
The Future of Air Pollution

I. THE GOOD NEWS

Remarkable progress has been made in improving air quality since the 1970s. All of the criteria pollutants in many countries have been reduced dramatically. The science, engineering, and technology needed to control the release of air pollutants has steadily marched forward. New paradigms and attitudes, such as pollution prevention and green engineering, have begun to replace old ways of thinking, so that fewer pollutants have to be removed at the stack. Pollutants have been designed out of the manufacturing process.

II. STUBBORN PROBLEMS AND INNOVATIVE SOLUTIONS

The progress unfortunately been accompanied by seemingly intractable problems. Global greenhouse gas emissions continue to rise. Numerous toxic compounds continue to be released. Risks to human health persist. Sensitive ecosystems are threatened. Such problems are not readily resolved by the old "command and control" approaches. Innovations and market forces must also be part of the solution.

Hopefully, this book is one of the resources for preserving and extending what we have learned in the past few decades. Ideally, it is also a baseline for the next generation of air pollution prevention and control systems.

The problems will best be addressed by new thinking that is underpinned by sound science. The fundamentals of air pollution are based in the physical sciences, but their application to addressing present and future air pollution problems must also rely on the innovations from every aspect of contemporary society.