africa

and the third provides a summary of the other packages used in Africa. The package attributes: language of the package, where available, micro/mainframe availability and the features claimed, along with the frequency of usage for each centre are provided.

The package uses are indicated by use of letter(s) which signify the type of statistical application the package is capable of handling. These package features are given as footnotes to the table. The features range from S -Survey Administration to K - Statistical Expert System. For example, package TSP is written in FORTRAN language and caters for Data Management - M, Descriptive Statistics - D, and Statistical Analysis - A, applications.

TABLE.1

SUMMARY FEATURES OF THE STATISTICS PACKAGES USED IN AFRICA
SOFTWARE A T T R I B U T E S

SOFTWARE		ATTRIBUTES			
PACKAGE NAME	LANGUAGES OF PACKAGE	AVAILABLE ON		FACILITIES	NUMBER OF SITES REPORTING UTILIZATION OF PACKAGE
		MICRO-COMPUTER	MAIN-FRAME MINI		
1. BMDP	Fortran	x	x	EMTDAG	1
2. CENTS/COCENTS	Cobol	x	x	T	9
3. CHIWRITER		x		T	3
4. CONCOR	Cobol	x	x	E	7
5. COXTALLY	Cobol	x		T	2
6. EPIINFO	-	x		Epidemiological Analysis	5
		x		EMTD	10
7. IMPS		x		S	2
8. ISSA		x		Demographic Analysis	1
9. MORTAL		x		G,S	1
10. POPMAP		x		SEMTDAGRI	8
11. SAS	PLI, Assembler & C	x	x	SEMTDAGRIK	43
12. SPSS/SPSS PC	Fortran, C	x	x	EMTDAGRI	5
13. STATGRAPHICS	APL, C	x		ECONOMETRICS	3
14. STATITCF	-	x			
		x			
15. STATVIEW		x	x		1
16. TDP		x			2
17. TSP	Fortran			MDA	2

Facilities available/claimed:

C-Computer Assisted Telephone Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive Statistics; A-Statistical Analysis; G-Graphics; R-Report writing; I-software Interface; K-Statistical Report System.

Table 2

INVENTORY OF STATISTICAL PACKAGES UTILIZED IN AFRICAN EDP ENVIRONMENT

COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
ALGERIA/ALGERIE 1. OFFICE NATIONAL DES STATISTIQUES	CENTS/COCENTS (E)	1	T
	CHIWITER (E)	2	R, T, M G
	CONCOR (E)	3	E
	IMPS (R)	2	E, M, T, D
	SPSS (E)	2	SEMTDAGRIK
BENIN 2. Cenadi	SPSS (E)	3	SEMTDAGRIK
	TDP (O)	1	MDA
3. Credesa	Kedit (E)	2	E
	SPSS (E)	2	SEMTDAGRIK
4. Institut national de la statistique et de l'analyse economique	Coxtally (O)	2	SEMTDAGRIK
	SPSS (E)	2	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer; 3-Both.
Package Uses: S-Survey Administration; C-Computer Assisted Telephone Interviewing; E-Editing; M-Data Management; T-
Tabulation; D-Descriptive Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-Software Interface; K-
Statistical Expert System.

Table 2

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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
BOTSWANA			
5. Government Computer Bureau	SPSS (E)	2	SEMTDAGRIK
6. University of Botswana	SPSS (E)	2	SEMTDAGRIK
BURKINA FASO			
7. Cenatrim	EPIINFO	2	Epidemiology
	INFOLINK (E)	3	I
8. DEP/MEBAM	SPSS (O)	2	SEMTDAGRIK
9. DEP/MS-AS	BMDP (R)	2	EMTDAG
	EPIINFO (O)	2	Epidemiology
	SPSS (O)	2	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
Software Interface; K-Statistical Expert System.

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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
BURUNDI 10. Bureau de la planification de l'emploi et des ressources humaines	SPSS (O)	2	SEMTDAGRIK
11. Centre de perfectionnement et de formation en cours d'emploi	STATVIEW (R)	2	ETMDAG
12. Centre national de l'informatique	SAS SPSS (R)	1 1	SEMTDAGRI SEMTDAGRIK
13. INADES	SPSS (O)	2	SEMTDAGRIK
14. Institut des sciences agronomiques du Burundi (ISABU)	SPSS (E) STATGRAPHICS (O) STATICF (E)	2 2 2	SEMTDAGRIK EMTDAGRI Econometrics

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
BURUNDI 15. Institut de statistique et d'études économiques du Burundi	SPSS (E)	2	SEMTDAGRIK
16. Projet Santé et population	EPIINFO (E)	2	Epidemiology
CHAD/TCHAD 17. Direction de la planification et de la formation	EPIINFO (O) SPSS (R)	2 2	Epidemiology SEMTDAGRIK
COMOROS/COMORES 18. Ministère du plan	CENTS/COCENTS (E) CONCOR (E) IMPS (E)	2 2 2	T E EMTD

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
Software Interface; K-Statistical Expert System.

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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
COTE D'IVOIRE 19. Ecole nationale supérieure de statistiques et d'économie appliquée	CHIWRITER (E)	2	TMRG
	SPSS (E)	2	SEMTDAGRIK
	STATGRAPHICS (E)	2	EMGTADRI
	STATITCF (E)	2	Econometrics
	TSP (E)	2	MDA
20. West Africa Rice Development Association	STATITCF (O)	2	Econometrics
EGYPT/EGYPTE 21. Central Agency for Public Mobilisation and Statistics	SPSS (E)	3	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
ETHIOPIA/ETHIOPIE		2	SEMTDAGRIK
22. Ethiopian Energy Authority	SPSS (E)		
23. Ministry of Industry	SPSS (O)	2	SEMTDAGRIK
24. Institut of Geological Survey	TDP (E)	1	MDA
25. Central Statistical Authority	CENTS/COCENTS (E)	3	T
	CONCOR (R)	1	E
	SPSS (O)	3	SEMTDAGRIK
26. ILCA	SAS (E)	2	SEMTDAGRI
	SPSS (O)	3	SEMTDAGRIK
27. National Urban Planning Institute	SPSS	2	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
GABON 28. D.G.S.E.E.	EPIINFO (E) SPSS (R) IMPS (E)	2 2 1	Epidemiology SEMTDAGRIK EMTD
GHANA 29. Ghana University (RIPS)	SPSS (E)	2	SEMTDAGRIK
KENYA 30. University of Nairobi Institute of Computer Science	SPSS (E)	1	SEMTDAGRIK
LESOTHO 31. Bureau of Statistics	CENTS/COCENTS (E) SAS (E) COXTALLY (E)	1 2 3	T SEMTDAGRI T

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
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	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
LESOTHO Contd 32. Ministry of Health (Health Planning and Statistics)	IMPS (R) KEDIT (E) SAS (E) SPSS (E)	2 2 2 2	EMTD E SEMTDAGRI SEMTDAGRIK
MADAGASCAR 33. Banque des données de l'état	SPSS (O)	2	SEMTDAGRIK
MOZAMBIQUE 34. National Directorate for Statistics	IMPS (O) KEDIT (O) SPSS (O) TSP (O) POPMAP (O)	2 2 2 2 2	EMTD E SEMTDAGRIK MDA SEMTDAGRI

Frequency of use: E-Extensive; O- Occasional; R-Rare

Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
Software Interface; K-Statistical Expert System.

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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
NAMIBIA/NAMIBIE 35. Central Statistics Office	IMPS (E) SPSS (R)	2 2	EMTD SEMTDAGRIK
NIGERIA 36. Federal Office of Statistics	IMPS (E) ISSA (E) SAS (E) SPSS (E) STATGRAPHICS (E)	2 2 2 2 2	EMTD SEMTDAGRIK SEMTDAGRI SEMTDAGRIK SEMTDAGRI
37. National Data Bank	SPSS (O) STATGRAPHICS (E)	2 2	SEMTDAGRIK SEMTDAGRI
38. Obafemi Awolowo University	CENTS/COCENTS (E) KEDIT (E) SPSS (E)	1 2 2	T E SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
RWANDA			
39. IMSEA	MORTAL (O)	2	Demographic Analysis
	SPSS (O)	2	SEMTDAGRIK
40. Ministère du Plan	SPSS (O)	2	SEMTDAGRIK
SENEGAL			
41. Direction de la Provision et de la statistique	CENTS/COCENTS	2	T
	CONCOR	2	E
	SPSS	2	SEMTDAGRIK
42. Institut Sénégalais de Recherches Agricoles	SAS (E)	3	SEMTDAGRI
	SPSS (E)	2	SEMTDAGRIK
	STATGRAPHICS (O)	2	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
SIERRA LEONE 43. Central Statistics Office	CENTS/COCENTS (E) CONCOR (E) IMPS (E) SPSS (O)	1 1 2 2	T E EMTD SEMTDAGRIK
SUDAN/SOUDAN 44. Department of Statistics	CENTS/COCENTS (O) CONCOR (O)	1 1	T E
45. Ministry of Finance and Economic Planning (Water Planning Project)	SPSS (E)	2	SEMTDAGRIK
46. Ministry of Finance and Economic Planning (Computer Section)	SPSS (R)	2	SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
SWAZILAND			
47. Central Statistics Office	CENTS.COCENTS (E) CONCOR (E) IMPS (O) SPSS (O)	2 2 2 2	T E EMTD SEMTDAGRIK
48. Swaziland Government Computer Centre	SPSS (E)	2	SEMTDAGRIK
TANZANIA/TANZANIE			
49. Eastern African Statistical Training Centres	CHIWRITER (E) SPSS (E)	2 2	MTRG SEMTDAGRIK
UGANDA/UGANDA			
50. I.S.A.E. Makerere University	EPIINFO (O) SAS (E) SPSS (E)	2 2 2	Epidemiology SEMTDAGRI SEMTDAGRIK

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
Software Interface; K-Statistical Expert System.

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COUNTRY AND INSTITUTION (EDP CENTRES)	PACKAGE UTILIZATION		PACKAGE ATTRIBUTES USES
	NAME OF PACKAGE AND FREQUENCY OF USE	MICRO MINI/MAIN FRAME	
UGANDA/UGANDA Contd			
51. Revenue Authority	SPSS (R)	2	SEMDAGRIK
52. Uganda Cooperative Alliance Ltd	SPSS (E)	2	SEMTDAGRIK
53. Uganda Investment Authority	KEDIT (O)	2	E
ZAMBIA/ZAMBIE			
54. Central Statistics Office	IMPS (E) SPSS (E)	2 2	EMTD SEMTDAGRIK
ZIMBABWE			
55. Central Statistics Office	ISSA (E) SAS (E)	2 3	SEMTDAGRI S

Frequency of use: E-Extensive; O- Occasional; R-Rare
Machine Utilization/Availability; 1-Mainframe/Mini; 2-Micro-computer;
3-Both.

Package Uses: S-Survey Administration; C-Computer Assisted Telephone
Interviewing; E-Editing; M-Data Management; T-Tabulation; D-Descriptive
Statistics; A-Statistical Analysis; G-Graphics; R-Report Writing; I-
Software Interface; K-Statistical Expert System.

TABLE.3

SUMMARY INVENTORY OF OTHER SOFTWARE PACKAGES USED IN AFRICA

PACKAGE NAME	AVAILABLE ON		FACILITIES	NUMBER OF SITES REPORTING UTILIZATION OF PACKAGE
	MICROCOMPUTER	MAIN-FRAME MINI		
CORELDRAW	X		G	3
DBASE III/IV	X		M, Z, W,	74
EXCEL	X		Z, G	10
FLOWCHART	X		G	1
FOXBASE	X		M, Z, W,	2
FRAMEWORK	X		Z, M, G,	8
HARVARD/ GRAPHICS	X		G	31
HP IMAGE/3000		X	E, M, Z, W,	4
INFOLINK	X		I	1
LOTUS 1-2-3	X		M, Z, W,	72
MAC DRAW	X		G	1
MINISIS G		X	Z, M,	2
MS-PROJECT	X		P	1
MULTIMATE	X		W	2
MULTI-PLAN	X		Z	2
PC TOOLS	X		F	9
QUATTRO PRO	X		Z, G	3
SUPERCALC	X		M, G, Z,	4
SYMPHONY	X		Z, W, G, M,	5
VENTURA	X		W, G	13
WORD	X		W	19
WORDPERFECT	X		W	64
WORDSTAR	X		W	20

Facilities available/claimed:

E- Editing; M-Data Management, Z-Spreadsheet, F-File management;
W-wordprocessing, G-Graphics, I-Software Interface