

# Technology Transfer

- *Give a man a fish and you feed him for a day.*
- *Give a man a fishing rod, and he feeds himself and his family for as long as the rod lasts.*
- *Help a man develop the knowledge and means to improve the fishing rod and to design and produce new ones, and he may feed himself and his society for years to come.*
  - *WIPO in the context of* **Technology Transfer and Development**

- Technology can result from the application of science to add value, simplification, diversification, and productivity to a management process or product. However, technology's value wanes unless it can be transferred to a user who can apply the technology to create a tangible benefit. (UNDERSTANDING THE TECHNOLOGY TRANSFER PROCESS by Penny Risdon)
- Technology transfer process is explained with six phases; technology innovation, technology confirmation, targeting technology consumers, technology marketing, technology application, and technology evaluation.

- The technology transfer process begins when a scientist starts communicating ideas of how science can be used to solve a problem or improve a situation in a research priority area.
- The technology confirmation phase is represented by the scientist first conducting research which provides data in support of the underlying theory about technology and then communicating the results to colleagues, peers, and administrators.
- For targeting technology consumers decisions need to be made concerning who needs and can potentially benefit from the technology. The people involved in the targeting technology phase would be scientists and marketing personnel. These specialists need to be aware of the factors such as cost, convenience, etc., which influence users' acceptance or factors which might serve to prevent the adoption of technology.

- The technology marketing phase of the process is concerned with disseminating the technology beyond the research centre. Key actions for science liaison involve the talents of scientists, business leaders and marketing specialists to educate potential consumers to the social, economic and environmental benefits of the new technology.
- The technology application phase concerns the understanding of users or consumers behaviour and establishing predictable steps to monitor the commercial application of technology. The talents and skills of social and financial consultants, and marketing personnel are required to identify consumers' behaviour and application patterns.
- The sixth phase documents the success or lack of success of the technology to be adopted. Key actions here are to establish assessment criteria for authenticating socio-economic and environmental benefits or harm.

# Transfer of Technology

## Why Technology Transfer is necessary for a LDC?

- To overcome backwardness
- To increase productivity
- To reduce poverty, inequality and unemployment
- To increase growth rate of economy
- To reduce the technological gap with developed countries

- To develop basic and key industries, and infrastructure
- To make developing economies of more competitive
- To overcome balance of payments problem (export-oriented and import-substitution industries)
- To solve socio-economic problems (e.g., Green Revolution & famine and malnutrition)
- To save time and money

# Channels of Technology Transfer

- **Transfer of Knowledge** (in the form of research journals, books, other materials, etc.)
- **Commercial Channels** (from private firms mostly from MNCs to its branches – intra-farm transfer, state owned enterprises, etc.). These transfers may be in the form of:

## i) turnkey projects

[A turnkey project is generally produced by a team of contractors and project leaders who have experience with the type of project that is being produced. These contractors will do everything needed for the project. A project idea is often handed over to them and they are expected to produce the project up to the standards set by the company they are contracted with. They will be able to do everything from the design of the project to the minor details. This project is then handed over to the project manager, who functions as a customer or client in this situation.

Turnkey means that the project manager will only have to turn a key to have the business or project up and running. Although not every project has a literal key, it is figurative. The project manager or client will only have to do very minimal work. They can expect a turnkey project to be returned to them and fully operable when they are ready.]



- ii) Specialised services (such as financial, managerial, engineering, constructions, etc.),
- iii) ‘project packed’ sales of technology (includes raw materials, machinery, equipments, spare parts, management, brand names, patent, trade marks, licensing, joint ventures, etc)
- iv) ‘process packed’ sales of technology (includes complete production processes or plants along with market survey, product-mix, drafts, designs, technical specification, know-how, supervision, services of experts for training local personnel, etc.),
- v) ‘technological package’ or direct sales of technology (includes outright sales of machinery and equipment or consultancy services – managerial, marketing, etc.),
- vi) ‘unpackaged’ sales of technology (includes machinery, equipment, raw materials, processed products, designing, licensing, training, etc.)

- **Government Channel** - in the form of technical assistance not related to the direct promotion of commercial goals e.g., commonwealth fellowship. Experts and advisors come to LDCs to advise and train people in various fields.
- **International Organisations** – UN, World Bank, ADB, European Community, etc.

# Problems in Technology Transfer

- Technological dependence and poor bargaining power
- High costs (project packages)
- Hamper development of local entrepreneurship
- Manipulated prices (both for machine and for products)
- Tax evasion

# Problems in Technology Transfer

- Exploitation of workers
- Social tensions
- Limited labour absorption
- Problem of balance of payments
- Outdated technology