Is acid rain still a problem?

Research from the northeastern United States demonstrates that acid rain is still a problem.

SUMMARY: Many people believe that the problem of acid rain was solved with the passage of the 1990 Clean Air Act Amendments (CAAA). Research from the Hubbard Brook Experimental Forest (HBEF) in New Hampshire and from other study sites in the northeastern United States (hereafter the Northeast) demonstrates that acid rain (hereafter acid deposition, a more accurate term) is still a problem.

DETAILS: Although sulfur emissions that contribute to acid deposition have declined, nitrogen emissions have not decreased substantially region-wide and have actually increased in some areas of the eastern United States.[1] Moreover, the ability of ecosystems to neutralize acid deposition has decreased in some regions. Consequently, lakes, streams, and soils in many parts of the Northeast are still acidic and exhibit signs of degradation linked to acid deposition.

Over the past ten years, scientists have gained greater insight into the ways in which acid deposition alters ecosystems. When it was first identified in the early 1970s, acid deposition was viewed as a simple problem that was limited in scope. Scientists now know that acids and acidifying compounds move through soil, vegetation, and surface waters, setting off a cascade of adverse ecological effects (see Figure 1). Further, the same emissions that cause acid rain contribute to other important environmental issues, such as smog, climate change, mercury contamination in fish and over-fertilization of coastal waters.

Over the past decade, advances have also been made in understanding the mechanisms and processes of ecosystem recovery. This report presents recent research into acid and acidifying emissions, trends in acid deposition, the ecological effects of acid deposition, and the process and likelihood of ecosystem recovery from acid deposition. The report focuses on the Northeast and relies heavily on long-term data from the Hubbard Brook Experimental Forest (HBEF).

Since 1990, scientists have gained greater insight into the ways in which acid deposition alters ecosystems.

[1] *The term* **emissions** *refers to the pollution released from smokestacks, tailpipes, and other sources, whereas* **deposition** *pertains to the pollution that is deposited on the surface of the land or water.*

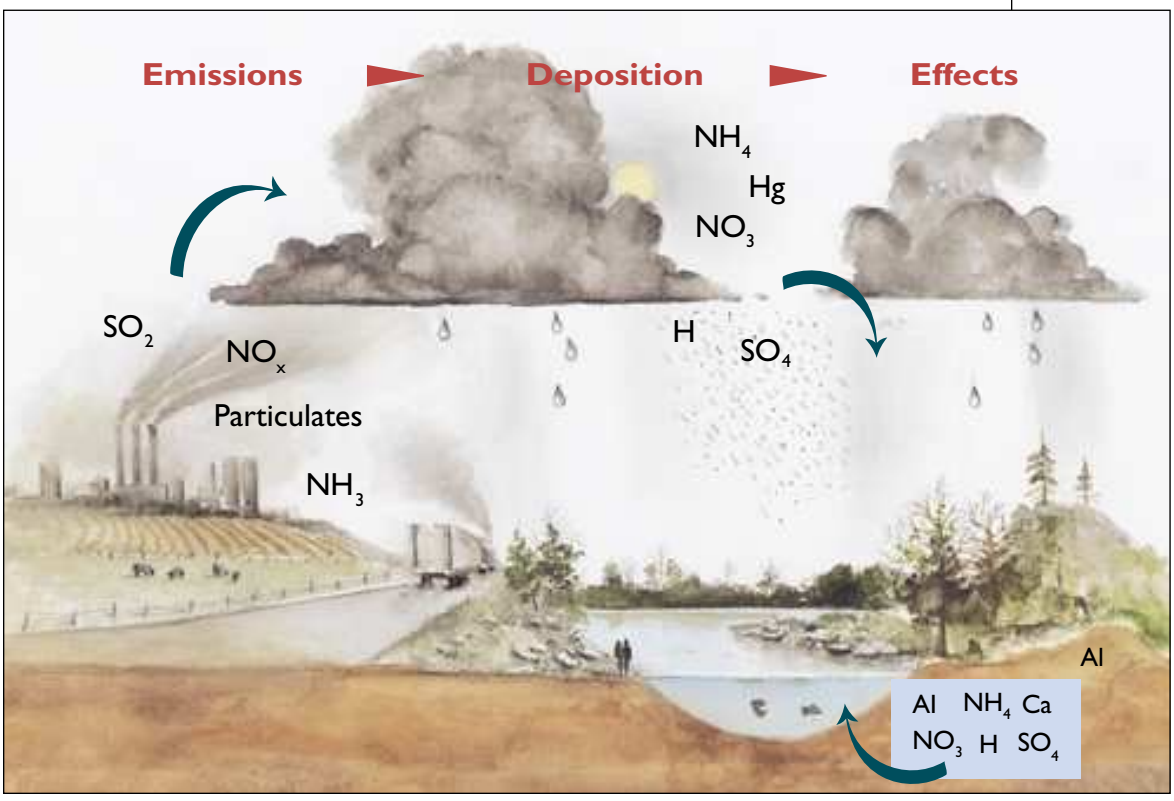

FIGURE 1: *Acid deposition is a complex problem that originates with the burning of fossil fuels and leads to the deposition of acids, setting off a series of ecological effects.*