

Stockpiling critical materials has long been practiced by the United States to insure a minimal supply in the event of war, with the marketplace being relied upon as the primary means of correcting temporary shortages and price fluctuations. However, increasing U.S. dependence on materials imports, together with increasing competition for materials among other nations, pose new dangers to the supply required by a healthy economy—dangers which neither the strategic stockpile nor the normal operations of the marketplace have effectively averted or counteracted. Stockpiling for economic purposes has therefore been examined by the Office of Technology Assessment (OTA) as a possible component of a national strategy for insuring materials supply during peacetime.

The OTA assessment includes an analysis of the attributes and consequences, both quantitative and qualitative, of stockpiling nonfood commodities for selected economic purposes. The objective of the study was not to develop economic stockpiling policy, but rather to provide information regarding the options available to Congress in considering such policy.

The economic stockpile assessment was requested by the House Committee on Science and Technology which asked for an analysis of the “legislative options in the uses of a national stockpile to assist in the development and use of materials technology for public purposes.”

While the assessment was in response to the House Committee on Science and Technology, the results also provide information and analyses useful to the House Committee on Banking and Currency, the Joint Committee on Defense Production, the Senate Commerce Committee, the Senate Committee on Government Operations, the House Armed Services Committee, and the National Commission on Supplies and Shortages. The results of this study are particularly relevant to the work of the National Commission on Supplies and Shortages, which is charged with drafting the “necessary legislative and administrative actions to develop a comprehensive strategic and economic stockpiling and inventories policy which facilitates the availability of essential resources.”

ASSESSMENT SCOPE

Economic stockpiling is defined in the assessment as the accumulation and storage of materials for the express intention of being able to effect their distribution to accomplish public purposes other than the wartime emergency conditions stipulated in the strategic stockpile. An economic stockpile is similar to insurance in that acquisition and holding costs are paid in anticipation of reducing the costs of possible future problems. A decision to establish an economic stockpile de-

pends on the belief that there will be eventual net benefits either through deterrence of a problem or through relief if a problem occurs. Because an economic stockpile necessarily involves some intervention in the marketplace, it is of great importance that estimates of the benefits and costs—including direct market impacts, as well as other, less direct impacts—be considered and estimated to the extent possible. The assessment addresses the following questions:

- Should the United States consider establishing an economic stockpile?
- What possible economic stockpiling policies might be established?
- What possible impacts might result from implementing these policies?
- What are the alternatives to an economic stockpile?
- What options and institutional arrangements are available to Congress in considering possible legislation?
- What considerations require further analysis?

ASSESSMENT FINDINGS

Findings Regarding Current or Anticipated Materials Problems

There is a real potential for shortages of materials critical to the U.S. economy to occur suddenly and unexpectedly. This stems largely from the increasing degree of U.S. dependence upon imported materials, as well as from the increasing international competition for materials. Shortages could occur as a result of one or more of the following:

- Cartel or unilateral political actions affecting price or supply,
- Nonpolitical import disruptions,
- Dwindling U.S. sources of scarce materials,
- Fluctuating domestic markets, and
- Fluctuating international markets.

The nature of these materials problems requires that the U.S. Government evaluate several policies which might compliment normal industry operations.

Findings Regarding the Feasibility of Economic Stockpiling as a Response to Materials Supply or Price Problems

Economic stockpiling can be considered one means of responding quickly over the short-term to the materials problems identified above, but it should not be considered a means of effecting long-term solutions to those problems. On the other hand, an economic stockpile could have value in providing the time required for the United States to imple-

ment such long-term solutions as substitution, conservation, or the development of alternative supply sources.

Economic stockpiling is inherently a process of market intervention and will create economic impacts (i. e., benefits and costs) which are distributed unequally throughout the U.S. economy. These economic benefits and costs (i. e., gains or losses in domestic economic welfare) must be estimated for the economy in general, as well as for specifically impacted groups. An economic model developed in the assessment (Economic Welfare Model) permits the stockpile managers to estimate economic benefits and costs in terms of an assumed future which includes probabilities of supply interruptions and elasticities of supply and demand.

The Economic Welfare Model has been used to estimate the economic impacts of implementing five selected stockpiling policies. These estimates indicate that some policies will have positive economic net benefits and some will have negative economic net benefits. It should be emphasized that the estimates apply only to the specific materials examined and within the scenario assumptions described, and should therefore not be taken to indicate that precise quantities of specific materials should or should not be stockpiled. Nevertheless, the nature and magnitude of the estimates are sufficient to indicate that an economic stockpile should be given detailed consideration as one component of a more comprehensive national materials policy and

that measuring the benefits or costs of a supply disruption in terms of its probability, rather than its certainty, will significantly reduce the quantity of material to be stockpiled.

Economic stockpiling will create social and political impacts which need to be considered together with the economic impacts. The implementation of an economic stockpile will also create legal and institutional impacts which are contingent upon the nature of any stockpiling agency established and the oversight mechanisms exercised by Congress.

Because a U.S. economic stockpile can have strong impacts on other countries, and because several foreign countries are either planning or have already established economic stockpiles, the United States should consider economic stockpiling in terms of foreign policy as well as domestic affairs. The policy objectives of a particular stockpile should be clearly delineated. Analysis of the Strategic and Critical Materials Stockpile indicates, for example, that it has been used in a limited manner to achieve selected economic purposes. Further, the operation of an economic stockpile will create enough problems and pressures to warrant its being sufficiently insulated from the political process that it may act in the public interest, yet remain responsive to congressional scrutiny.

The benefits and costs of an economic stockpile depend upon specific future actions outside the control of the United States. If undertaken, economic stockpiling should therefore be done on the basis of forecasts of trends and possible events, but in a manner flexible enough to permit adjustments to changes. The decisions relating to the establishment and operation of an economic stockpile—specifically, the acquisition and disposal of materials—should be systematically made and documented using an approach similar to the decisionmaking process developed in this assessment (Decision Criteria Model). Specific materials which should be considered prime candidates for an economic stockpile have been identified with

a set of materials selection criteria which directly relate to the supply or price problem the stockpiling policy is designed to alleviate.

Two or more stockpiling policies could be implemented simultaneously in order to solve more than one materials problem. In fact, such a program could provide a high degree of commonality of purpose and operation. Similarly, an economic stockpile containing more than one material could be operated in conjunction with other existing stockpiles, either domestic or international.

Findings Regarding Alternatives to Economic Stockpiling

Alternatives exist which may offer equal or greater benefits than economic stockpiling. These alternatives may require either more or less intervention in the marketplace than economic stockpiling. Many of these alternatives have been utilized for some time, and this experience should be drawn upon in assessing their possible usefulness. Several of the alternatives to economic stockpiling are long-term solutions to materials problems, and as such could be implemented in conjunction with a short-term economic stockpile as an overall strategy of combating such problems. In any case, alternatives to economic stockpiling should be considered, and the Economic Welfare Model can be used to determine whether or not the alternatives would provide benefits equal to or greater than economic stockpiling.

Findings Regarding Economic Stockpiling in the Context of a Developing National Materials Strategy

Economic stockpiling could have value as a response to certain materials problems; however, it should be considered as one component of a more comprehensive national materials strategy which is developing from its present ad hoc status. Further, such an economic stockpile policy should be developed in coordination with appropriate Government, industrial, and public agencies,

LEGISLATIVE OPTIONS

Evolution of Current Public and Private Systems Without Enacting New Legislation

The first option is for Congress and the President to forgo establishing an economic stockpile, letting the current market system, with its existing support mechanisms, attempt to prevent or correct the impacts of supply disruptions and price increases,

Congressional Options Without Enacting New Legislation

The second option is for Congress to act without drafting new legislation. It could initiate such action by providing information regarding economic stockpiling within the legislative branch, the executive branch, or the private sector.

Executive Options Without Enacting New Legislation

The third option is for the President to take action, within the limits of his existing authority, without proposing new legislation. Such action could be accomplished in several ways: (a) issue a Presidential proclamation to set overall policy direction, (b) issue an executive or agency order, or (c) make research and development grants available for analysis of materials problems.

Options Through Enacting New Legislation

The fourth option presumes that, for one or more reasons, the first three options will not be sufficiently effective in dealing with current or anticipated materials supply and price problems and that authorizing legislation is required. Such legislation, if required, should entail consideration of the 10 components listed below:

- Definition and distribution of authority,
- Acquisition of information,
- Stockpile management,
- Control of domestic distribution,
- Control of exports,
- Control of imports and access to foreign supplies,
- International trade,
- Domestic economic impact,
- Fiscal incentives, and
- Public access and participation.

INSTITUTIONAL ARRANGEMENTS

Arrangement 1:

Economic Stockpile Controlled and Operated by the U.S. Government

A unilateral U.S. economic stockpile might be established as another component of the present strategic stockpile, or it could be established as an independent stockpile whose operations are carefully coordinated with those of the strategic stockpile.

Arrangement 2:

Economic Stockpile Controlled by the U.S. Government, but Operated by U.S. industry

The advantage of this arrangement would be twofold: first, it would forgo some of the acquisition and initialization costs required for the Federal Government to establish and operate its own economic stockpile; and second, it would strengthen the working relations be-

tween the Federal Government and U.S. industry, thereby demonstrating that an economic stockpile is intended to be an adjunct to, not a replacement of, normal industry operations. A disadvantage of such a policy might be that its operations would give preference to the interests of powerful industry groups.

Arrangement 3:

Establish Unilateral Economic Stockpile Controlled and Operated by a Public-Private Corporation

Such a corporation could be funded by the Federal Government, vested by Congress with a mandate and guidelines on U.S. stockpile purposes, and given independent authority to acquire and maintain national stockpiles without direct Executive control but with provisions for Executive consultation. Since annual appropriations for operating expenses and the stockpile corporation requests for any needed additions to the revolving capital fund would be reviewed only once a year by the President and Congress, the corporation would be able to maintain a certain degree of political independence comparable to the Federal Reserve System on monetary matters.

Arrangement 4:

U.S. Participation in Multinational or International Economic Stockpile

An economic stockpile operated by two or more nations, either multinational or international in nature, could be formed along such existing political or organizational lines as the Organization of American States (OAS), the European Economic Community (Common Market), the United Nations, or just with allied nations having materials requirements similar to those of the United States. At present the United States is conducting several discussions/negotiations which do consider this arrangement: the United Nations Conference on Trade and Development (UNCTAD) discussions within the United Nations and the International Energy Agency. The cost of establishing and maintaining such a collective stockpile would be spread among

the participants and would thus be less for any one government. The stockpile would not take as much material out of the world supply as would separate national economic stockpiles. The stockpile might have less effect upon specific materials prices than separate unilateral actions. And, finally, the participating nations would have to work closely together in order to make the stockpile work successfully. The greatest disadvantage would be the possible loss of control and sovereignty over U.S. resources and actions.

Arrangement 5:

U.S. Participation in Producer/Consumer Council Economic Stockpile

Another form of collective stockpiling could be achieved by the creation or expansion of producer/consumer councils like the International Tin Council which is run by both producers and consumers and maintains its own buffer stock to help stabilize the supply and price of tin. The benefits and costs of arrangement 5 are the same as for arrangement 4, but in addition to these there is another important benefit; an economic stockpile operated by a producer/consumer council attacks the basic cause of the materials availability problem and thereby could provide a long-term solution to specific materials problems by developing policies which are acceptable to producers and consumers, exporters and importers, developed countries and lesser developed countries. In this sense, arrangement 5 requires even stronger cooperation among international participants than arrangement 4. Also, like arrangement 4, though, such agreements could take a considerable amount of time to implement.

Arrangement 6:

Economic Stockpile Controlled by U.S. Government, but Operated According to International Guidelines

This arrangement could combine the advantages of the first three arrangements. As with arrangement 1, the only time constraints in implementing this option would be those required to create the legislation and acquire the

optimal quantity of materials. Moreover, certain elements of arrangement 2 and 4 could be introduced by specifically defining the use of the economic stockpile in the form of an "international code of operations for economic stockpiles." This code could be introduced as the announced policy of the United States and expanded on an international basis as needed. Arrangement 6 would recognize the fact that

some national economic stockpiles are being created, but that some countries like West Germany have not implemented them because of serious concern regarding their impact on domestic and world market systems. An international code of operations might help reduce this concern, as well as develop effective mechanisms for alleviating U.S. supply problems without increasing the world shortage.

PUBLIC POLICY ISSUES

The public policy issues summarized below, which either have been or should be studied, suggest both the diversity and the intensity of conflict which could be aroused and which would have to be considered if an economic stockpile were implemented, established, and operated.

1. Should an economic stockpile be implemented in concert or in conflict with other U.S. materials policies? For example, how should the planning for an economic stockpile be coordinated with the current discussions regarding whether or not the United States should join the International Tin Council, or with the long-term grain agreements with the U. S. S. R., or with the UNCTAD discussions now underway with the less-developed nations regarding materials supply and prices?

2. What agreements with other industrialized, as well as less-developed nations, will be required in order for an economic stockpile to provide the greatest benefit to U.S. citizens?

3. How can an economic stockpile be designed and operated so that it will not be misused for financial advantage by special-interest groups? How can it be sufficiently insulated from the political process to prevent its misuse, yet insure that it will achieve the public benefits for which it was established?

4. What measures can be taken to insure that an economic stockpile will not be used to

accomplish public policy objectives other than those for which it was established?

5. Under what conditions, and to what degree, is it justifiable for the Federal Government to intervene in the marketplace in the form of an economic stockpile? Should such intervention be used to require that industry disclose private, proprietary information to the Federal stockpile managers? And if so, what assurances will be taken to protect the confidentiality of such information?

6. What is the real potential for future supply disruptions and price increases? What is the expected impact (i.e., benefits and costs) of such economic dislocations upon the U.S. economy in general and sectors of U.S. society in particular? What is the cost of insuring against such dislocations? For example, will the acquisition of large amounts of materials like petroleum or chromium reduce such shortages and produce a more healthy economy, or will it stimulate the already spiraling inflationary rate? Second, are the expected benefits of an economic stockpile sufficiently greater than the costs to warrant the expenditure of large amounts of public money, and if so, how will this money be obtained?

7. What measures will be taken to insure public participation in the planning of an economic stockpile? Is such involvement necessary? Further, if the public is involved, what measures will be taken to maintain the

confidentiality of U.S. strategic economic information ?

8. What is the long-term outlook for growth in the United States? For example, will the

United States maintain, increase, or decrease its present consumption patterns? How will future supply disruptions affect these consumption patterns, and vice versa? How will they affect the environment?