Assessment of Technologies for Determining Cancer Risks From the Environment

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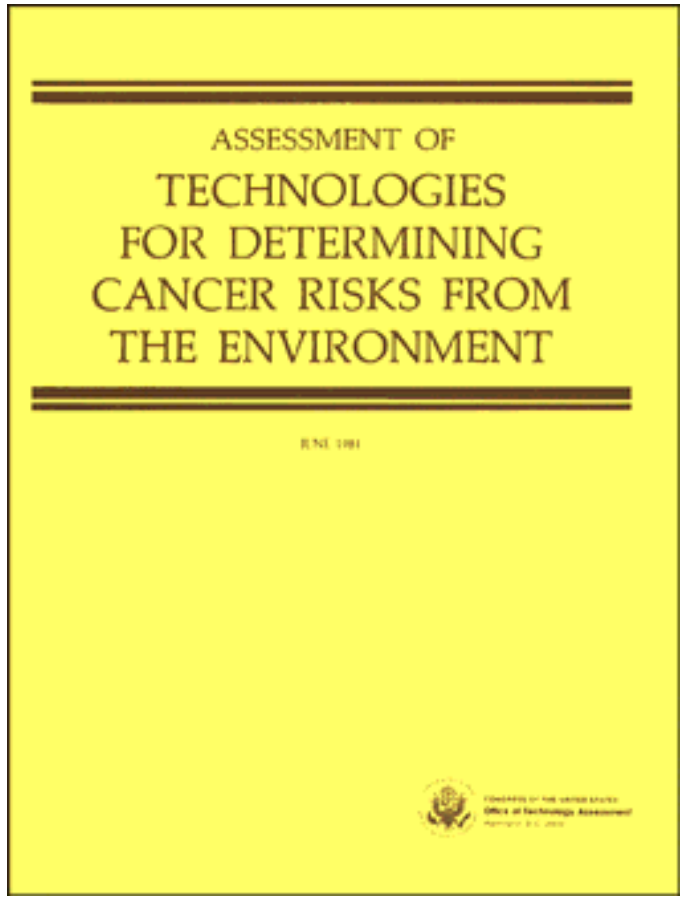

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Foreword

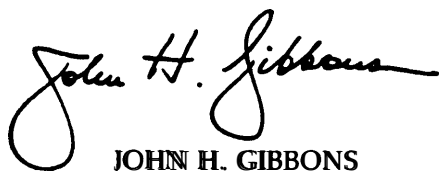
Congressional interest in cancer is long standing and continuing. Programs in basic cancer research, and in treatment and prevention of the disease are now complemented by some two dozen laws directed at reducing exposures to cancer-causing substances. This report examines the technologies used to gather and analyze information about cancer in our society, as well as the ways in which those technologies affect and are affected by the public health and environmental legislative mandates.

The report discusses the strengths and weaknesses of data sources used for determining trends in cancer occurrence and mortality, and reviews estimates of the contribution of various factors—behaviors and exposures—associated with cancer in this country. Evidence linking today's cancers with past carcinogenic influences has come mainly from epidemiology, which continues to scrutinize aspects of the American lifestyle, for possible associations with cancer.

Congressional mandates intended to shield people from new and already-present carcinogens have heightened the need for methods to identify such harmful agents before they have an impact on human health. Laboratory testing technologies currently used to determine the carcinogencity of substances, and technologies that may become important in the near future are discussed and evaluated, The assessment examines the use of extrapolation techniques for estimating human carcinogenic risks from test-derived data; the advantages and disadvantages of the available extrapolation models; and the ultimate use of these techniques in setting standards for controlling exposures under diverse legislation. The report then looks at the problems of decisionmaking in the face of the often-great uncertainties accompanying scientific findings and the proposals for regulatory reform that have grown out of concern for these issues.

In preparing the full report, OTA staff consulted with members of the advisory panel for the study, with contractors who prepared material for the assessment, and with other knowledgeable persons in environmental organizations, Government, industry, labor organizations, research institutions, and universities.

A draft of the final report was reviewed by the advisory panel, chaired by Dr. Norton Nelson, the OTA Health Program Advisory Committee, chaired by Dr. Sidney S. Lee, and by approximately 80 other individuals and groups. We are grateful for their assistance and that of many other people who assisted and advised in the preparation of this report.



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