

CONTENTS

	Page
PREFACE	vii
SUMMARY	1
 I. INTRODUCTION	 11
A. Past and Current Congressional Actions	12
1. Background. \$\$,... ..	12
2. The National Commission on Supplies and Shortages	13
3. The Energy Policy and Conservation Act of 1975.	13
4. Status of Proposed Stockpile Legislation.	14
B. Assessment Scope and Purpose	16
1. Definition of Economic Stockpiling	16
2. Materials Characteristics	17
3. Definition of Technology Assessment	17
4. Seven Steps in the Generalized Assessment Methodology	19
5. Functional Logic of Assessment Methodology	21
 11 NATIONAL MATERIALS ISSUES RELATED TO ECONOMIC STOCKPILING ,,,	 25
A. Increasing U.S. Import Dependence.	25
B. International Cartel Actions	26
1. Conditions Necessary for Successful Cartelization	27
2. Materials Cartels	27
C. Response of U.S. Market System to Material Problems	32
D. Use of U.S. Stockpiles for Economic Purposes	33
1. Economic Use of the Strategic Stockpile	33
2. Defense Production Act Inventory..	34
3. Interaction Among Federal Agencies	35
E. Economic Stockpiling in Foreign Countries.	36
1. Japan,... ..	36
2. France	36
3. Sweden	37
4. European Common Market (EEL).	37
5. Other Countries	37
 III SPECIFIC PURPOSES OF ECONOMIC STOCKPILING	 41
A. Conceptual Logic of Economic Stockpiling	41
1. Possible Functions of an Economic Stockpile..	41
2. Economic Trends and Cycles of Stockpiling.	43
3. Types of Benefits and Costs Involved in Economic Stockpiling	44
4. Rationale for Federal Government Support of Economic Stockpiling.	45
5. Total Net Benefits of Economic Stockpiling	46
B. Development of Economic Stockpiling Policies for Initial Consideration. . ,,,,	46
1. National Policy Objectives	46
2. Eleven Stockpiling Policies (SP) Studied. ,,,,,,,... ..	47

C.	Interviews with U.S. Business, Labor, Government, and Civic Action Groups . . .	48
D.	Classification of Stockpiling policies for Detailed Analysis	50
1.	Problem Origin, Function, and Principal Impact Mode of Eleven Policies. .	50
2.	Five Stockpiling Policies Selected for Detailed Analysis	51
E.	Decision Criteria—A Model for Developing and Implementing Economic Stockpiling Policy	51
1.	Components of the Decision Criteria Model.	51
2.	Materials Selection Criteria	52
3.	Modified Delphi Technique Used To Identify Problem-Related Materials .	54
IV.	APPROACHES USED TO ASSESS IMPACTS OF ECONOMIC STOCKPILING	61
A.	Methods of Analyzing Economic Impacts	61
1.	General Description of Economic Welfare Model	61
2.	Three Steps in Using the Economic Welfare Model	64
3.	Discussion of Computer Program Developed to Estimate Economic Impacts of Stockpiling.	69
4.	Economic Damage Not Averted.	70
5.	Economic Impact of Not Establishing a Stockpile	70
B.	Methods of Analyzing Noneconomic Impacts.	70
1.	Discussion of Relevance Tree	71
2.	Impacts Relevance Matrix	72
V.	POSSIBLE IMPACTS OF ECONOMIC STOCKPILING	77
A.	General Impacts of Economic Stockpiling	78
1.	Political Impacts of Economic Stockpiling	78
2.	Social Impacts of Economic Stockpiling.	81
3.	Market Operations Impacts	84
B.	Economic Impacts of Stockpiling to Discourage or Counteract Cartel or Unilateral Political Actions Affecting Price or Supply (SP-1).	87
1.	Derivation of Benefit Function for SP-1.	87
2.	Types of Economic Impacts Associated With SP-1...	92
3.	Estimation of Economic Net Benefits for SP-1	93
4.	Discussion of Partial Economic Benefits and Costs for Each Phase of Stockpile Operation for SP-1.	99
5.	Summary of Economic Net Benefits and Partial Benefits for SP-1.	102
C.	Economic Impacts of Stockpiling to Cushion the Impacts of Nonpolitical Import Disruptions (SP-2)	104
1.	Derivation of Benefit Function for SP-2.	104
2.	Estimation of Economic Net Benefits for SP-2	106
3.	Discussion of Partial Benefits and Costs for Each Phase of Stockpile Opera- tion for SP-2.	111
4.	Summary of Economic Net Benefits and Partial Benefits for SP-2.	113
D.	Economic Impacts of Stockpiling to Assist in International Materials Market Stabilization (SP-3)	115
1.	Derivation of Benefit Function for SP-3.	115
2.	Estimation of Economic Net Benefits for SP-3	118
3.	Discussion of Partial Benefits and Costs for Each Phase of Stockpile Opera- tion for SP-3.. . . .	122
4.	Summary of Economic Net Benefits and Partial Benefits for SP-3.	124

E.	Economic Impacts of Stockpiling to Conserve Scarce Domestic Materials (SP-4)	125
1.	Derivation of the Benefit Function for SP-4	125
2.	Estimation of Net Benefits for SP-4	127
3.	Discussion of Partial Benefits and Costs for Each Phase of Stockpile Operation for SP-4	130
4.	Summary of Economic Net Benefits and Partial Benefits for SP-4	133
F.	Economic Impacts of Stockpiling to Provide a Market for Temporary Surpluses and Ease Temporary Shortages (SP-5)	134
1.	Derivation of the Benefit Function for SP-5	134
2.	Estimation of Net Benefits for SP-5	136
3.	Discussion of Partial Benefits and Costs for Each Phase of Stockpile Operation for SP-5	140
4.	Summary of Economic Net Benefits and Partial Benefits for SP-5	141
VI,	MANAGEMENT AND INSTITUTIONAL CONSIDERATIONS FOR IMPLEMENTING AND OPERATING AN ECONOMIC STOCKPILE	145
A.	Decision Criteria—A Model for Developing and Implementing Economic Stockpile Policy	146
1.	Components of Decision Criteria Model	146
2.	Specification of Functional Nature of Stockpile	146
B.	Information Requirements for an Economic Stockpile	148
1.	General Information Requirements	149
2.	Unique Information Requirements	151
3.	Requirements for a Materials Information System	151
4.	Conclusions Regarding Information Requirements	155
C.	Organizational Options for Establishing an Economic Stockpile	156
1.	Safeguards Against Stockpile Abuse	156
2.	Control of Economic Stockpile	156
3.	Organizational Capabilities	157
D.	Interrelationship of an Economic Stockpile with other Materials Policies	158
1.	Implementing Multiple Stockpile Policies	158
2.	Existing U.S. National Stockpiles	159
3.	Foreign National Stockpiles	160
4.	International Stockpiles	160
5.	Other U.S. Materials Policies	160
E.	Budget Implications of an Economic Stockpile	161
1.	Method of Financing an Economic Stockpile	161
2.	Discussion of Operating Cost Model	162
3.	Estimation of Operating Costs	163
VII	ALTERNATIVES TO ECONOMIC STOCKPILING	169
A.	Reasons for Considering Alternatives to Stockpiling	169
B.	Alternative Methods to Increase Supply	170
1.	Direct Subsidies to Producers Working Marginal Resources	171
2.	Tax Incentives to Encourage Production From Marginal Resources	172
3.	Research and Development To Increase Production From Marginal Resources or To Process Substitute Materials	173
4.	Low Interest Loans and Investment Guarantees To Encourage Exploration and Production	176

5.	Tariff Concessions to Countries Producing Raw Materials.	176
6.	Increased Recycling of Secondary Materials	177
7.	Role of Public Lands in Increasing Domestic Supply.	178
C.	Alternatives to Maintain Stable Levels of Supply	179
1.	Inventory Management	179
2.	Futures Markets	181
3.	Standby Capacity	182
4.	International Commodity Agreements.	182
D.	Alternative Methods to Restrict Demand	185
1.	Conservation \$0.....	185
2.	Substitution	186
3.	Export Controls	187
E.	Summary of Alternatives and Impacted Sector Groups	187
1.	Alternatives to Economic Stockpiling Policies	187
2.	Sectors Impacted by Alternatives to Economic Stockpiling	187
VIII	LEGISLATIVE CONSIDERATIONS REGARDING ECONOMIC STOCKPILING	191
A.	Options for Considering Economic Stockpile Legislation	191
1.	Evolution of Current Public and Private Systems Without Enacting New Legislation	191
2.	Congressional Options Without Enacting New Legislation	192
3.	Executive Options Without Enacting New Legislation	192
4.	Options Through Enacting New Legislation.	192
B.	Institutional Considerations for Establishing an Economic Stockpile	198
1.	Management Considerations	198
2.	Institutional Arrangements.	198
C.	Public Policy Issues Related to Establishing an Economic Stockpile	201
IX.	GLOSSARY	205
A.	Organizations and Terms—Abbreviations	205
B.	Definitions	206
X.	REFERENCES.	211
A.	Stockpiling	211
B.	Materials Assessment.	213
C.	Technology Assessment.	215
D.	Cartels	216
E.	Input-Output Models	217
F.	General	217
APPENDICES		
Appendix A—History, Management, and Problems of Stockpiling in the United States		221
A.	Introduction	221
B.	Legislative History of Stockpiling ,,,.	221
C.	Legislative and Executive Authority for Stockpiling Programs	223
D.	Selection of Stockpiled Materials	226
E.	Mobilization Requirements.	228
F.	The Stockpile Policy Controversy. ,,,.	229
G.	The Mobilization Readiness Program	235

Appendix B—Case Studies	241
A. Long-Term Program for Disposal of Government Stockpiles of Aluminum	241
B. Titanium Stockpile Program, 1972-75.	245
C. Expansion of Copper Producing Capacities: The Defense Production Act of 1950, as Amended	249
D. Releases of Copper From the Stockpile	251
E. Second Expansion Program, Duval Sierrita Mine	255
F. The Nickel Loan of 1970-71	257
G. International Tin Council.	260
H. International Cartels.	264
Appendix C—Economic Stockpiling in Foreign Countries	283
A. The European Economic Community Stockpiling Program.	283
B. Stockpiling in Japan	285
C. Stockpiling in France.	289
D. Stockpiling Incentives in Sweden	291
Appendix D—Relevance Trees and Weighting Matrices	295
A. Introduction	295
B. Relevance Trees	296
C. Impacts Evaluation Matrices	314
INDEX	323