



- Acid rain can directly affect the eggs and tadpoles of frogs and salamanders that breed in small forest ponds.
- It has been postulated that acid rain can indirectly affect wildlife by allowing metals bound on soils and sediments to be released into the aquatic environment, where toxic substances may be ingested by animals, like birds, that feed in such an environment.
- Other indirect effects of acid rain on wildlife are loss or alteration of food and habitat resources.

(e) Humans

Acid rain affects human health in a number of ways.

- The obvious ones are bad smells, reduced visibility; irritation of the skin, eyes and the respiratory tract.
- Some direct effects include chronic bronchitis, pulmonary emphysema and cancer.
- Some indirect effects include food poisoning via drinking water and food.
- An increase in the levels of toxic heavy-metals like manganese, copper, cadmium and aluminium also contribute to the detrimental effects on human health.

(f) Acid rain damage on Materials

Material	Type of Impact	Principal Air Pollutants
Metals	Corrosion, tarnishing	Sulphur Oxides and other acid gases
Building stone	Surface erosion, soiling, black crust formation	Sulphur Oxides and other acid gases
Ceramics and glass	Surface erosion, surface crust formation	Acid gases, especially fluoride-containing
Paints and organic coatings	Surface erosion, discolouration, soiling	Sulphur dioxides, hydrogen sulphide

Paper	Embrittlement, discolouration	Sulphur Oxides
Photographic Materials	Micro-blemishes	Sulphur Oxides
Textiles	Fading, colour change	Nitrogen oxides, ozone
Leather	Weakening, powdered surface	Sulphur oxides
Rubber	Cracking	Ozone

(g) Socio-economic impacts of acid rain:

The adverse impact of acid rain on farming and fishing leads to the deterioration of life quality indices like GNP and per capita income, especially in the predominantly agricultural and developing countries like India.

**5.14.5. Trigger Effect of Acid Rain on Pollutants:**

A low pH of the rainwater and subsequent increased acidity in the environment can trigger off or aggravate the effects of certain harmful pollutants.

(i) Mercury:

- Methyl mercury and related short chain alkyl mercurial compounds are most dangerous to humans, as they accumulate in edible fish tissue.
- Although acid deposition may not increase the production of methyl mercury, it may increase the partitioning of methyl mercury into the water column.
- The use of lime has helped in reducing the mercury levels in fish.

(ii) Aluminium:

- Acidified waters are known to leach substantial amounts of aluminium from watersheds.
- Even at relatively low levels, aluminium has been implicated in dialysis dementia, a disorder of the central nervous system, which may be toxic to individuals with impaired kidney function.