

## TECHNOLOGY AND SOCIAL DEMONSTRATION

I'd like to talk this afternoon about technology or human development technology, as we've described it. This is, in a sense, a discovery for us because we have not really thought of ourselves as people who have technology. Yet if you have followed the discussions in international forums across the globe, particularly as it is evolving in the United Nations Commission for Trade and Development (UNCTAD) between North and South, you'll find that technology is the new idiom of economic development. While the developing countries assert the importance of technology for economic development, the developed countries reply that if you want it, it's right here; all you have to do is ask for it--and of course pay for it. My experience in the field of technology has come over the past several years with a major corporation and having to explain its position to governments in developing countries. As I began to reflect on this experience, it turns out that what the ICA is doing in social demonstration has a great deal to do with technology.

Since we have a new idiom, we also want to use a new story to translate the idiom. For simplicity's sake let's use the story of the Three Pigs. As you recall, the Three Pigs were sent out by their mother to seek their fortune. When the first little pig arrived on the scene to build his house, he found that he had an in-kind bailer available from International Harvester. He had a set of instructions to go with that, and he had some knowledge as to how you operate it. What he had was something called tools, equipment, and processes. Much of this is patented knowledge, as was true of the bailer. Well, he built his house out of bails of straw, sitting them one on top of each other. Of course, you all know what happened to that little pig. The wolf came along and blew it down and he went scurrying off to the house of the second little pig. We'll call this the story of Pig One.

The story of Pig Two is a little different. He had available to him not just tools, equipment and processes, but also what you might call techniques and methods. He had a patented frame house plus instructions on how to built it. It was sort of advanced technology because he used the technique of nails which held the walls together much better than in the straw house. His methods also called for a frame to strengthen the walls and a gabled roof to keep out the rain. Pig Two felt that he was in pretty good shape until the wolf came along. As a result, despite what he thought was a safe position, Pig Two lost his house and went scurrying off to the house of the third little pig. Let's pause briefly here to note that tools, equipment and processes and the techniques and methods for applying them have constituted the traditional concept of technology. Ask any businessman, particularly in manufacturing. He will tell you that hardware, patented processes and know-how constitute technology. But that is where it stops.

Pig Three, however, thought otherwise. Or at least he was more adventuresome. He discovered from the fate of his first two brothers that unless he had an integrated set of systems out of which to operate

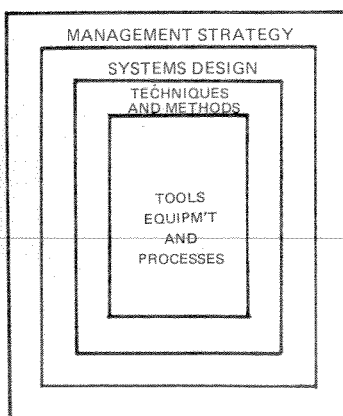
he would not survive. So he put together a systems design for a house made out of an interlocking brick. This included wolf-proofing: a poured concrete foundation and hermetically sealed windows and a roof. He also market-tested his design in the local wolf market. Using a puff-o-meter, he found out that not one wolf puff in a hundred would damage his house. And as a result of that sort of integrated approach he found out that, indeed, he did have a way of withstanding the wolf.

Very often, this is where the story of the Three Little Pigs ends. But look at the predicament of Pig Three. He had the finest fortress that you could build. And yet if he stayed in that fortress, if he stayed in that system that he so well designed, he was likely to starve. He had no mobility, no flexibility and no likelihood of becoming any more than a man trapped in a brick house--however well-constructed. He discovered that he needed something called management strategy. That is not altogether different from the business world in which we all operate.

If you recall, some versions of the Three Little Pigs record how Pig Three employed at least three different strategies. One was the "orchard strategy". When the wolf suggested they go pick apples together, Pig Three got up earlier than the wolf, made off to the orchard, picked apples and got back before the wolf did. The second strategy was what you might call the "butterchurn strategy". The wolf invited him to go to the fair and he used his earlier strategy of getting up early. He went to the fair and got the things he needed. As he was returning he noticed the wolf coming up the hill. So he got into his butterchurn and rolled past the wolf undetected.

Then there was the third strategy of the boiling pot. When it finally came to a confrontation with the wolf, Pig Three found that the brick house was really not so invincible. So when the wolf came down the chimney, he was met with a boiling pot of water. But the important part of that story is that Pig Three achieved the sort of flexibility and finally the freedom that he was seeking only through management strategy. I'd suggest to you that management strategy made Pig Three a man of history as opposed to a man encased in a brick house.

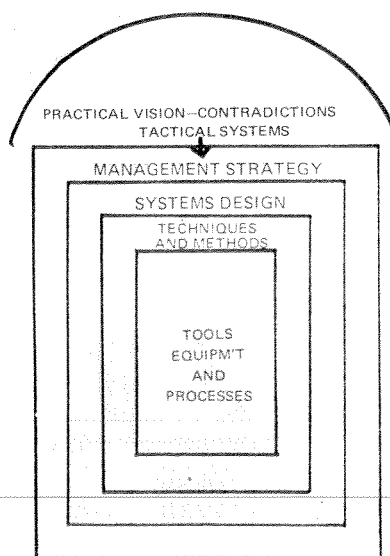
What's the relevance of this story to what's going on in the world? First of all, it is important to understand that when people normally talk about technology, they mean hardware, i.e., tools, equipment, motors, mass production, processes for chemical production, etc.



Yet you and I know very well, if you think about it for just a second, that this hardware has no value without techniques and methods for its application. The latter are the catalog of social, intellectual and workshop methods that ICA has developed over the years. Techniques and methods, if you will, make of hardware something that's productive and not just usable.

Nevertheless, just because something is productive does not mean that it has value. Productive in what sense? And for that reason it is extremely important that this productivity be oriented within a systems design. In the ICA consult manuals, this systems design is called the Actuating Programmes. They are a set of interlocking systems which represent the wisdom of the local community. The systems design, whether of a business organization or of a community consult results in programs which are effective and not just "good works" or efficient actions. I mean, it brings the know-how of techniques and methods into overall balance and creates a comprehensive battleplan. Further, the systems design ensures one corporate thrust, internal consistency among the programs and a certain integrity to the consult decision. We're all very clear how ineffective have been fragmented and uncomprehensive attempts at urban renewal. When you attack one problem at a time, such as housing, its solution is undermined by innumerable other problems, i.e., sanitation, education, family disintegration, joblessness, etc. We've learned that comprehensive planning, that is the use of an integrated systems design is absolutely crucial.

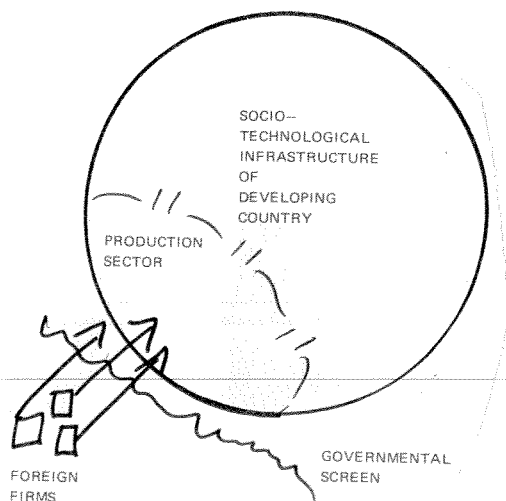
Finally, the question of management strategy is crucial because even if you utilize a set of actuating programs, how is that overall program design going to fit the practical vision and address the contradictions of that particular community? or of that particular regions of that country? The function of management strategy is to keep the systems design "on course"--and to move it!



Management strategy informs itself from an almost intuitive awareness of the practical vision, the contradictions and the tactical system behind the systems design. It determines how to tailor and to integrate the various systems into an impactful vehicle of community action on a daily basis. It also ensures that deadlines are met, e.g. that 600 children are in pre-school within three months after the close of the consult. Further, management strategy is the aspect of any project design that allows for trouble-shooting of particular problems. The same is true for business. Management strategy is the innovative part of management that refashions and adapts the systems design to effectively address the social situation.

The failure to grasp technology in this broad sociological context of comprehensive systems and strategy has given rise to a management gap. Part of this gap is due to the fact that technology is dominated by a capital intensive view of production. Part is due also to seeing management essentially as administrative efficiency and organization maintenance, while ignoring the crucial functions of innovation which requires risk-taking. As Peter Drucker puts it, the central entrepreneurial function "is to bring about the unique event, the innovation, that changes the probable course of future events". Let me shift for a moment and look at the sociological relationships in the technology of transfer today between developed and developing countries. The developing world is saying this. During the industrialization of the West the socio-technological infrastructure was fully integrated with the production sector. The educational system and government services evolved with the needs of industrialization. Business itself developed that in establishing research and development facilities.

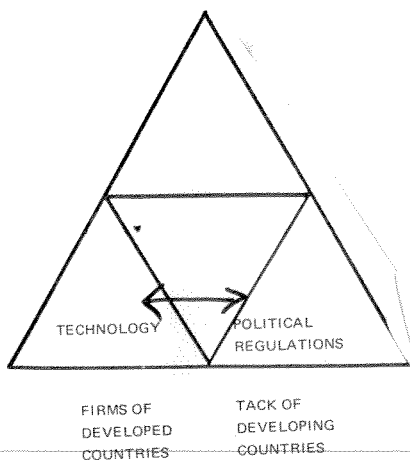
Developing countries point out, however, that their history did not evolve that way. Rather, firms came in from the outside, which had very limited goals. In developing either the resources of the host country or in developing manufacturing facilities, the foreign firms created a production sector that was separated from the socio-technological infrastructure of that country. This is sometimes referred to as an



enclave mentality, although it is not so much a mentality as simply the way that economics operated and the way that technology was transferred. As a result, many developing countries ended up with a highly developed production sector and a very underdeveloped socio-technological infrastructure.

The drive of many developing countries, therefore, is to re-integrate and rebalance their society of to develop this underdeveloped part of their society. Their approach is to build a screen between foreign firms and their own economy. In this way, they decide which technology to receive and whether it's adaptable to their goals for economic development. They look at every technology agreement with a foreign firm to decide whether it in fact contributes to the developmental values of their country. Japan has done this very successfully. Developing countries by and large today have set up agencies for this purpose. They also want to increase the bargaining power of local firms who receive technology and to assist them in analyzing the utility of the technology they get. They ask for intensified training of host country nationals by those who furnish the technology. They protect local industry through import substitution policies so that the country will develop manufacturing capabilities independent of foreign countries. They may require foreign firms to establish research and development facilities in the host country as opposed to centralizing them in developed countries. They want foreign technology to be adapted to their particular local needs and available resources. As the head of the technology agency in Peru recently put it tongue-in-cheek: we don't need a double-blade triple adjustable razor in order for us to continue with our economic development. A single-blade, unadjustable razor will do for Peru.

Nevertheless, the management gap persists, though from a somewhat different perspective. For one thing, developing countries are tyrannized by the technology of developed countries. If you recall the social process analysis using the triangles, technology is in the economic dynamic. Developing countries are employing the political process to



screen out technology that is not relevant to them. But the problem is, what is relevant to them? It's not the political process that finally

can make that kind of determination, but it's the cultural process. And so, if you talk to them, you'll find that they're still enamored by advanced capital-intensive technology in spite of the fact that they have 30-40% unemployment. There's a problem of status in seeking advanced technology in an effort to mimic economically advanced countries.

Moreover, the management gap in developing countries results from a highly hierarchical and bureaucratic planning process. There is no way to involve the grassroots in order to determine exactly what is the "appropriate technology" for their own particular development. Yet participation of local community is absolutely crucial to ensure both that the technology is adapted to local needs and that it is effectively implemented.

What then is the resolution of this management gap? At the governmental level in the United States, the approach is three-fold--and yet it is really one thing. All three have been sponsored by Secretary of State Kissinger. First, you may recall a speech of Kissinger's in Panama a couple of years ago. At that time, Kissinger promised the Latin Americans that the United States would make available its technology to them. Very recently, through the Foreign Assistance Act, a separate institute for "intermediate technology" is being established and funded with \$20,000,000. That's just the beginning, but it is a beginning.

Secondly, in his May speech in Nairobi before the United Nations Commission for Trade and Development (UNCTAD), Secretary Kissinger proposed the establishment of a Technology Corps for assisting in technology transfer. The Corps consists largely of middle management employees from larger enterprises who would take a year or two under foreign assignment by the U.S. government. Thirdly, Kissinger has also proposed an International Industrial Institute (III), for fielding teams of people to help in the management of major projects.

The important thing about those three programs is that they are all aimed in one direction, namely, the supply of technology or the "supply function" of technology. Not one of them has focused in on perhaps the real contradiction, namely, the demand for technology or the "demand function" of technology. Who determines which is the appropriate technology? It is very much like the contradiction that we discovered in the economic arena, that production is in effect determining what's available. And so we find that developed countries still believe, to a large extent, that they know what developing countries need. Nevertheless, it is also clear that technology cannot be transferred effectively unless it fits the values, needs and aspirations of those who receive it.

This is why I would say that the critical question in technology transfer today concerns the "demand function". Yet this question, as well as the answer, has been badly neglected. The consult methodology, I believe, addresses this contradiction. What it's out to do is to create a context within which local people determine their needs. They decide what they need out of their practical vision and their contradictions. Not only do they decide what they need, but they're

the ones, since they've made the decision, with a stake in its implementation. Having made that decision, and having decided to implement it, there exists a motivational factor that does not exist when technology is simply imposed from outside and from a foreign value framework. Finally, the consult methodology creates a corporate decision about the technology that is being transferred. This allows the technology to be integrated fully into the community.

For this reason, the consult methodology may be said to be creating the "demand function" for appropriate or intermediate technology in the world today. That is to say, the consults define what types of technology are needed and preferred, at what cost and in what amounts, for economic development at the grassroots. Because of the nature of consult methodology, the choice of technology is not simply an economic decision. It is made over against the entire array of community values, hopes and aspirations. Further, the contradiction in the "demand function" also is addressed by the repository of data that's presently being created. The repository addresses the question of demand because it broadens the technology choice available to the local community and allows the local community to voice its needs and preferences through a worldwide data-exchange system. In setting up the repository, however, care must be taken to make it reflect the "demand function" of local community and not over-emphasize the "supply function".

Before concluding, let me suggest two directions that ICA is being pushed through social demonstration. One is in the direction of metro and regional development. While the community consults may seem a far cry from this, in fact the acceleration in the State of Maharashtra suggests otherwise. If we are at all successful, we will soon be at the metro and the regional level. There are only so many rope factories or box factories that can be spawned before the demand is saturated. This simply says that it's extremely important to begin to understand the dynamics of metro and regional economic development. And I'd suggest that this understanding falls within the arena of management strategy. Now, it's not management of a particular project, but it is management in the sense of being able to coordinate and integrate economics on a broader scale than the ICA presently contemplates. And probably not just economics, but there are other sociological factors that will have to be considered. Of course, at the regional and areal levels decision-making will be largely that of the state and federal governments, whether in India or Africa or wherever. Beyond the areal level lies interstate action and the arena of common markets.

A second insight, which I suppose is very obvious now, concerns the new management concepts that are evolving out of experience with social demonstration. They could have a major impact on business. What does it mean, for instance, to be a project manager? Business, I think, has struggled with this for a long time. How does a man who is sent out to run a plant or to establish and develop an operation in a particular country, get the whole thing together? How do you begin to move rapidly with it? How do you deal with great cultural diversity? In this area we're doing a lot of experimentation. What we're doing, in effect, is developing the methodologies, the characteristics, the qualities, the context for what it means to be a project manager of a new kind. He is not simply an economic man, but a manager of methodologies which allow him to deal effectively for economic and social environment at the local level. That, I think, is where we're heading into the future.