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OPERATING PROCEDURES MANUAL : PDLT AND EDUCATION

for the

NEPAL

NATIONAL COMISSION ON POPULATION

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Royce A. Jones

U.S. Agency for International Development

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

Kathmandu, Nepal

31 July 1982

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OPERATING PROCEDURES MANUAL FOLK AND EDUCATION

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PDLT AND EDUCATION

This program, written for the Nepal National Commission on Population, allows government planners to study the feasibility of funding primary education in each district by using the revenue from that district's PDLT, a tax on agricultural output. This program allows you to change any of the assumptions, educational or agricultural, and immediately see the effect of these changes on the overall surplus/deficit situation.

The 1981 basic assumptions are:

1) Total district population
2) Annual migration rate
3) Primary school age population
4) Education cost per student
5) Per capita health cost
6) Per capita drinking water oost
7) Area under major crop cultivation (bigah)
8) Major crop yield (mound/bigah)
9) Price of major crop (rupees/mound)
10) Percentage of major crop area renter tilled
11) Renter tax rate
12) Owner tax rate

The changeable assumptions are;

1) Fertility
2) Life expectancy
3) Annual migration
4) Enrollment rate
5) Education cost per student
6) Per capita health cost
7) Per capita drinking water cost
8) Major crop area
9) Percentage of major crop area rented
10) Yield of major crop
11) Price of major crop
12) Owner tax rate
13) Renter tax rate

The study variables are

1) DEMOGRAPHY

a) Total population

b) Population growth rate

c) Age structure

2) EDUCATION

a) Number of primary school age children

b) Primary school enrollment

c) Cost of primary school education

3) AGRICULTURE

a) Major crop output

b) PDLT revenue

4) COMPARISONS

a) Surplus/deficit

b) Percentage of education goal possible

c) Percentage of health coverage possible

d) Percentage of drinking water coverage possible

e) Percentage of output increase required to meet education cost

f) Health cost

g) Drinking water cost

h) Enrollment possible with PDLT revenue

i) Cost per student possible with PDLT revenue

j) Required renter tax rate to meet education cost

k) Required owner tax rate to meet education cost

l) Required percentage of district area cultivated to meet education cost

m) Increased education costs of projections A and B

The program is a modification of the FUTURES program for Nepal It uses the FUTURES plotting routines and the demographic projection routines. The demographic routines are modified to allow migration into or out of the district A positive value means migration into the district. The migration value is applied to the total district population, that is, to each age group equally

With only a few exceptions, the program operates in the same way as the FUTURES program The two major exceptions are in the way the PDLT program allows you to change the assumptions

Almost all of the assumptions allow you to apply a growth rate This growth rate can be either an annual growth rate or a five year growth rate When you ask to change an assumption, you are first asked for the 1981 base value Then you must indicate the growth rate

interval with one of three numbers. "0" means no change in this variable over time, "1" means that an annual growth rate will be entered. "5" means that a five year growth rate will be entered. Your answer must be either 0, 1, or 5. If you answer either "1" or "5", you will then be asked for the growth rate to use for this assumption. You are then shown the values of the assumptions for each of the five year periods from 1981 to 2001. If you want to accept these figures, press the "RETURN" key. If you want to try a different growth rate, press "C" and start over again.

The only assumption that is different is the enrollment rate. For the enrollment rate you must specify the enrollment rates for each five year period. If you enter "0" for an enrollment rate, that rate will be linearly interpolated from the other enrollment rates. For instance, if you enter the following enrollment rates:

1981 - 52

1986 - 7

1991 - 0

1996 - 0

2001 - 100

the PDLT program will perform a linear interpolation to derive the values:

1981 - 52

1986 - 70

1991 - 80

2001 - 100

One other addition made in the PDLT program is the ability to print out the graphs on the Silentype printer. This capability is accessed by answering 'P' to any "Yes or No" question. If you answer 'P' (instead of 'Y' or 'N') the graph currently on the screen will be drawn on the Silentype.

Figure 1 is a listing of the entire program. Figure 2 lists the major variables added to the FUTURES program. Figure 3 shows a sample output for Jhapa district while Figure 4 shows the output for Dhankuta district.

A second program is required to create the initial district data base. This program needs to be run only once to create a data file which contains the 1981 base data. Figure 5 lists the program used for Jhapa district. A modification of this program, changing the data values, can be used to create a data file for each district. The values to change are listed in Figure 6.

Questions about this program should be addressed to Royce Jones at the HFP Office of USAID/Nepal. Questions about the model used should be addressed to Dr. Abraham David at the National Population Commission of Nepal.

```
]PRINT "LIST OF PDLT - PART 1"
LIST OF PDLT - PART 1

]LIST

1  REM : PDLT
2  REM   AN ADAPTATION OF THE FUTURES GROUP PROGRAM
3  REM : ADAPTED BY ROYCE JONES, JULY 1982
10  GOTO 1400
11  TEXT : HOME : HTAB 5: PRINT "ASSUMPTIONS "
15  VTAB 3: PRINT  TAB( 20),"A", TAB( 27),"B", TAB( 34);"C"
16  PRINT  TAB( 20),"-", TAB( 27),"-"; TAB( 34);"-"
20  VTAB 6: PRINT  TAB( 13),"1981"
22  PRINT "FERTILITY", TAB( 13);"2001"
26  VTAB 11: PRINT  TAB( 4);"LIFE"; TAB( 13),"1981"
27  PRINT "EXPECTANCY"; TAB( 13),"2001"
30  VTAB 20: PRINT "'Q'=UP 'A'=DOWN '('-'=LEFT '-)'=RIGHT"
32  PRINT : PRINT "'RET' TO CHANGE   'F' WHEN FINISHED"
35 SS = 1: TT = 1
40  FOR S = 1 TO 3: HT = 13 + S * 7: FOR T = 1 TO 4: VT = VT(T): HTAB
HT: VTAB VT: PRINT ZQ(S,T): NEXT : NEXT
50 HT = 13 + SS * 7: VT = VT(TT): HTAB HT: VTAB VT: INVERSE : PRINT Z
Q(SS,TT): NORMAL
55 Z = PEEK ( - 16384): IF Z < 128 THEN 55
60  POKE  - 16368,0: IF Z = 198 THEN 99
62  HTAB HT: VTAB VT: PRINT ZQ(SS,TT)
65  IF Z = 209 AND TT > 1 THEN TT = TT - 1: GOTO 50
70  IF Z = 193 AND TT < 4 THEN TT = TT + 1: GOTO 50
75  IF Z = 136 AND SS > 1 THEN SS = SS - 1: GOTO 50
80  IF Z = 149 AND SS < 3 THEN SS = SS + 1: GOTO 50
85  IF Z <> 195 AND Z <> 141 THEN : PRINT : CHR$ (7): GOTO 50
90  HTAB HT: VTAB VT: PRINT "        ": HTAB HT - 1: VTAB VT: INPUT
" ";Z$: IF Z$ = "" THEN 50
91  HTAB HT: VTAB VT: PRINT "        ";
92  IF TT < 3 THEN : IF : VAL (Z$) < 1.5 OR : VAL (Z$) > 8 THEN : PRINT
 CHR$ (7): : GOTO 40
93  IF TT > 2 THEN : IF : VAL (Z$) < 25 OR : VAL (Z$) > 80 THEN : PRINT
 CHR$ (7): : GOTO 40
95 ZQ(SS,TT) = : VAL (Z$): GOTO 40
99  RETURN
100 Z(0) = (Z(5) - Z(1)) / 4: FOR I = 2 TO 4: Z(I) = Z(1) + Z(0) * (I
 - 1): NEXT
105  RETURN
200  HOME : VTAB 2: FOR I = 1 TO : LEN (X$): PRINT "-";: NEXT : PRINT
   PRINT X$: FOR I = 1 TO : LEN (X$): PRINT "-": NEXT : PRINT : VTAB
 6: PRINT "1981 VALUE IS : "Z(1): HTAB 17: INPUT "";A$: IF A$ = ""
THEN A = Z(1): GOTO 202
201 A = : VAL (A$): IF A = 0 AND A$ <> "0" THEN 200
202 Z(1) = A: HOME : VTAB 2: FOR I = 1 TO : LEN (X$): PRINT "-": NEX
T : PRINT : PRINT X$: FOR I = 1 TO : LEN (X$): PRINT "-": NEXT : PRI
NT : VTAB 6: PRINT "1981 VALUE IS : "Z(1): PRINT
203  VTAB 8: PRINT "CHANGE OF 1981 DATA OVER TIME:" : VTAB 10: PRINT
"   0 = NONE  1= ANNUAL  5= FIVE YEARS"
204  VTAB 12: CALL  - 958: PRINT "PLEASE ENTER 0,1, OR 5: "Z(0): HT
AB 24 + : LEN ( STR$ (Z(0))): INPUT "";A$: IF A$ <> "0" AND A$ <>
 "1" AND A$ <> "5" AND A$ <> "" THEN 204
205  IF A$ <> "" THEN Z(0) = : VAL (A$)
207  VTAB 8: CALL  - 958: IF Z(0) = 0 THEN Z(6) = 0: A = 0: GOTO 215
210  VTAB 8: CALL  - 958: PRINT "% INCREASE ("Z(0)" YEAR";: IF Z(0)
= 5 THEN : PRINT "S";
211  PRINT ") : ";Z(6);: HTAB 23 + (Z(0) = 5): INPUT "";A$: IF A$ =
"" THEN A = Z(6): GOTO 213
212 A = : VAL (A$): IF A = 0 AND A$ <> "0" THEN 210
213 Z(6) = A: VTAB 8: CALL  - 958: PRINT "% INCREASE ("Z(0)" YEAR";:
 IF Z(0) = 5 THEN : PRINT "S";
214  PRINT ") : "Z(6)
215  IF Z(0) = 1 THEN A = ((1 + A / 100) ^ 5 - 1) * 100
216 A = 1 + A / 100: FOR I = 2 TO 5: Z(I) = Z(I - 1) * A: NEXT
217  VTAB 10: FOR I = 1 TO 5: PRINT Y(I), INT (Z(I) * 1000 + .5) / 1
000: PRINT : NEXT
218  VTAB 23: PRINT "'C' TO CHANGE    'RET' TO ACCEPT";: GET A$: PRI
NT : IF A$ <> : CHR$ (13) AND A$ <> "C" AND A$ <> "F" THEN 218
219  IF A$ = "C" THEN 200
220  RETURN
230  IF Z(0) = 0 THEN A = 0
234  IF Z(0) = 5 THEN A = Z(6)
235  IF Z(0) = 1 THEN A = ((1 + Z(6) / 100) ^ 5 - 1) * 100
236 A = 1 + A / 100: FOR I = 2 TO 5: Z(I) = Z(I - 1) * A: NEXT
237  RETURN
1400  TEXT : POKE 33,40: HOME : POKE  - 16300,0
```

Figure 1

```
1401 D$ =  CHR$ (4)
1405  DIM T(120)
1406  INPUT "DISTRICT NAME: ";N$: IF N$ = "" THEN 1406
1410  PRINT D$;"OPEN ";N$: PRINT D$;"READ ";N$: FOR I = 0 TO 120  IN
PUT T(I): NEXT
1415  PRINT D$;"CLOSE"
1430  HIMEM: 49152
1440  POKE 54,240: POKE 55,253  POKE 56,27: POKE 57,253
1449 N$ = "":CR$ = ""
1450 C$ = "RUPEES"  FOR I = 79 TO T(77):N$ = N$ +  CHR$ (T(I)): NEXT

1451  FOR I = T(77) + 1 TO T(78):CR$ = CR$ +  CHR$ (T(I))  NEXT
1500  READ A,T,S,I,T9,M,BLANK,XH,XL,YH,YL,Q1,Q2,W,A$
1510  DATA     0,0,0,0,0,0,160,0,0,0,0,0,0,0,"Y"
1511 WRITE = 7936:INIT = 8128
1520  DIM P(17,5,3),D(17,6),Y(5),F(5),L(5),Z(6),M(20,5),B(3,5),E(12,
5,3),S$(4)
1530 S$(1) = "A":S$(2) = "B":S$(3) = "C":S$(4) = "D"
1600  FOR L = 1 TO 6: FOR A = 1 TO 17: READ D(A,L): NEXT : NEXT
1610  DATA    .3629, .1704, .0541, .0542, .0607, .0808, .0907, 1006, 1085,
1156, 1351, 1703, .2269, .3036, .3966, .5183, .7385, .2593, 1119, .0370, 03
73, 0477, .0564, 0635, .0707, 077, 0836, .0997, .1277, .1732, 237, 3200,
4333, 6941
1620  DATA    .1781, .0712, .0242, .0248, .0321, .0382, .0432, 0484, 0535,
0598, .0733, 0961, 1331, .1873, .2633, .3696, .6453, 1111, 0388, .014, .014
8, .02, .0243, 0276, .031, .0357, .0419, 0533, 0726, 1034, 1503, 2217, 32
25, 5979
1630  DATA     .0572, .0149, .0061, .0068, .0096, 0121, .0141, 0167, 0205,
.0265, .0365, .0520, .0772, .1185, .1842, .2818, .5456, .0161, .0021, .0012, .0
014, .0022, .0028, 0037, .005, 0073, 0117, 0187, 0293, 0469, 0789, 1348
, 2241, .4750
1720  HOME :T9 = 5
1730 Y(1) = 1981:L(1) = T(26):F(1) = T(18): FOR T = 2 TO T9:Y(T) = Y
(T - 1) + 5:F(T) = T(18):L(T) = T(26): NEXT
1740  FOR A = 1 TO 17:P(A,1,1) = T(A):P(A,1,2) = T(A):P(A,1,3) = T(A
)  NEXT
1800  DIM ZQ(3,4): FOR S = 1 TO 3:ZQ(S,1) = F(1):ZQ(S,3) = L(1)  FOR
 T = 2 TO 4 STEP 2: READ ZQ(S,T): NEXT : NEXT
1810  DATA  5,9,55,3,55,2,55
1820  DIM VT(4):VT(1) = 6:VT(2) = 7:VT(3) = 11:VT(4) = 12
2000  TEXT : HOME
2005  GOSUB 11: HOME
2006 Z(1) = T(29):Z(6) = T(30):Z(0) = T(31):X$ = "MIGRATION (ANNUAL
%)"  GOSUB 200:T(29) = Z(1):T(30) = Z(6):T(31) = Z(0): FOR I = 1 TO
5:E(0,I,0) = Z(I): NEXT
2010  FOR S = 1 TO 3:Z(1) = ZQ(S,1):Z(5) = ZQ(S,2): GOSUB 100: FOR T
 = 1 TO T9:F(T) = Z(T):E(4,T,S) = Z(T): NEXT :ZQ(S,1) = Z(1):ZQ(S,2)
 = Z(5)
2020 Z(1) = ZQ(S,3):Z(5) = ZQ(S,4): GOSUB 100: FOR T = 1 TO T9:L(T)
= Z(T):E(5,T,S) = Z(T): NEXT :ZQ(S,3) = Z(1):ZQ(S,4) = Z(5)
2165 P(17,0,1) = T(0):P(17,0,2) = T(0):P(17,0,3) = T(0): HOME : VTAB
 12  PRINT : PRINT "CALCULATING DEMOGRAPHIC PROJECTION "S$(S)"  ..."
2166  FOR T = 1 TO T9
2167  FOR I = 35 TO 75 STEP 10
2168  IF L(T) ) I THEN  GOTO 2220
2170 L1 = (I - 25) / 10 + 1
2175  FOR A = 1 TO 17:M(A,T) = D(A,L1 - 1) + (D(A,L1) - D(A,L1 - 1))
 * (L(T) - I + 10) / 10: NEXT : GOTO 2225
2220  NEXT
2225  IF T = 1 THEN  GOTO 2400
2226 MG = (E(0,T - 1,0) + E(0,T,0)) / 40
2230 P(17,T,S) = 0:M(17 + S,T) = 0:B(S,T) = 0
2231  FOR A = 2 TO 15:M = P(A - 1,T - 1,S) * (M(A,T) + M(A,T - 1)) /
 2:P(A,T,S) = P(A - 1,T - 1,S) - M:P(A,T,S) = P(A,T,S) + MG * (P(A,T
,S) + P(A,T - 1,S)) / 2:P(17,T,S) = P(17,T,S) + P(A,T,S):M(17 + S,T)
 = M(17 + S,T) + M: NEXT
2291 M = P(15,T - 1,S) * (M(16,T) + M(16,T - 1)) / 2:P(16,T,S) = P(1
5,T - 1,S) - M:M1 = P(16,T - 1,S) * (M(17,T) + M(17,T - 1)) / 2
2292 P(16,T,S) = P(16,T,S) + P(16,T - 1,S) - M1:P(16,T,S) = P(16,T,S
) + MG * (P(16,T,S) + P(16,T - 1,S)) / 2:P(17,T,S) = P(17,T,S) + P(1
6,T,S):M(17 + S,T) = M(17 + S,T) + M + M1
2335 B(S,T) = 0: FOR A = 4 TO 9:B(S,T) = B(S,T) + 5 * F(T) * T(A + 1
5) * (P(A,T,S) + P(A,T - 1,S)) * T(25) / 10: NEXT
2336 M = B(S,T) * (M(1,T) + M(1,T - 1)) / 2:P(1,T,S) = B(S,T) - M:P(
1,T,S) = P(1,T,S) + MG * (P(1,T,S) + P(1,T - 1,S)) / 2:P(17,T,S) = P
(17,T,S) + P(1,T,S):M(17 + S,T) = M(17 + S,T) + M
2400  NEXT T
2410 B(S,1) = B(1,2) * B(1,2) / B(1,3)
2420 M(17 + S,1) = M(18,2) * M(18,2) / M(18,3)
2430  NEXT S
```

Figure 1

```
2432 E(0,1,1) = T(32):X = T(32) + (100 - T(32)) / 4: IF X < 75 THEN
X = 75
2433 E(0,2,1) = X: FOR T = 3 TO 4:E(0,T,1) = E(0,T - 1,1) + (100 - E
(0,T - 1,1)) / (6 - T)  NEXT T:E(0,5,1) = 100
2434 Z(1) = T(35):Z(6) = T(36):Z(0) = T(37): GOSUB 230: FOR I = 1 TO
 5:E(0,I,2) = Z(I): NEXT
2436 Z(1) = T(38):Z(6) = T(39):Z(0) = T(40): GOSUB 230: FOR I = 1 TO
 5:E(0,I,3) = Z(I): NEXT
2438 Z(1) = T(41):Z(6) = T(42):Z(0) = T(43): GOSUB 230: FOR I = 1 TO
 5:E(1,I,0) = Z(I): NEXT
2440 Z(1) = T(44):Z(6) = T(45):Z(0) = T(46): GOSUB 230: FOR I = 1 TO
 5:E(2,I,0) = Z(I):E(8,I,0) = L(2,I,0) * 100 / T(47): NEXT
2442 Z(1) = T(48):Z(6) = T(49):Z(0) = T(50): GOSUB 230: FOR I = 1 TO
 5:E(3,I,0) = Z(I): NEXT
2444 Z(1) = T(51):Z(6) = T(52):Z(0) = T(53): GOSUB 230: FOR I = 1 TO
 5:E(4,I,0) = Z(I): NEXT
2446 Z(1) = T(54):Z(6) = T(55):Z(0) = T(56): GOSUB 230: FOR I = 1 TO
 5:E(5,I,0) = Z(I): NEXT
2448 Z(1) = T(57):Z(6) = T(58):Z(0) = T(59): GOSUB 230: FOR I = 1 TO
 5:E(6,I,0) = Z(I): NEXT
2450 Z(1) = T(60):Z(6) = T(61):Z(0) = T(62): GOSUB 230: FOR I = 1 TO
 5:E(7,I,0) = Z(I): NEXT
2499 CC = 1
2500  POKE 103,03  POKE 104,64: POKE 16386,0: POKE 16385,0
2510  GOTO 2500
2600  GOTO 2000
2610  GOTO 2500
2620  GOTO 2510
```

Figure 1

```
]PRINT "LIST OF PDLT - PART 2"
LIST OF PDLT - PART 2

]POKE103,3 POKE104,64

]LIST

10  TEXT   HOME  X =  FRE (0):Q2 = 0 Q1 = 0: RETURN
20  HOME   PRINT Z$. PRINT "NOW EQUALS ";Z(1). PRINT : PRINT
25  PRINT "PLEASE ENTER NEW VALUES": PRINT " OF ";Z$: PRINT " ENTER
AS  YEAR,VALUE"
30  PRINT " AT THE END ENTER 0,0"  PRINT "EXAMPLE-": PRINT "2000,3":
 PRINT "2025 2"  PRINT "0,0"
35  PRINT  I = 1 M(15,1) = 1975:M(16,1) = Z(1):Z(0) = Z(1)
70 I = I + 1  INPUT M(15,I),M(16,I): IF M(15,I) (  ) 0 GOTO 70
71 I = I - 1 Y1 = 2  IF I = 1 THEN  RETURN
73  FOR I1 = 2 TO I:Y2 =  INT ((M(15,I1) - 1975) / 5) + 1:I2 = 5 / (
M(15,I1) - Y(Y1 - 1))
75  FOR T = Y1 TO Y2:Z(T) = Z(T - 1) + I2 * (M(16,I1) - M(16,I1 - 1)
)  NEXT  Y1 = Y2 + 1. NEXT
160  IF Y2 (  = T9 GOTO 165
162  FOR T = Y2 + 1 TO T9:Z(T) = Z(T - 1): NEXT
165  RETURN
170  HOME   VTAB 2  FOR I = 1 TO  LEN (X$). PRINT "-";: NEXT : PRINT
   PRINT X$  FOR I = 1 TO  LEN (X$)  PRINT "-";: NEXT : PRINT : VTAB
 6  PRINT "1981 VALUE IS   "Z(1)  HTAB 17: INPUT "";A$: IF A$ = ""
THEN A = Z(1)  GOTO 172
171 A =  VAL (A$). IF A = 0 AND A$ (  ) "0" THEN 170
172 Z(1) = A. HOME   VTAB 2  FOR I = 1 TO  LEN (X$)  PRINT "-";: NEX
T   PRINT   PRINT X$. FOR I = 1 TO  LEN (X$)  PRINT "-";: NEXT : PRI
NT  VTAB 6  PRINT "1981 VALUE IS   "Z(1): PRINT
173  VTAB 8  PRINT "CHANGE OF 1981 DATA OVER TIME:"  VTAB 10. PRINT
"   0 = NONE  1= ANNUAL  5= FIVE YEARS"
174  VTAB 12  CALL  - 958  PRINT "PLEASE ENTER 0,1, OR 5: "Z(0);: HT
AB 24 +  LEN  STR$ (Z(0))  INPUT "",A$  IF A$ (  ) "0" AND A$ (  )
 "1" AND A$ (  ) "5" AND A$ (  ) "" THEN 174
175  IF A$  "" THEN Z(0) =  VAL (A$)
176  VTAB 8  CALL  - 958  IF Z(0) = 0 THEN Z(6) = 0:A = 0: GOTO 182
177  VTAB 8  CALL  - 958  PRINT "% INCRLASE ("Z(0)" YEAR";. IF Z(0)
= 5 THEN  PRINT "S".
178  PRINT ")  ".Z(6).  HTAB 23 + (Z(0) = 5)  INPUT "";A$: IF A$ =
" THEN A = Z(6)  GOTO 180
179 A =  VAL (A$)  IF A = 0 AND A$ (  ) "0" THEN 177
180 Z(6) = A  VTAB 8. CALL  - 958  PRINT "% INCREASE ("Z(0)" YEAR";:
 IF Z(0) = 5 THEN  PRINT "S".
181  PRINT ")  "Z(6)
182  IF Z(0) = 1 THEN A = ((1 + A / 100) ^ 5 - 1) * 100
183 A = 1 + A / 100  FOR I = 2 TO 5:Z(I) = Z(I - 1) * A: NEXT
184  VTAB 10  FOR I = 1 TO 5  PRINT 1976 + I * 5, INT (Z(I) * 1000 +
  5) / 1000  PRINT   NEXT
185  VTAB 23  PRINT "'C' TO CHANGE    'RET' TO ACCEPT";: GET A$: PRI
NT  IF A$ (  ) CHR$ (13) AND A$ (  ) "C" AND A$ (  ) "F" THEN 185
186  IF A$ = "C" THEN 170
187  RETURN
210 S = 1  PRINT   PRINT "DO YOU WANT THIS PROJECTION TO BE": PRINT
"BASED ON DEMOGRAPHIC PROJECTION ";S$(S). PRINT "(Y OR N) ";: GOSUB
6999  IF A$ = "Y" THEN  RETURN
240  PRINT "WHICH DEMOGRAPHIC PROJECTION DO YOU": PRINT "WANT TO USE
"  INPUT A$  FOR I = 0 TO 3: IF S$(I) = A$ GOTO 243
241  NEXT
242  GOTO 260
243 S = I  IF P(17,T9,S) (  ) 0 THEN  RETURN
260  GOTO 240
261 A$ = "X"  RETURN
300  FOR W = 1 TO  LEN (M$). POKE 6, ASC ( MID$ (M$,W,1)): CALL WRIT
E  NEXT   RETURN
320  VTAB 1  HTAB 1  PRINT "        "  VTAB 1: HTAB 1: PRINT NUMBER:
RETURN
330 I = 0
340  POKE 6  PEEK (1024 + I). I = I + 1: IF  PEEK (6) = BLANK THEN  R
ETURN
342  CALL WRITE  GOTO 340
345  TEXT   HOME   PRINT "DO YOU WANT TO DISPLAY THE PROJECTION AS":
 PRINT "(G) A GRAPH"  PRINT "(T) A NUMERICAL TABLE": INPUT G$: IF G$
(  ) "G" AND G$ (  ) "T" THEN  PRINT  CHR$ (7): GOTO 345
346 T7 = T9  HOME   CALL INIT: HGR .YL = 17:YH = 151.XL = 30:XH = 27
9 Z9 = L(12,1,1) Z0 = Z9
347  FOR I = 1 TO 3. FOR T = 1 TO T7: IF E(9,T,I) ) Z9 THEN Z9 = E(9
 T,I)
348  IF E(9,T,I) ( Z0 THEN Z0 = E(9,T,I)
```

```
349  NEXT T: NEXT I: Z3 =  ABS (Z0): IF  ABS (Z9) ) Z3 THEN Z3 =  ABS
 (Z9)
350 Z0 =  - Z3:Z9 = Z3: GOTO 385
360  TEXT : HOME   PRINT "DO YOU WANT TO DISPLAY THE PROJECTION AS":
 PRINT "(G) A GRAPH"  PRINT "(B) A BAR CHART": PRINT "(T) A NUMERICA
L TABLE"  INPUT G$
361  IF G$ = "G" OR G$ = "B" OR G$ = "T" GOTO 363
362  PRINT : PRINT "PLEASE RESPOND WITH G, B OR T": INPUT G$: GOTO 3
61
363 T7 = T9
365  IF G$ <  > "B" GOTO 368
366  PRINT : PRINT : PRINT "DO YOU WANT"  PRINT "1 ONE BAR EACH FIVE
 YEARS"  PRINT "2 THREE BARS EACH 5 OR 10 YEARS": INPUT BAR: BAR = BA
R - 1  IF BAR <  > 1 AND BAR <  > 0 GOTO 366
367 B2 = 0  IF BAR = 1 AND T7 > 7 THEN B2 = 1
368  HOME   CALL INIT  HGR  YL = 17: YH = 151: XL = 30: XH = 270: Z9 = 0:
 Z0 = 1E15:  IF LF = 1 THEN YH = 84
369  FOR T = 1 TO T7
370  IF Z9 < Z(T) THEN Z9 = Z(T)
375  IF Z0 > Z(T) THEN Z0 = Z(T)
376  NEXT
379  IF Z9 = 0 OR Z9 = 100 THEN Z9 = 98
385  FOR I =  - 3 TO 12
386 Z8 = 10 ^ I
387  IF Z9 < Z8 GOTO 400
388  NEXT
400 Z9 = (2 *  INT ((Z9 / 10 ^ (I - 2) + 2) / 2)) * 10 ^ (I - 2)
410  IF Z0 >  = 0 THEN Z0 = 0: GOTO 430
429 Z0 =  - Z9
430 Z1 =  INT ((I - 1) / 3) + 1: IF Z9 / 10 ^ ((Z1 - 1) * 3) < 10 AN
D Z1 > 1 THEN Z1 = Z1 - 1
435  IF G$ = "T" THEN  GOSUB 8000
436  IF G$ = "T" THEN  RETURN
440  HCOLOR= 3: HPLOT XL,YH TO XH,YH TO XH,YL TO XL,YL TO XL,YH
450  VTAB 1: HTAB (20 -  LEN (Z$) / 2): M$ = Z$: GOSUB 300
460  VTAB 2: HTAB 1: ON Z1 GOTO 480,490,500,510,520
480 M$ = " ": GOTO 540
490 M$ = "THOUSANDS": GOTO 540
500 M$ = "MILLIONS": GOTO 540
510 M$ = "BILLIONS": GOTO 540
520 M$ = "TRILLIONS"
540  IF Q1 = 1 THEN M$ = "PER THOUSAND"
541  IF Q1 = 2 THEN M$ = "PERCENT/YEAR"
542  GOSUB 300:M$ = N$: VTAB 2: HTAB 39 -  LEN (N$): GOSUB 300
545 Z2 = 10 ^ ((Z1 - 1) * 3)
546  IF Z1 <  = 0 THEN Z2 = 1
550  IF Z9 < 1 GOTO 555
552 NUMBER =  INT (Z9 / Z2 + .5): IF Z9 < 10 THEN NUMBER = ( INT (Z9
 * 10 / Z2 + .5)) / 10
553  GOSUB 320: VTAB 3: HTAB 1: GOSUB 330
554  GOTO 560
555 NUMBER = ( INT (Z9 * 100 / Z2 + .5)) / 100: GOSUB 320  VTAB 3: H
TAB 1: GOSUB 330
560  IF Z9 =  - Z0 THEN NUMBER = 0  GOSUB 320: VTAB 11  HTAB 2  GOSU
B 330: GOTO 570
561  IF NUMBER < 20 GOTO 565
562 NUMBER =  INT ((NUMBER - Z0 / Z2) / 2 + Z0 + .5): GOSUB 320: VTA
B 11: HTAB 1: GOSUB 330: GOTO 570
565 NUMBER = ( INT ((NUMBER * 100 - Z0 / Z2) / 2 + Z0 + .5)) / 100:
GOSUB 320: VTAB 11: HTAB 1: GOSUB 330
570 NUMBER = Z0 / Z2: GOSUB 320: VTAB 19: IF LF = 1 THEN  VTAB 11
571  HTAB 1: GOSUB 330:NUMBER = Y(1): GOSUB 320: VTAB 20: IF LF = 1
THEN  VTAB 12
572  HTAB 3: GOSUB 330:NUMBER = Y(T7): GOSUB 320: HTAB 37: VTAB 20:
IF LF = 1 THEN  VTAB 12
573  GOSUB 330
580  IF Z9 <  >  - Z0 THEN 590
581 Y = YH - (YH - YL) / 2: HPLOT XL,Y TO XH,Y
582  INVERSE :M$ = "SURPLUS": VTAB 4: HTAB 5: GOSUB 300
583 M$ = "DEFICIT": VTAB 18: HTAB 5: GOSUB 300: NORMAL
590  IF NC = 1 THEN  RETURN
600 D = 20: HCOLOR= GLD: IF S = 2 THEN  HCOLOR= PURPLE
601  IF S = 3 THEN  HCOLOR= GREEN
602  IF G$ = "T" THEN  GOSUB 365: RETURN
603  IF G$ = "T" THEN  GOSUB 365: RETURN
604  IF G$ = "B" GOTO 680
605  FOR I = 0 TO 1
606  FOR T = 1 TO T7
610 Y = YH - ((Z(T) - Z0) / (Z9 - Z0)) * (YH - YL) + I
612 X = ((Y(T) - Y(1)) / (Y(T7) - Y(1))) * (XH - XL) + XL
```

Figure 1

```
614  IF X < XL THEN X = XL
615  IF X > XH THEN X = XH
616  IF Y < YL THEN Y = YL
617  IF Y > YH THEN Y = YH
618  IF T = 1 THEN  HPLOT X,Y
619  IF T <  > 1 THEN  HPLOT  TO X,Y
620  IF I = 1 GOTO 624
621  POKE 768,Y + 50: POKE 769,D  CALL 770
624  NEXT
625  NEXT I
630 M$ = S$(S): VTAB (Y / 8) + 1  HTAB 40  GOSUB 300  RETURN
650 XI =  INT ((XH - XL) / (2 * T7 * (1 -  5 * BAR)) +  5 - 3 XE =
XI
660  IF BAR < 1 GOTO 681
665  IF XI > 20 THEN XI = 20
667 XE = XI / 3 - 2 * (1 - B2) - 2
679  GOTO 681
680 B = 8:D = 20: GOTO 650
681 T = 0: IF XI > 11 AND BAR < 1 THEN XE = 11
682 T = T + 1 + B2  IF T > T7 GOTO 697
683 Y = YH - ((Z(T) - Z0) / (Z9 - Z0)) * (YH - YL)
684 X = ((Y(T) - Y(1)) / (Y(T7) - Y(1))) * (XH - XI - (XL - XI)) + X
L + XI
685  IF BAR > 0 AND T7 > 6 THEN X = ((Y(T) - Y(2)) / ( INT (Y(T7) /
10) * 10 - Y(2))) * (XH - XI - 5 - (XL + XI)) + XL + XI
686  IF BAR > 0 THEN X = X + (S - 2) * (2 * XE + 5)
687  HPLOT X - XE,YH TO X + XE,YH
688 YB =  INT (YH / 2) * 2:YP = Y.YS =  - 2  IF LF <  > 2 GOTO 690
689 YP = 84 + 84 - Y:YS = 2:YB = YH
690  FOR I = YB TO YP STEP YS
691  HPLOT X + XE,I: HPLOT  TO X - XE,I  IF I / B -  INT (I / B) >
01 GOTO 693
692  POKE 768,I + 50: POKE 769,D: CALL 770
693  IF SK = 1 GOTO 695
694  HPLOT X - XE,I - 1 TO X + XE,I - 1
695  NEXT I
696  GOTO 682
697  GOSUB 630
698  RETURN
700  HOME  CALL INIT: HGR :Z = 0
705  FOR T = 1 TO T9  FOR A = 1 TO 16 Z1 = P(A,T,S) / P(17,T S)  IF
Z < Z1 THEN Z = Z1
710  NEXT  NEXT  Z = 5 *  INT (Z * 100 / 5 + 1)
711 Z1 = Z / 100
720  HCOLOR= 3:M$ = "PERCENT"  VTAB 20: HTAB 7  GOSUB 300  VTAB 20:
HTAB 27: GOSUB 300
725 NUMBER = Z: GOSUB 320  VTAB 19: HTAB 1: GOSUB 330
770  GOSUB 320: VTAB 19  HTAB 39: GOSUB 330:M$ = "0"  VTAB 19  HTAB
17: GOSUB 300: HTAB 23: GOSUB 300
772 M$ = "75+": VTAB 3: HTAB 19: GOSUB 300 X = 3: GOTO 800
790 X = X + 1: VTAB X: HTAB 18: GOSUB 300: RETURN
800 M$ = "70-74": GOSUB 790:M$ = "65-69": GOSUB 790:M$ = "60-64"  GO
SUB 790:M$ = "55-59": GOSUB 790:M$ = "50-54": GOSUB 790:M$ = "45-49"
: GOSUB 790:M$ = "40-44": GOSUB 790:M$ = "35-39"  GOSUB 790 M$ = "30
-34": GOSUB 790:M$ = "25-29"  GOSUB 790:M$ = "20-24": GOSUB 790
810 M$ = "15-19": GOSUB 790:M$ = "10-14": GOSUB 790:M$ = " 5-9": GOS
UB 790:M$ = " 0-4": GOSUB 790  HPLOT 0,144: HPLOT  TO 279,144  GOTO
1010
815 X = 115:Y = 143: HPLOT X,Y
820  FOR A = 1 TO 16:Y1 = 0
825  IF PM = 0 GOTO 844
830  HCOLOR= GLD: IF (A >  = (T) AND A <  = T + 2) OR (A >  = T - 4
AND A <  = T - 2) THEN  HCOLOR= GEEN
835  HPLOT X,Y: GOTO 870
844  IF A = 4 GOTO 850
845  IF A = 14 GOTO 860
846  GOTO 870
850  HCOLOR= GEEN: HPLOT X,Y: GOTO 870
860  HCOLOR= GLD: HPLOT X,Y
870 X = 115 - 115 * (P(A,T,S) / P(17,T,S)) / Z1:X1 = 115 - .771 * (1
15 - X)
880  HPLOT  TO X,Y:Y = Y - 1:Y1 = Y1 + 1: IF Y1 = 8 GOTO 890
881  HPLOT  TO X Y
882  IF A < 4 OR A > 13 GOTO 887
884  HPLOT  TO X1,Y:Y = Y - 1:Y1 = Y1 + 1  HPLOT 115,Y: IF Y1 = 8 GO
TO 890
885  GOTO 880
887  HPLOT  TO 115,Y:Y = Y - 1:Y1 = Y1 + 1: HPLOT  TO 115,Y: IF Y1 =
 8 GOTO 890
888  GOTO 880
```

Figure 1

```
890  CALL  - 198  NEXT
900 M$ =  STR$ (Y(T))  VTAB 5  HTAB 5  GOSUB 300: VTAB 6: HTAB 1:M$
= "PROJECTION"  GOSUB 300  VTAB 6  HTAB 12:M$ = S$(S): GOSUB 300
920  HPLOT 158,143:Y = 143
922  FOR A = 1 TO 16:Y1 = 0
925  IF PM = 0 GOTO 932
927  HCOLOR= GLD  IF (A )  = (T) AND A (  = T + 2) OR (A )  = T - 4
AND A (  = T - 2) THEN  HCOLOR= GEEN
928  HPLOT X,Y  GOTO 950
932  IF A = 4 GOTO 940
933  IF A = 14 GOTO 945
934  GOTO 950
940  HCOLOR= GEEN  HPLOT X,Y  GOTO 950
945  HCOLOR= GLD  HPLOT X,Y
950 X = 158 + 115 * (P(A,T,S1  / P(17,T,S1)) / Z1:X1 = 158 + .771 *
(X - 158)
960  HPLOT  TO X,Y:Y = Y - 1:Y1 = Y1 + 1  IF Y1 = 8 GOTO 970
961  HPLOT  TO X,Y
962  IF A ( 4 OR A ) 13 THEN  GOTO 967
964  HPLOT  TO X1,Y:Y = Y - 1 Y1 = Y1 + 1  HPLOT 158,Y: IF Y1 = 8 TH
EN  GOTO 970
965  GOTO 960
967  HPLOT  TO 158,Y:Y = Y - 1 Y1 = Y1 + 1  HPLOT  TO 158,Y: IF Y1 =
 8 GOTO 970
968  GOTO 960
970  CALL  - 198  NEXT
980 M$ =  STR$ (Y(T))  VTAB 5  HTAB 33  GOSUB 300: VTAB 6: HTAB 29:M
$ = "PROJECTION": GOSUB 300  VTAB 6  HTAB 40:M$ = S$(S1): GOSUB 300:
 RETURN
1010  HCOLOR= GLD:T = 1  GOSUB 815
1015  VTAB 23  HTAB 1  PRINT "ENTER NUMBER OF YEARS TO ADVANCE": PRI
NT "POPULATION PYRAMID. 0 TO END"  INPUT A1
1016  IF A1 = 0 THEN  RETURN
1017 A1 =  INT (A1 / 5 +  5)
1020  IF T + A1 > T9 THEN  RETURN
1030  HCOLOR= 0  HPLOT 115,143  FOR Y = 143 TO 0 STEP  - 1  HPLOT  T
O 0,Y  HPLOT  TO 115,Y  NEXT  HPLOT 158,143: FOR Y = 143 TO 0 STEP
 - 1  HPLOT  TO 279 Y  HPLOT  TO 158,Y: NEXT
1031  HCOLOR= GLD:T = T + A1  GOSUB 815: GOTO 1015
2000  POKE 103,01  POKE 104,08
2010  GOTO 48
2100  TEXT  HOME  VTAB 10  FLASH  HTAB 10  PRINT " CALCULATING MO
DEL "  NORMAL
2104 P = T/33  (P(2,1,1) + P(3,1,1))
2105  FOR S = 1 TO 3  FOR T = 1 TO 5:E(1,T,S) = P * (P(2,T,S) + P(3,
T,S)) E(2,T,S) = E(1,T,S) * E(0,T,1) / 100:E(3,T,S) = E(2,T,S) * E(0
,T,2)  NEXT  NEXT
2110  FOR T = 1 TO 5:E(10,T  = E(2,T,0) * E(3,T,0):E(10,T,2) = E(1
0,T,1) * E(5,T,0) / 100 E(10,T,3) = E(10,T,1) - E(10,T,2)
2111 E(11,T,2  = E(10,T,2) * E(4,T,0) * E(6,T,0) / 100:E(11,T,3) = E
(10,T,3) * E(4,T,0) * E(7,T,0  / 100:E(11,T,1) = E(11,T,2) + E(11,T,
3)  NEXT T
2115  FOR S = 1 TO 3  FOR T = 1 TO 5:E(7,T,S) = P(17,T,S) * E(0,T,3)
:E(8,T,S) = P(17,T,S) * E(1,T,0):E(9,T,S) =  INT (E(11,T,1) - E(3,T,
S)) E(6,T,S) = E(3,T,S) / E(11,T,1) * E(10,T,1): NEXT : NEXT
2498 CC = 0  HOME
2499  RETURN
2500  GOSUB 10 S$(1) = "A" S$(2) = "B":S$(3) = "C":M(11,1) =  -  123
456. IF CC = 1 THEN  GOSUB 2100
2501  IF  PEEK (770) = 173 GOTO 2505
2502  POKE 770,173  POKE 771,48  POKE 772,192: POKE 773,136: POKE 77
4,208  POKE 775,5  POKE 776,206  POKE 777,1: POKE 778,3: POKE 779,24
0  POKE 780,5  POKE 781,202
2503  POKE 782,208  POKE 783,145  POKE 784,174: POKE 785,0: POKE 786
,3  POKE 787,76  POKE 788,2  POKE 789,3: POKE 790,96: POKE 791,0: PO
KE 792,0
2505 BUE = 6 PURPLE = 2 GEEN = 1:WHITE = 3:GLD = 5:BK = 4
2507  VTAB 5  HTAB 19  HGR  CALL INIT:M$ = N$: GOSUB 300
2508  VTAB 20  HTAB 2 M$ = "PRESS 'RETURN' KEY"
2509  GOSUB 300  INPUT A$  TEXT : HOME
2510  PRINT "WHAT SECTOR DO YOU WANT TO": PRINT "EXAMINE NOW": PRINT
 "1 DEMOGRAPHY"  PRINT "2 EDUCATION": PRINT "3 AGRICULTURE": PRINT "
4 COMPARISONS"  PRINT "5 PRINT ASSUMPTIONS ON PRINTER"
2515  PRINT  PRINT "      OR"  PRINT : PRINT "6 WOULD YOU LIKE TO GE
NERATE NEW"  PRINT "  DEMOGRAPHIC PROJECTIONS"
2516  PRINT  PRINT "      OR"  PRINT : PRINT "7 WOULD YOU LIKE TO EN
D"
2530 A9 = 7  GOSUB 7010
2531  IF A1 = 7 THEN  PR# 6
2535  ON A1 GOTO 2570,4000,4300,4600,6000,2000
```

Figure 1

```
2570  TEXT   HOME :Q1 = 0:Q2 = 0: FOR T = 1 TO T9:M(1,T) = T(28): NE
XT
2580  PRINT "WHICH DEMOGRAPHIC VARIABLE WOULD YOU": PRINT "LIKE TO E
XAMINE"  PRINT "1 TOTAL POPULATION": PRINT "2 POPULATION GROWTH RATE
"
2581  PRINT "3 AGE STRUCTURE OF THE POPULATION"
2600 A9 = 3  GOSUB 7010
2605  IF A1 = 3 GOTO 2785
2650 Q1 = 0 Q2 = 0:S = 1
2660  ON A1 GOTO 2670,2710,2785
2670 Z$ = "TOTAL POPULATION": FOR T = 1 TO T9:Z(T) = P(17,T,S): NEXT
   GOTO 2730
2710 Z$ = "POPULATION GROWTH RATE (W/O MIGRATION)": FOR T = 1 TO T9:
Z(T) = 100 * ((B(S,T) - M(17 + S,T)) / 5) / ((P(17,T - 1,S) + P(17,T
,S)) / 2)  NEXT  Q1 = 2  GOTO 2730
2730  GOSUB 7050  IF A$ = "N" GOTO 2570
2740  GOTO 2660
2785  PRINT   PRINT : PRINT "DO YOU WANT": PRINT "(1) AN AGE PYRAMID
"  PRINT "(2) A TABLE OF VALUES": PRINT "(3) AN AGE PYRAMID SHOWING"
  PRINT "    POPULATION MOMENTUM"  INPUT A1: IF A1 < 1 OR A1 > 3 GOT
O 2785
2786  IF A1 = 1 OR A1 = 3 GOTO 2790
2787  GOTO 2850
2790  PRINT   PRINT   PRINT "WHICH TWO DEMOGRAPHIC PROJECTIONS": PRI
NT "DO YOU WANT TO COMPARE"  INPUT A$,M$  FOR I = 1 TO 3: IF A$ = S$
(I) GOTO 2792
2791  NEXT
2792 S = I  FOR I = 1 TO 3  IF M$ = S$(I) GOTO 2794
2793  NEXT
2794 S1 = I
2795  IF A1 = 3 GOTO 2820
2796  GOSUB 700
2800  VTAB 23  HTAB 1: PRINT "DO YOU WANT TO COMPARE TWO MORE ": PRI
NT "PROJECTIONS"  GOSUB 6999  IF A$ = "Y" THEN  GOTO 2790
2810  GOTO 2570
2820 PM = 1  GOSUB 700 PM = 0  GOTO 2570
2850  PRINT   PRINT : GOSUB 240
2860  PRINT   PRINT : PRINT "DO YOU WANT TO USE THE PRINTER": GOSUB
6999  IF A$ = "Y" GOTO 2866
2865  PR# 1
2866  FOR A = 1 TO 13 STEP 4: HOME   PRINT   PRINT : PRINT "PROJECTI
ON ";S$(S)  PRINT
2867  PRINT   PRINT "YEAR  ";A * 5 - 5;"-";A * 5 - 1;: HTAB 16: PRIN
T A * 5;"-";A * 5 + 4;: HTAB 25  PRINT A * 5 + 5;"-";A * 5 + 9;: HTA
B 34  PRINT A * 5 + 10;"-";A * 5 + 14: PRINT
2868  FOR T = 1 TO T9
2869  IF T = 1 OR Y(1) / 5 -  INT (Y(1) / 5) = 0 GOTO 2871
2870  GOTO 2872
2871 Y = Y(T)  FOR I = 11 TO 14:M(I,T) = P(A + I - 11,T,S): NEXT : G
OTO 2880
2872  IF Y(1) < 1975 GOTO 2874
2873 P = 1980 - Y(1):P1 =  - 1:Y =  INT (Y(T) / 5) * 5: GOTO 2876
2874 P = 1980 - Y(2):P1 = 0:Y =  INT (Y(T) / 5) + 5: IF T < > T7 GO
TO 2876
2875 P1 =  - 1: P = 1980 - Y(1)
2876  FOR I = 11 TO 14:M(I,T) = P(A + I - 11,T + P1,S) * (((P(A + I
- 11,T + 1 + P1,S) / P(A + I - 11,T + P1,S)) ^ .2) ^ P): NEXT
2880  PRINT Y   HTAB 6: PRINT  INT (M(11,T));: HTAB 15: PRINT  INT (
M(12,T));  HTAB 24: PRINT  INT (M(13,T));: HTAB 33: PRINT  INT (M(14
,T))
2881  NEXT
2882  GOSUB 2889
2883  NEXT   PRINT   PRINT
2888  PR# 0  GOTO 2570
2889  PR# 0  VTAB 20: HTAB 1: PRINT "PRESS RETURN TO CONTINUE": INPU
T M$  IF A$ = "Y" THEN  PR# 1
2890  RETURN
4000  TEXT   HOME   PRINT "WHICH OPTION?"  PRINT : PRINT " 1) LIST/C
HANGE EDUCATION ASSUMPTIONS": PRINT
4002  PRINT " 2) SHOW PROJECTED PRIMARY AGE CHILDREN": PRINT
4004  PRINT " 3) SHOW PROJECTED PRIMARY ENROLLMENT": PRINT
4006  PRINT " 4) SHOW COST OF PRIMARY EDUCATION": PRINT
4020 A9 = 4  GOSUB 7010
4021  IF A1 > 1 AND CC = 1 THEN  GOSUB 2100
4022  IF A1 = 1 THEN 4025
4023 Q1 = 0 Q2 = 0:S = 1
4025  ON A1 GOTO 4050,4200,4220,4240
4050  TEXT   HOME : PRINT "EDUCATION ASSUMPTIONS"
4055  PRINT   PRINT "1) ENROLLMENT RATE (%)": PRINT : FOR T = 1 TO 5
  HTAB 3  PRINT Y(T)"  " INT (E(0,T,1) * 10 + .5) / 10: NEXT : PRIN
```

Figure 1

```
T
4060  PRINT   PRINT "2) COST PER STUDENT (RUPEES)": PRINT : FOR T =
1 TO 5. HTAB 3  PRINT Y(T)"   " INT (E(0,T,2) * 100 + .5) / 100: NEX
T : PRINT
4065  VTAB 23  PRINT "ENTER 0 TO END, 1 OR 2 TO CHANGE: ";
4066  GET A$  IF A$ <  > "0" AND A$ <  > "1" AND A$ <  > "2" THEN 40
66
4070  IF A$ = "0" THEN 4000
4075  IF A$ = "1" THEN 4100
4080 X$ = "COST PER STUDENT (RUPEES)":Z(1) = T(35):Z(6) = T(36):Z(0)
 = T(37)  GOSUB 170
4085  IF T(35) <  > Z(1) THEN T(35) = Z(1):CC = 1
4086  IF T(36) <  > Z(6) THEN T(36) = Z(6):CC = 1
4087  IF T(37) <  > Z(0) THEN T(37) = Z(0).CC = 1
4088  FOR T = 1 TO 5.E(0,T,2) = Z(T): NEXT : GOTO 4050
4100  TEXT   HOME   PRINT "ENROLLMENT RATE (%)": PRINT
4105  FOR T = 1 TO 5  PRINT Y(T),E(0,T,1): NEXT : PRINT : PRINT "PRE
SS 'RET' TO KEEP A VALUE". PRINT   PRINT "PRESS '0' FOR INTERPOLATED
 VALUE"  PRINT   PRINT "YOU MUST GIVE A VALUE FOR THE YEAR 2000"
4110  FOR T = 2 TO 5
4111  VTAB 2 + T  HTAB 17. INPUT "";A$  IF A$ = "" THEN  VTAB 2 + T:
 HTAB 17  PRINT E(0,T,1)  GOTO 4120
4112 A =  VAL (A$)  IF A = 0 AND T = 5 THEN  PRINT  CHR$ (7);: GOTO
4111
4115  IF A > 100 OR A < 0 THEN  PRINT  CHR$ (7);: GOTO 4111
4117 E(0,T,1) = A
4118 CC = 1
4120  NEXT T
4130  FOR T = 2 TO 4  IF E(0,T,1) > 0 THEN 4150
4132  IF T = 4 THEN E(0,4,1) = (E(0,3,1) + E(0,5,1)) / 2: GOTO 4150
4134  IF E(0,T + 1,1) > 0 THEN E(0,T,1) = (E(0,T - 1,1) + E(0,T + 1,
1)) / 2  GOTO 4150
4136  IF T = 3 THEN E(0,3,1) = E(0,2,1) + (E(0,5,1) - E(0,2,1)) / 3:
 GOTO 4150
4138  IF E(0,4,1) = 0 THEN E(0,2,1) = E(0,1,1) + (E(0,5,1) - E(0,1,1
)) / 4  GOTO 4150
4140 E(0,2,1) = E(0,1,1) + (E(0,4,1) - E(0,1,1)) / 3: GOTO 4150
4150  NEXT T
4160  GOTO 4050
4200 Z$ = "PROJECTED PRIMARY AGE CHILDREN"  FOR T = 1 TO T9:Z(T) = E
(1,T,S)  NEXT   GOTO 4250
4220 Z$ = "PROJECTED PRIMARY ENROLLMENT": FOR T = 1 TO T9:Z(T) = E(2
,T,S)  NEXT   GOTO 4250
4240 Z$ = "PROJ  PRIMARY EDUCATION COST (RUPEES)": FOR T = 1 TO T9:Z
(T) = E(3,T,S)  NEXT
4250  GOSUB 7050  IF A$ = "N" THEN 4000
4255  GOTO 4025
4300  TEXT   HOME   PRINT "WHICH OPTION?": PRINT  PRINT " 1) LIST/C
HANGE AGRICULTURE ASSUMPTIONS"  PRINT
4301 S$(1) = "T": S$(2) = "R":S$(3) = "O"
4302  PRINT " 2) SHOW "CR$" OUTPUT"  PRINT
4304  PRINT " 3) SHOW PDLT REVENUES"  PRINT
4320 A9 = 3  GOSUB 7010
4321  IF A1 = 1 AND CC = 1 THEN  GOSUB 2100
4322  IF A1 = 1 THEN 4325
4323 Q1 = 0 Q2 = 0.S = 1
4325  ON A1 GOTO 4350,4500,4520
4350  TEXT   HOME   PRINT "AGRICULTURE ASSUMPTIONS"
4351  PRINT "1) MAJOR CROP AREA (BIGAH)": FOR T = 1 TO 5  HTAB 3. PR
INT Y(T)"   " INT (E(2,T,0) +  5)  NEXT
4352  PRINT   PRINT "2) % MAJOR CROP AREA RENTED": FOR T = 1 TO 5  H
TAB 3  PRINT Y(T)"   " INT (E(5,T,0) * 10 +  5) / 10: NEXT
4353  PRINT   PRINT "3) YIELD (MOUND/BIGAH)"  FOR T = 1 TO 5. HTAB 3
  PRINT Y(T)"   " INT (E(3,T,0) * 100 +  5) / 100: NEXT
4354  VTAB 3
4355  HTAB 21  PRINT "4) PRICE (RS/MND)"  FOR T = 1 TO 5: HTAB 23. P
RINT Y(T)"   " INT (E(4,T,0) * 100 + .5) / 100. NEXT
4356  PRINT   HTAB 21. PRINT "5) OWNER TAX RATE": FOR T = 1 TO 5  HT
AB 23  PRINT Y(T)"   " INT (E(7,T,0) * 10 +  5) / 10: NEXT
4357  PRINT   HTAB 21  PRINT "6) RENTER TAX RATE": FOR T = 1 TO 5  H
TAB 23  PRINT Y(T)"   " INT (E(6,T,0) * 10 + .5) / 10: NEXT
4365  VTAB 24  PRINT "ENTER 0 TO END, 1 - 6 TO CHANGE: ";
4366  GET A$  IF A$ = "" THEN 4366
4367 A =  VAL (A$)  IF A = 0 AND A$ <  > "0" THEN 4366
4368  IF A < 0 OR A > 6 THEN 4366
4370  IF A = 0 THEN 4300
4375  ON A GOTO 4400,4410,4420,4430,4440,4450
4400 X$ = "MAJOR CROP AREA (BIGAH)":Z(1) = T(44):Z(6) = T(45):Z(0) =
 T(46)  GOSUB 170
4401  IF T(44) <  > Z(1) THEN T(44) = Z(1):CC = 1
```

Figure 1

```
4402  IF T(45) <  > Z(6) THEN T(45) = Z(6):CC = 1
4403  IF T(46) <  > Z(0) THEN T(46) = Z(0):CC = 1
4404  FOR T = 1 TO 5:E(2,T,0) = Z(T):E(8,T,0) = E(2,T,0) * 100 / T(4
7): NEXT   GOTO 4350
4410 X$ = "% MAJOR CROP AREA RENTED": Z(1) = T(54):Z(6) = T(55):Z(0)
= T(56): GOSUB 170
4411  IF T(54) <  > Z(1) THEN T(54) = Z(1):CC = 1
4412  IF T(55) <  > Z(6) THEN T(55) = Z(6):CC = 1
4413  IF T(56) <  > Z(0) THEN T(56) = Z(0):CC = 1
4414  FOR T = 1 TO 5 E(5,T,0) = Z(T): NEXT : GOTO 4350
4420 X$ = "YIELD (MOUND/BIGAH)": Z(1) = T(48):Z(6) = T(49):Z(0) = T(5
0): GOSUB 170
4421  IF T(48) <  > Z(1) THEN T(48) = Z(1):CC = 1
4422  IF T(49) <  > Z(6) THEN T(49) = Z(6):CC = 1
4423  IF T(50) <  > Z(0) THEN T(50) = Z(0):CC = 1
4424  FOR T = 1 TO 5:E(3,T,0) = Z(T): NEXT : GOTO 4350
4430 X$ = "PRICE (RUPEES/MOUND)": Z(1) = T(51):Z(6) = T(52):Z(0) = T(
53): GOSUB 170
4431  IF T(51) <  > Z(1) THEN T(51) = Z(1):CC = 1
4432  IF T(52) <  > Z(6) THEN T(52) = Z(6):CC = 1
4433  IF T(53) <  > Z(0) THEN T(53) = Z(0):CC = 1
4434  FOR T = 1 TO 5 E(4,T,0) = Z(T)  NEXT : GOTO 4350
4440 X$ = "OWNER TAX RATE (%)": Z(1) = T(60):Z(6) = T(61):Z(0) = T(62
): GOSUB 170
4441  IF T(60) <  > Z(1) THEN T(60) = Z(1):CC = 1
4442  IF T(61) <  > Z(6) THEN T(61) = Z(6):CC = 1
4443  IF T(62) <  > Z(0) THEN T(62) = Z(0):CC = 1
4444  FOR T = 1 TO 5:E(7,T,0) = Z(T): NEXT : GOTO 4350
4450 X$ = "RENTER TAX RATE (%)": Z(1) = T(57):Z(6) = T(58):Z(0) = T(5
9): GOSUB 170
4451  IF T(57) <  > Z(1) THEN T(57) = Z(1):CC = 1
4452  IF T(58) <  > Z(6) THEN T(58) = Z(6):CC = 1
4453  IF T(59) <  > Z(0) THEN T(59) = Z(0):CC = 1
4454  FOR T = 1 TO 5:E(6,T,0) = Z(T): NEXT : GOTO 4350
4500 Z$ = "PROJECTED " + CR$ + " OUTPUT (MOUND)": FOR T = 1 TO T9:Z(
T) = E(10,T,3)  NEXT   GOTO 4550
4520 Z$ = "PROJECTED PDLT REVENUE (RUPEES)": FOR T = 1 TO T9:Z(T) =
E(11,T,3)  NEXT   GOTO 4550
4550  GOSUB 7050  IF A$ = "N" THEN 4300
4555  GOTO 4325
4600  TEXT   HOME   PRINT "WHICH OPTION?": PRINT : PRINT " 1) LIST/C
HANGE COMPARISON ASSUMPTIONS"
4602  PRINT " 2) SHOW PROJECTED SURPLUS DEFICIT"
4604  PRINT " 3) SHOW % OF EDUCATION GOAL POSSIBLE"
4608  PRINT " 4) SHOW % HEALTH COVERAGE POSSIBLE"
4610  PRINT " 5) SHOW % DRINKING WATER COVERAGE POSS"
4612  PRINT " 6) SHOW % OUTPUT INCREASE REQUIRED"
4614  PRINT " 7) SHOW PROJECTED HEALTH COSTS": PRINT " 8) SHOW PROJE
CTED DRINKING WATER COSTS": PRINT " 9) SHOW ENROLLMENT POSSIBLE W/PD
LT"  PRINT "10) SHOW COST PER STUDENT POSSIBLE"
4615  PRINT "11) SHOW REQUIRED RENTER TAX RATE": PRINT "12) SHOW REQ
UIRED OWNER TAX RATE"  PRINT "13) SHOW REQUIRED % DIST. AREA CULT ":
 PRINT "14) SHOW INCREASED EDUC. COST OVER C"
4619  PRINT
4620 A9 = 14  GOSUB 7010
4621  IF A1 = 1 AND CC = 1 THEN  GOSUB 2100
4622  IF A1 = 1 THEN 4625
4623 Q1 = 0 Q2 = 0 S = 1  IF (A1 > 2 AND A1 < 6) OR A1 = 9 OR A1 = 1
0 THEN S = 3
4624  IF A1 = 2 THEN Q2 = 7
4625  ON A1 GOTO 4650,4800,4900,5100,5200,5300,5400,5500,5600,5700,5
720,5740,5760,5780
4650  TEXT   HOME   PRINT "COMPARISON ASSUMPTIONS"
4655  PRINT   PRINT "1) PER CAPITA HEALTH COST (RUPEES)": PRINT : FO
R T = 1 TO 5  HTAB 3  PRINT Y(T)"   " INT (E(0,T,3) * 100 + .5) / 10
0  NEXT   PRINT
4660  PRINT   PRINT "2) PER CAPITA COST OF DRINKING WATER (RUPEES)":
 PRINT   FOR T = 1 TO 5  HTAB 3  PRINT Y(T)"   " INT (E(1,T,0) * 100
 + .5) / 100  NEXT   PRINT
4665  VTAB 23  PRINT "ENTER 0 TO END, 1 OR 2 TO CHANGE: ";
4666  GET A$  IF A$ <  > "0" AND A$ <  > "1" AND A$ <  > "2" THEN 46
66
4670  IF A$ = "0" THEN 4600
4675  IF A$ = "2" THEN 4700
4680 X$ = "PER CAPITA HEALTH COST (RUPEES)":Z(1) = T(38):Z(6) = T(39
) Z(0) = T(40)  GOSUB 170
4685  IF T(38) <  > Z(1) THEN T(38) = Z(1):CC = 1
4686  IF T(39) <  > Z(6) THEN T(39) = Z(6):CC = 1
4687  IF T(40) <  > Z(0) THEN T(40) = Z(0):CC = 1
4688  FOR T = 1 TO 5:E(0,T,3) = Z(T): NEXT : GOTO 4650
```

Figure1

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4700 X$ = "PER CAPITA DRINKING WATER COST (RS)":Z(1) = T(41):Z(6) =
T(42):Z(0) = T(43)  GOSUB 170
4705  IF T(41) <  > Z(1) THEN T(41) = Z(1):CC = 1
4706  IF T(42) <  > Z(6) THEN T(42) = Z(6):CC = 1
4707  IF T(43) <  > Z(0) THEN T(43) = Z(0):CC = 1
4708  FOR T = 1 TO 5:E(1,T,0) = Z(T): NEXT : GOTO 4650
4800 Z$ = "PDLT REVENUE MINUS EDUCATION EXPENSES": FOR T = 1 TO T9:Z
(T) = E(9,T,S)  NEXT T: GOTO 5115
4900 Z$ = "% OF EDUCATION GOAL POSSIBLE W/PDLT": FOR T = 1 TO T9:Z(T
) = E(11,T,1) / E(0,T,2) * 100 / E(1,T,S) * 100 / E(0,T,1): NEXT T:
GOTO 5115
5000 Z$ = "% OF PER STUDENT COST POSSIBLE W/PDLT": FOR T = 1 TO T9:Z
(T) = E(11,T,1) / E(2,T,S) * 100 / E(0,T,2): NEXT T: GOTO 5115
5100 Z$ = "% OF TOTAL HEALTH COST COVERED": FOR T = 1 TO T9:Z(T) = E
(11,T,1) - E(3,T,S): IF Z(T) < 0 THEN Z(T) = 0
5101 Z(T) = Z(T) * 100 / E(7,T,S): IF Z(T) > 100 THEN Z(T) = 100
5102  NEXT T
5115  GOSUB 7050  IF A$ = "N" THEN 4600
5116  GOTO 4625
5200 Z$ = "% OF TOTAL DRINKING WATER COST COVERED": FOR T = 1 TO T9:
Z(T) = E(11,T,1) - E(3,T,S) - E(7,T,S): IF Z(T) < 0 THEN Z(T) = 0
5201 Z(T) = Z(T) * 100 / E(8,T,S): IF Z(T) > 100 THEN Z(T) = 100
5202  NEXT T  GOTO 5115
5300 Z$ = "% INCREASE OF " + CR$ + " OUTPUT REQUIRED": FOR T = 1 TO
T9:Z(T) = E(6,T,S) - E(10,T,1): IF Z(T) < 0 THEN Z(T) = 0
5301 Z(T) = Z(T) * 100 / E(10,T,1): NEXT T: GOTO 5115
5400 Z$ = "PROJECTED HEALTH COSTS (RUPEES)": FOR T = 1 TO T9:Z(T) =
E(7,T,S)  NEXT T: GOTO 5115
5500 Z$ = "PROJECTED DRINKING WATER COSTS (RS)": FOR T = 1 TO T9:Z(T
) = E(8,T,S): NEXT T: GOTO 5115
5600 Z$ = "% ENROLLMENT POSSIBLE W/PDLT": FOR T = 1 TO T9:Z(T) = E(1
1,T,1) / E(0,T,2) * 100 / E(1,T,S): NEXT T: GOTO 5115
5700 Z$ = "STUDENT COST POSSIBLE W/PDLT": FOR T = 1 TO T9:Z(T) = E(1
1,T,1) / E(2,T,S)  NEXT T: GOTO 5115
5720 Z$ = "REQUIRED RENTER TAX RATE (SHARED)": FOR T = 1 TO T9:Z(T)
= E(6,T,S) - E(10,T,1): IF Z(T) < 0 THEN Z(T) = 0
5721 Z(T) = Z(T) / E(10,T,1) + 1:Z(T) = E(6,T,0) * Z(T): NEXT T: GOT
O 5115
5740 Z$ = "REQUIRED OWNER TAX RATE (SHARED)": FOR T = 1 TO T9:Z(T) =
 E(6,T,S) - E(10,T,1): IF Z(T) < 0 THEN Z(T) = 0
5741 Z(T) = Z(T) / E(10,T,1) + 1:Z(T) = E(7,T,0) * Z(T): NEXT T: GOT
O 5115
5760 Z$ = "REQUIRED % OF DISTRICT AREA CULTIVATED": FOR T = 1 TO T9:
Z(T) = E(6,T,S) - E(10,T,1): IF Z(T) < 0 THEN Z(T) = 0
5761 Z(T) = Z(T) / E(10,T,1) + 1:Z(T) = E(2,T,0) * Z(T):Z(T) = Z(T)
* 100 / T(47): NEXT T: GOTO 5115
5780 Z$ = "EXTRA EDUCATION COST ABOVE PROJ C": FOR T = 1 TO T9:Z(T)
= E(3,T,S) - E(3,T,3): NEXT T: GOTO 5115
6000  PR# 1  PRINT : POKE  - 12527,18
6001  PRINT   PRINT : PRINT
6003  PRINT "DISTRICT: "N$: PRINT "MAJOR CROP: "CR$: PRINT
6005  PRINT "ASSUMPTION            1981    1986    1991    1996    200
1"
6006  PRINT "------------------  ------  ------  ------  ------  ---
---"
6010  PRINT "FERTILITY A";: FOR T = 1 TO T9: POKE 36,8 * T + 12: PRI
NT  INT (E(4,T,1) * 10 + .5) / 10;: NEXT : PRINT
6015  PRINT "FERTILITY B";: FOR T = 1 TO T9: POKE 36,8 * T + 12: PRI
NT  INT (E(4,T,2) * 10 + .5) / 10;  NEXT : PRINT
6020  PRINT "FERTILITY C";: FOR T = 1 TO T9: POKE 36,8 * T + 12: PRI
NT  INT (E(4,T,3) * 10 +  5) / 10;: NEXT : PRINT
6024  PRINT
6025  PRINT "LIFE EXPECTANCY A";: FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(5,T,1) * 10 + .5) / 10;: NEXT : PRINT
6030  PRINT "LIFE EXPECTANCY B";: FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(5,T,2) * 10 + .5) / 10;: NEXT : PRINT
6035  PRINT "LIFE EXPECTANCY C";: FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(5,T,3) * 10 + .5) / 10;: NEXT : PRINT
6039  PRINT
6040  PRINT "MIGRATION (%/YEAR)";: FOR T = 1 TO T9: POKE 36,8 * T +
12: PRINT  INT (E(0,T,0) * 100 + .5) / 100;  NEXT : PRINT
6044  PRINT   PRINT
6045  PRINT "% ENROLLMENT RATE";: FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(0,T,1) * 10 + .5) / 10;: NEXT : PRINT
6050  PRINT "COST/STUDENT (RS)";: FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(0,T,2) * 100 +  5) / 100;: NEXT   PRINT
6054  PRINT   PRINT
6055  PRINT "MAJ  CROP AR  (BG)";: FOR T = 1 TO T9: POKE 36,8 * T +
12  PRINT  INT (E(2,T,0) + .5);: NEXT : PRINT
6056  PRINT "% DIST  AREA CULT ";: FOR T = 1 TO T9: POKE 36,8 * T +
```

Figure 1

```
12  PRINT  INT (E(8,T,0) * 10 +  5) / 10;  NEXT : PRINT
6060  PRINT "% MAJ  CROP RENTED",  FOR T = 1 TO T9: POKE 36,8 * T +
12  PRINT  INT (E(5,T,0) * 10 +  5) / 10,  NEXT : PRINT
6065  PRINT "YIELD (MOUND/BGH)",  FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(3,T,0) * 100 +  5) / 100,  NEXT : PRINT
6070  PRINT "PRICE (RS/MOUND)",  FOR T = 1 TO T9: POKE 36,8 * T + 12
  PRINT  INT (E(4,T,0) * 100 +  5) / 100,  NEXT : PRINT
6075  PRINT "OWNER TAX RATE %",  FOR T = 1 TO T9: POKE 36,8 * T + 12
  PRINT  INT (E(7,T,0) * 10 +  5) / 10;  NEXT : PRINT
6080  PRINT "RENTER TAX RATE %",  FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(6,T,0) * 10 +  5) / 10,  NEXT : PRINT
6084  PRINT   PRINT
6085  PRINT "HEALTH (RS/PERSON)",  FOR T = 1 TO T9: POKE 36,8 * T +
12  PRINT  INT (E(0,T,3) * 100 +  5) / 100,  NEXT : PRINT
6090  PRINT "WATER (RS/PERSON)",  FOR T = 1 TO T9: POKE 36,8 * T + 1
2  PRINT  INT (E(1,T,0) * 100 +  5) / 100;  NEXT : PRINT
6094  PRINT   PRINT   PRINT   PR# 0
6099  GOTO 2500
6500  PR# 1  PRINT   PRINT   PRINT : PRINT : POKE  - 12529,255: POKE
  - 12528,7  POKE  - 12527,18: POKE  - 12524,0: PRINT  CHR$ (17): PO
KE  - 12524,255  POKE  - 12529,0: PR# 0: RETURN
6999  INPUT A$  IF A$ = "P" THEN  GOSUB 6500:A$ = "N": RETURN
7000  IF A$ = "Y" OR A$ = "N" THEN  RETURN
7002  PRINT   PRINT "PLEASE RESPOND WITH Y (YES) OR N (NO) ";: INPUT
 A$  IF A$ = "P" THEN  GOSUB 6500:A$ = "N": RETURN
7003  IF A$ = "Y" OR A$ = "N" THEN  RETURN
7004  GOTO 7002
7010  PRINT   PRINT "ENTER 1 THROUGH ";A9," TO INDICATE": PRINT "YOU
R CHOICE"  PRINT "ENTER 0 TO END THIS SECTION"
7011  INPUT A1  IF A1 < 0 OR A1 > A9 GOTO 7015
7012  IF A1 = 0 THEN  POP
7013  IF A1 = 0 GOTO 2500
7014  RETURN
7015  PRINT   PRINT "RESPONSE MUST BE BETWEEN 0 AND ";A9: PRINT "PLE
ASE RESUBMIT YOUR RESPONSE"  GOTO 7011
7050  IF Q2 = 1 THEN  GOSUB 600
7055  IF Q2 =  - 7 THEN  GOSUB 345: GOTO 7065
7060  IF Q2 <  > 1 THEN  GOSUB 360
7065  IF G$ <  > "T" GOTO 7070
7066 S = S + 1 Q2 = 1  RETURN
7070  HOME   VTAB 23  HTAB 1  PRINT "DISPLAY ANOTHER PROJECTION (Y O
R N)"  GOSUB 6999
7080  IF A$ = "N" THEN  RETURN
7110  GOSUB 240  IF A$ = "X" GOTO 2000
7120 Q2 = 1  RETURN
8000  TEXT   HOME
8001  IF Z1 < 1 THEN Z1 = 1
8005  ON Z1 GOTO 8010,8015,8020,8025,8030
8010 M$ = " "  GOTO 8040
8015 M$ = "THOUSANDS"  GOTO 8040
8020 M$ = "MILLIONS"  GOTO 8040
8025 M$ = "BILLIONS"  GOTO 8040
8030 M$ = "TRILLIONS"
8040  IF Q1 = 1 THEN M$ = "PER THOUSAND"
8045  IF Q1 = 2 THEN M$ = "PERCENT/YEAR"
8047 Z2 = 10 ^ ((Z1 - 1) * 3)  IF Z1 <  = 0 THEN Z2 = 1
8049  FOR T = 1 TO T7: M(10 + S,T) = Z(T)  NEXT : IF S = 3 AND M(11,1
  <  > -  123456 THEN 8055
8050 A$ = "Y"  IF S = 3 THEN S = 0
8051  IF P(17,2,S + 1) <  > 0 THEN  RETURN
8055  IF P$ = "Y" GOTO 8058
8056  IF P$ = "N" GOTO 8059
8057  HOME   PRINT "DO YOU HAVE A PRINTER (Y OR N) ";: GOSUB 6999:P$
 = A$  IF P$ = "N" GOTO 8059
8058  PR# 1  PRINT   POKE  - 12527,18
8059  PRINT   PRINT   HTAB 10  PRINT N$: PRINT Z$: PRINT M$  PRINT
 PRINT "YEAR",  HTAB 19  PRINT "PROJECTION "  HTAB 11: PRINT S$(1);
 HTAB 23  PRINT S$(2),  HTAB 34  PRINT S$(3)  PRINT
8060  FOR T = 1 TO T7
8063 Y = Y(T): M1 = M(11,T): M2 = M(12,T): M3 = M(13,T)
8070  PRINT Y,"      ";: INT (M1 * 100 / Z2 +  5) / 100;: HTAB 22: PRI
NT  INT (M2 * 100 / Z2 +  5) / 100,: HTAB 33: PRINT  INT (M3 * 100 /
 Z2 +  5) / 100
8071  NEXT
8072 M(11,1) =  -  123456
8080  PR# 0  PRINT   PRINT   PRINT "PRESS RETURN TO CONTINUE": INPUT
 A$ A$ = "N"  RETURN
8100  PRINT "PRESS 'RETURN' TO CONTINUE": INPUT A$: RETURN
9999  END
```

Figure 2

The following variables are used in the PDLT program:

E(0,T,0): annual migration rate

E(0,T,1): enrollment rate

E(0,T,2): cost per student

E(0,T,3): health cost per capita

E(1,T,0): drinking water cost per capita

E(1,T,S) total population of school going age group

E(2,T,S) number of students enrolled

E(3,T,S) total education cost

E(4,T,S) total fertility

E(5,T,S) life expectancy

E(2,T,0) area under major crop

E(3,T,0) yield of major crop

E(4,T,0) price per weight of major crop

E(5,T,0) % major crop area renter tilled

E(6,T,0) renter tax rate

E(7,T,0): owner tax rate

E(8,T,0) % of total district area cultivated with major crop

E(6,T,S) required output to meet education requirements

E(7,T,S) health cost per capita

E(8,T,S) drinking water cost per capita

E(9,T,S) surplus/deficit (PDLT income - education expenses)

E(10,T,1) total output

E(10,T,2) renter output

E(10,T,3) owner output

E(11,T,1) total PDLT revenue

E(11,T,2) renter PDLT revenue

E(11,T,3) owner PDLT revenue

Where

T = the five time periods (1981,1986,1991,1996,2001)

S = the three population scenarios (A=1, B=2, C=3)

Figure 3

DISTRICT: JHAPA
MAJOR CROP: RICE

ASSUMPTION	1981	1986	1991	1996	2001
FERTILITY A	6.3	6.2	6.1	6	5.9
FERTILITY B	6.3	5.5	4.7	3.8	3
FERTILITY C	6.3	5.2	4.2	3.1	2
LIFE EXPECTANCY A	44	46.8	49.5	52.3	55
LIFE EXPECTANCY B	44	46.8	49.5	52.3	55
LIFE EXPECTANCY C	44	46.8	49.5	52.3	55
MIGRATION (%/YEAR)	.45	.45	.45	.45	.45
% ENROLLMENT RATE	78.1	83.6	89.1	94.5	100
COST/STUDENT (RS)	233.1	233.1	233.1	233.1	233.1
MAJ CROP AR (BG)	128760	128760	128760	128760	128760
% DIST AREA CULT	58.8	58.8	58.8	58.8	58.8
% MAJ CROP RENTED	59.5	59.5	59.5	59.5	59.5
YIELD (MOUND/BGH)	31.69	36.63	42.35	48.95	56.59
PRICE (RS/MOUND)	57.1	57.1	57.1	57.1	57.1
OWNER TAX RATE %	6	6	6	6	6
RENTER TAX RATE %	9.5	9.5	9.5	9.5	9.5
HEALTH (RS/PERSON)	14	14	14	14	14
WATER (RS/PERSON)	3	3	3	3	3

JHAPA
FDLT REVENUE MINUS EDUCATION EXPENSES
MILLIONS

YEAR	PROJECTION A	B	C
1981	3.81	3.81	3.81
1986	3.36	3.36	3.36
1991	2.06	3.51	4.01
1996	-.33	4.96	6.78
2001	-3.3	7.87	11.72

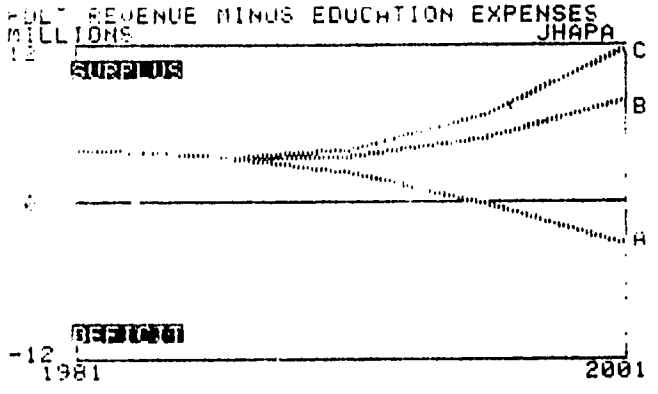

Figure 4

DISTRICT DHANKUTA
MAJOR CROP MAIZE

ASSUMPTION	1981	1986	1991	1996	2001
FERTILITY A	6 3	6 2	6 1	6	5.9
FERTILITY B	6 3	5 5	4.7	3 8	3
FERTILITY C	6 3	5 2	4.2	3 1	2
LIFE EXPECTANCY A	44	46 8	49 5	52.3	55
LIFE EXPECTANCY B	44	46 8	49 5	52 3	55
LIFE EXPECTANCY C	44	46 8	49 5	52 3	55
MIGRATION (%/YEAR)	4	4	4	4	4
% ENROLLMENT RATE	84 4	88 3	92 2	96.1	100
COST/STUDENT (RS)	221 22	221 22	221 22	221 22	221.22
MAJ CROP AR (BG)	22585	22585	22585	22585	22585
% DIST AREA CULT	9 1	9 1	9 1	9 1	9 1
% MAJ CROP RENTED	57 9	57 9	57 9	57 9	57.9
YIELD (MOUND/BGH)	25 35	27 05	28 87	30.8	32.87
PRICE (RS/MOUND)	44 78	44 78	44.78	44 78	44.78
OWNER TAX RATE %	6	6	6	6	6
RENTER TAX RATE %	9 5	9 5	9 5	9 5	9.5
HEALTH (RS/PERSON)	14	14	14	14	14
WATER (RS/PERSON)	3	3	3	3	3

DHANKUTA
PDLT REVENUE MINUS EDUCATION EXPENSES

YEAR	PROJECTION A	B	C
1981	-1399869	-1399869	-1399869
1986	-1939534	-1939534	-1939534
1991	-2728357	-2408986	-2298857
1996	-3822558	-2684643	-2292258
2001	-5120302	-2763700	-1951079

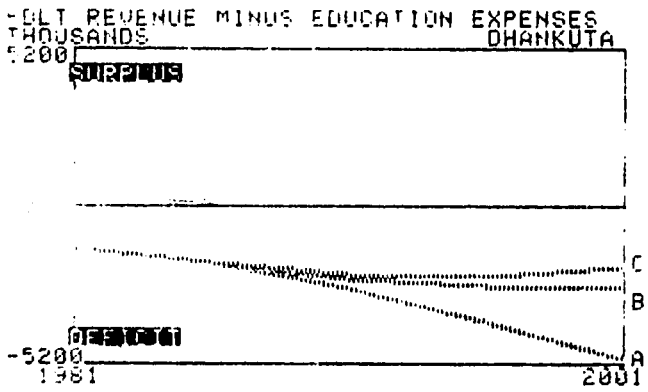

Figure 5

```
]PRINT "LIST OF MAKE JHAPA"
LIST OF MAKE JHAPA

]LIST

10 D$ =  CHR$ (4)
15  DIM T(120)
20  PRINT D$"OPEN NEPAL"
25  PRINT D$"READ NEPAL"
30  FOR I = 0 TO 76: INPUT T(I)  NEXT
31  PRINT D$"CLOSE"
32 P = 440877
33  FOR I = 0 TO 17:T(I) = T(I) * P / T(17)  NEXT
40 T(29) = 0:T(30) = 0 T(31) = 0
41 T(33) = 82443:T(34) = 64428 T(32) = 100 * T(34) / T(33)
42 T(35) = 233 1.T(36) = 0 T(37) = 0
43 T(38) = 14 T(39) = 0 T(40) = 0
44 T(41) = 3 T(42) = 0 T(43) = 0
45 T(44) = 128760:T(45) = 0:T(46) = 0:T(47) = 219040
46 T(48) = 31 69.T(49) = 15.6 T(50) = 5
47 T(51) = 57 1:T(52) = 0 T(53) = 0
48 T(54) = 59 5 T(55) = 0 T(56) = 0
49 T(57) = 9 5:T(58) = 0.T(59) = 0
50 T(60) = 6 T(61) = 0 T(62) = 0
90 DI$ = "JHAPA" CR$ = "RICE"
91 T(77) = 78 +  LEN (DI$) T(78) = 78 +  LEN (DI$) +  LEN (CR$)
92  FOR I = 1 TO  LEN (DI$):T(78 + I) =  ASC ( MID$ (DI$,I,1)): NEXT

93  FOR I = 1 TO  LEN (CR$):T(78 +  LEN (DI$) + I) =  ASC ( MID$ (CR
$,I,1))  NEXT
100  PRINT D$"OPEN "DI$
110  PRINT D$"WRITE "DI$
120  FOR I = 0 TO 120  PRINT T(I)  NEXT
130  PRINT D$"CLOSE"
```

DISTRICT VARIABLES USED WITH PDLT PROGRAM

The following values must be defined by running a program called 'MAKE district name' before you run 'PDLT'. To create the required program, load the program 'MAKE RASUWA', change the following variables, then save the new program as 'MAKE district name'. Run your program, then run 'PDLT'.

T(29) 1981 annual migration rate (%/year)
T(30) growth rate of 1981 annual migration rate (%)
T(31) period of growth rate of 1981 annual migration rate (0,1,5)

T(32) 1981 enrollment rate (calculated)
T(33) 1981 school age population
T(34) 1981 number of students enrolled

T(35) 1981 education cost per student (Rs/student)
T(36) growth rate of 1981 education cost per student (%)
T(37) period of growth rate of 1981 education cost per student (0,1,5)

T(38) 1981 health cost per capita (Rs/person)
T(39) growth rate of 1981 health cost per capita (%)
T(40) period of growth rate of 1981 health cost per capita (0,1,5)

T(41) 1981 drinking water cost per capita (Rs/person)
T(42) growth rate of 1981 drinking water cost per capita (%)
T(43) period of growth rate 1981 drinking water cost per capita (0,1,5)

T(44) 1981 area under major crop cultivation (bigah)
T(45) growth rate of 1981 area under major crop cultivation (%)
T(46) period of growth 1981 area under major crop cultivation (0,1,5)
T(47) total district area (bigah)

T(48) 1981 major crop yield (mound/bigah)
T(49) growth rate of 1981 major crop yield (%)
T(50) period of growth rate of 1981 major crop yield (0,1,5)

T(51) 1981 price of major crop (Rs/mound)
T(52) growth rate of 1981 price of major crop (%)
T(53) period of growth rate of 1981 price of major crop (0,1,5)

T(54) 1981 % of major crop area renter tilled (%)
T(55) growth rate of 1981 % of major crop area renter tilled (%)
T(56) period of growth 1981 % of major crop area renter tilled (0,1,5)

T(57) 1981 renter tax rate (%)
T(58) growth rate of 1981 renter tax rate (%)
T(59) period of growth rate of 1981 renter tax rate (0,1,5)

T(60) 1981 owner tax rate (%)
T(61) growth rate of 1981 owner tax rate (%)
T(62) period of growth rate of 1981 owner tax rate (0,1,5)

P 1981 total district population

DI$ district name

CR$ crop name

You will find these variables in lines 32 and 40-90.

Note that in line 41 the formula for T(32) should be copied as it is.