

## Human impacts on the nitrogen (N) cycle

### GLOBAL POPULATION & REACTIVE NITROGEN TRENDS

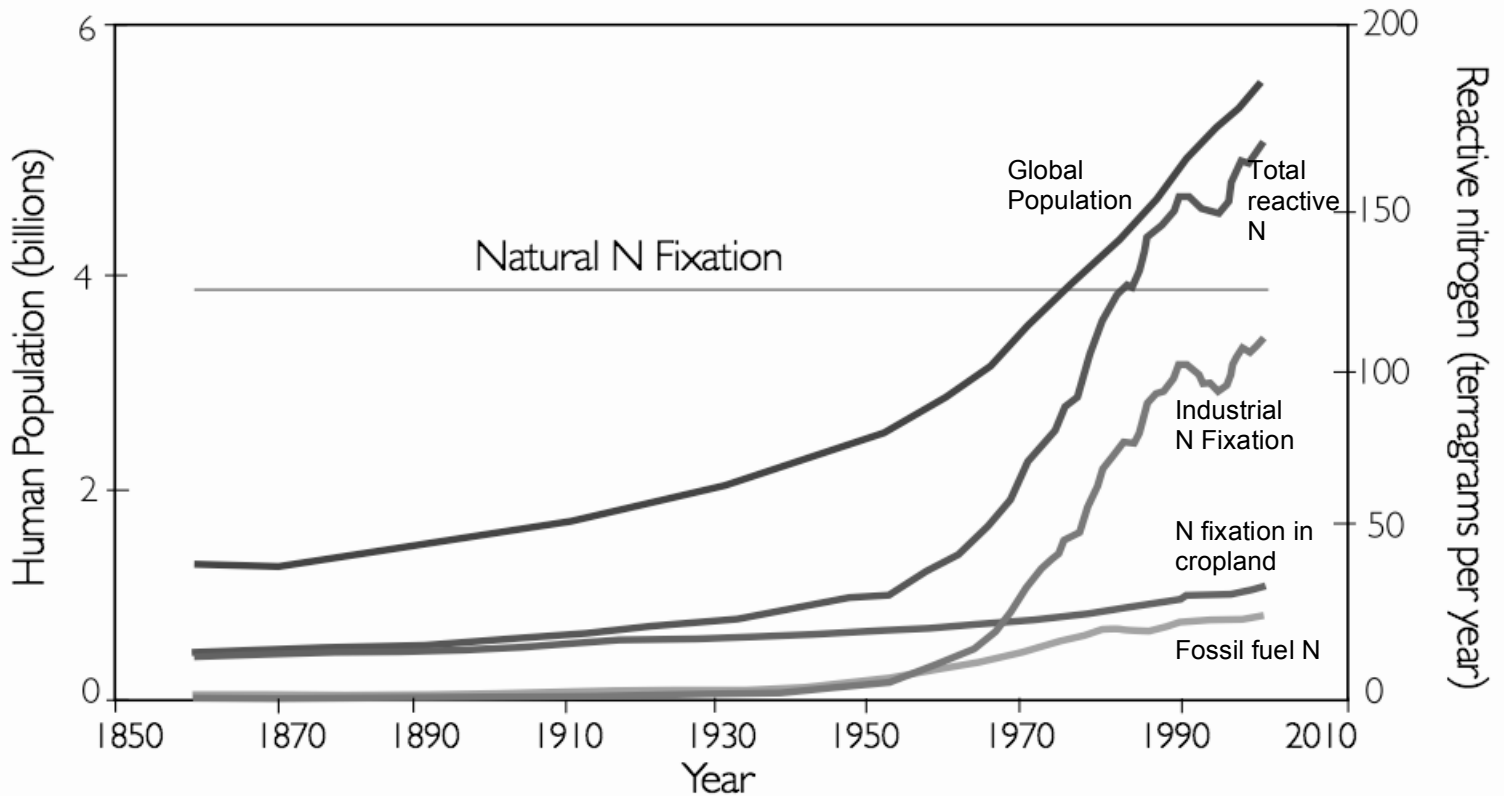


Figure modified from Driscoll, C.T., et al. 2003. Nitrogen Pollution: From the Sources to the Sea. Hubbard Brook Research Foundation. Science Links™ Publication. Vol. 1, no. 2.

- 1A. What is the primary purpose of the Haber-Bosch process?
- 1B. List the dependent and independent variables in this study.
- 1C. What main points about the nitrogen cycle are the authors are trying to convey with this graph?
- 1D. “Non-reactive” nitrogen is the common  $N_2$  gas in the air. Globally, natural systems produce 100-140 Mt of “reactive” nitrogen each year. For how long has human activity doubled the amount of reactive nitrogen cycling through ecosystems?
- 1E. As the human population grows from 6.4 billion to 9-10 billion over the next 50-70 years, what do you project to be the future trajectories (paths) of each of these lines? What factors and changes might cause the lines to change from their current course?