THE ROLE OF SECONDHAND EQUIPMENT IN DEVELOPING NATIONS

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by

RANDALL WAYNE BAXTER

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Approved by:

Leland R. Edmonds
Major Professor

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THE ROLE OF SECONDHAND EQUIPMENT IN DEVELOPING NATIONS

INTRODUCTION

The major purpose of this report is to examine in as much detail as possible the proposition that secondhand equipment from developed countries is in fact one source and type of capital goods that should be considered by developing nations in their selection of technology.

The major goal of this work is to provide a resource base in terms of:

1) a bibliography on the subject;
2) a synopsis of the information gained from a survey of the literature pertinent to the topic;
3) some recommendations on the topic garnered from a review and analysis of the research undertaken.

The research method employed in the study has been essentially a library survey of the literature. In addition, however, certain correspondence has been initiated by the author in an attempt to gain further information and opinion regarding the export and import of used equipment.

Information was sought from a variety of United States governmental agencies, professional associations, firms and volunteer agencies that have had (in one phase or another) experience in the transfer of secondhand equipment to developing nations. The correspondence was not initiated in the hope of gaining any statistical validation to support the utilization of secondhand equipment by developing countries. The purpose of the correspondence was, however, to give the report at the very least a

rudimentary feedback dimension. The analysis of the information received was to be compared and contrasted to the information obtained by the survey of the literature. Where possible this has been undertaken.

Needless to say, the report is not meant to be the last word on the topic. The report, however, does present "in one place" a discussion of the broad range of issues and factors affecting the transfer and subsequent utilization of secondhand equipment by developing countries.

CHAPTER I

A GENERAL OVERVIEW ON THE TRANSFER OF SECONDHAND EQUIPMENT FROM DEVELOPED NATIONS TO DEVELOPING NATIONS

THE PROBLEM

Economic development and an increase in the general prosperity are goals of all developing nations. A question that many national planners and development economists are faced with is what level or levels of technology can best contribute to the realization of these goals. The question is especially difficult in view of common constraints in developing countries: limited domestic capital, very limited foreign exchange, an unskilled labor force, and cultural factors of low incentive to achieve.[1] The role secondhand equipment can play in development is an important issue of the larger question of the level of technology desired and feasible in developing countries. It is to this latter question that the report directs itself. The question then simply stated is: What role can the transfer of secondhand equipment play in the development aspirations of developing countries?

PLANNING CONSIDERATIONS

Planning in its function as an aid to decision making can supply an important input in helping answer the above question. Perhaps the most

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[1](There are several excellent sources that describe in detail the general characteristics of less developed countries. Hagen, for example, lists some fifteen such characteristics.)

Everett E. Hagen, The Economics of Development (Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 15-25.

important aspect of such an input is that of an objective approach and inquiry to a most controversial topic.

The economist, the plant manager, the politician, must in their search for answers accept the responsibility to examine alternative solutions to a problem area objectively and in light of the facts. In formulating, recommending, and evaluating policy alternatives one then is in a much better position to make an informed decision or decisions.

Planning at the national level in developing countries is not as remote from the arena of decision making as many might assume. On the contrary, the five year plan has become practically an institution in many developing nations. Two examples are India and Pakistan. It would be untrue, however, to state that the five year plan is fully implemented or religiously followed. On the other hand, the five year plans in India and Pakistan, for example, do reflect quite clearly the major economic and social justice goals of each country. It can be assumed that the same is true for other developing countries engaged in national planning.

It is of course quite possible that a policy decision at the national or state level could effectively eliminate the consideration of options at a lower level of government or in the private sector. For instance, a policy restriction on the import of secondhand equipment at the national level effectively eliminates that option as a source of capital goods for the manufacturer/industrialist in the private sector. This is indeed the case in certain developing countries.

For example, restrictions on the importation of secondhand equipment are found in developing countries such as some of the Latin American

countries, India, Iran, Iraq, Somalia, Turkey, etc. The Governments of all these countries were requested by the Center for Industrial Development of the United Nations (now termed UNIDO, United Nations Industrial Development Organization) to give information on the reasons leading to such restrictions. The answers received list the following major reasons:

1) difficulties in obtaining information regarding the technical and economic aspects of secondhand machinery;
2) the lack of technical experience in the acquisition and evaluation of secondhand equipment;
3) non-availability of spare parts and maintenance problems;
4) opportunities for smuggling out foreign currency through transactions involving secondhand equipment;
5) lack of adequate guarantees, as compared with new equipment.

Another reason mentioned was the possibility of low-priced secondhand equipment affecting adversely the domestic equipment manufacturing industry.[2]

In the private sector of developed as well as developing countries, there is the need for planning in industrial management and equipment replacement. At this level it is of the utmost importance to plan and budget simultaneously with each function complementing the other. The need for planning remains regardless of whether or not certain policy options have been restricted or eliminated by governmental regulation.

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[2] Report of Expert Group on Second-Hand Equipment for Developing Countries, 7-22, December 1965 (New York: United Nations, 1966), ST/CID/8, p. 15.

Michael P. Todaro's comments further reflect on a major problem area in developing countries which could benefit from advance planning. He states that the problem of inappropriate choice (of technology) in developing countries frequently arises because of the inability of the enterprise importing the know-how to formulate its requirements properly and to make a well considered evaluation of alternatives offered by foreign technology with regard to various sources of capital equipment. For example, even though the finance for a firm may come from country A, the most appropriate equipment to utilize in the operation may be produced in country B.[3]

THE PRODUCTION FUNCTION

A production function is defined as a schedule (or table or mathematical equation) showing the maximum amount of output that can be produced from any specified set of inputs given the existing technology or "state of the art." In short, the production function is a catalogue of output possibilities.[4]

A discussion about technological alternatives must incorporate some mention of production function. This author is not an economist and does not understand the mathematical details about production function. On the other hand, some important considerations inherent in the production function concept are clear:

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[3]Michael P. Todaro, "Some Thoughts on the Transfer of Technology" Eastern Africa Economic Review (June 1970), p. 54.

[4]C. E. Ferguson, Microeconomic Theory (Homewood, Illinois: Richard D. Irwin, Inc., 1969), p. 116.

1) the quantity of output depends upon or is a function of the quantities of the various inputs used;

2) various combinations of inputs can be used to obtain a given output.

Variable proportions means that the same output can be produced by different input ratios. This may apply to the long run only, but it is relevant to the short run when there is at least one variable input.

An obvious implication of the above is that one input can be "substituted" for another in such a way as to maintain a constant level of output.

SECONDHAND EQUIPMENT: DEFINITION AND CLASSIFICATION

This report incorporates the definition and classification of secondhand equipment proposed in the United Nations Report of Expert Group on Second-Hand Equipment for Developing Countries.

The term "equipment" will mean "capital equipment" and will cover broadly the following:

1) manufacturing equipment;

2) electrical equipment;

3) transportation equipment.

Secondhand equipment will be defined as that equipment which had been purchased by a potential user, and resold at least once.

Secondhand equipment is not necessarily equipment which has been used, is obsolete, or deteriorated. It can be obtained from sources other than the equipment manufacturers or their authorized dealers.

Secondhand equipment appears in a wide range of physical conditions, and some organizations dealing with secondhand equipment have developed detailed and useful classifications to facilitate its description.[5]

Classification of Secondhand Capital Equipment

A. Unused - Equipment never installed for service

A.1. Ready for use and interchangeable with new equipment delivered by manufacturer.

A.2. Slightly impaired by handling or storage but condition not affecting utility.

A.3. Soiled, shopworn, rusted, deteriorated, or damaged and utility slightly impaired.

A.4. Badly broken, soiled, rusted, mildewed, deteriorated, damaged, or broken and utility impaired.

B. Reconditioned - Used equipment repaired and not used since

B.1. Rebuilt. Completely disassembled, all worn or broken parts replaced, and tested for performance.

B.2. Tested for performance, broken parts repaired or replaced, cleaned and painted.

B.3. Broken parts repaired or replaced, cleaned and painted.

B.4. Cleaned and painted only.

C. As is - Used equipment offered for sale as taken from service

C.1. Tested for performance, no repairs required.

C.2. Tested for performance, minor repairs required.

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[5]Those interested in other classifications of secondhand equipment should consult the "Appendices" of the United Nations Report cited above.

C.3. Somewhat deteriorated, requiring minor repairs.

C.4. Requiring major repairs.

C.5. Scrap. No value except for its basic metal content.[6]

SECONDHAND EQUIPMENT - A PREVIEW OF THE CONTROVERSY

The transfer of secondhand equipment to developing countries is a controversial subject. For instance there are those who argue that there does not exist in sufficient supply the secondhand equipment to carry out such a transfer. Another argument is that the unavailability of spare parts is an additional impediment to the utilization of secondhand equipment in developing nations. There are also those who say that to even suggest such a transfer of equipment is demeaning to the national pride of developing countries. Others would argue that skilled manpower is so deficient in developing countries as to make impossible the efficient working of equipment, whether new or secondhand. The arguments are many and varied. They also require careful scrutiny.

On the other hand, secondhand equipment as one source of technology to be considered by developing nations in their selection of capital goods also has its supporters. Some argue, for instance, that the cost of secondhand equipment is minimal in comparison to what developing nations would have to pay for new equipment.

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[6]United Nations Report, op. cit., p. 3.

Others argue that developing nations having a large idle labor force and sufficiently low wage rates are in fact quite suited for utilizing secondhand equipment. In addition, the capital-saving nature of such equipment will add savings in foreign exchange. Perhaps the major point favoring secondhand equipment is that it is somewhat more labor-intensive than new equipment, thus perhaps absorbing some of the marginal productive labor.

In the literature one finds lengthy discussions of alternative technology available to developing countries. Due to limitation of time this report will largely confine itself to a discussion of secondhand equipment and not purport to discuss all alternatives thoroughly.

Briefly, however, the alternatives range from suggestions that only the most modern equipment be considered for importation by developing countries to suggestions (at the other end of the spectrum) that importation of equipment by such countries be minimized.

There are also those who favor the alternative that the developing countries engage in research and development of labor-intensive equipment. An important part of this argument is that if the developing countries are to have any access to labor-intensive technology, they must develop it themselves as the developed countries have no incentive to develop such equipment.

Todaro presents yet another technology alternative. He believes developing nations should import the "blue-prints" of old machinery from developed countries. In this way, he says, the countries can modify the blue-prints to local conditions and production. He concludes that such a practice would be a catalyst for innovation and further design of more

labor-intensive technology. The argument further mentions that although it is often thought to be a capital-intensive branch, machinery production is in fact one of the more labor-intensive industrial branches in most economies.

Todaro further adds that a policy of domestic manufacture of equipment would provide the possibility of eliminating much of the conflict between output and employment growth in developing countries.

In this author's opinion, Todaro's suggestion is valid and worthy of further investigation. It may be, however, that obtaining blue-prints of earlier labor-intensive equipment from industrialized countries will be more difficult than assumed by Mr. Todaro.

Daniel Lloyd Spencer, on the other hand, is one who argues quite strongly for the import of the most modern equipment by developing countries. He believes that by acquiring the most modern technology, developing countries could leap-frog their way into developing competitive exports.[7]

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[7]Daniel Lloyd Spencer, Technology Gap in Perspective (New York: Spartan Books, 1970), p. 153.

CHAPTER II

SECONDHAND EQUIPMENT: AN ALTERNATIVE SOURCE OF TECHNOLOGY FOR DEVELOPING COUNTRIES ARGUMENTS PRO AND CON

The 1965 United Nations Report of Expert Group on Second-Hand Equipment for Developing Countries states:

> On balance, it appears that the use of second hand equipment for certain production programmes in developing countries can be advantageous, but great care is necessary in choosing the right technology and equipment in order to safeguard the interests of developing countries.

Amartya Kumar Sen, a noted and respected economist, comes to essentially the same conclusion in his article entitled "On The Usefulness of Used Machines." Sen ends the article with the following paragraph:

> To conclude, the movement of second hand machinery from the advanced to the underdeveloped countries (or sectors) is easy to understand in terms of rising maintenance costs and falling physical productivity with age, or in terms of obsolescence in the advanced economies. But "even when" these factors are "not" present there is an inherent case for this type of transaction because of the differences in the conditions of labor supply. Two propositions have been derived in this context. First, if the prices of old and new machines in the advanced economies are such that they yield the same rate of profit, an entrepreneur in a lower wage economy will find it profitable to buy as old a machine as he can get. Secondly, if the wages are equal in both types of economies, the entrepreneur will have no incentive to import second hand machines, but the underdeveloped nation would still benefit relatively more from such imports as long as there is unemployed labor in that economy.[8]

In a recent article entitled "Manufactured Exports From Less Developed Countries and Multinational Firms," G. K. Helleiner makes many interesting

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[8]Amartya Kumar Sen, "On The Usefulness of Used Machines," The Review of Economics and Statistics, (August 1962), p. 348.

observations, some of which are very pertinent to the topic at hand. For instance the implications that can be drawn for the transfer of secondhand equipment from developed nations to developing nations is quite evident in the following Helleiner observation:

> While pressure increases for the introduction of more labour-intensive techniques in the less developed countries, research and development expenditures upon them remain minuscule in size; existing research in this area in the developing countries is neither well financed nor well staffed, nor well coordinated. On the other hand, the direction of a small part of the R & D activities of the large multinational manufacturing firms merely to the identification (within their existing operations) of labour-intensive activities which are potentially transferable to low wage countries can be of relatively very great significance to total R & D in this area. They do not, in the first instance, even need to develop any new technology - it is merely a matter of locating existing (fixed coefficient) activities suitable for relocation abroad.
>
> The example of the electronics industry has already made a considerable impression upon the business community; the business literature of the past few years is full of the possibilities for combining profit with a solution to the world development problem.[9]

It is this author's opinion that when Helleiner says "it is merely a matter of locating existing (fixed coefficient) activities suitable for relocation abroad" that the next logical step would be to advocate the export of the equipment that has been used in those fixed coefficient activities.

Indeed there is some evidence to support such a statement. For instance, Paul Strassman's research in Mexico and Puerto Rico reveals that type of ownership - whether foreign or domestic by immigrants, old stock, or

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[9] G. K. Helleiner, "Manufactured Exports From Less Developed Countries and Multinational Firms," The Economic Journal, (March 1973), pp. 32-33.

government - also influenced preference for secondhand equipment.[10] Strassman shows that of the firms he surveyed only one-third of locally-owned firms, but three-fifths of foreign subsidiaries, preferred secondhand equipment. He is quick to point out, however, that to assume that subsidiaries are generally equipped with the obsolete machines of their parents would be wrong.

Another factor that no doubt skewed the subsidiaries preference for secondhand equipment in Mexico and Puerto Rico is the relative proximity of those countries to the United States. A United States subsidiary's preference for U. S. based secondhand equipment more than likely would not be so great in countries located at substantial distances from the U. S.

Strassman concludes that governments in developing countries should not only tolerate secondhand imports; but that they should encourage them as much as any other way of saving capital. But government, he adds, should neither force the use of truly inferior, obsolete equipment for the sake of employment nor discriminate because of national pride against maintenance and secondhand machines. Economic development has a place for up-to-date gadgets, even for original experiments and innovation; but no place for prejudging opportunities on the basis of false premises.[11]

Todaro hold the following viewpoint on the issue of developing countries importing secondhand equipment. He states:

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[10]Paul Strassman, Technological Change and Economic Development, (Ithaca: Cornell University Press, 1968), pp. 210-211.

[11]Ibid., pp. 219-220.

> ...the fact that the range of choice is being dictated by the technological mandates of factor price configurations and expectations in the developed nations demonstrates that over-time there will be an inherent labour-saving bias in the whole process.... The implication is clear. Since less developed nations must import their technology from developed countries, they are forced to follow the bias inherent in the process regardless of whether or not such a process is in their long run interests.
>
> Viewed in terms of the dynamics of technological transfer...the forceful but static argument that poor nations might profitably adopt used equipment to accelerate the process of labour absorption emerges as somewhat myopic. This argument would be valid if output remained constant and capital did not depreciate. However, with output growing and replacement as well as net investment being required, even the extreme assumption that all gross investment is satisfied by the continuous importation of used equipment, i.e., the most labour-intensive then available, will still imply an increasing divergence between output and employment growth rates since the used equipment itself exhibits diminishing labour coefficients over time. Consequently, given the present abundance of labour and the prospective rapid increase in the potential industrial labour force, it follows that regardless of whether the used equipment is actually economically more efficient in terms of static unit costs than the modern capital-intensive equipment, the prospects for significant long run labour absorption in the industrial sector become rather dubious.[12]

Kamalesh Ray in a recent article expresses her view concerning the importation of technology from developed nations. Her discussion encompasses a whole spectrum of issues that have arisen regarding trade and aid in developing countries. She states:

> The past quarter of a century has seen a phenomenal growth of international investment and collaboration in the techno-economic sector. The receiving countries have no full analysis of its implications.

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[12]Todaro, loc. cit., p. 57.

> But the mounting burden of debt servicing and the magnitude of out flow of national wealth have jolted them to take notice of the situation.
>
> Cultural repercussions are also significant, though difficult to quantify. Neither economy nor culture can take root in the country if it leans heavily on imported wisdom and borrowed funds. One need not be chauvinistic about it, but to "build from within" is a more rewarding practical principal from the long term point of view.[13]

Spencer states that in theory it should be possible to treat the world technological system as just that - a system.[14] Spencer argues in favor of "uncrating" technology in developing countries. He is for the most part opposed to the idea of technology designed to fit the people. The latter, he says, is largely a will-o'-the-wisp. He admits that the one exception to such an evaluation may be agriculture.[15]

While Spencer advocates the "uncrating" of technology in developing nations he is not talking about the uncrating of secondhand equipment. As a matter of fact he comes down quite hard on the mere mention of the subject.

> Old technology, thought to be more appropriate because more labor intensive, may well no longer exist and we delude ourselves that it can be easily resurrected.
>
> In any case the local people do not regard the idea of hand-me-down technology with great favor and they are right on the economic grounds of competition. In the modern world of standardized products and quality control, old fashioned, labor intensive methods are often simply not competitive.[16]

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[13]Kamalesh Ray, "Science in Search of Direction," Indian & Foreign Review, (Vol. 10, No. 10 - March 1973), pp. 18-19.

[14]Spencer, op. cit., p. 137.

[15]Ibid., pp. 148-149.

[16]Ibid., p. 149.

Spencer believes that if one wants to develop an import substitute or an export capability in retread tires, for instance, the way to do it is to obtain the modern machines and methods which make them to standard specification. No one will want tires produced through labor intensive technology because even if they could be made, they could hardly match those tires made by the machines under quality-controlled production. Certainly there wouldn't be an export market for such labor-intensive tires, he says. Spencer goes on to state that the related problem of providing jobs for the population can be met in other ways - small scale industry, handicrafts, and service industries - but it should not be confused with the acquisition of modern, competitive technology. Spencer states that Japan provides the precedent for developing countries to follow, as it always stressed modernization. The formidable character of Japanese export drives depended on the combination of relatively cheap labor and modern technology.

Spencer comments on a topic that has in its own right been given a great deal of space in the literature. He states a country whose leaders feel in some way demeaned by borrowing technology developed in another country suffers an additional impedence in plugging into the circuits of modern technology.[17]

The United Nations expert group on secondhand equipment discussed this same "prestige" issue. The experts asked for information from the governments of some developing countries as to reasons for their restrictions

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[17] Ibid., pp. 32-33.

on the importation of secondhand equipment (those reasons were discussed in Chapter I).

> One of the reasons not mentioned in the replies received, but discussed in several studies on the subject matter, was a feeling in many developing countries that second hand equipment was in some sense inferior, and that its process of development was therefore derogatory to national pride. The impediment is of a psychological nature, and is an expression of value judgements which do not lend themselves to scientific discussions. It can be stated, however, that second hand equipment is used to considerable advantage in developed countries, and that developing countries should not deprive themselves of similar advantages for their economic development because of non-economic considerations.[18]

It has been mentioned that some developing countries have the feeling that the import of secondhand equipment is derogatory to national pride. Strassman shows that this feeling is not overriding at least among entrepreneurs of Mexico and Puerto Rico. He states that secondhand equipment has disadvantages that are easily overstated, but general prejudices probably do not greatly influence entrepreneurs, even though in a public relations context secondhand machines often have as much glamour as hand-me-down clothes have for a teenage girl.

Nevertheless, he states, when secondhand equipment is rejected the basis is usually a calculation possibly pessimistic and incomplete, but not a prejudice.

On the other hand, willingness to buy secondhand equipment was determined largely by confidence in one's own maintenance and repair abilities. This latter point is extremely important to the successful

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[18]United Nations Expert Group on Second-Hand Equipment, op. cit., p. 15.

utilization of secondhand equipment. When repair services have to be brought from the outside, higher costs and uncertainties often make the secondhand second best.[19]

Nathan Rosenberg alludes to two major points that are pertinent to gaining an historical perspective of the technology position of developing countries. He states that the most important reason why poor countries may not have to tread the same path as their industrial predecessors is precisely that industrial countries have already done so. One of the advantages of not taking the lead in economic development is that once an objective has been reached and clearly demarcated, other and easier routes to attain that objective may become obvious.[20]

Rosenberg goes on to relate, however, that the experience of successfully industrializing countries in the nineteenth century indicates that the learning experiences in the design and use of machinery were vital sources of technological dynamism, flexibility and vitality. Countries which rely upon the importation of a foreign technology are thereby largely cut off from this experience. He believes, however, the multinational firm with the knowledge and skills of its personnel may fill a needed gap in this respect.[21]

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[19] Ibid., pp. 212-213.

[20] Rosenberg, op. cit., p. 551.

[21] Ibid., p. 557.

CHAPTER III

UNITED STATES SECONDHAND EQUIPMENT AND THE TRANSFER MECHANISM

SECONDHAND EQUIPMENT TRANSFER

It has been argued that secondhand equipment is an unimportant source of technology because of its unavailability.

The United Nations Report of Expert Group on Second-Hand Equipment for Developing Countries cites some figures and sources that lead one to believe that secondhand equipment is, relatively speaking, in abundant supply. For instance, the September, 1965, issue of the Used Equipment Directory, an American monthly magazine, listed some 576 secondhand equipment dealers and some 17,000 pieces of equipment for sale.

In addition, the United States Machinery Dealers National Association (MDNA) estimated 1965 sales of its members (who account for approximately three quarters of all U. S. secondhand equipment sales) consisting largely of metal-cutting and metal-forming machinery, at $380 million. If all dealers are included, the total amounts to about $500 million annually. It was also estimated in 1965 that the United States Defense Department would generate $270 million of excess industrial equipment for each of the next ten years, of which approximately $210 million was to have been in metal-working machinery.

Most of the commercial transactions in secondhand equipment are within the industrialized countries themselves. Export sales represent only a small fraction of total sales. For instance the United States Machinery

Dealers National Association reported that export sales for its members in 1964 represented only $22.4 million or 5.5 percent of the total sales figure.

In 1964 approximately $50 million worth of secondhand equipment (original acquisition value) was exported under programs through government agencies, namely the U. S. Agency for International Development, and the General Services Administration.

A source of information regarding secondhand equipment is the United States Department of Commerce. When notified by a United States Embassy of the specific interest of a foreign buyer the Department of Commerce will try to put him in touch with a reputable dealer of the secondhand equipment he seeks.

In addition, equipment obtained through non-commercial organizations such as Self-Help or Tools for Freedom in the United States can be acquired at considerably reduced cost.

It should be noted that secondhand machinery (excluding the United States AID programme) generated in industrialized countries and exported to developing countries is usually purchased by private interests, particularly by machinery dealers in developing countries. Public sector organizations in developing countries are seldom the purchasers of secondhand equipment on the open market though some of them avail themselves of the secondhand equipment offered through AID programmes.[22]

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[22]United Nations, Ibid., pp. 5-6.

The Used Equipment Directory, alone, gives an indication of the variety of secondhand equipment available.[23] The Directory covers the following categories of equipment:

Air Moving (fans, blowers)	Mining
Accessories	Parts
Chemical	Plastic
Controls	Plating
Construction	Power
Electrical	Processing
EDP Equipment	Refinery
Electronic	Rock Products
Fabricating	Rubber
Foundry	Speed Control
Heat Treating	Steel Mill
Inspection	Tape Control
Machine Tools	Testing
Maintenance	Tooling
Material Handling	Wire
Metal Forming	Woodworking
Metal Working	

The United Nations Report further states that the secondhand machinery market is noted for its lack of price stability. Prices fluctuate widely as the result of market changes in supply and demand. This is because the secondhand equipment market is supply rather than demand oriented. Changes in demand are followed by corresponding changes in supply. This results in a considerable volatility of prices. This makes it even more important for intending purchasers to be familiar with the market conditions. This enables them to make the purchases at the most attractive prices.

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[23] Used Equipment Directory (published monthly by Reinhold Publishing Company, Inc.). Available for $1.50 by writing to: 70 Sip Avenue, Jersey City, New Jersey 07306.

The sales price of secondhand equipment will depend upon a number of factors, the most important of which are:

> whether equipment is sold "as is", reconditioned, or unused; its age; its physical condition; whether it is obsolete or obsolescent or not; conditions of demand and supply for new equipment; the sales source, etc. While no definite figures can be given for the cost of second-hand equipment as compared with that for new equipment, some generalization can be made for the United States, on the basis of past market experience.
>
> Standard metalworking tools such as lathes, grinders, brakes, millers, and drill presses in good operating order, but not rebuilt, can be obtained in the United States at 25-45 per cent of the cost of new equipment. Rebuilt, they sell for 65-75 per cent of the cost of new equipment. Heavy and special metalworking machinery such as boring mills, forging hammers, presses and vertical turret lathes in good operating order, but not rebuilt, sell at 30-50 per cent of the cost of new equipment. Rebuilt, the cost goes up to 40-60 per cent of the cost of new equipment. The cost variations here indicated are rather wide because, among other influences, some used equipment may require only minor repairs to be operable, while some may need rehabilitation costing as much as 30 or 40 per cent of their original value. For work which requires fine tolerances, it may be necessary to rebuild the machine completely; for work where close tolerances are not essential, it may be necessary to replace only the operating parts of the machine without rehabilitating the structural parts - which can be usually achieved at a comparatively small cost. Chemical process equipment, in good operating order, but not rebuilt, will sell for as little as 25 per cent to as much as 50 per cent of the original replacement cost for mechanical equipment, and up to 70 per cent for plate fabrications (particularly tankage).[24]

TRANSFER CONSIDERATIONS

There have been many suggestions as to how the transfer of secondhand equipment to developing countries could be improved. Strassman, for instance, says that there needs to be much more face to face contact between buyer and seller. He says a lack of full trust invariably means some

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[24]United Nations, loc. cit., p. 11.

concealment of information which impairs perception of needs. Strassman adds that it appears important for the machinery seller to take an active rather than a passive role in maintaining the flow of information. He gives the example of a Mexican paint manufacturer who stated that he typically rejected any supplier who had no more than a "send-us-your-problem" service.[25]

Spencer and others have suggested the need for an International Technology Agency. It is quite possible that such an agency could make some input for improving the transfer of secondhand equipment as well as new equipment to developing countries. If such an agency would do no more than monitor and report on the successes and drawbacks of secondhand equipment it would be carrying out a much needed task.

Some have suggested that if properly cultivated the local subsidiary or affiliate can have important linkage effects by encouraging related industrial undertakings. Subcontracting to small business, for example, could be an incentive to secondhand equipment procurement.

Most developing countries have an industrial development department or agency within the government bureaucracy. The industrial development departments in such countries could be doing a better job of disseminating information concerning secondhand equipment. The department could utilize newsletters, direct extension, or any number of approaches for such an information transfer. In addition, industrial development departments could

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[25]Strassman, loc. cit., pp. 32-33.

sponsor and encourage on the job training programs in the utilization of secondhand equipment.

Perhaps developing countries could utilize a Japanese-style antenna type of program to send "shisatsudan" (literally look-and-examine) style teams abroad. Such teams could inspect secondhand equipment that they thought might be appropriate for their countries.

FINANCING

The transfer of secondhand equipment might be greatly enhanced if "lending institutions" would take a more positive view of secondhand equipment. It is quite possible that the non-availability of aid for financing secondhand equipment could seriously limit the possibilities of using such equipment in the process of industrialization.

Financing should be viewed in two ways. First the provision of credit to the seller of the machinery so that he can in turn offer extended payment facilities to the foreign purchaser; and secondly the provision of credit in the developing countries to entrepreneurs purchasing secondhand equipment.

Many industrial banks or development corporations consider that the use of secondhand equipment introduces an element of uncertainty in assessing the economic viability and security of the firms. It is usually more difficult to determine the resale price of secondhand equipment. This is due partly because it is a supply-oriented market with high fluctuations in price. For these reasons, an industrial bank lending against hypothecation of goods will be more cautious in lending against secondhand machinery than against new machinery. In cases where loans are to be made against secondhand equipment

banks usually require certification from a reliable source that the equipment is in perfect operating order, that it will last at least as long as the time of the loan and that spare parts will be available if needed.[26]

MACHINERY PROCUREMENT

Intelligent machinery procurement would be a boon to the effective transfer of secondhand equipment. For instance, if firms would make independent engineering appraisals, at regular intervals, of all items and equipment to determine their condition, and estimate when replacement would be necessary, they would certainly benefit when it comes to knowing what (if any) secondhand equipment to purchase as replacement. By knowing some time in advance what their projected equipment needs will be, firms can budget (on the basis of projected costs) and save for such equipment.

Some suggest that a very careful look for five years ahead and a general look for six to ten years ahead is advisable. For instance, if excess equipment charges will amount to $500,000 in five years and sales billed are estimated to be $25 million during the same period, the excess charges are two percent of sales billed. Excess equipment charges are defined as the cost differential between what the acquiring of a machine would cost at current prices as opposed to an inflated cost for the machine five years hence. As billings are made cost of sales is charged with an amount equaling two percent of sales and this sum is credited to a reserve account which could be called "provision for future economic and other developments." A new estimate is

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[26]United Nations, Ibid., p. 18.

made each year, the earliest year being dropped and a new future year added. The amounts credited to the reserve are funded and restricted for the purpose intended.[27]

It should be remembered that equipment, whether new or secondhand, which is not capable of producing goods of acceptable quality at prices which are at least competitive on the domestic market, should not be acquired under any circumstances.[28] In addition, the obtaining of proper guarantees should be an utmost consideration of developing countries in their purchase of secondhand equipment.

> There are all kinds of guarantees given with used equipment, such as the guarantee that the equipment conforms to specifications "to the buyers satisfaction," or that defective parts will be replaced, etc. However, the best guarantee from the standpoint of a buyer in another country is when the seller certifies that the equipment will either do a specified job or will be replaced by another piece of equipment that will.[29]

SPARE PARTS, REPAIRS AND MAINTENANCE

Strassman makes some interesting observations pertinent to the repair and maintenance of secondhand equipment. For instance he states that it is important that firms have the ability to determine their spare parts needs and delivery times. The importance attached to an established program of equipment maintenance and repair can be seen in light of the following

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[27]American Management Association, Machinery Procurement and Development (New York: American Management Association, 1956), pp. 10-11.

[28]United Nations Expert Group, loc. cit., p. 21

[29]Ibid., p. 17.

remark: "No kidding," said a Puerto Rican general manager, "I see parts broken around here that I never even heard of before."[30] Strassman states that a joint approach to repair problems may assure at least the supply of spare parts. Some countries allow easy import of sufficient spare parts only on the condition that each firm's supply be available to others if the need arises. If each company has its inventory list and if other records are kept by customs authorities, the main problem is pooling and distributing already available recorded information.[31]

RUDIMENTARY FEEDBACK MECHANISM

Information was requested from twenty different sources in the hopes of getting some feedback from groups which have had experience in the transfer of secondhand equipment to developing countries. Nine replies were received along with some supporting data. Perhaps the lack of return is more important than the return in this case as it may indicate the absence of any real concern for feedback with respect to the transfer of secondhand equipment.

One response alluded to the problem of expensive freight rates. Transportation costs are, however, the same for secondhand machinery as for new equipment. In many instances these costs may also represent a significant percentage of the total cost and, particularly for comparatively low cost machinery, reduce the economic advantage of secondhand over new equipment.[32] Two other responses alluded to problems related to the costs

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[30]Strassman, loc. cit., p. 205.

[31]Strassman, Ibid., p. 204.

[32]United Nations Report, op. cit., p. 11.

of the repair and rehabilitation of secondhand equipment. Another response referred to the problem of financing, stating that after sales, service and maintenance requirements make loans for the purchase of secondhand equipment unlikely.

Other responses indicate certain procedural difficulties, i.e., bureaucratic red tape, and lack of any real monitoring relative to secondhand equipment performance and transfer. The publishers of the Used Equipment Directory also stated that they did not keep statistics on the reach of their Directory in foreign countries.

Another important problem in the area of data gathering is the total lack of information available on the volume, type or country destination of secondhand equipment exported. Census data was consulted in the review of the literature but the Bureau of the Census, Department of Commerce, does not require exporters of secondhand equipment to classify it as such.

Perhaps the most conspicuous absence of response is that of the Machine Dealers National Association. The MDNA represents three-fourths of the secondhand equipment dealers in the United States. It has also reportedly developed a code of ethics for secondhand equipment suppliers. The MDNA also is said to encourage the exporting of secondhand equipment.

CONCLUSIONS AND RECOMMENDATIONS

In this author's opinion secondhand equipment will never be a major source of capital equipment for developing nations nor should it be. On the other hand, this should not delay developing nations nor secondhand equipment

suppliers from encouraging the use of such equipment in developing nations. Properly selected such equipment can yield lower costs.

Secondhand equipment may also serve as one aspect of an intermediate technology, i.e., being more capital intensive than most traditional machinery available and yet more labor intensive than the most modern technology from developed countries.

It has been suggested that firms and governments of developing countries need to be able to determine and evaluate the technology desired in light of their constraints and the technology available to them through a variety of sources.

It is the opinion of this author that firms and governments of developing nations should not limit themselves to a particular type of technology, i.e., most modern, secondhand, the blue-prints of old equipment of developed countries, or strictly labor-intensive technology domestically manufactured. The firms and governments should on the other hand experiment to some extent with different levels of technology in the various sectors. Monitoring of such demonstration projects and learning from the feedback gained may be an important input in deciding on future levels of technology and individual purchases of equipment.

It would be advisable that those firms or governmental agencies wishing to import secondhand equipment be aware of the pros and cons of such equipment from the very outset.

Although there will be the need for additional and more detailed criteria to be developed from country to country and sector to sector the following

criteria checklist serves as an initial indication of criteria considerations to be used by firms and government agencies when considering secondhand equipment import:

1. Availability:

   a. Condition
   b. Spare parts
   c. Expected life

2. Price:

   a. Initial cost
   b. All shipping costs including insurance
   c. Dismantling/installation costs
   d. Expected maintenance costs
   e. Costs relative to delay and red tape

3. Insurance

4. Taxes or Duty
   Type of Currency

5. Return on investment: will the equipment ensure a lower production unit cost than existing equipment permits.

6. Cost/benefit compared to that for new equipment and other technology alternatives.

7. Manpower considerations:

   a. Availability of skilled labor and management
   b. Training for such manpower needs

8. Financing:

   a. Availability of capital
   b. Cost of capital
   c. Alternative uses for such capital

9. Source of Secondhand Equipment:

   a. Established firms in developed countries
   b. Secondhand equipment dealers in developing countries
   c. Branch firms
   d. Other

10. Marketing Considerations:

    a. Domestic
    b. Foreign

11. Priorities:

    a. By sector
    b. Within sector

12. Guarantees:

    a. Providing for replacement of equipment by supplier at his cost if the equipment originally sent does not meet specifications.
    b. Protecting both the supplier and purchaser.
    c. Code of ethics for secondhand equipment dealers.

13. Prestige/Status Consideration

    a. Political palatability

14. Comprehensive Overview

    a. Short range
    b. Long range

15. Domestic R & D

    a. To ensure factual input
    b. To reduce dependence on developed countries

16. Matching Equipment With Local Needs And Conditions

    a. Raw materials
    b. Labor
    c. Marketing
    d. Transportation links
    e. Forward and backward linkages
    f. Other

In conclusion this author concurs with the recommendation made by the United Nations Expert Group On Second-Hand Equipment For Developing Countries. Those recommendations are listed in the Appendix of this report.

It is of the utmost importance that data gathering by those engaged in the transfer of secondhand equipment be carried out with a view toward obtaining feedback on the successes and drawbacks of such equipment.

It is further recommended that financing institutions take a new look at secondhand equipment with a view toward formulating criteria and guidelines which will protect its investment while at the same time making available credit to either suppliers or purchasers of secondhand equipment.

Finally, it is recommended that planning consulting firms and governmental agencies engaged in development planning activities in less developed countries acquire and expand their knowledge and expertise as regards the utilization of secondhand equipment in those countries. A full awareness of the pros and cons of secondhand equipment allows planners to advise decision makers so that they in turn can evaluate objectively the potential for secondhand equipment in their countries.

BIBLIOGRAPHY

Books

American Management Association. Machinery Procurement and Development. New York: American Management Association, 1956.

Fergason, C. E. Microeconomic Theory. Homewood, Illinois: Richard D. Irwin, Inc., 1968.

Hagen, Everett E. The Economics of Development. Homewood, Illinois: Richard D. Irwin, Inc., 1968.

Spencer, David Lloyd. Technology Gap in Perspective. New York: Spartan Books, 1970.

Strassman, Paul. Technological Change and Economic Development. Ithaca: Cornell University Press, 1968.

Journals and Periodicals

Helleiner, G. K. "Manufactured Exports From Less Developed Countries and Multinational Firms," The Economic Journal, (March 1973), pp. 21-47.

Ray, Kamalesh. "Science in Search of Direction," Indian & Foreign Review, Vol. 10, No. 10 (March 1973), pp. 18-19.

Rosenberg, Nathan. "Economic Development and the Transfer of Technology: Some Historical Perspectives," Technology and Culture, Vol. 2, No. 4 (October 1970), pp. 550-575.

Sen, Amartya Kumar. "On the Usefulness of Used Machines," The Review of Economics and Statistics (August 1962), pp. 346-348.

Todaro, Michael P. "Some Thoughts on the Transfer of Technology," Eastern Africa Economic Review (June 1970), pp. 53-64.

Public Documents

United Nations Centre For Industrial Development: Report of Expert Group on Second-Hand Equipment for Developing Countries 7-22, December 1965. New York: 1966.

United Nations Centre For Industrial Development. "Role of Secondhand Industrial Equipment in Developing Countries," Industrial Research News, Vol. 1, No. 1 (January 1966), pp. 72-73.

Directories

Used Equipment Directory, Reinhold Publishing Company, Jersey City, New Jersey, June 1973.

APPENDIX A

ROLE OF SECOND-HAND INDUSTRIAL EQUIPMENT IN DEVELOPING COUNTRIES

The experience in developing countries gives examples of both successful and unsuccessful utilization of imported second-hand industrial equipment. The advantages and disadvantages of the utilization of this category of equipment in furthering the process of industrialization of developing countries are consequently the subject of considerable controversy. This is well reflected in governmental policies concerning the importation of such equipment, which range from no restrictions at all to a complete prohibition of imports.

The quantities of second-hand equipment generated in industrialized countries are considerable. They can be expected to increase in the foreseeable future. No country can base its economic development on second-hand equipment. Still, if such equipment can be used to economic advantage in developing countries, it could make significant contributions towards the accelerated industrialization in these countries. The determination of the suitability of second-hand equipment for the needs of countries undergoing industrialization was the primary purpose of the deliberations of the Meeting of Experts on this subject organized by the Technological Division of the Centre for Industrial Development of the United Nations in New York in December, 1965.

The panel of experts recognized that the problems of utilization of second-hand equipment in developing countries were different, depending on their stages of development, which vary widely. In their discussions, the experts thoroughly examined all the relevant aspects of the main problems under consideration. The topics analysed were:

Definition and classification of second-hand equipment
Sources and generation of second-hand equipment
Advantages and disadvantages of utilization of second-hand equipment
Maintenance problems
Cost considerations
Implications of the use of second-hand equipment for the industrialization of developing nations
Existing mechanism for the selection, inspection and testing, rebuilding, purchase and transfer of second-hand equipment
Past experience of developing countries with the utilization of second-hand equipment
Import restrictions
Financing problems
Complete second-hand plants

On the basis of their analysis the experts came to a number of conclusions and formulated recommendations for appropriate action.

The major conclusions reached were the following:

1. Considerable quantities of second-hand equipment with potentialities for use in developing countries are generated every year in advanced industrial countries. The supply of such equipment will almost certainly increase in the foreseeable future.

2. There is little knowledge in developing countries of the availability and sources of second-hand equipment; and quite often the entrepreneurs in developing countries are not aware of the areas in which second-hand equipment could be particularly useful.

3. The utilization of second-hand equipment is an economic and technological problem. The utilization of such equipment is usually only an alternative to the use of new equipment, and it is important that any decision to use second-hand equipment should be taken only after a careful scrutiny of costs and benefits.

4. Second-hand equipment which is uneconomical under a given set of conditions can still be used to economic advantage under a different set of conditions. There are several examples of this in both developed and developing countries.

5. The principal advantage of second-hand equipment over new is the lower capital cost; and the scope for using such equipment depends upon the extent to which second-hand equipment is cheaper than new equipment. In certain circumstances, immediate availability of second-hand equipment can be an additional advantage.

6. The well-known shortage of managers and technicians in developing countries makes it more difficult to tackle the problems involved in the selection and installation of second-hand equipment than in the case of new equipment.

7. In selecting second-hand equipment, particular care should be taken to ensure the availability of spare parts and of all the necessary information for the operation and maintenance of the equipment (e.g. manuals, spare parts lists, etc.)

8. Second-hand equipment for use in developing countries should be purchased only after thorough inspection and after satisfactory reconditioning, wherever necessary.

9. Major pieces of equipment, integrated units, and complete second-hand plants offer particular advantages under proper safeguards.

10. Equipment, whether new or second-hand, which is not capable of producing goods of acceptable quality at prices which are at least competitive on the domestic market, should not be acquired under any circumstances.

11. Second-hand equipment which is subject to rapid obsolescence should also not be considered for long-term investments.

12. On balance, it appears that the use of second-hand equipment for certain production programmes in developing countries can be advantageous, but great care is necessary in choosing the right technology and equipment in order to safeguard the interests of developing countries.

The recommendations made by the experts were for action to be taken by (a) developing countries, (b) industrially advanced countries, and (c) the United Nations system.

Actions by developing countries:

1. Development of expertise in location, transfer and utilization of second-hand equipment.

2. Elimination of discriminatory restrictions on the import of second-hand equipment.

3. Carrying out of periodic surveys to determine the possibilities of utilizing second-hand equipment in the implementation of industrialization programmes.

Actions by industrially advanced countries:

1. Collection and dissemination of information on availability of second-hand equipment.

2. A widening of the scope of aid programmes to include and increase the economic utilization of second-hand equipment.

3. Make governmental export credit insurance available for second-hand equipment.

4. Review existing tax arrangements to provide incentives for the transfer of complete second-hand plants to developing countries.

Actions by the United Nations system:

1. Circulation of Experts' Report to the appropriate legislative organs of the United Nations as well as to individual Governments and other interested organizations in developing and advanced countries, to obtain comments and views on same.

2. Preparation of additional studies on the suitability of second-hand equipment, by industry sectors and ty type of equipment.

3. Increase technical assistance to developing countries, at their request, in the selection and purchase of second-hand equipment from the advanced countries.

4. Consider the convening of an intergovernmental working party to undertake the following tasks:

   (a) The adoption of a standard classification of second-hand equipment so that there is uniformity in nomenclature.

   (b) The organization of services in connexion with the evaluation and inspection of second-hand equipment, and

   (c) The establishment of a clearing house to facilitate the transfer of second-hand equipment.[33]

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[33]United Nations Centre For Industrial Development. "Role of Second-hand Industrial Equipment in Developing Countries," Industrial Research News, Vol. 1, No. 1 (January 1966), pp. 72-73.

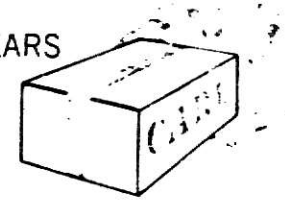
APPENDIX B

ILLEGIBLE DOCUMENT

THE FOLLOWING DOCUMENT(S) IS OF POOR LEGIBILITY IN THE ORIGINAL

THIS IS THE BEST COPY AVAILABLE

CARE.
660 FIRST AVENUE, NEW YORK, N.Y. 10016 (212) 686-3110
CABLE: PARCELUS N.Y.

FOR 27 YEARS  THE WORLD'S MOST NEEDED GIFT

BEN TOUSTER
HAROLD S. MINER
Dr. JAN PAPANEK
American Fund for Czechoslovak Refugees
WALLACE J. CAMPBELL
Cooperative League of the U.S.A.
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General Conference of Seventh Day Adventists
TONY T. DECHANT
National Farmers Union
Hon. ROBERT W. HANSEN
Fraternal Order of Eagles
MRS. KERMIT V. HAUGAN
General Federation of Women's Clubs
LEE W. MINTON
AFL-CIO
JOHN W. SCOTT
National Grange
RICHARD B. STARK, M.D.
Medico Advisory Board
CLARENCE L. STURM
Lions International
Dr. CARL W. TILLER
American Baptist Relief
ALEXANDRA L. TOLSTOY
Tolstoy Foundation, Inc.
EDWIN J. WESELY
International Rescue Committee
Brig. W. KENNETH WHEATLEY
The Salvation Army
FRANK L. GOFFIO

July 11, 1973

Mr. Randall W. Baxter
1030 Houston
Manhattan, Kansas 66502

Dear Mr. Baxter:

The use of second-hand equipment in developing nations must, of necessity, be a highly specialized operation. This is due both to the tremendous range of material and to the fact that such material is commonly in need of repair and rehabilitation before it can be used.

This in turn requires extensive repair facilities which CARE simply does not have. Accordingly, the only second-hand equipment used by CARE is U. S. Government excess property which is rehabilitated by the Government at CARE's expense before it is shipped overseas.

However, there is an agency which has specialized in this field for quite a few years. This is Tools For Freedom, Room 1409, 1727 K Street, N.W., Washington, D. C. 20006.

I have talked to Mr. Steven Reid, their Director, and he has suggested that I invite you to direct your request to them.

I'm sure you will find Mr. Reid can give you much better help with your inquiry than CARE.

Yours very truly,

Howard L. Powell
Director
Procurement Department

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CARE COOPERATIVE FOR AMERICAN RELIEF EVERYWHERE, INC.
is a non-profit organization incorporated under the laws of the District of Columbia to provide a service through which donors may supply goods and services abroad for purposes of relief, rehabilitation, and reconstruction. The organization is governed by a board of directors representing sponsoring member agencies and public members.

Litton USED EQUIPMENT DIRECTORY

Reinhold Publishing Company

70 Sip Avenue Jersey City, New Jersey 07306 201 653-4440

July 16, 1973

Mr. Randall Baxter
1030 Houston
Manhattan, KS 66502

Thank you, Mr. Baxter, for your letter of the 9th seeking information about used equipment and developing countries.

Unfortunately, we cannot be of help to you in supplying the detailed information you requested. Any circulation of USED EQUIPMENT DIRECTORY among developing countries whether thru subscription by individual firms, countries or the U.S. Consulates and Embassies is not segregated; and, inquiries resulting from such circulation would be treated similar to any others directed to us.

Some years ago, a study was made for the United Nations by other sources of the use and attitude of developing countries about used equipment. Whether copies still are available thru the U.N. we would not know.

Another source for information would be the Machinery Dealers National Association, Richard Studley, Executive Director, 1400 Twentieth Street, N.W., Washington, D.C. 20036.

We regret we cannot be more helpful.

J. Lazarus

J.Lazarus:mf

SELF HELP

a non-profit organization

Waverly, Iowa, U.S.A. Cable Address: "Self Help"

July 10, 1973

Mr. Randall W. Baxter
1030 Houston
Manhattan, Kansas 66502

Dear Mr. Baxter:

We send very little good used equipment overseas, the freight being so high it is most impossible to send this type of equipment to foreign countries. I'm enclosing literature on our Self Helper Tractor and equipment.

We are now selling the tractor and equipment in the United States, however we sell only to colleges, churches, parks, hospitals, & ect, which are all non-profit orginazations. We sell the tractor and mower for $850.00.

Sincerely,

Mr. Vern L. Schield

VLS/vlh
Encl.

VITA

2 August, 1973

Mr. Randall W. Baxter
1030 Houston
Manhattan, Tx. 66502

Dear Mr. Baxter,

In response to your July 8 letter concerning VITA's success with used equipment, I recommend that you contact the two agencies listed on the attached sheet. Mr. James of El Paso State has been in touch with VITA on several occassions regarding his own research on the applicability of used equipment in the developing nations, and the UN agency was set up last year to assist in the selection of equipment, both new and used.

VITA's own experiences have been sporadic and not well documented. We are agreed among ourselves that in most situations we should recommend to persons requesting sources of equipment that they consider rebuilt or used machinery. Our "follow-up" is very weak, though, and does not in any case I'm aware of since 1971 indicate whether the equipment was purchased. It is our policy not to involve ourselves in the purchasing negotiations and somehow we have lost track of cases involving equipment at that point. Also, we are not handling a significant number of this type case at the moment to merit any special review of the cases to get the kind of evaluation you might use.

One resource we use frequently is the Used Equipment Directory, a monthly listing for businesses wanting to sell or buy used machinery. They list both by subject and geographic area. The address is:

Used Equipment Directory
70 Sip Avenue
Jersey City, New Jersey 07306

They might be able to provide you with some indicators of purchases made from the developing areas.

I am sorry that VITA couldn't be of more assistance to you. We would certainly benefit from our input on handling and promoting used equipment purchases. I hope you will keep us in mind when your research in compiled.

Sincerely,

Linda Lee Walker
Resource Coordinator
VITA Inquiry Service

Prof. Dilmus James
Dept. of Economics and Finance
University of Texas at El Paso
El Paso, Tx. 79968

Appropriate Choice of Equipment
Un Industrial Development Organization
Lerchenfelder Strasse 1
A-1070
Vienna, Austria

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION
WASHINGTON D C 20433 U S A

July 23, 1973

Dear Mr. Baxter:

Mr. McNamara has asked me to thank you for your letter regarding financing of second-hand equipment.

In general, loans made by the Bank, or credits by the International Development Association, are based on financing of complete projects. Tenders for construction of these projects are normally advertised and placed after international competitive bidding. In such cases the supply of the equipment necessary to undertake the work is the responsibility of the successful contractor.

On the other hand, it may be that the borrower will purchase construction equipment directly to supplement his own inventory, but again, these purchases would be made after international competitive bidding. Because of the need for after-sales service and maintenance requirements, it is usual for contracts to be placed directly with manufacturers or their agents.

Thus, it is unlikely that Bank loans would be used directly by borrowers to finance the purchase of second-hand equipment.

With regard to your general question on the scope of Bank and IDA activities, two brochures are enclosed which may be informative.

Sincerely,

Diana C. Chitwood

Ms. Diana C. Chitwood
Information & Public Affairs

Mr. Randall W. Baxter
1030 Houston
Manhattan, Kansas 66502

UNITED NATIONS NATIONS UNIES

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

FELDERHAUS, RATHAUSPLATZ 2, A-1010 VIENNA, AUSTRIA
TELEPHONE: 43 50
CABLE ADDRESS: UNIDO, VIENNA P.O. BOX 707

REFERENCE: B-73 (pls.quote) May 11, 1973

Dear Mr. Baxter,

We acknowledge receipt of your letter of April 27, 1973, expressing your interest in the role of second-hand equipment in developing nations and are pleased herewith to inform you that the following United Nations Publication has been forwarded to you under separate cover:

"Report of Expert Group on Secondhand Equipment for Developing Countries", 7-22 December 1965.

As UNIDO has not pursued this matter any further, this is the most recent paper we can offer you on the topic.

Hoping herewith to have been of assistance to you, I am,

Yours sincerely,

S. Grigore
Industrial Inquiry Service
Industrial Information Section

Mr. Randall Baxter
Dept. of Regional and Community Planning
Kansas State University
Manhattan, Kansas 66502
USA

UNITED NATIONS NATIONS UNIES

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

FELDERHAUS, RATHAUSPLATZ 2, A-1010 VIENNA, AUSTRIA
TELEPHONE: 43 50
CABLE ADDRESS: UNIDO, VIENNA P.O. BOX 707

REFERENCE: PS /042

Dear Mr. Baxter,

Mr. Grigore passed on to me your letter of 6 July relating to second-hand equipment for developing countries.

To your question why there has not been further action by UNIDO as an outcome of the report of the expert group that discussed the subject back in December 1965, I am afraid the candid answer must be that when UNIDO was established the new organization inherited not only the programme of work of the Centre for Industrial Development, which had initiated this expert group meeting, but was also given a programme of new work. Orders of priority had to be established and second-hand equipment was not retained for further action. There does not seem to be any immediate plans for further action in this field.

Yours sincerely,

Roch T. de Mautort
Chief
Industrial Information Section

Mr. Randall W. Baxter
Department of Regional
and Community Planning
Kansas State University
Manhattan, Kansas 66502
USA

The Rockefeller Foundation
111 WEST 50th STREET, NEW YORK, N. Y. 10020

SOCIAL SCIENCES

CABLE: ROCKFOUND, NEW YORK
TELEPHONE: COLUMBUS 5 8100

May 25, 1973

Dear Mr. Baxter:

I wish to acknowledge receipt of your letter of May 11 to Dr. Todaro concerning the utilization of second-hand equipment in developing countries.

Dr. Todaro is presently out of the country, but I shall bring your letter to his attention when he returns to the office sometime in late June.

Sincerely yours,

Lee Hall
Program Secretary

Mr. Randall Baxter
Department of Regional and
Community Planning
Kansas State University
Manhattan, Kansas 66502

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Domestic and International Business
Washington, D.C. 20230

July 13, 1973

Mr. Randall W. Baxter
1030 Houston
Manhattan, Kansas 66502

Dear Mr. Baxter:

I am referring your letter of July 8, 1973 addressed to Dr. Allen concerning information on used equipment trade to Wallace H. Pederson, Trade Opportunities Section, Office of Export Development, in the Bureau of International Commerce for an appropriate reply.

Sincerely yours,

C. Wesley Carson
Deputy Director
International Economic Research & Analysis

THE ROLE OF SECONDHAND EQUIPMENT IN DEVELOPING NATIONS

by

RANDALL WAYNE BAXTER

B. A., Fort Hays Kansas State College, 1968

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF REGIONAL AND COMMUNITY PLANNING

Department of Regional and Community Planning

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1973

ABSTRACT

THE ROLE OF SECONDHAND EQUIPMENT IN DEVELOPING NATIONS

Developing nations face many obstacles in their efforts to achieve economic prosperity. Most of the countries, for example, are still basically agrarian societies. In addition the countries face constraints of limited domestic capital, very limited foreign exchange, unskilled labor forces and cultural factors of low incentive to achieve - to name but a few.

Most development economists and national planners agree that economic growth and prosperity are closely associated with mechanization, industrialization and urbanization. Assuming this to be true developing nations wanting to industrialize are faced with the task of choosing the appropriate level of technology that will spur industrialization.

As mentioned, however, developing nations face special problems that must be considered when choosing technology. There have been many alternatives proposed as being the one best path for developing nations to follow. Suggestions range from the proposal that only the most modern equipment be imported to suggestions that labor-intensive technology be developed and produced in the developing countries themselves.

An alternative source of technology that deserves to be considered by developing nations is the import of secondhand equipment from the developed countries. Many governments of developing countries, however, restrict the import of such equipment; some for reasons of economics, others perhaps because of a false sense of national pride.

Indeed there are strong arguments pro and con concerning the transfer of secondhand equipment and its subsequent utilization in developing countries.

For instance, the most frequently cited advantages of secondhand equipment are: lower operating costs, shorter delivery periods, suitability for small-scale operation, simpler maintenance, the greater ease of manufacturing parts locally, less skill needed for operation, and a more flexible replacement policy.

On the other hand, the disadvantages of secondhand machinery most often listed are: shorter economic life, increased risk of obtaining a machine in unsound technical condition, increased risk of breakdown, higher maintenance costs, lack of spare parts, lower ability to work to fine tolerances, lower product quality and increased spoilage, greater difficulty in locating the precise equipment needed and financing difficulties.

Planning in its function as an aid to decision making can supply an important input to considerations of technology choice. Perhaps the most important aspect of such an input is that of an objective approach and inquiry to problem solving.

It is important that developing countries and firms plan and budget for their capital equipment needs.

Secondhand equipment is one source of technology that deserves consideration. On balance it appears that secondhand equipment for certain production needs can be advantageous but great care is necessary in choosing the right technology and equipment in order to safeguard the interest of developing countries.