

# Some Factors Affecting the Utilization of Foam Plastics in Operations of the Agency for International Development

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To develop an intelligent appreciation for the motivations which result in the activities of the Agency for International Development (AID), it might be best to look at the thinking of the Congress when it passed the Foreign Assistance Act of 1961. Section 102 of this law restated the view that peace depends upon the wider recognition of the dignity and interdependence of men, and that the best assurance for the survival of the free institutions in the United States would be the worldwide proliferation of an atmosphere of freedom.

But, this statement continued:

To this end, the United States has in the past provided assistance to help strengthen the forces of freedom by aiding peoples of less developed friendly countries of the world to develop their resources and improve their living standards, to realize their aspirations for justice, education, dignity, and respect as individual human beings, and to establish responsible governments.

The Congress declares it to be a primary necessity, opportunity, and responsibility of the United States, and consistent with its traditions and ideals, to renew the spirit which lay behind these past efforts, and to help make a historic demonstration that economic growth and political democracy can go hand in hand to the end that an enlarged community of free, stable, and self-reliant countries can reduce world tensions and insecurity.

Within the framework of this declaration some \$3 billion to \$5 billion have been expended annually since 1961 in attempts to secure these desirable objectives. The directives, which give substance to the policy, have reflected the ebb and flow of events and the dominant thinking on

problems of economic and social development. Industrial revolution is the outstanding element in Western developmental experiences, and the rapid recovery of Europe under the Marshall Plan seemed to say to many people that a dash of technology added to any underdeveloped society would automatically promote economic and social development through the growth of industry. Because of this background, industrialization was the guiding principle in our planning for aid to developing countries for many years. But the record of performance does not wholly support the assumption. Of late, efforts to promote economic and social development through absorption of technology and industry have had to be fortified by insights from the behavioral sciences. These insights attempt to discover patterns of synergistic factors which would promote the desired absorption.

Industry continues to be a need of developing countries. Without it, desired manufactured goods will be hard to get (given the international market condition in which exported agricultural products continue to fall in price while the cost of imported manufactured goods continues to rise). A new emphasis upon agriculture, education, and health as priority areas for AID activity has been declared to satisfy the pressing welfare needs of the peoples of aid-receiving countries. Nevertheless, the multiplier effect of modern technology upon the activities in each of these sectors will be indispensable if the desired developmental performance is to be realized.

A multibillion dollar package of technical assistance projects and other development devices, such as grants and loans, is assembled annually from plans prepared by individual countries and submitted through the USAID missions maintained in them. This constitutes the major part of the aid program of the United States and is administered by the Agency for International Development. A large portion of these expenditures is channeled through U.S. business organizations, but a different kind of participation now seems to be required of them. In an effort to discover how to deepen the involvement of the private sector in U.S. aid efforts, a committee, broadly representative of leaders from the mainstreams of American life, recently examined the problem.

The findings confirmed the growing belief that foreign aid is likely to go on indefinitely unless it is amplified by initiatives undertaken in the private sector. The annual multibillion dollar AID programs can supply directly only a small fraction of the human and financial resources required for the growth of developing countries. The annual deficit in capital goods alone is in the neighborhood of \$5 billion to \$20 billion! It is unrealistic to expect a government-financed foreign aid program to make this up. The full U.S. moral commitment to foreign aid can be fulfilled only by stimulating all segments of the private sector—business organizations, labor unions, education associations, professional societies, and foundations—to commit

themselves more fully to economic development. (U.S. business organizations operating in developing countries have in the past been mainly engaged in extractive industries, e.g., oil and minerals, and the rate at which new capital has been going into developing countries has been quite modest.) The committee proposed that an intensified relationship between AID and all other sectors of the U.S. economy should be developed, with the former playing a more effective role as energizer and catalyst for the involvement of the latter in foreign aid operations.

AID had already taken major steps in this direction. Its Specific Risk Guaranties program now insures American owners against losses from inconvertibility of currencies, nationalization and confiscation of property, and losses from war and revolution. The Extended Risk Guaranties can effectively insure investors against virtually every other risk.

Given all the capital in the world, the less-developed countries would in all probability remain exactly that—less-developed—because they do not have the human and institutional resources to make effective use of the capital. One of the basic problems in the development effort is that of transferring the skills, the technology, and even the attitudes to individuals and institutions so that the capital can be made to produce on a rising curve as the indigenous people become more skilled.

Given the need for foreign aid, our government's concern that the private sectors be more involved, and our government's willingness to offer incentives for that purpose, how is a sophisticated material and technology such as foam plastics to be fitted into the world of foreign aid which typically is agricultural, a consumer of imported manufactured goods, poor in human resources, and often also poor in natural resources?

It may be worthwhile to look at foam plastics as a substitute for materials presently in use. This approach is obviously self-limiting.

It is likely to be more fruitful to seek in foam plastics a new material for specific applications made possible by its special properties. This free approach will give rise to novel design problems, but these can now be addressed by exploiting new degrees of freedom conferred by the properties themselves, with proper recognition of the restraints which they introduce.

Policy directives, which recommend both substantive and sector priorities, will indicate areas where help, perhaps from foam plastics applications, is most needed. Experience in foreign aid has led to upward revision of the sector priorities for agriculture, education, and health; it is therefore reasonable to look at activities in these sectors for significant opportunities for foam plastics utilization. Each one will have problems which can be examined with this point in mind.

For most developing countries, agriculture means mainly food, for both subsistence and export. It also supplies fibers for clothing and other utilitarian functions. Finally, it also often contributes to provision of

shelter. Food problems of many developing countries are quite acute, and the production of increased food is a high-priority responsibility of agriculture. In the short run, however, elimination of losses due to handling damage, spoilage, and vermin activity may be the most effective way of quickly increasing the available supplies of food. This would seem to be a point of attack that would attract support for the proponents of foam plastics. Eliminating these losses may be equivalent to as much as a 30 percent increase in available food in a typical developing country.

A structural use of foam plastics that is transferable to developing countries with slight adaptation is the production of shelter for farm animals.

Meat, fish, and dairy products need particular protection from unfavorable environments. Modern storage facilities and techniques developed for use in temperate zones may run into unexpected problems in hot humid environments. But on the plus side, systematic attempts to exploit low night temperatures where they occur could offer a novel design opportunity for foam plastics.

The problem of supplying roofs for minimal structures is a pervasive one affecting hundreds of millions of people with family incomes under \$200 a year. Provision of elementary shelter in the beginning may be all that will be possible; but, as we shall be hearing in another session, other possibilities may be coming into view.

In education and health, the role of foam plastics, although it may be secondary, could facilitate the attainment of the major objectives of these sectors by its adaptability in providing immediately available shelter for people, communal buildings such as recreational halls, health centers, and schools. If it can supply fixed shelter, it will become a stabilizing influence on a shifting wandering population. This would bring into the lives of millions of people their first enduring experience of a home—a minimal one, it is true—but still one which will give new meaning to the concepts of family and community.

One aspect of work in underdeveloped countries must be mentioned here because of its unique importance. For these countries, field activities should aim to provide a service, of which the technology is only a part. It is likely to be futile to sell less than this. The people, who in our country would provide the complementary functions, do not exist in most underdeveloped countries. Further, even when such people can be found, they may be unwilling to "soil their hands," if it takes that to do what is required.

The developing world is made up of societies in transition. What they are satisfied with today may not be acceptable tomorrow. On the other hand, technological innovations, such as foam plastics, which today may be incompatible with slowly changing regulations in developing countries, may be logically introduced in these countries later. Plastics in the more

economical foamed form may be just the material from which to satisfy particular "short-run" social and technological needs. Using this medium, mistakes need not be frozen into the social structure by high costs of correction. Its aggressive use could provide the developing countries with opportunity to experiment with ideas before making final choices of materials or methods. It will be possible to abandon *our* solutions to their problems without major losses when the time comes for them to substitute *their own* solutions. If in the long run the material is found to do a job in a new and better way, then the investment will have attracted an added premium.

The magnitude of the housing needs of developing countries suggests that it is quite useless to attempt to satisfy it by means of conventional methods. One estimate indicates that of the tens of millions of housing units that are needed now, three quarters or more are needed at unit costs of \$10 to \$25. Only token amounts could be absorbed at cost ranges in the hundreds of dollars. The effective demand for quantities in Western cost ranges of thousands of dollars per unit was purely symbolic.

The social and economic implications of a major breakthrough in housing methods are staggering, in view of the facts. All sectors of the economy would feel the impact. The AID has been exploring the feasibility of using low-density foams by themselves or in association with indigenous materials as structural elements for housing or housing parts.

## **SUMMARY**

The paper notes briefly the philosophy of the legislative authorization for the AID and the flexibility in the executive directives which have guided the planning and programming of United States foreign aid activities. This aid has been generous, but institutions from the private sector will need to exercise more initiative if the development of the underdeveloped countries is to be decisively influenced. The AID offers incentive programs to encourage this. Recent adjustment in sector priorities emphasizes work in agriculture, health, and education. This imposes greater support responsibility upon all other sectors including technology and industry. Some applications of foam plastics in this context are mentioned.