processes leads to the tentative conclusion that local sources of corrosive pollution mask the effects resulting from long-range transport of acidic deposition.

The principal findings of the Work Group are:

The majority of sensitive materials tend to be located in urban/suburban areas. However, materials at risk cannot be assumed to be proportional to population density.

Relationships between concentration of corrosive gases and damage are better documented than relationships between acidic precipitation or particulates and deterioration.

The main groups of materials which are damaged by outdoor air pollutants are: metals, coatings and masonry. The pollutants are delivered to the surfaces in wet and dry form.

It is generally accepted that SO_2 is the primary species causing damage to materials. The importance of nitrogen compounds is closely related to its particular species and may increase with the predicted increases in NO_x emissions relative to SO_2 emissions.

Chemical degradation processes include deterioration of calcareous building materials by the removal of calcium carbonate through conversion to calcium sulphate and the removal of protective corrosion products on metals, particularly zinc and copper.

Mechanical deterioration of masonry occurs when calcium sulphate enters the porous material and causes internal rupturing due to the pressure of crystallization or hydration.

Regional field studies, chamber tests and atmospheric corrosion sites have indicated the nature and extent of accelerated corrosion associated with metal-pollutant interactions. Dose-response relations have been determined for SO_2 and low-carbon steel and zinc. In some areas of eastern North America, urban centres have experienced extensive and significant deterioration of zinc coverings.

Common materials of construction at risk include, limestone, carbon steel and galvanized steel sheet. Carbon steels must be coated in order to provide useful service life and, thus the coating becomes the material at risk.

Dose-response relations have been determined for sulphur dioxide and ozone for some paints and coatings. In some urban centres, ozone can have a significant impact on the durability of elastomers.