```
LPFF=.75                                      80.1, C
  LF   - LABOR FORCE (PERSONS)
  P2   - POPULATION, AGES 15-44 (PERSONS)
  P3   - POPULATION, AGES 45-64 (PERSONS)
  LPFF - LABOR FORCE PARTICIPATION FRACTION
         (DIMENSIONLESS)

LUF.K=J.K/LF.K                                81, A
  LUF  - LABOR UTILIZATION FRACTION (DIMENSIONLESS)
  J    - JOBS (PERSONS)
  LF   - LABOR FORCE (PERSONS)

LUFD.K=SMOOTH(LUF.K,LUFDT)                    82, A
LUFDT=2                                       82.1, C
  LUFD - LABOR UTILIZATION FRACTION DELAYED
         (DIMENSIONLESS)
  SMOOTH - FIRST-ORDER EXPONENTIAL INFORMATION DELAY
  LUF  - LABOR UTILIZATION FRACTION (DIMENSIONLESS)
  LUFDT - LABOR UTILIZATION FRACTION DELAY TIME
         (YEARS)

CUF.K=TABHL(CUFT,LUFD.K,1,11,2)               83, A
CUF=1                                         83.1, N
CUFT=1/.9/.7/.3/.1/.1                         83.2, T
  CUF  - CAPITAL UTILIZATION FRACTION
         (DIMENSIONLESS)
  CUFT - CUF TABLE
  LUFD - LABOR UTILIZATION FRACTION DELAYED
         (DIMENSIONLESS)


AGRICULTURAL SECTOR
LOOP 1: FOOD FROM INVESTMENT IN LAND DEVELOPMENT

LFC.K=AL.K/PALT                               84, A
PALT=3.2E9                                    84.1, C
  LFC  - LAND FRACTION CULTIVATED (DIMENSIONLESS)
  AL   - ARABLE LAND (HECTARES)
  PALT - POTENTIALLY ARABLE LAND TOTAL (HECTARES)

AL.K=AL.J+(DT)(LDR.JK-LER.JK-LRUI.JK)         85, L
AL=ALI                                        85.1, N
ALI=.9E9                                      85.2, C
  AL   - ARABLE LAND (HECTARES)
  DT   - TIME INTERVAL BETWEEN CONSECUTIVE
         CALCULATIONS (YEARS)
  LDR  - LAND DEVELOPMENT RATE (HECTARES/YEAR)
  LER  - LAND EROSION RATE (HECTARES/YEAR)
  LRUI - LAND REMOVAL FOR URBAN-INDUSTRIAL USE
         (HECTARES/YEAR)
  ALI  - ARABLE LAND INITIAL (HECTARES)

PAL.K=PAL.J+(DT)(-LDR.JK)                      86, L
PAL=PALI                                      86.1, N
PALI=2.3E9                                    86.2, C
  PAL  - POTENTIALLY ARABLE LAND (HECTARES)
  DT   - TIME INTERVAL BETWEEN CONSECUTIVE
         CALCULATIONS (YEARS)
  LDR  - LAND DEVELOPMENT RATE (HECTARES/YEAR)
  PALI - POTENTIALLY ARABLE LAND INITIAL (HECTARES)

F.K=LY.K*AL.K*LFH*(1-PL)                       87, A
LFH=.7                                        87.1, C
PL=.1                                         87.3, C
  F    - FOOD (VEGETABLE-EQUIVALENT KILOGRAMS/YEAR)
  LY   - LAND YIELD (VEGETABLE-EQUIVALENT KILOGRAMS/
         HECTARE-YEAR)
  AL   - ARABLE LAND (HECTARES)
  LFH  - LAND FRACTION HARVESTED (DIMENSIONLESS)
  PL   - PROCESSING LOSS (DIMENSIONLESS)

FPC.K=F.K/POP.K                               88, A
  FPC  - FOOD PER CAPITA (VEGETABLE-EQUIVALENT
         KILOGRAMS/PERSON-YEAR)
  F    - FOOD (VEGETABLE-EQUIVALENT KILOGRAMS/YEAR)
  POP  - POPULATION (PERSONS)
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IFPC.K=CLIP(IFPC2.K,IFPC1.K,TIME.K,PYEAR)     89, A
  IFPC - INDICATED FOOD PER CAPITA (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)
  CLIP - A FUNCTION SWITCHED DURING THE RUN
  IFPC2 - IFPC, VALUE AFTER TIME=PYEAR (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)
  IFPC1 - IFPC, VALUE BEFORE TIME=PYEAR (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)
  TIME - CURRENT TIME IN THE SIMULATION RUN
  PYEAR - YEAR NEW POLICY IS IMPLEMENTED (YEAR)

IFPC1.K=TABHL(IFPC1T,IOPC.K,0,1600,200)       90, A
IFPC1T=230/480/690/850/970/1070/1150/1210/1250  90.1, T
  IFPC1 - IFPC, VALUE BEFORE TIME=PYEAR (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)
  TABHL - A FUNCTION WITH VALUES SPECIFIED BY A TABLE
  IFPC1T - IFPC1 TABLE
  IOPC - INDUSTRIAL OUTPUT PER CAPITA (DOLLARS/
         PERSON-YEAR)

IFPC2.K=TABHL(IFPC2T,IOPC.K,0,1600,200)       91, A
IFPC2T=230/480/690/850/970/1070/1150/1210/1250  91.1, T
  IFPC2 - IFPC, VALUE AFTER TIME=PYEAR (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)
  TABHL - A FUNCTION WITH VALUES SPECIFIED BY A TABLE
  IFPC2T - IFPC2 TABLE
  IOPC - INDUSTRIAL OUTPUT PER CAPITA (DOLLARS/
         PERSON-YEAR)

TAI.K=IO.K*FIOAA.K                            92, A
  TAI  - TOTAL AGRICULTURAL INVESTMENT (DOLLARS/
         YEAR)
  IO   - INDUSTRIAL OUTPUT (DOLLARS/YEAR)
  FIOAA - FRACTION OF INDUSTRIAL OUTPUT ALLOCATED TO
         AGRICULTURE (DIMENSIONLESS)

FIOAA.K=CLIP(FIOAA2.K,FIOAA1.K,TIME.K,PYEAR)  93, A
  FIOAA - FRACTION OF INDUSTRIAL OUTPUT ALLOCATED TO
         AGRICULTURE (DIMENSIONLESS)
  CLIP - A FUNCTION SWITCHED DURING THE RUN
  FIOAA2 - FIOAA, VALUE AFTER TIME=PYEAR
         (DIMENSIONLESS)
  FIOAA1 - FIOAA, VALUE BEFORE TIME=PYEAR
         (DIMENSIONLESS)
  TIME - CURRENT TIME IN THE SIMULATION RUN
  PYEAR - YEAR NEW POLICY IS IMPLEMENTED (YEAR)

FIOAA1.K=TABHL(FIOAA1T,FPC.K/IFPC.K,0,2.5,.5)  94, A
FIOAA1T=.4/.2/.1/.025/0/0                      94.1, T
  FIOAA1 - FIOAA, VALUE BEFORE TIME=PYEAR
         (DIMENSIONLESS)
  TABHL - A FUNCTION WITH VALUES SPECIFIED BY A TABLE
  FIOAA1T - FIOAA1 TABLE
  FPC  - FOOD PER CAPITA (VEGETABLE-EQUIVALENT
         KILOGRAMS/PERSON-YEAR)
  IFPC - INDICATED FOOD PER CAPITA (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)

FIOAA2.K=TABHL(FIOAA2T,FPC.K/IFPC.K,0,2.5,.5)  95, A
FIOAA2T=.4/.2/.1/.025/0/0                      95.1, T
  FIOAA2 - FIOAA, VALUE AFTER TIME=PYEAR
         (DIMENSIONLESS)
  TABHL - A FUNCTION WITH VALUES SPECIFIED BY A TABLE
  FIOAA2T - FIOAA2 TABLE
  FPC  - FOOD PER CAPITA (VEGETABLE-EQUIVALENT
         KILOGRAMS/PERSON-YEAR)
  IFPC - INDICATED FOOD PER CAPITA (VEGETABLE-
         EQUIVALENT KILOGRAMS/PERSON-YEAR)

LDR.KL=TAI.K*FIALD.K/DCPH.K                   96, R
  LDR  - LAND DEVELOPMENT RATE (HECTARES/YEAR)
  TAI  - TOTAL AGRICULTURAL INVESTMENT (DOLLARS/
         YEAR)
  FIALD - FRACTION OF INPUTS ALLOCATED TO LAND
         DEVELOPMENT (DIMENSIONLESS)
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