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OPERATING PROCEDURES MANUAL : VISIMAP NEPAL

for the

NEPAL

NATIONAL COMISSION ON POPULATION

62

Royce A. Jones

U.S. Agency for International Development

Contract # 367-0135-C-00-2013-00

Kathmandu, Nepal

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USER INSTRUCTIONS FOR VISIMAP NEPAL

INTRODUCTION

Visimap Nepal is a program written in Applesoft BASIC which allows you to enter district level data for Nepal into a Visicalc file, and then draw a shaded map showing the distribution of the data across the districts of Nepal. Figure 1 shows a map of population growth rates in Nepal drawn with Visimap Nepal

Any district level numeric data can be represented usinc Visimap Nepal It is assumed that you know how to use Visicalc

ENTERING DATA

The first thing you need to do, once you have your list of district level data, is to enter this data into a specially designed Visicalc worksheet This worksheet contains the namos of all 75 of Napal's districts. Enter each district's data in the same row in which that district's name appears. Do not change the order of the districts on the worksheet If there is no data for a district, leave that position blank

Data Entry Procedure

Follow these procedures.

1) Boot Visicalc (version 202 or higher) in Drive 1

2) Remove Visicalc diskette and insert the Visimap Nepal diskette

3) Load the Visicalc worksheet named 'VISIMAP' from the Visimap Nepal diskette (/SL VISIMAP)

4) The first variable goes into column B Enter the name of the variable (up to 40 characters) in row 1

5) Enter the units (up to 22 characters) in row 2. For example, if the variable was "COST OF LAND", the units might be "RUPEES PER ROPANI"

6) Enter the source of the data in row 3

7) Enter eaoh district's data in rows 5 to 79

   a) If you are entering data, row 81 will automatically contain the sum of the data.

   b) If you are using a formula (i.e., variables derived from previously entered data) you should specify the formula in row 5 and then replicate it from row 6 to row 81

To see an example of an entered Visimap worksheet, load the worksheet "POP.VM" from the Visimap Nepal diskette. This worksheet contains three variables: the 1971 population, the 1981 population, and the growth rate of the population from 1971 to 1981. Note that the growth rate is a derived variable that has been entered as described in 7b above.

SAVING DATA

Once you have entered all your data, you need to save your worksheet twice. The first time, save it as a regular Visicalc worksheet. To help you later recognize that this worksheet is a Visimap worksheet, use the suffix ".VM" (like POP.VM). You will need to use this worksheet if you later need to change or add any data.

After saving your worksheet, you need to save the data as a DIF file. This is the data which Visimap Nepal will use. Place the cursor in the upper left corner of the data you want to transfer (always in row 1), then indicate the lower right corner of your data (always in row 81), then save the data by columns. Use the suffix ".VMDIF" to indicate that this is a Visimap DIF file.

Data Saving Procedure

1) Save worksheet as a regular Visicalc file using the suffix ".VM" (i.e., /SS POP.VM)

2) Move the cursor to the upper left corner of the data (usually B1)

3) Save data as a DIF file using the suffix ".VMDIF" (i.e. /S#S POP.VMDIF)

4) Indicate the lower right corner (always in row 81)

5) Indicate saving by column (C)

Note: If you have two disk drives you will find it easier to keep your data diskette in Drive 2 and the Visimap Nepal diskette in Drive 1.

The example data from the worksheet POP.VM has been saved on the Visimap Nepal diskette as POP.VMDIF. You can use this data for the next section on drawing maps.

DRAWING MAPS

Now that you have your data stored as a DIF file, you are ready to run Visimap Nepal. Boot the Visimap Nepal diskette in Drive 1 (if you are in Visicalc use /SQ6)

When the title page appears, press any key. You will then be given the message "RUNNING VISIMAP NEPAL" and then "INITIALIZING". After about 15 seconds you will be asked which drive your data diskette is in. If your data is in Drive 2, enter "2". If your data is in Drive 1, insert the diskette and then enter "1".

After the catalog is shown, enter the name of the .VMDIF file you want to load. After the file is loaded, Visimap will calculate the parameters. These are such things as minimum and maximum values, and average values. This can take several minutes for a very large file.

You are then given a choice of the variables. Use the left and right arrows to move the cursor and press "RETURN" to choose the variable.

The next thing to choose is the map type. COLOR gives a colored map on a black background. BLACK AND WHITE gives a shaded map that can be printed on a printer with graphics capability. INVERSE gives a colored map on a white background. Enter the number of the map type you want.

Visimap then assigns default range values for each class and begins to draw the map. Whenever Visimap is drawing a map, you can stop the drawing by pressing the "ESC" key twice. The first "ESC" stops the drawing and the second returns you to the options menu. When Visimap has finished drawing a map, the map will remain on the screen until you press any key, which returns you to the options menu.

The options menu gives you nine choices. They are

0) EXIT - stop Visimap and go to the Applesoft BASIC monitor

1) DRAW MAP - draw the map using the current choices of variable, map type, and class limits

2) GO BACK TO MAP - return to the previously drawn map

3) SET MAP TYPE - choose the map type (COLOR, BLACK AND WHITE, or INVERSE)

4) CHANGE CLASS LIMITS - choose different boundary values for the class limits.

5) PRINT ON SILENTYPE - print the current map on the Silentype printer

6) SAVE MAP ON DISK - saves the current map as a binary file on disk (filename,A$2000,L$2000)

7) NEW VARIABLE - choose a new variable

8) NEW FILE - choose a new VMDIF file

Map Drawing Procedure

1) Boot Visimap in Drive 1 (Use /SQ6 from Visicalc)

2) Enter the drive number containing the data

3) Enter the name of the VMDIF file you want to load

4) Choose the variable to be displayed

5) Choose the map type

6) After the map is drawn, press any key to get the options menu

7) Choose the option you want

Note: Pressing "ESC" while the map is being drawn will stop the drawing routine

Let's take an example step by step.

Boot the Visimap Nepal diskette in Drive 1. We are going to use the POP.VMDIF file that is on the Visimap Nepal diskette, so enter 1 for the drive since the data is in Drive 1. Enter the name POP.VMDIF for the file to load. Choose the variable "POPULATION GROWTH RATE 1971-1981". If you have a color screen choose COLOR for the map type, otherwise choose BLACK AND WHITE. Visimap will then draw the map of Nepal, illustrating the variable you have chosen.

Let's take a close look at the map that has been drawn. (Refer to Figure 1)

The central feature is the map of Nepal showing all 75 districts Kathmandu Valley is shown enlarged above the map of Nepal At the top of the screen is the variable name. This is the name that you entered in row 1 of your Visicalc worksheet

In the upper right corner is shown the largest value and the smallest value of the variable as well as the district in which the value has occurred. If the same minimum or maximum value occurs in more than one district, then the number of districts in which that value occurs is shown instead of a district name.

The lower right shows two more values One says "AVERAGE IS 2.51 FOR 75". This is an unweighted average of all the districts that have data. The 75 means that 75 districts have data. The second value says "FOR ALL NEPAL 2.66". This is the value from row 81 of your Visicalc worksheet.

The lower left shows several things First, it shows the name of the .VMDIF file that the variable is from. Then it shows the units used. This is the label that you defined in row 2 of your Visicalc worksheet.

The last thing to see on the legend is the values of the class limits and the frequency of districts within each class In this first map, Visimap has chosen roughly even class intervals with class limits of -8,-1,5,12,18, and 25. The bottom class, which has no color and no shading, is used for values that are less than the lowest class interval or higher than the highest class interval These values are called "OUT OF RANGE". The bottom class is also used for districts in which no value was entered in the original Visicalc worksheet These values are called "NA" for not available or not applicable

If you look at the frequency of each class interval you will see that some intervals have many districts (interval -1 to +5 has 56 districts in it) while other intervals have no districts in them (like interval 12-18). Let's change the class limits to get a better distribution. Press any key for the options menu Choose option 4 to change the class limits You now see the old class limits If you want a class limit to remain the same, press "RETURN" and it will not be changed.

For our example, however, let's use the following class limits:

10	(Enter 10 "RETURN", and so on)
5	
3	
1	
0	
-8	

As soon as you enter the last class limit, you are automatically returned to the options menu. Choose option 1 to draw the map again using the new class limits

With the new class limits, one district is now OUT OF RANGE. Notice that for the value "AVERAGE IS" there are two numbers, one says, "2.51 FOR 75" and the other says, "2 22 FOR 74". The first value is the same as before. The second value is the unweighted average of the 74 districts which have been shaded, that is, excluding the one district which is out of range.

Our map is still not very clear. Let's reduce the number of classes to two. The first class will be those districts with a growth rate greater than or equal to 2% and the other class will be for those districts with less than a 2% growth rate. Press any key for the options menu and choose option 4. Change the limits as shown below and re-draw the map.

25
25
2
2
2
-8

Now you can see a pattern on the map. With some exceptions, the districts with greater than 2% growth rates are in the Terai while those having less than 2% growth rates are mostly in the hills and mountains. With a little experimentation you can find the best set of class limits to illustrate the relationships in your data.

The rest of the options on the options menu are self-explanatory.

REGIONAL SUBTOTALS

Given a set of district level data, it is often necessary to know the regional subtotals, i.e., zonal totals, development region totals. You can calculate these subtotals with Visimap Nepal. To calculate subtotals you must return to Visicalc. Load your VM file. Then, without clearing your worksheet, load the file called VMREG from the Visimap Nepal diskette. The formulas for the subtotals are given in column B from B83 to B145.

Replicate the formulas in column B into all your other columns (/R B83...B145:C83...your last column). Then, for each of the columns that are derived in your original worksheet, you will have to decide if the simple sums that have been computed by VMREG are applicable. If they are not, you will need to replace the simple sums in rows 83 to 144 with the appropriate formula.

Once your numbers are correct, you can add the necessary titles to the second half of your worksheet and save it as a file that is ready to print (use the suffix ".VMPRINT").

Procedure for Regional Subtotals

1) Boot Visicalc

2) Load your VM worksheet

3) Without clearing your worksheet, load the worksheet called VMREG.

4) Replicate the formulas from B83 to B145 into the rest of your columns of data (/R B83...B145:C83...last column)

5) If a column is derived data, replace the simple sums with formulas if necessary.

6) Fix all titles and save your worksheet using the suffix ".VMPRINT".

As an example, you can load the file POP.VMPRINT to see a completed worksheet with regional subtotals. Note that since column D is derived data, the simple sums from D83 to D144 were changed to the required formula and also the percentage figures, which would make no sense, have been blanked out. A copy of the output of POP.VMPRINT is shown in Figure 2. Figure 3 is a listing of the Visimap Nepal program.

Questions about Visimap Nepal should be directed to Royce Jones at the HFP office at USAID/Nepal.

VISIMAP NEPAL - SUMMARY OF INSTRUCTIONS

Data Entry Procedure

1. Boot Visicalc (version 202 or higher) in Drive 1
2. Remove Visicalc diskette and insert the Visimap Nepal diskette
3. Load the Visicalc worksheet named 'VISIMAP' from the Visimap Nepal diskette (/SL VISIMAP)
4. The first variable goes into column B. Enter the name of the variable (up to 40 characters) in row 1
5. Enter the units (up to 22 characters) in row 2. For example, if the variable was "COST OF LAND", the units might be "RUPEES PER ROPANI"
6. Enter the source of data in row 3
7. Enter each district's data in rows 5 to 79
   a) If you are entering data, row 81 will automatically contain the sum of the data
   b) If you are using a formula (i.e., variables derived from previously entered data) you should specify the formula in row 5 and then replicate it from row 6 to row 81.

Data Saving Procedure

1. Save worksheet as standard Visicalc using suffix ".VM" (i.e., /SS POP.VM)
2. Move cursor to upper left of data (usually B1)
3. Save data as DIF file using suffix ".VMDIF" (i.e., /S#S POP.VMDIF)
4. Indicate the lower right corner (always in row 81)
5. Indicate saving by column (C)

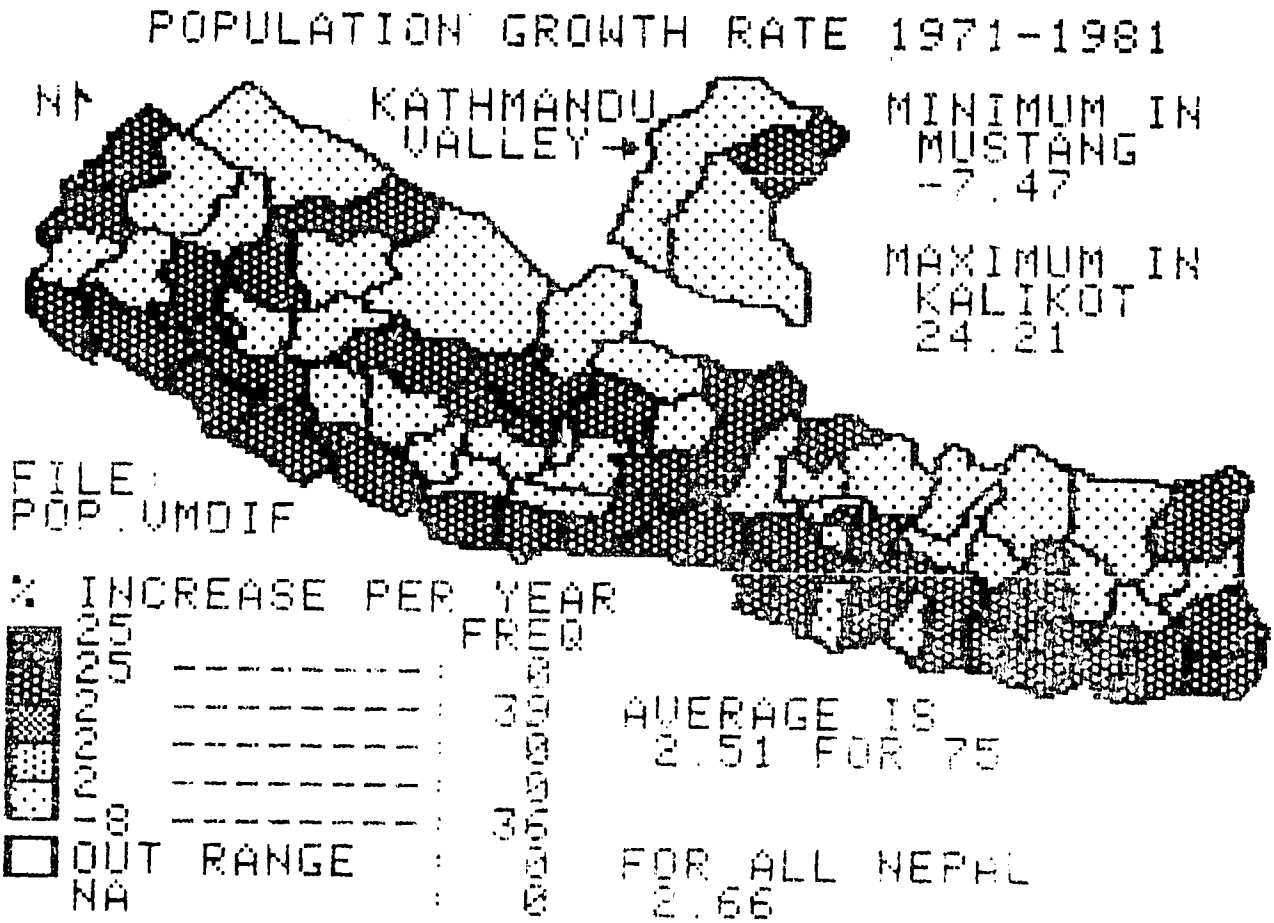
Map Drawing Procedure

1. Boot Visimap in Drive 1 (Use /SO6 from Visicalc)
2. Enter the drive number containing the data
3. Enter the name of the .VMDIF file you want to load.
4. Choose the variable to be displayed
5. Choose the map type
6. After the map is drawn, press any key to get the options menu.
7. Choose the option wait.

Procedure for Regional Subtotals

1) Boot Visicalc
2) Load your .VM worksheet
3) Without clearing your worksheet, load the worksheet called VMREG
4) Replicate the formulas from B83 to B145 into the rest of your columns of data (/R B83...B145:C83...last column).
5) If a column is derived data, replace the simple sums with formulas if necessary.
6) Fix all titles and save your worksheet using the suffix .VMPRINT.

Figure 1


POPULATION GROWTH RATE 1971-1981
N
KATHMANDU VALLEY
MINIMUM IN MUSTANG -7.47
MAXIMUM IN KALIKOT 24.21
FILE: POP.VMDIF
% INCREASE PER YEAR
25
FREQ
25 ---------- : 0
2 ---------- : 39
2 ---------- : 0
2 ---------- : 0
-8 ---------- : 36
OUT RANGE : 0
NA : 0
AVERAGE IS 2.51 FOR 75
FOR ALL NEPAL 2.66

VARIABLE NAM	1971 POPULAT	1981 POPULAT	POPULATION G
UNITS	PERSONS	PERSONS	% INCREASE P
SOURCE OF DA	1971 CENSUS	1981 CENSUS	1971 & 1981
ILAM	139538	177442	2.43
JHAPA	247698	480056	6.84
PANCHTHAR	145809	153342	0.51
TAPLEJUNG	84715	116884	3.27
BHOJPUR	194506	192789	-0.09
DHANKUTA	107649	128568	1.79
MORANG	301557	534490	5.89
SANKHUWASABH	114313	129513	1.26
SUNSARI	223434	343007	4.38
TERHATHUM	119307	93305	-2.43
KHOTANG	163297	212108	2.65
OKHALDHUNGA	122862	137920	1.16
SAPTARI	312565	381277	2.01
SIRAHA	302304	376390	2.22
SOLUKHUMBHU	105324	67444	-1.84
UDAYPUR	112622	159313	3.53
DHANUSA	330601	432511	2.72
DOLAKHA	130022	150494	1.47
MAHOTTARI	324831	363975	1.14
RAMECHHAP	157349	163470	0.38
SARLAHI	175543	398397	8.54
SINDHULI	147409	188232	2.47
BHAKTAPUR	110157	160686	3.85
DHADING	236276	243042	0.28
KATHMANDU	353756	422670	1.80
KAVRE	245165	307604	2.29
LALITPUR	154998	183464	1.70
NUWAKOT	172718	203134	1.64
RASUWA	17517	29765	5.44
SINDHUPALCHO	206384	232804	1.21
BARA	233401	318010	3.14
CHITWAN	183644	257332	3.43
MAKAWANPUR	163766	241984	3.93
PARSA	202123	283809	3.45
RAUTAHAT	320093	334524	0.44
GORKHA	178265	232091	2.67
KASKI	151749	223486	3.95
LAMJUNG	140226	154318	0.96
MANANG	7436	6210	-1.79
SYANGJA	268606	271001	0.09
TANAHUN	158139	224508	3.57
ARGHAKHANCHI	130212	158244	1.97
GULMI	227746	238234	0.45
KAPILVASTU	205216	270474	2.80
NAWALPARASI	146548	309692	7.77
PALPA	212633	215924	0.15
RUPANDEHI	243346	379031	4.53
BAGLUNG	172729	216212	2.27
MUSTANG	26944	12399	-7.47
MYAGDI	57946	95696	5.14
PARBAT	118689	128034	0.76
DANG	167820	266247	4.72
PIUTHAN	137336	157863	1.40
ROLPA	162955	169379	0.39
RUKUM	96243	132267	3.23
SALLYAN	141457	151569	0.69
DOLPA	19110	21845	1.35
HUMLA	29524	21283	-3.22
JUMLA	122753	67545	-5.80
KALIKOT	10017	87542	24.21
MUGU	25718	40658	4.69
BANKE	125709	205824	5.05
BARDIYA	101793	200214	7.00
DAILEKH	156072	168290	0.76
JAJARKOT	86564	97117	1.16
SURKHET	104933	165666	4.67
ACHHAM	132212	184239	3.37
BAJHANG	108623	122129	1.18
BAJURA	61342	74061	1.90
DOTI	166070	151376	-0.92
KAILALI	128877	258259	7.20
BAITADI	128696	177850	3.29
DADELDHURA	94743	87416	-0.80
DARCHULA	68868	90497	2.77
KANCHANPUR	68863	166006	9.20

Figure 2

NEPAL	11555983	15020451	2 66

LOCALITIES	71 POP	81 POP	71-81 GROW
MECHI	617760	927724	4 15
KOSHI	1060766	1421672	2.97
SAGARMATHA	1118974	1354452	1 93
JANAKPUR	1265755	1697079	2 98
BAGMATI	1496971	1783169	1 76
NARAYANI	1103027	1435659	1 67
GANDAKI	904421	1111614	2 08
LUMBINI	1165701	1571597	3 03
DHAULAGIRI	376308	452341	1 86
RAPTI	705813	877325	2 20
KARNALI	207122	238873	1 44
BHERI	575071	837111	3 83
SETI	597124	790064	2 84
MAHAKALI	361170	521769	3 75
MECHI%	5.35	6.18	
KOSHI%	9.18	9 46	
SAGARMATHA%	9.66	9.02	
JANAKPUR%	10 95	11 30	
BAGMATI%	12 95	11 87	
NARAYANI%	9.55	9 56	
GANDAKI%	7.83	7 40	
LUMBINI%	10 09	10 46	
DHAULAGIRI%	3 26	3.01	
RAPTI%	6 11	5 84	
KARNALI%	1 79	1.59	
BHERI%	4 98	5 57	
SETI%	5 17	5 26	
MAHAKALI%	3 13	3 47	
FAR EASTERN	2797500	3703848	2 85
EASTERN	3865753	4915927	2 43
CENTRAL	2446430	3135554	2 51
WESTERN	1488004	1953309	2 7[illegible]
FAR WESTERN	958294	1311833	3 1[illegible]
FAR EASTERN%	24.21	24 66	
EASTERN%	33 45	32 73	
CENTRAL%	21 17	20 88	
WESTERN%	12 88	13 00	
FAR WESTERN%	8 29	8 73	
	**********	**********	**********
TERAI	4345966	6559525	- 28
HILL & MTN	7210017	8460926	1 61
MID-HILLS	6071407	7169853	1 68
MOUNTAINS	1138610	1291073	1.26
	**********	**********	**********
TERAI%	37 61	43 67	
HILL & MTN%	62 39	56 33	
MID-HILLS%	52 54	47 73	
MOUNTAINS%	9 85	8.60	
MINIMUM IS	7436	6210	-7 47
MAXIMUM IS	353756	534490	24 21
AVERAGE IS	154080	200273	2 51

Figure 3

```
]PRINT "LIST OF VISIMAP NEPAL"
LIST OF VISIMAP NEPAL

]LIST

0  LOMEM: 26368: GOTO 1000
3  REM  BY ROYCE JONES
20  IF  LEFT$ (TX$,1) <  > " " THEN 22
21 TX$ =  RIGHT$ (TX$, LEN (TX$) - 1): GOTO 20
22  IF  RIGHT$ (TX$,1) <  > " " THEN 24
23 TX$ =  LEFT$ (TX$, LEN (TX$) - 1): GOTO 22
24  RETURN
27 Y = (1 + 9 * (X < 1000) + 90 * (X < 100)) * FX: GOTO 29
28 Y = (10 + 90 * (X < 100)) * FX
29 TX$ =  STR$ ( INT (X * Y + .5) / Y) + XT$
30  VTAB VT: HTAB HT: IF  LEN (TX$) > 0 THEN  FOR CH = 1 TO  LEN (TX
$): POKE 6, ASC ( MID$ (TX$,CH,1)): CALL 26112: NEXT : RETURN
100  POKE  - 16304,0: POKE 60,0: POKE 61,64: POKE 62,255: POKE 63,95
: POKE 66,0: POKE 67,32: POKE 71,0: POKE 58,44: POKE 59,254: CALL  -
327
110 OB = 0: PC = 0: SM = 0: MX$ = "": MN$ = "": FOR I = 0 TO 5:CT(I) = 0
: NEXT
120 J = 0: FOR C = 0 TO 5: X = 6: Y = BY(C):H = CO(MT,C):N1% = X / 256
: POKE 24594,N1%: POKE 24593,X - N1% * 256: POKE 24592,Y: POKE 24624
,J: POKE 24599,H: CALL 24625: NEXT
130 HT = 3:X = 0: FOR I = 0 TO 5:VT = 22 - I:TX$ =  STR$ (CL(I)): IF
 LEN (TX$) > X THEN X =  LEN (TX$)
150  GOSUB 30: NEXT: X = 4 + X:TX$ = "-": FOR I = 0 TO 4:VT = 22 - I
: FOR J = X TO 13:HT = J: GOSUB 30: NEXT J: NEXT I
160 VT = 16:HT = 1:TX$ =  LEFT$ (UN$(VA),22): GOSUB 20: GOSUB 30:VT
= 14:TX$ =  LEFT$ (F$,10): GOSUB 30
170 VT = 1:TX$ =  LEFT$ (VA$(VA),40) HT = 21 -  LEN (TX$) / 2: GOSUB
30: FOR I = 0 TO 74:C = 0: IF VA(I,VA) = 1.23456E + 37 THEN 290
190  IF VA(76,VA) <  > VA(I,VA) THEN 220
200  IF MN$ = "" THEN MN$ = DI$(I):MN = 1: GOTO 220
210 MN = MN + 1:MN$ =  STR$ (MN) + " DISTRICTS"
220  IF VA(77,VA) <  > VA(I,VA) THEN 250
230  IF MX$ = "" THEN MX$ = DI$(I):MX = 1: GOTO 250
240 MX = MX + 1:MX$ =  STR$ (MX) + " DISTRICTS"
250  FOR J = 0 TO 4: IF VA(I,VA) >  = CL(J) AND VA(I,VA) < CL(J + 1)
THEN C = J + 1:J = 4: GOTO 270
260  IF J = 4 THEN  IF VA(I,VA) = CL(J + 1) THEN C = J + 1
270  NEXT J
280  IF C = 0 THEN OB = OB + 1: GOTO 290
285 SM = SM + VA(I,VA)
290 J = 0:H = CO(MT,C):CT(C) = CT(C) + 1:K =  PEEK ( - 16384): IF K
> 127 THEN  POKE  - 16368,0: IF K = 155 THEN I = 74: NEXT : GOTO 420
300 X = P%(PC):PC = PC + 1: IF X = 0 THEN 340
310 Y = P%(PC):PC = PC + 1:N1% = X / 256: POKE 24594,N1%: POKE 24593
,X - N1% * 256: POKE 24592,Y: POKE 24624,J: POKE 24599,H: CALL 24625
: GOTO 300
340  NEXT I
350 HT = 29:VT = 4:TX$ =  LEFT$ (MN$,12): GOSUB 30:VT = 5:X = VA(76
VA): GOSUB 28:HT = 29:VT = 8:TX$ =  LEFT$ (MX$,12): GOSUB 30:VT = 9
X = VA(77,VA): GOSUB 28
362 HT = 14:VT = 24:TX$ = " ": IF VA(79,VA) < 10 THEN TX$ = TX$ +
"
364 TX$ = TX$ +  STR$ (VA(79,VA)): GOSUB 30:VT = 23:TX$ = "  ": IF O
B < 10 THEN TX$ = TX$ + " "
366 TX$ = TX$ +  STR$ (OB): GOSUB 30
370  FOR C = 1 TO 5:HT = 14:VT = 23 - C:TX$ = ": ": IF CT(C) < 10 TH
EN TX$ = TX$ + " "
380 TX$ = TX$ +  STR$ (CT(C))
385  GOSUB 30: NEXT :HT = 21:VT = 20:X = VA(78,VA):XT$ = " FOR " +
STR$ (75 - VA(79,VA)): GOSUB 27:XT$ = ""
386  IF VA(79,VA) = CT(0) THEN 410
390 VT = 21: IF CT(0) = 75 THEN TX$ = "NA": GOSUB 30: GOTO 410
392 X = SM / (75 - CT(0)):XT$ = " FOR " +  STR$ (75 - CT(0)):VT = 21
: GOSUB 27:XT$ = ""
410 HT = 21:VT = 24:X = VA(75,VA): IF X = 1.23456E + 37 THEN TX$ = "
NA": GOSUB 30: GOTO 412
411  GOSUB 28
412  IF MT = 2 THEN  CALL 25344
420  RETURN
500  TEXT  HOME : PRINT "OPTIONS ARE:": PRINT : PRINT "0: EXIT": PR
INT : PRINT "1: DRAW MAP": PRINT : PRINT "2: GO BACK TO MAP": PRINT
: PRINT "3: SET MAP TYPE": PRINT
510  PRINT "4: CHANGE CLASS LIMITS": PRINT : PRINT "5: PRINT ON SILE
NTYPE": PRINT : PRINT "6: SAVE MAP ON DISK": PRINT : PRINT "7: NEW V
ARIABLE": PRINT : PRINT "8: NEW FILE"
```

Figure 3

```
535  VTAB 24: HTAB 1: CALL  - 868: INVERSE : PRINT " WHICH OPTION? (
0-8) ";: NORMAL : GET X$:X =  VAL (X$): IF (X = 0 AND X$ (  ) "0") O
R X ) 8 THEN  PRINT  CHR$ (7);: GOTO 535
540  ON X + 1 GOTO 1800,550,560,570,1700,590,650,700,1100
550  GOSUB 100: GET A$: GOTO 500
560  POKE  - 16304,0: GET A$: PRINT : GOTO 500
570 X = 0: GOTO 1600
590  IF MT (  ) 1 THEN MT = 1: GOSUB 100
591  IF PS ) 0 THEN 600
595  TEXT : HOME : VTAB 4: INVERSE : PRINT " SILENTYPE SLOT #? (1-7)
 ";: GET X$: NORMAL :X =  VAL (X$): IF X ( 1 OR X ) 7 THEN  PRINT  C
HR$ (7);: GOTO 500
596 PS = X
600  PRINT D$"PR#"PS: PRINT : PRINT D$"PR#0": POKE  - 12529,255: POK
E  - 12528,7: POKE  - 12527,20: POKE  - 12524,0: POKE  - 16304,0: PR
INT D$"PR#"PS: PRINT  PRINT  CHR$ (17): PRINT : PRINT D$"PR#0": GOT
O 500
650  HOME : VTAB 4: INVERSE : INPUT " SAVE USING WHAT NAME? ";X$: NO
RMAL : IF X$ = "" THEN 500
660 TX$ = "SAVING " + X$: GOSUB 950: PRINT D$"BSAVE "X$",A$2000,L$20
00": GOTO 500
700 X = 0: GOTO 1400
900  HOME : VTAB 10: HTAB (19 -  LEN (E1$) / 2): PRINT  CHR$ (7);: I
NVERSE : PRINT " "E1$" ": VTAB 12: HTAB (19 -  LEN (E2$) / 2): PRINT
 " "E2$" ": NORMAL : GOTO 990
950  HOME : VTAB 14: HTAB 15: PRINT "VISIMAP NEPAL": VTAB 10: HTAB (
20 - ( LEN (TX$) - 1) / 2): FLASH : PRINT " "TX$" ": NORMAL : RETURN

990  VTAB 24: HTAB 13: INVERSE : PRINT " PRESS ANY KEY ";: NORMAL :
GET A$: HOME : RETURN
1000 D$ =  CHR$ (13) +  CHR$ (4):TX$ = "INITIALIZING": GOSUB 950: PO
KE 814,32:NV = 20: DIM VA$(NV - 1),VA(79,NV - 1),UN$(NV - 1),DS$(NV
- 1): HGR : POKE  - 16302,0: TEXT : VTAB 1
1005  PRINT D$"OPEN DISTPOINTS" CHR$ (22)",D1": PRINT D$"READ DISTPO
INTS" CHR$ (22): INPUT N: DIM P%(N): FOR I = 0 TO N - 1: INPUT P%(I)
  NEXT : PRINT D$"CLOSE"
1010  DIM DI$(74): PRINT D$"OPEN TITLE" CHR$ (22)",D1": PRINT D$"REA
D TITLE" CHR$ (22): FOR I = 0 TO 74: INPUT LI$(I): NEXT : PRINT D$"C
LOSE"
1030  FOR I = 0 TO 5: READ BY(I): NEXT : DATA  180,168,160,152,144,
136: PRINT D$"BLOAD TXGR2,D1": PRINT D$"BLOAD MACHRPG2": PRINT D$"BL
OAD N,A$4000"
1050  DIM CO(2,5): FOR I = 0 TO 2: FOR J = 0 TO 5: READ CO(I,J): NEX
T : NEXT : DATA 16,40,17,18,19,20: DATA 16,40,34,39,30,30: DATA 21,3
0,19,20,17,18
1055  HOME : VTAB 2: PRINT "INSERT THE DATA DISKETTE, THEN"
1056  PRINT : PRINT "INDICATE WHICH DRIVE CONTAINS THE DATA."
1060  VTAB 10: INVERSE : PRINT " DATA DRIVE NUMBER IS: ";: GET X$: N
ORMAL :DD =  VAL (X$): IF DD ( 1 OR DD ) 2 THEN  PRINT  CHR$ (7);: G
OTO 1055
1100  TEXT : HOME : PRINT D$"CATALOG,D"DD: PRINT : VTAB 23: INPUT "F
ILE TO LOAD: ";X$: IF X$ = "" AND F$ = "" THEN 1100
1110  IF X$ = "" THEN 500
1121 F$ = X$:TX$ = "LOADING " + F$: GOSUB 950: PRINT D$"OPEN "F$",D"
DD: PRINT D$"READ "F$: INPUT A$: IF A$ = "TABLE" THEN 1140
1131 E1$ = "FILE " + F$:E2$ = "NOT A DIF FILE FOR VISIMAP": PRINT D$
"CLOSE": GOSUB 900: GOTO 1100
1140  INPUT A$,A$,A$,A$,A$,NC,A$,A$,A$,NR,A$: IF NR ( 80 THEN 1131
1146  INPUT B$,A$,A$,A$: IF B$ (  ) "DATA" THEN 1146
1150  INPUT A$,A$,A$:IG = 0: INPUT A,B,A$
1160  IF NC (  = NV THEN 1168
1161  PRINT D$: PRINT  CHR$ (7)"FILE "F$" CONTAINS "NC" VARIABLES ":
 PRINT  PRINT "ONLY "NV" CAN BE READ.": PRINT
1162 X = NC - NV + 1: INVERSE : PRINT " START WITH WHAT NUMBER ? (1-
"X") ";: NORMAL : INPUT "";X$:X =  VAL (X$): IF X ( 1 THEN X = 1
1163  IF X ) NC - NV + 1 THEN X = NC - NV + 1
1164 IG = IG + (X - 1):TX$ = "LOADING " + F$: GOSUB 950:NC = NV: PRI
NT D$"READ "F$: IF X ( 3 THEN 1168
1165  FOR I = 3 TO X: INPUT A$,A$,A$: NEXT
1168 SI = 0: IF IG = 0 THEN SI = 1:VA$(0) = A$: IF NC = 1 THEN 1171
1169  FOR I = SI TO NC - 1: INPUT A,B,A$: IF A = 0 THEN A$ =  STR$ (
B)
1170 VA$(I) = A$: NEXT
1171  GOSUB 1180: IF IG ) 0 THEN  GOSUB 1185
1172  FOR I = 0 TO NC - 1: INPUT A,B,A$: IF A = 0 THEN A$ =  STR$ (B
)
1173 UN$(I) = A$: NEXT : GOSUB 1180: IF IG ) 0 THEN  GOSUB 1185
1175  FOR I = 0 TO NC - 1: INPUT A,B,A$: IF A = 0 THEN A$ =  STR$ (B
$)
1177 DS$(I) = A$: IF A$ = "" THEN DS$(I) = "NOT INDICATED"
```

Figure 3

```
1179  NEXT : GOSUB 1180: GOSUB 1180: GOTO 1200
1180  INPUT A$,A$,A$: IF A$ <  > "BOT" AND A$ <  > "EOD" THEN 1180
1182  RETURN
1185  FOR I = 1 TO IG: INPUT A$,A$,A$: NEXT : RETURN
1200  FOR I = 0 TO 75: IF IG = 0 THEN 1210
1206  GOSUB 1185
1210  FOR J = 0 TO NC - 1: INPUT A,B,A$:VA(I,J) = B: IF A <  > 0 OR
(A = 0 AND A$ <  > "V") THEN VA(I,J) = 1.23456E + 37
1212  NEXT J: GOSUB 1180: IF I = 74 THEN  GOSUB 1180
1220  NEXT I: PRINT D$"CLOSE":TX$ = "CALCULATING PARAMETERS": GOSUB
950: FOR J = 0 TO NC - 1: FOR I = 0 TO 74: IF VA(I,J) <  > 1.23456E
+ 37 THEN 1235
1232  NEXT :VA(76,J) =  - 1:VA(77,J) = 1:VA(78,J) = 0:VA(79,J) = 75:
 GOTO 1260
1235 VA(76,J) = VA(I,J):VA(77,J) = VA(I,J):VA(79,J) = 0:S = 0:I = 74
  NEXT : FOR I = 0 TO 74: IF VA(I,J) = 1.23456E + 37 THEN VA(79,J) =
 VA(79,J) + 1: GOTO 1255
1245 S = S + VA(I,J): IF VA(I,J) < VA(76,J) THEN VA(76,J) = VA(I,J):
 GOTO 1255
1250  IF VA(I,J) > VA(77,J) THEN VA(77,J) = VA(I,J)
1255  NEXT I:VA(78,J) = S / (75 - VA(79,J)): NEXT J:X = 0
1400  HOME : TEXT : HOME : PRINT "VARIABLES ARE:": PRINT : FOR I = 0
 TO NC - 1: PRINT " " LEFT$ (VA$(I),37)" ": NEXT : I = 0: VTAB 22: PR
INT
1420  VTAB I + 3: INVERSE : PRINT " " LEFT$ (VA$(I),37)" ": NORMAL
1421 K =  PEEK ( - 16384): IF K < 128 THEN 1421
1422  POKE  - 16368,0: HTAB 1: VTAB I + 3: PRINT " " LEFT$ (VA$(I),3
7)" ": IF K = 141 THEN VA = I: GOTO 1450
1430  IF K = 155 THEN 1100
1435  IF K <  > 136 THEN 1440
1436  IF I > 0 THEN I = I - 1
1440  IF K <  > 149 THEN 1420
1442  IF I < NC - 1 THEN I = I + 1
1443  GOTO 1420
1450  HOME :X = 1
1500 DF = VA(77,VA) - VA(76,VA):FX = 1
1506  IF DF < 5 THEN FX = FX * 10:DF = DF * 10: GOTO 1506
1507 DF = DF / 5:CL(0) = VA(76,VA):CL(5) =  INT (VA(77,VA) * FX + 1)
 / FX: FOR I = 1 TO 4:CL(I) =  INT (CL(0) * FX + DF * I +  5) / FX:
NEXT :CL(0) =  INT (CL(0) * FX) / FX
1600  HOME : VTAB 2: PRINT "MAP TYPES ARE:": PRINT : PRINT "1: COLOR
"  PRINT : PRINT "2: BLACK & WHITE": PRINT : PRINT "3: INVERSE": PRI
NT
1615  VTAB 23: HTAB 1: CALL  - 868: INVERSE : PRINT " WHICH TYPE #?
(1-3) ";: NORMAL : GET X$:MT =  VAL (X$): IF MT < 1 OR MT > 3 THEN
PRINT  CHR$ (7);: GOTO 1615
1620 MT = MT - 1: IF X = 1 THEN  GOSUB 100: GET A$
1625  GOTO 500
1700  HOME : VTAB 2: PRINT "CLASS LIMITS:": FOR I = 5 TO 0 STEP  - 1
  VTAB 10 - I: PRINT " "CL(I)" ": NEXT : FOR I = 5 TO 0 STEP  - 1
1715  VTAB 10 - I: HTAB 1: CALL  - 868: INVERSE : PRINT " "CL(I)" ";
  NORMAL : HTAB 15: INPUT "";X$: IF X$ = "" THEN X = CL(I): GOTO 171
7
1716 X =  VAL (X$): IF X = 0 AND X$ <  > "0" THEN  PRINT  CHR$ (7);:
 GOTO 1715
1717  IF I = 5 THEN 1725
1720  IF X > CL(I + 1) THEN  PRINT  CHR$ (7);: GOTO 1715
1725 CL(I) = X: VTAB 10  I: HTAB 1: CALL  - 868: PRINT " "CL(I)" ":
 NEXT  GOTO 500
1800  TEXT : HOME : PRINT D$"FP": END
```