NUMBERS

1. The UN’s latest prediction/projection/estimate, medium variation, is that the human population will attempt to reach 11.2 billion by the year 2100.
2. The best estimate of the combined, men and women, life expectancy is 71 years. While no one knows what the life expectancy will be in the year 2100, a change in the life expectancy will not dramatically affect the calculations made below.
3. The UN expects global fertility to fall further in most countries so that the global fertility rate will be just below two children per woman by the end of the century (2100).
4. In the calculations below, I will use a global fertility rate of 1.92, which is just below a fertility rate of two. Compared to the current fertility rate of 2.42, 1.92 represents a dramatic reduction in fertility of one half a child for every woman on the planet.
5. According to the experts a fertility rate of 2.1 will maintain the current population level; it will neither increase nor decrease.
6. 1.92 divided by 2.1 =91.4%
7. Since a fertility rate of 2.1 will neither increase nor decrease the human population, a fertility rate of 1.92 will cause the next generation to be only 91.4% of what the next generation would have been if the fertility rate remained at 2.1.
8. Since the generation starting in 2100 would have been 11.2 billion (assuming a fertility rate of 2.1), due to the reduction in the fertility rate to 1.92 that generation will be 91.4% of that number, or 10.23 billion.
9. Since the average life expectancy is 71 years and assuming that the fertility rate remains at 1.92 starting in the year 2100 it will take until 2171 for humanity to reach the reduced level of population of 10.23 billion.
10. Assuming that the fertility rate remains at 1.92, it would take an additional 71 years, until 2242, (2171 plus 71=2242)for the human population to be reduced to 9.35 billion (10.23 times 91.4% = 9.35)
11. To summarize the calculations above, based on a fertility rate of 1.92 starting in 2100 it would take 142 years to effectuate a reduction in population to 9.35 billion
12. According to the Global Footprint Network (GFN), humanity is in overshoot using the resources of 1.7 planets. Since the current human population is about 7.6 billion, simple math shows that to get out of overshoot the human population has to be reduced to 4.47 billion (7.6 divided by 1.7= 4.47).
13. It is almost certain that the average worldwide per capita usage of resources will increase due to the economic growth of the nations of the world and that increase will substantially decrease the population level necessary to get out of overshoot below 4.47 billion.
14. Based upon all of the problems faced by humanity today and based upon the fact that humanity is in overshoot, it is absolutely certain that a reduction in the fertility rate to 1.92 starting in 2100 will not suffice to prevent the collapse of civilization.
15. Assume a miracle occurred (and it would be more than a major miracle) that the human fertility rate fell to 1.5 from the current 2.42 by the year 2100. 1.5 divided by 2.1 = 71.4%. Therefore, in the year 2171 human population would be 8.0 billion (11.2 times 71.4%=8.0), assuming both the fertility rate and the life expectancy remain consistent over those 71 years. In the year 2242, assuming the same consistency, human population would be 5.7 billion (8.0 times 71.4% =5.7). In 2313 (2242 plus 71=2313) the population level would be 4.07 (5.7 times 71.4% =4.07) and that level of population probably would not get humanity out of overshoot in time to prevent the collapse of civilization–see number 13 above.
16. In simple terms, even a reduction in the fertility rate to 1.5 by the year 2100 will not prevent the collapse of civilization, the deaths of billions and even the possible extinction of the human race.