

TECHNOLOGY AND TABOO TRANSFER

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Introduction

The complexities of modern life have resulted in large part from increasing dependence upon technology and its applications. Technologies in themselves have evolved from man's desire to lighten his work burdens, to decrease the amount of time required for task completion or to increase the speed of travel.

The interaction of these technologies with their parent societies in attempting problem solution has in many cases given rise to even more complex and difficult problems. Most of the recent environmental crises and controversies stem from excessive technological application. Excessive use of pesticides to control harmful insects results in severe water pollution. Much of mechanized industry which provides such a high standard of living in developed countries creates water and air pollution of such severity as to endanger human life. The present energy crisis which is being felt in the United States can be directly related to over-dependence on a fuel-consumptive lifestyle.

As society advances or "develops," its familiarity with and usage of science and technology increase. Actually, the

correlation also works in reverse: increased familiarity with and usage of science and technology result in greater development. The benefits of a technological society have long been recognized: higher standard of living, longer life expectancy, better nutrition, fuller employment, greater literacy and educational opportunities, etc. It is not surprising that all societies have aspired to "develop" and that they have recognized the utility of science and technology in this endeavor. Japan itself has accomplished a miracle in only 20-25 years following this prescription.

Now, however, some of the negative aspects of technology are receiving much publicity. There is much disaffection in developed countries with technology and its ramifications. Chemically treated processed food is suspect. Pressure is mounting for smaller and fewer automobiles. Whole communities are protesting against aircraft noise and air pollution. In western societies where the general public has long been convinced by scientists and technicians that technology can save the world, more than a little confusion has resulted. At the very least, the confrontation between technology and society is causing many to reassess priorities-- both private and societal.

Technology and LDC's¹

During 1972 this reassessment of priorities was aired rather vociferously in the debate surrounding the Club of Rome

¹Lesser Developed Countries.

sponsored work presented in The Limits to Growth.² The MIT group which prepared this study has challenged the basic concept of economic growth--the sacred cow of economists and development experts and advisors. They assert that world society should seek and then maintain an equilibrium. This equilibrium would cover all aspects of human activity from industrial development to population control. Despite the criticisms of this approach, the debate initiated has started a reassessment of priorities which can only be beneficial. The World Bank, for example, has already begun investigations into sponsoring more people-oriented development projects. McNamara himself--in the most recent annual report³ and in his address before the annual meeting of the IBRD-IMF in Nairobi⁴ emphasized the need for new criteria in determining when real development has taken place. No longer will GNP/per capita measures be considered adequate indices of significant growth.

How does all this affect the relationship between technology and developing countries? We must back-track somewhat before answering that all-important question.

²Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, The Limits to Growth (New York: Universe Books, 1972).

³World Bank/IDA: Annual Report 1973 (Washington, D.C.: World Bank/IDA, 1973), pp. 14-23.

⁴Robert S. McNamara, Address to the Board of Governors (speech), presented in Nairobi, Kenya, on September 24, 1973, pp. 10-26.

We have already noted that one definition of "underdeveloped" might very well be "lacking technology." We have noted that LDC's recognize their need for technology, technicians and general exposure of their populations to the benefits of scientific applications. It should further be reiterated that:

- 1) technology is not indigenous to developing countries;
- 2) LDC's have no R&D capacity for developing indigenous technology;
- 3) the general human condition is badly in need of the improvements which much technology can effect (i.e., need is even greater than in developed countries);
- 4) by definition, developing countries lack capital for all purposes, especially the great amounts of capital required for importing technology;
- 5) poor education and lack of trained personnel result in a lack of technicians to operate and maintain technology once it is imported;
- 6) poor problem definition and lack of familiarity with capacity of existing technologies often result in importing the wrong technology for any given task;
- 7) lack of social scientists in LDC's and lack of concern or information on the part of foreign advisors lead to poor understanding of potential conflicts between imported technology and local mores, values and institutions.

Over and above these basic disadvantages facing LDC's in their attempt to bring technology to bear in solving development problems is a more general societal roadblock. In most LDC culture, no fascination with technology exists among the population to be benefited by technological applications. In many cases, these people are unwilling to accept change or

innovation for they have no prior experience to show that these things can be beneficial. Therefore, even technology that manages to be imported must be presented with proper timing and preparation in order to bear fruit. Again, we see a pressing need for social scientists within LDC's to work hand-in-hand with scientists and technicians in utilizing technology to the greatest advantage.

Returning to the question of what the relationship is between technology and LDC's we find that our answer is quite complex. To begin with, LDC's must have technology. They must find some way to pay for it. They must train people to utilize it. They must further attempt to develop active, participatory social science so that their own cultures will be understood well enough to facilitate technology transfer and avoid unnecessary rejection of technologies. They must also develop the capability to "shop" for technology on the world market. This requires an assessment capability of some sophistication. In addition, they are also faced with the new hesitation over secondary impacts of technology. Will importation of a technology eventually result in more severe problems than the ones initially of concern?

Technology Transfer and Coordination with
Social Science

To solve these problems and effect orderly transfer of technology requires some deliberate planning and organization on the part of LDC governments. Native social scientists--

such as sociologists, anthropologists, etc.--must be encouraged to study and evaluate their own cultures with an eye toward practical usage of their findings. These scholars and students would be called on to assist in determinations of problem definition, relevance of available technologies to problem solution, expected conflicts of such applications within the given society and the development of correlative programs requisite to make the changes involved smoother and more acceptable. This whole concept is reminiscent of what has been called Technology Assessment in the United States. Those involved in TA recognize the vital necessity of utilizing an interdisciplinary team for the evaluation involved. In the case of LDC's this mixing of scientists--social and otherwise--is mandatory. Together, social and hard scientists can chart the course their country should take in bringing in technology and with it, hopefully, development.

Technology and LDC Taboos

There are many examples of what occurs when the proper preparation for technology transfer has not taken place. In Iran one technical assistance program aimed at improving sanitation facilities in a village ran amok for lack of familiarity with local social organization. The project required removal of the village public bath and its replacement by several modern baths within smaller neighborhoods. After several months under the new system village life crumbled and

lost all direction. Upon investigation it was found that the public bath had not only been a public bath but also a town hall where the village leaders conferred while bathing and made important decisions concerning the function of village life. With the new system, this tradition was no longer possible--with negative results.

Medical programs in Muslim countries have faced difficulties when trying to use x-ray technology for diagnostic purposes. Because of the Muslim proscription against representation of human images, picture taking of any kind is taboo.

20 There is a long history of difficulty in introducing birth control programs in staunchly Catholic countries due to the religious taboo on preventing life. It is further indicated that birth control efforts in India have not been as effective as the massive efforts would warrant due to the narrowly defined role possibilities of Indian women. Since their entire identity and economic security are based on success as mothers (and that success must be doubly protected by numbers of children to accommodate high infant mortality), it is unreasonable to expect them to limit families with no alternative routes for achieving success or security.

Most of these cultural differences have been noted by students and planners of development. Unfortunately, recognition of culture conflict has not necessarily led to improved programs. We submit that excessive dependence on "western experts" who were more concerned with importing technology into LDC's than

understanding how and where these technologies could be more effectively used has resulted in little progress in this area.

Taboo Transfer

An additional phenomenon, that of taboo transfer, has not been adequately recognized for its unfortunate impact on development efforts. Essentially, every technology, as a product of its parent society, incorporates some taboos of that society. More often than not, these taboos are not operative in LDC's needing the technology. And yet, they are transferred with the technology for lack of adequate screening.

A good example of taboo transfer appeared in an article by Staunton Calvert in the International Development Review.⁵ While serving as a U.S. Internal Revenue Service advisor to the Indian government, Calvert was to help design an identification system for taxpayers. Knowing how hopelessly muddled the Social Security-IRS identification system had become in the U.S., Calvert jokingly suggested to his Indian counterpart that the best system should be based on fingerprinting. Calvert thought this impossible because in the U.S. the right not to be fingerprinted is almost as holy as the Constitution. There is, however, no operative taboo in India against fingerprinting. In fact, such a system appears quite attractive because fingerprinting for ID purposes was first developed in Bengal, and Indians are proud of this fact.

⁵ Staunton Calvert, "Fingerprints and Taboos," in International Development Review, Vol. XV, No. 2, 1973, pp. 19-20.

Other examples of taboo transfer can be found. Transferring birth control techniques from the West to Muslim societies was expected to confront traditional religious taboos similar to those held by Catholics. Muslim philosophy, however, has a different basis. Certain writings of Mohammed can be and have been interpreted to allow birth control.

Screening for Successful Technology Transfer

We can see that many problems face LDC's as they attempt to import relevant technology. The dilemmas, however, offer a valuable opportunity within developing countries for an interdisciplinary experiment from which the entire world society can benefit. Western societies have only begun to encourage social and hard scientists to work together in assessing technology. Western anthropologists have too long studied peripheral aspects of society.⁶ In fact, sociologists and anthropologists are often the last to be consulted for interdisciplinary efforts because of the decidedly impractical nature of their past contributions.

In developing countries, however, all citizens--no matter what their professional training--have an overriding interest in development. They should be eager, with the proper encouragement by government officials, to make contributions to a coordinated Technology Assessment effort.

⁶For full discussion of this problem see Glynn Cochrane, Development Anthropology (New York: Oxford University Press, 1971).

The concept in mind, which must be tested and refined in a pilot experiment, is for a government agency, department or even a ministry to be set up solely for Technology Assessment. This organization would be staffed by scientists of all disciplines. They would conduct research on aspects of their society ranging from definition of most pressing needs, availability of local resources, nutritional problems, etc., to evaluation of technologies that are proposed for importation. These technologies would range from computers to tractors, to educational curricula as such things were needed. In addition, social scientists would determine the cultural, religious and social profile of the society. Certain programs based on this analysis would aim at making gradual adaptive changes required for modernization.

In carrying out such basic research, the technology assessment scientists would develop just the expertise required to recognize when taboos offer potential conflict -- either taboos in the local society or taboos inherent in a technology under consideration. These people would then constitute a cadre of specialists best able to work with foreign technical advisors in designing the shape and form of continued development efforts. They would be in a position to inquire about variations of available technologies which might be more useful than the form initially presented.

Hopefully, utilization of technology assessment in this manner would have many spin-off benefits. Basic research

within the developing country would be encouraged. A fuller use of native scientists would be made. Decision-making for development would have a much sounder basis than is currently the case. More of a partnership relationship between government and foreign advisors would evolve. Better use of better technologies should result. Above all, technology would be freed from constraints and used more fully in effecting development.

Technology is a vital element in achieving development. It must be harnessed and harnessed effectively in order to meet its potential. Developing countries above all cannot afford to avoid technology and its promises. But they must also learn to control it well, for the potential for conflict between technology and traditional society is even greater than has been the case in the West. Technology assessment offers a possible approach for meeting these objectives. It should be given serious consideration by those involved in LDC development.

- 1) well written
- 2) focuses upon the societal context of a ~~technology~~ technology - both the parent society and the recipient ~~country~~ ^{society} to which is transferred
taboos ~~and~~ and customs of the ambient culture affect the results of the ~~technology~~ Technology so we must ~~be aware~~ consider the cultural context of both the parent and recipient society before we make any transfer of technology ⇒ the need for interdisciplinary evaluation teams



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