AN EXAMPLE OF TECHNOLOGY TRANSFER IN ROAD SECTOR FROM THE POINT OF VIEW OF A DEVELOPING COUNTRY. THE CASE OF CUBA

F. C. DELGADO PINO
Centro de Transferencia de Tecnología de Obras para el Transporte, La Habana, Cuba
epot3@ceniai.inf.cu

ABSTRACT

Technology transfer plays a very important role in the international cooperation relations among two or more countries, since it may be regarded as one of their main objectives. Every technology transfer implies at least two parties involved: a donor and a receiver. In the present communication the work carried out by the Transport Works Technology Transfer Center, appertaining to the Design Enterprise for the Transport Works of the Ministry of Construction of Cuba is exposed, based on its experience for more than ten years. Likewise the general terms on which the transfer is made, its selection criteria, the policy to be followed concerning its requirements, the conditions required for its success, the subject to be transferred, its adaptability to the real conditions and procedures to be used, employing the new communication and information technologies, are taken into account, but from the point of view of a developing country.

PALABRAS CLAVES

TRANSFER CENTER / TECHNOLOGY TRANSFER / ROAD / DEVELOPING COUNTRY / COMMUNICATION AND INFORMATION TECHNOLOGY / CUBA

1. INTRODUCTION

The world is being totally transformed as a consequency of the communication and information technology (CIT). Internet, the wireless telephone and others CIT make possible that people communicate and obtain information in manners that never had been possibles before.

But if the world is changing in a quick and unexpected manner, also it is changing in a unequal way. The technology is disseminated in a dissimilar manner, and for that reason we attend to a new world :

- in 1998, the 29 OECD member countries spent 520 billions of dollars in research and development, amount higher than the combined economic product of the 88 world poorest countries;
- 35 out of the 49 countries having less than a telephone by 100 inhabitants are in SubSaharian Africa;
- the radio covers 75 % of the population of Africa and the TV the 40 %; Internet occupies 0,1 %;
- the electric energy generation was for first time developed in 1831, but it is not yet at disposal of a third of the world inhabitants;
- the OECD membrer countries have the 80 % of the Internet users in all the world.

That is, presently we attend to an unequal world, which is divided in three ones: A, consisting of 10 % of the world population with access to Internet; B, to which belongs 30

% of those ones that only can talk by telephone; and C, where is located 60 % that never has talked by telephone and neither could do it.

Many developing countries are making enormous improvements to create the abilities to innovate, adapt and regulate the technology in favour of the satisfaction of their needs. The tecnological progress also should be a process of knowledge creation and formation of the developing countries abilities.

The needs, priorities and limitations vary from one region to another and even from one country to another, which proves the importance of each country to formulate its own strategy.

The national ability to cope with development problems largely depends on the ability to produce, acquire, process and transfer knowledge.

2. GENERAL CONCEPTS OF THE TECHNOLOGY TRANSFER

The technology transfer is always a basic element in international cooperation relations among two or more countries under any develpment stage.

Every technology transfer implies that there are at least two parties involved: a donor and a receiver. Depending on the level in which the transfer occurs, the parties involved can be a govern, an organization, a group of people or individuals.

2.1. Generar Transfer Terms

A general technology transfer include:

- its selection criteria
- the transfer policy and its necessity
- the conditions required for its success
- the transfer and its adaptability

3. CUBA TRANSPORT WORKS TECHNOLOGY TRANSFER CENTER

By means of a reseach on the road sector carried out in Cuba in 2001 the transfer policy and its needs and the subjects to transfer could be established, as well as the procedures for such transfers were identified.

One of the ways that presently are used in Cuba to carry out the road technology transfer is the Transport Works Technology Transfer Center (TTC), appertaining to the Desing Enterprise for Transport Works of the Ministry of Construction.

This TTC is in operation from 1986.

3.1. TTC Vision

The TTC vision is:
"To be nationally and regionally the leader in transferring technologies and supplying information services to the transport works community in Cuba and Latina America ".

3.2. TTC Mision
The TTC is:
"To offer support through specialized information, training, technical assistance and technology transfer to national institutions and professionals relationed to the transport works sector".

3.3. Objectives
The main objectives are:
- diversify and deliver quality customer services
- develop ustomer oriented needs-driven technology
- promote effective utilisation of technology transfer center services
- enhance technology transfer and networking
- share experience and information with other TTCs
- draw experiene from other TTCs

3.4. Functions
The TTC main functions are:
- organize training and technical assistance programs
- supply information on new and existing technologies
- disseminate technical information
- develop and share information, training and knowledge
- facilitate the exchange of information and expertise
- function as part of a network with other centers
- be a specialized library on transport works documents
- publish electrónic newsletters
- promote and coordinate the World Interchange Network (WIN) in Cuba
- promote and coordinate the International Transport Research Documentation (ITRD) in Cuba

3.5. TTC library
The TTC library has a collection of technical documents consisting of:
- books: 10 750
- booklets and reprints: 41 000
- commercial firm catalogues: 3 400
- magazines: 700 titles
- standards: 500

In addition to this, an automated data base with 60 000 bibliografic registers exists and a Vitual Library - which presently already has a data base with 8 000 full text electronic documents, is being developed. This allows supply information services at worldwide level in electronic format by e-mail as much for requests, searches and retrieval as for the answers.

3.6. Electronic newsletters
The TTC publishes 7 different electronic newsletter in Spanish language:
- InfoGer (Information for Managers)
- InfoAbstract (Abstracts of Selected Documents)
- InfoSoft (News on new softwares)
- InfoIC Information on Competitive Intelligence)
- InfoTabCont (Contents of newly acquired documents)
- Información Señal (Awareness news)

- Boletín Vial (News on Road Sector)

3.7. Membership
The TTC is member of the following networks:
At internacional level:
- Ferrocement Information Network
- International Organization of Engineering Oceanic
- Iberoamerican Information Network on Corrosion
- Intercoast Network
- International Network of Natural Disaster Mitigation Engineering
- Iberoamerican Program on International Transport Research Documentation

At national level:
- Head of the National Commission of Scientific-Technical Information for all Cuban Engineering and Consulting Enterprises
- Member of the National Scientific-Technical Information for the Construction Sector
- Head of the National Road Information Network, with branches in each one of the 14 provinces of Cuba

3.8. Existing links with PIARC
There are very good links with PIARC, since the TTC Director is the Cuba representative in:
- C3 Technial Committee
- C20 Technical Committee
- World Interchange Network (WIN)

In addition to that, he also is member of the PIARC National Commission.

3.9. Staff
Presently the TTC staff is as follows:
- 1 Director
- 1 Information Specialist
- 1 Data Base Specialist
- 1 Asistant

3.10. Equipment
The TTC equipment consists of:
- 1 PC Pentium I, 150 MHz, RAM 64 Megabytes, Hard Disk 6 Gigabytes
- 1 PC Pentium II, 400 MHz, RAM 64 Megabytes, Hard Disk 6 Gigabytes
- 1 Modem/Fax, 56 Kbps
- 1 Direct telephone line access
- 1 Scanner
- 1 Photocopier

3.11. TTC area
The TTC occupies 110 m2.

4. CONCLUSIONS

- The technology transfer is vital for developing countries like Cuba because it makes possible to optimize the available resources and means.

- The technology to be transferred must be adaptable and applicable to local conditions.
- The technology transfer centers play a fundamental role in every transfer.

5. REFERENCIAS

Delgado Pino, F. C. (1988) An example of International Cooperation in Technical Information Transfer: IFIC and CIT. Journal of Ferrocement. 19, 1, pp 37-40

Delgado Pino, F. C. (1990) Algunas consideraciones sobre la transferencia de información técnica como cooperación internacional. Boletín Informativo. 5-6, enero-junio, pp 56-58

Delgado Pino, F. C. (1990) Technical Information Transfer as a Means of International Cooperation. FIN-NEWS. Vol 1, 4, pp 9-11

Delgado Pino, F. C. (1992) Information Services and National Development. FIN-NEWS. Vol 3, 1, pp 5

Dosa, M. (1985) Information Transfer as Technical Assistance for Development. Journal of the American Society for Information Science. 36, 3, pp 146-152

Williams, R. V. (1988) The Role of Intergovernmental Organizations in International Information Transfer and Policy. Special Libraries. 79, 1, pp 1-8