

but with an assumed persistent pollution transmission delay of 2 years instead of 20 years. When the pollution transmission delay is assumed to be much shorter, the resulting overshoot in the behavior of the index of persistent pollution PPOLX is less severe than that shown in Run 6-14. However, because of the remaining delays in the perception of the damage and the development and implementation of the required new technologies, significant negative effects on LE and LFDR are incurred before the new technologies can effectively control the level of pollution.

### Equilibrium Runs

Runs 6-16 through 6-18 (Figures 6-44 through 6-46) examine the behavior of the persistent pollution sector if past material growth trends are interrupted and the four causes of pollution generation level off. The technological policies described in connection with Runs 6-10 through 6-15 assumed no pervasive change in the material growth trends illustrated in Figure 6-31. The stabilization of demographic and material growth in Runs 6-16 through 6-18 is meant to simulate the results of socially oriented policies implemented to reduce the growth in population and in resource use.

Run 6-16 (Figure 6-44) shows the behavior of the persistent pollution sector when pollution-generating material growth is stopped in the year 2000 so that the

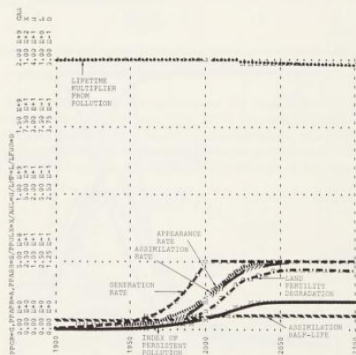


Figure 6-44 Run 6-16: behavior of the pollution sector when persistent pollution generation stabilizes in the year 2000

persistent pollution generation rate PPGR becomes constant after the year 2000. Because of the persistent pollution transmission delay, the index of persistent pollution PPOLX does not stabilize until approximately 30 years later. Still, when PPGR stabilizes in 2000, the final level of pollution is only 10 times that in 1970, and PPOLX is low enough to cause little or no damage to the globe's land fertility and to the population's life expectancy.

Run 6-17 (Figure 6-45) shows the effects of a 20-year postponement in the stabilization policies enacted in Run 6-16. Material growth is continued for an additional 20 years, to the year 2020, which permits roughly one doubling of the persistent pollution generation rate PPGR above its level in the year 2000. In this run the beginning of a pollution crisis is evident. As the level of pollution rises, the assimilation half-life AHL begins to rise, and persistent pollution accumulates even faster. In response to doubling PPGR, the level of pollution eventually stabilizes at a level 4 times the final level reached in Run 6-16. The high pollution levels in this run do cause considerable damage to the ecosystem, for the land fertility degradation rate LFDR is considerably increased and the lifetime multiplier from pollution LMP decreases significantly after the year 2020.

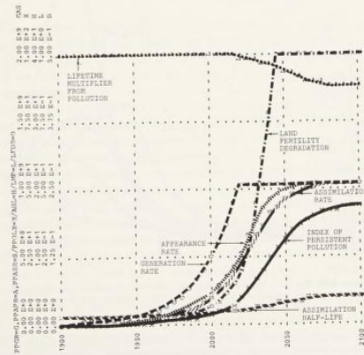


Figure 6-45 Run 6-17: behavior of the pollution sector when persistent pollution generation stabilizes in the year 2020