

Why S & T Benefits Don't Percolate to All Sections of Society.

Let us first understand the difference between technology and traditional arts and crafts. Both are skills and are transferred from generation mainly from the use of technology. If the new technologies percolate to different strata, the economic benefit will also percolate.

Technology is a process that is defined and documented. It uses the scientific methodology of observation, measurement, record, comparison, and experimentation as means of improvement. It has specifications for the raw material used, the products, and the process conditions. The specifications give the range of conditions where the technology is feasible. The scientific methodology is now extended to economic and management spheres.

The traditional arts and crafts, on the other hand are not fully defined, nor properly documented and the products are often valued for their non-uniformity or diversity. The process conditions are varied to suit the raw material and the skill is mainly a period of apprenticeship.

These inherent characteristics enable a properly documented and tested technology to be replicated rapidly at a minimum cost other than the cost of the technology itself. Whereas, a traditional craft can be propagated only slowly by person to person transfer of the skills. Many of the problems in transfer of technology are non-adherence to specifications.

Technology Transfer Document:

This is a document that records all the essential detail of a process that is necessary for another person to replicate the process without reference to the previous operator. If the documentation is not perfect, some person-to-person communication becomes essential.

The document contains a description of the process and equipment, generally with drawings and diagrams, the specifications with ranges of applicability for the raw material, the finished product and the operating process conditions. The document also gives methods of evaluation of raw material, product and the process performance. Statistical variation of all these is an important part of the recorded data. The document also adds experience in the form of common failures their causes and remedies.

The information in a transfer document is necessarily given in the absolute form and as a proportion. Thus a solution will be described in terms of actual weight of solute and solvent and also the concentration. The latter information given as rate or proportion is important – not only for extrapolation to other situations but also for continuous monitoring and improvement through the time of performance indices.

The documentation in a modern technology is so good that anyone with the prerequisite knowledge/ skills can replicate the technology. This is why the documents become targets of espionage or stealing.

Threshold Level of skills:

In this paper, we are concerned with small-scale operation, less sophisticated equipment, also products. However the need for documentation is as great, because without a document the transfer of a skill is very slow and expensive. From this point of view, using a new device is also a transfer of technology and an instruction manual

is the technology transfer document. Without this it will be very difficult and expensive to teach every new user how to use the equipment.

It is obvious that a technology transfer document is written and produced with the user in mind. Obviously it has to be in the language and script of the user. What is not so obvious is that are assumed in the document but the user may not possess, and are alien to him/ her.

Our target group is the section of the society that is below poverty line or just above it. With 60% of the population being illiterate, the chances are that our target group is illiterate or neoliterate, can do simple additions and subtractions involving small, whole, positive numbers only, can understand pictures but not diagrams; cannot be handle fractions, decimals and do calculations involving direct proportions or rates. He/ She is also not familiar with measurement and their computations; cannot be given a large number of instructions at a time.

Designing a Technology Transfer system for such a target group will involve person-to-person communication training at least in the final stage. Printed material, as well as audio-visual material cannot be used except to supplement. Person to person communication is slow, expensive and often produces distortion or unwanted changes and need a lot of organisational effort.

At present a lot of our extension effort is based on printed material and or Radio and TV (audio-visual) media. Such extension effort does not benefit the target group, we have in mind. These who benefit