

*Requirements for Fulfilling a National
Materials Policy*

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**REQUIREMENTS FOR FULFILLING
A NATIONAL MATERIALS POLICY**

PROCEEDINGS OF A CONFERENCE
ORGANIZED BY THE FEDERATION OF MATERIALS SOCIETIES
FOR THE
OFFICE OF TECHNOLOGY ASSESSMENT
UNITED STATES CONGRESS
AUGUST 11-16, 1974

**REQUIREMENTS FOR FULFILLING
A NATIONAL MATERIALS POLICY**

Proceedings of *an*
Engineering Foundation Conference
Held at New England College
Henniker, New Hampshire
August 11-16, 1974

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PREFACE

National materials policy has emerged into prominence in the United States. Recent developments have included the Report of the National Commission on Materials Policy, June 1973; the Report of the Committee on Materials Science and Technology (COSMAT) of the National Academy of Sciences in early 1974; the succession of petroleum-related shortages of industrial materials in 1974; the inflationary consequences of industrial disruptions associated with these shortages; and the concerted plan for legislative action, agreed to by legislative and executive leaders, to monitor the Nation's supplies of essential industrial materials.

The first Engineering Foundation Conference on National Materials Policy, held at New England College, Henniker, N. H., in 1970, provided a warning of future difficulties. It called attention to the functional relationship of materials, energy, and environment. The following October, the Congress by statute created the National Commission on Materials Policy.

The second Engineering Foundation Conference on materials policy, also at Henniker, was convened in 1972 with active participation by the Chairman and staff of the National Commission. It explored eight issues that were later to comprise the gist of the Commission's final report. It stressed the need for a cooperative interaction of Government, academia, and industry in the resolution of these issues.

The third conference, in August 1974, examined options in implementing a national materials policy. It stressed the need for reliable and accessible information on all aspects of materials management, the symbiotic relationship of technology -economics-institutions in implementing national policy, and the interdependence of nations with respect to the production, exchange, and the use of materials.

The purpose of this publication is to present the proceedings of the third Henniker Conference on National Materials Policy. Like the first two conferences, it does not recommend or advocate. Its "findings" are exploratory. The conference searched for options and alternatives. (Although the second conference was subtitled "Resolving Some Selected Issues", it searched for ways to resolve the issues, rather than for resolutions.) The "findings" and "recommendations" contained

in the present report are the products of task forces, largely self-selected, of the conferees. No individual responsibility for these reports should be inferred; they stand on their own merits and should be so regarded.

Likewise, as managing agency for the 1974 conference, the Federation of Materials Societies assumes no responsibility for the substantive product. Its purpose in supporting this activity was to sustain the national interest in materials policy as a subject deserving of close and continuing public attention.

Arrangements for publication of these proceedings were handled by the American Society for Metals, a member of the Federation of Materials Societies.

Foreword

The Office of Technology Assessment (OTA) of the United States Congress is directed to provide early indication of the probable benefits and adverse impacts of technology and to develop other coordinate information which assists the Congress. Among other specific functions the OTA is charged with identifying impacts of technology, ascertaining cause and effect relationships, identifying alternate technological methods, identifying alternate programs, comparing the impacts of alternate programs, presenting analysis to appropriate legislative bodies, and identifying areas where additional research or data collection is required.

Recognizing that the cycle of materials usage, including the associated use of energy and environmental impacts, would become increasingly important in Congressional deliberations, the House Science and Technology Committee requested that OTA perform a comprehensive assessment of this subject and the Senate Commerce Committee asked for an assessment of resource recovery systems. In response to these requests, Materials was chosen as one of the first OTA program areas, together with assessments of food, energy, health, ocean technology, and mass transportation.

As a broad strategy for its materials program OTA has made a systematic examination of the total cycle of materials use. Ideally materials should flow through all stages of this cycle to supply adequate amounts of materials and energy for the basic requirements of nutrition, shelter, and health while sustaining a dynamic economy and with minimum waste and environmental impact. OTA has examined materials technology throughout this cycle to determine where undesired side effects, unexploited opportunities, or barriers require assessment. The initial findings are discussed in the postscript to these conference proceedings.

In developing its materials program, OTA is seeking the assistance of materials experts and groups of people impacted by materials technology. The Henniker Conference series on national materials policy is one mechanism for obtaining assistance. This conference sought to sharpen the definition of issues, suggest methodology for developing answers to problems, and, in some cases, to suggest answers. Such answers are not likely to be clear technical solutions fully acceptable

to everyone, but rather institutional means for optimizing the application of a technology on a continuing basis with a reasonable balance among conflicting needs. The proceedings of this conference should be considered as a progress report in this continuing process.

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