# Appendix D

Necessary Conditions for Successful Technology Transfer[2]

(1) The technology should be adapted to the local biophyical and socioeconomic environment of the users.

The technology to be transferred should have been used successfully elsewhere under similar conditions, at least on a pilot scale. Technology transfer should not be confused with experimentation or applied research. Otherwise, the technology is likely to be unsuccessful and the adopters might become unwilling to try other innovations.

(2) Technolog is transferred most effectively by direct people-to-people actions.

People who are to adapt and apply the technology need to learn it directly from people who have experience applying it. Successful technology transfers seldom are based solely on pamphlets, books, radio programs, or films; rather, personal interactions are essential. Mcdia presentations, however, can help motivate the personal interaction, supplement technology transfer efforts, and support subsequent applications of the technology.

(3) Technology transfer agents must be well-qualified and able to communicate effectivelv to people who are capable of receiving applying the technolo

Agency personnel who are themselves learning the technology for the first time as they try to transfer it are often a cause of failure. Thus, development assistance agencies need to employ substantial numbers of experienced technical personnel.

A more serious constraint is the lack of indigenous capacity to continue the technology transfer beyond the boundaries of development assistance projects. Thus, the task for development assistance agencies is to enable local organizations to build an effective system of transfer agents who use personal contact to reassure people about the appropriateness of an innovation and who provide the information needed for a fair trial.

(4) In addition to transfer agents and capable recipients. “facilitators” or “middlemen” arc needed.

These people must understand the technology transfer process, especially the market for the technology and its products and the political, social, and economic constraints and opportunities affecting the other actors. Because technology transfer is usually a long-term process, subject to mistakes and setbacks, it needs advocates to help the new technologies compete with established ways of using resources. Thus, facilitators must maintain their roles throughout the transfer process.

The permanent staff of development assistance agencies could act as facilitators. Too often, however, they are rotated to other parts of the agency before the technology transfer process is complete. An alternative is for the development assistance agencies to locate and work with facilitators among the indigenous tropical people.

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[2] Derived from a Technology Transfer Workshop held for the OTA assessment of Technologies to Sustain Tropical Forest Resources (Washington, DC: U.S. Congress, Office of Technology Assessment, OTA-F-214, March 1984).

(5) Users and transfer agents should be involved in choosing, planning and implementing the technology so it meets actual needs and is appropriate for the situation.

(6) All parties involved must feel that they are "winners" and must, in fact, be winners.

Each actor's interests should be identified at the start of the technology transfer process so they can be addressed. Early in the transfer process, the potential users must be shown the merits of an innovation. Many ideas that outsiders think will solve development problems may not seem so beneficial to the people who are directly affected by them.

Further, for technologies designed to produce items or services for sale, the intended adopters usually must have information on markets in order to anticipate benefits. This information can be obtained through demonstration projects, surveys, and market research. Where education and research technologies are being transferred, it is necessary to determine who will reward the educator or researcher for using the new technologies.

(7) Participants must be aware of subsequent steps in the transfer process and the relationship between their actions and those steps.

This requires early definition and communication of roles for each person involved. A well articulated strategy must be flexible, since it is planned at the time in the transfer process when least is known about how it will work. In particular, plans must be made to disseminate the technology beyond the pilot project.

(8) Demonstrations of the technology should take place under conditions similar to conditions that will exist subsequently.

Pilot projects should not be made unrealistically easy by being given unrealistic levels of funds or other inputs, being located where there are few socioeconomic or institutional constraints, or being provided with artificial markets.

(9) The initial commitment of resources should be sufficient to carry the technology transfer until it is self-supporting.

A transfer is self-supporting when the techniques have been adapted to local conditions and are being adopted spontaneously by organizations or individuals.