```
          PPAPR  - PERSISTENT POLLUTION APPEARANCE RATE
                   (POLLUTION UNITS/YEAR)
          PPASR  - PERSISTENT POLLUTION ASSIMILATION RATE
                   (POLLUTION UNITS/YEAR)

PPOLX.K=PPOL.K/PPOL70                                   143, A
PPOL70=1.36E8                                           143.1, C
          PPOLX  - INDEX OF PERSISTENT POLLUTION
                   (DIMENSIONLESS)
          PPOL   - PERSISTENT POLLUTION (POLLUTION UNITS)
          PPOL70 - PERSISTENT POLLUTION IN 1970 (POLLUTION
                   UNITS)


PPASR.KL=PPOL.K/(AHL.K*1.4)                             144, R
          PPASR  - PERSISTENT POLLUTION ASSIMILATION RATE
                   (POLLUTION UNITS/YEAR)
          PPOL   - PERSISTENT POLLUTION (POLLUTION UNITS)
          AHL    - ASSIMILATION HALF-LIFE (YEARS)

AHLM.K=TABHL(AHLMT,PPOLX.K,1,1001,250)                  145, A
AHLMT=1/11/21/31/41                                     145.1, T
          AHLM   - ASSIMILATION HALF-LIFE MULTIPLIER
                   (DIMENSIONLESS)
          TABHL  - A FUNCTION WITH VALUES SPECIFIED BY A TABLE
          AHLMT  - AHLM TABLE
          PPOLX  - INDEX OF PERSISTENT POLLUTION
                   (DIMENSIONLESS)

AHL.K=AHL70*AHLM.K                                      146, A
AHL70=1.5                                               146.1, C
          AHL    - ASSIMILATION HALF-LIFE (YEARS)
          AHL70  - ASSIMILATION HALF-LIFE IN 1970 (YEARS)
          AHLM   - ASSIMILATION HALF-LIFE MULTIPLIER
                   (DIMENSIONLESS)

SUPPLEMENTARY EQUATIONS

FOA.K=(.22)(F.K)/(.22*F.K+SO.E+IO.K)                    147, S
          FOA    - FRACTION OF OUTPUT IN AGRICULTURE
                   (DIMENSIONLESS)
          F      - FOOD (VEGETABLE-EQUIVALENT KILOGRAMS/YEAR)
          SO     - SERVICE OUTPUT (DOLLARS/YEAR)
          IO     - INDUSTRIAL OUTPUT (DOLLARS/YEAR)

FOI.K=IO.K/(.22*F.K+SO.E+IO.K)                          148, S
          FOI    - FRACTION OF OUTPUT IN INDUSTRY
                   (DIMENSIONLESS)
          IO     - INDUSTRIAL OUTPUT (DOLLARS/YEAR)
          F      - FOOD (VEGETABLE-EQUIVALENT KILOGRAMS/YEAR)
          SO     - SERVICE OUTPUT (DOLLARS/YEAR)

FOS.K=SO.K/(.22*F.K+SO.E+IO.K)                          149, S
          FOS    - FRACTION OF OUTPUT IN SERVICES
                   (DIMENSIONLESS)
          SO     - SERVICE OUTPUT (DOLLARS/YEAR)
          F      - FOOD (VEGETABLE-EQUIVALENT KILOGRAMS/YEAR)
          IO     - INDUSTRIAL OUTPUT (DOLLARS/YEAR)

CONTROL CARDS FOR SIMULATION

PYEAR=1975                                             150.1, C
TIME=1900                                              150.2, N
          PYEAR  - YEAR NEW POLICY IS IMPLEMENTED (YEAR)
          TIME   - CURRENT TIME IN THE SIMULATION RUN
PLTPER.K=STEP(PLP,PLIT)                                151, A
PLP=5                                                  151.1, C
PLIT=1900                                              151.2, C
PRP=0                                                  151.3, C
          PLTPER - INTERVAL BETWEEN PLOTTED OUTPUT POINTS
                   (YEARS)
          PLP    - PLOTTING PERIOD (YEARS)
          PLIT   - INITIATION OF PLOTTED OUTPUT (YEAR)
          PRP    - PRINTING PERIOD (YEARS)

PRTPER.K=STEP(PRP,PRIT)+STEP(-PRP,PRTT)                152, A
PRIT=1900                                              152.1, C
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PRTT=2100                                              152.2, C
          PRTPER - INTERVAL BETWEEN PRINTED OUTPUT POINTS
                   (YEARS)
          PRP    - PRINTING PERIOD (YEARS)
          PRIT   - PRINTED OUTPUT INITIATION TIME (YEAR)
          PRTT   - PRINTED OUTPUT TERMINATION TIME (YEAR)
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Note: The equations constituting the World3 model are written in the notation that is consistent with the DYNAMO compiler. Appendixes A and B were produced with the documentor option of the DYNAMO compiler. DYNAMO II for the IBM/360 and IBM/370 systems, as well as DYNAMO IIF (a precompiler to FORTRAN which is written in FORTRAN), for any medium or large system is available from Pugh-Roberts Associates, Inc., 5 Lee Street, Cambridge, Massachusetts 02139.

Also, a machine language version of DYNAMO for the General Electric and Honeywell systems is available from DTSS, Inc., 35 S. Main Street, Hanover, New Hampshire 03755.