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**The Report of the Training Course
on
Technology Management and Technology Transfer Negotiation**

**Organized by
UNIDO-International Centre for High Technology and Science (ICS)
&
Economic Cooperation Organization**

**Tehran (Iran)
23-26 June 2001**

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ALL OF THE MISSING PAGES IN THIS DOCUMENT
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ECO SECRETARIAT, TEHRAN

The Report of the Training Course

on

Technology Management and Technology Transfer Negotiation

I. Background

1. The Economic Cooperation Organization (ECO) is an inter-governmental institution established in 1985 by Iran, Pakistan and Turkey for the purpose of promoting economic, technical and cultural cooperation among the Member states with Its headquarters in Tehran, Iran. ECO has currently the following membership: Afghanistan, Azerbaijan, Islamic Republic of Iran, Kazakhstan, Kyrgyz Republic, Pakistan, Tajikistan, Turkey, Turkmenistan and Turkey and covers a region of more than 7 million km², inhabited by over 370 million people.

2. The principal objectives of ECO include: (a) to foster economic development of Member states; (b) to remove trade barriers and promote intra-regional trade and; (c) to stimulate economic liberalization, privatization, and the gradual integration of the region into the world economy.

3. In pursuance of some these objectives, the Secretariat has established cooperative relationship with international organizations, including the United Nations Industrial Development Organization (UNIDO). Within the framework of the Relationship Agreement, signed in 1994, between the UNIDO and the ECO Secretariat, the International center for Science and high Technology (ICS) of UNIDO offered to organize a training course on Technology Management (TM) and Technology Transfer Negotiation (TTN) in Iran during the year 2001.

4. ICS is pursuing its mission under the aegis of UNIDO in order to support developing and transition-economy countries in their process of technological capacity building through the promotion of a sustainable industrial development.

5. The objectives of training course were (a) to diffuse the role of efficient management of the technology process to the target group of entrepreneurs, technologists, decision-makers from national institutions, (b) to provide the participants with an overview of major aspects related to technology management at enterprise level in order to help them to be more competitive in an open market, and (c) to raise awareness that continuous training courses in technology management and related topics can highly contribute to the development of countries' technological capabilities.

II. Proceedings

6. The Training Course on Technology Management and Technology Transfer Negotiations, organized by UNIDO, the United Nations Industrial Development Organization and ICS, the International Centre for Science and High Technology in collaboration with ECO, the Economic Cooperation Organization took place in Tehran, Islamic Republic of Iran, from 23 to 26 June 2001 and was hosted by the Institute of

Productivity and Human Resources Development of the Ministry of Industries and Mines of the Islamic Republic of Iran. It was attended by representatives from organizations providing advisory services to SMEs and industries from five ECO Member States, namely: Islamic Republic of Iran, the Kyrgyz Republic, Islamic Republic of Pakistan, Republic of Tajikistan and Republic of Turkey. The course was also attended by staff of the ECO Secretariat. A list of participants is attached as Annex I. The participants were settled in the Tehran Grand Hotel.

7. The course was officially opened by Vice Minister of Industries and Mines, H.E. Reza Ashraf Semnani In his opening statement (Annex II) the Vice Minister acknowledged the importance of technological development in economic growth through the increased productivity. While emphasizing the contribution of training course, he pointed out the needs of developing economies and economies in transition for technology management tools at national, sectoral and firm levels. H.E. vice Minister, indicating the complicated process of technology transfer across the world and the challenges faced by disadvantaged countries to access new technology, reiterated the importance of such training course and regional cooperation. In addition, he expressed the readiness of the Islamic Republic of Iran to strengthen such cooperation with technical and financial assistance of UNIDO-ICS and to host training courses.

8. H.E. Ambassador Abdolrahim Gavahi, Secretary General, ECO extended a word of welcome to the participants in the training course and conveyed best wishes for the success of the course (see Annex III). He confirmed the ECO Secretariat's view that the changing realities and the requirements of globalization as characterized by technological developments, networking of markets through interrelationship of trade, investment, and technology transfer present new challenges to developing countries including ECO Member Countries and it becomes imperative for ECO countries to upgrade their technologies and stay internationally competitive in the global market place. He also touched upon the necessity to follow-up of the outcome of this training course which would lead to pave the way for an increased cooperation in the field of industry and stated his hope that this course would form the basis for ECO's future cooperation with ICS and UNIDO.

9. Mr. J. M. de Caldas Lima, Senior Industrial Development Officer, UNIDO presented a statement on behalf of The Director General of UNIDO, Mr. Carlos Magarinos (see Annex IV). He highlighted that many developing countries were at risk of irreparable marginalization, and trapped into an increasing technology divide and investment gap, while the global economy has become knowledge-driven and technology driven. Pointing out that except small number of industrial countries and some developing countries which are able to provide world's technology innovation and to adopt it, he expressed that the remaining part was technologically disconnected, neither innovating nor adopting foreign technologies. He also emphasized that any strategy of investment and technology promotion for developing countries and countries with economies in transition should take into account key players not only at the enterprise level but also at the level of academia, R&D institutions, technology centers, development financing, and other institutions which form and support the national innovation system, extension services to enterprises and consistent international cooperation.

10. The course was organized into two main sessions each with a separate theme relating to technology management and technology transfer negotiations (Annex V).

11. The first session on technology management mainly dealt with the formulation of corporate strategy, technology assessment, the management of internal technology development, the new product development process, organizational structure of innovation and implementation problems in the process of development a new product.

12. The second session on technology transfer negotiations focused on global technology scene and technology transfer, modes of technology transfer, technology market and intellectual property, technology acquisition, technology transfer agreements, technology transfer transactions and negotiation techniques and strategies.

13. The training course ended by an official dinner hosted by H.E. Reza Ashraf Semnani, Vice minister, in the Club of the Ministry of Industries and Mines.

III. Profiles of Participants

14. The training course was attended by 23 participants, of which 10 from government ministries, 5 from policy research institutions, 4 from industrial organizations, one from para-state institution providing financial assistance to private firms in their technological development projects, and 3 from the ECO secretariat's staff. While 12 of participants stated that their organizations had research departments, organizations of 10 participants had technology strategy.

15. The main elements of technology strategy pursued in the participants' organizations consisted of mainly product improvement, new product development, acquiring new knowledge, and technology acquisition, quality and process improvement. Also they stated that the technology management tools mostly used within their organizations were technology forecasting, technology audit and strength and weakness analysis.

IV. Evaluation

16. At the end of course, participants were requested to provide the organizers with comments on the contents and presentation. The feedback was very positive. All participants rated the course from very good to excellent.

17. They expressed their satisfaction with the teaching tools, particularly presentation styles of lecturers, printed materials, transparencies and case studies used during the course. Regarding the timetable of the course, although some participants wished more time, at least one week, they usually agreed on timetable.

18. The participants were also requested the items in technology management and technology transfer negotiation that fit in their expectations. Responses are summarized below.

V. Conclusions

19. The training course has been arranged professionally in terms of study materials, contents and management of classes and very informative and to the point. The subjects discussed during the course, particularly the conceptual and strategic analysis of the missing link in creating an integrated system of the trinity of science, technology and production, which is the prevailing characteristic of the developing countries and

economies in transition, were very much useful and pointed out the necessary steps that the ECO countries should take.

20. Moreover, the course revealed the crucial role of technological improvements for developing countries and economies in transition to promote their competitiveness in a global economy.

21. The training course was the first activity held jointly by UNIDO-ICS and the ECO Secretariat since the official relationship with UNIDO set in 1994 and was the first training course in the field of industry held by the ECO Secretariat.

22. Being aware of the importance attached to the needs of region countries for increasing their skills in the area of technology management and technology transfer negotiations, the Secretariat needs to follow up the matter to develop more efficient ways in achieving sustainable development in the ECO region through creating awareness on methods to access the new technology.

23. In this respect, the repetition of such activities in the forms workshop and seminar in the region is deemed important. In order to increase interaction, communication, awareness, and also ownership of the subject matter, provision of Russian translation and submission of country papers pointing out the country specific needs should be considered in the following activities.

24. Finally, ECO and UNIDO-ICS have agreed to continue the joint activities in the field of technology management and related topics.

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In the name of God, the merciful, the Compassionate

Opening Statement

By

**H.E. Mr. Reza Ashraf Semnani,
Vice Minister, Ministry of Industry & Mines,
Islamic Republic of Iran**

**Ladies and Gentlemen;
Dear Guests and
Honorable Participants in the "Training Course in the Technology Management",**

On behalf of the Government of the Islamic Republic of Iran, I welcome you here. I hope that this training course shall have useful effects on the promotion of knowledge of participants, and your stay in Iran will be coupled with sweet memories.

First of all I would like to express my appreciation to UNIDO for holding this training course, likewise, thanks should also go to ECO for coordination of this course. We are happy that we are hosting this course, and hope that this course will be a springboard for further ECO cooperation with regional as well as international organizations, especially with UNIDO. We may have such cooperation in various fields such as for training courses or for technical expert services in the industrial, technological and management areas. We, in the Ministry of Industry & Mines, are ready to develop such cooperation and host numerous training courses.

Management and transfer of Technology, which is the subject matter of this training course, has been seriously raised in the recent decades. At the present world, the role of technology has found and will find wider dimensions. In the economic area, the major part of the states economic growth has been due to technological development, which has automatically enhanced productivity. At the national level, technology determines national strength either economic, political or military powers, National technology is the resultant of technology at the firm level, which the present course lays further focus on it, Technology Development at the firm level can't either be separate from the structural climate and national sub-structures, hence, developing countries, such as our country, need technology management at various national, sectoral and firm levels. We have to learn the relevant knowledge and play our role for the promotion of compatibility.

Trend of global technology development, limitations, national advantages, requirement and back wardnesses, are among the issues with which one should be familiarized so that the adoption of technology decisions may take shape at the firm level.

Such cases at the firm level are considered as realities and are looked at as information, while at the national level their promotion is considered as target of technology management.

Transfer or purchase of technology is one of the channels of technology for enhancing the competitive power at the global level, which inherently is a complicated process. Ability to deal with this process is, in itself, a technology which has to be learned through such training courses, and the required techniques have to be developed through collective cooperation.

Truth of the matter is that the main problem of the developing countries, prior to development of technology for a product, is the need for a fundamental evolution in the made of decision - making and planning, or in other words, managerial capability and the technology development strategy at the global level.

Competition for technology development is a real battle in which countries and firms have to play a role in it. It is for years that such a competition has started and is still going on. Strong firms in the developing countries are advancing forward in an inequitable battle with such an arm.

Under such conditions, to make good their back - wordness, should not lose the opportunities. It seems that the base for hopefulness of the developing countries to compensate the lost distances and to achieve a better standard of living for their people, is to pay due attention to the upgrading of their human resources in as much as technology is developed due to the thought and creativity of human beings and it is only the intelligent thought of human beings which can conquer technology and which may win in an inequitable technology competition.

I hope that the present course may be found useful for you, and such training courses may be effective in the promotion of technology management capability in your countries.

In conclusion, I once again thank ECO and UNIDO, in both of which the Islamic Republic of Iran has played an active role, and wishes for their strengthening in the coming years. I also hope that the distinguished delegates will enjoy their stay in IRAN.

Thank you.

Opening Remarks
by H.E. the Secretary General ECO, Dr. Abdolrahim Gavahi

**Distinguished participants,
Distinguished Representatives of UNIDO
Ladies and Gentlemen,**

It is a great pleasure for me to address the inaugural session of the training course in Technology Management and Technology Transfer Negotiations for the *experts of the ECO Member Countries*, being held here in Tehran. At the outset, I would like to avail myself of this opportunity to extend a warm welcome to the participants from the ECO Member States. I wish you all a very pleasant stay in Tehran.

I would like to express our sincere gratitude to the Ministry of Industries and Mines of the Islamic Republic of Iran for organizing and hosting this training course in Tehran with excellent arrangements and traditional hospitality.

I would like to express our special thanks and appreciation to H.E.Mr. Reza Ashraf Semnani, Vice Minister, Ministry of Industry & Mines and his colleagues at the Institute for Productivity and Human Resources Development.

I would also like to welcome the distinguished representatives of International Center for High Technology and Science and UNIDO, who came here to conduct this training course. Though our cooperation with UNIDO dates back to 1994 when we signed the MOU, this is the first joint activity as part of implementation of it. We believe that this occasion will constitute of building blocks of our future relationship with ICS and UNIDO.

Distinguished participants,

According to para (d), Article II of the Treaty of Izmir, the basic Charter of ECO, one of the main objectives of ECO is to provide for smooth integration of the economies of the Member States into world economy to ensure their fuller participation in the globalization process. We are holding the present training course to contribute to this objective.

ECO, being a region of developing countries mainly in transition from the centrally planned system of economies to free market economic system with a lot of natural resources and human resources, is seriously endeavoring to attain higher level of industrial development.

As you are all aware, Economic Cooperation Organization enlarged its membership in 1992 from three to ten with the joining of new members, namely Afghanistan, Azerbaijan and Central Asian Member Countries, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. From the industrial structure point of view, small and medium sized enterprises (SMEs) in the founding members, i.e. Iran, Pakistan and Turkey account at least 80 % of the economic activity. This is also likely true, though

there is no exact figure, for the new members who are in transition process towards market economy and struggling to structure their industries compatible with global market place.

The ECO Secretariat is well aware of the changing realities and the requirements of globalization as characterized by technological developments, networking of markets through interrelationship of trade, investment, and technology transfer. Such an environment presents challenge to developing countries including ECO Member Countries. It becomes imperative for our industries to upgrade their technologies and stay internationally competitive in the global market place. In fact, this was the very reason to organize such a training course under the technical and financial assistance of ICS and UNIDO. At this juncture, I would like to praise their work and kind assistance extended to our region.

I believe this course will contribute to the Member Countries' efforts to create and adopt technologies, which enhance competitiveness particularly of small and medium sized enterprises (SMEs).

I hope that the outcome of the training course and its follow-up by the ECO and ICS –UNIDO Secretariats as well as by the Member States will lead to pave the way for an increased cooperation in the field of industry. I also hope that this course will form the basis for our future cooperation with ICS and UNIDO. On behalf of ECO, I can express our determination and commitment to contribute to this cause.

With these feelings, I would like to wish you successful participation in this training program. And I would like to take this opportunity to thank once again the Ministry of Industries and Mines of the Islamic Republic of Iran, ICS and UNIDO for organizing and hosting this eventful training program.

Thank you.

**Statement delivered
by
Mr. J. de Caldas Lima on behalf of UNIDO**

**His Excellency
Vice Minister of Industry and Mines,
His Excellency Secretary General ECO,
Distinguished participants,
Ladies and Gentlemen,**

On behalf of the Director-General of UNIDO Mr. Carlos Magarinos I have great pleasure and honour in addressing to you on this occasion, the opening of the Course on Technology Management and Technology Transfer Negotiation, which UNIDIO, the United Nations Industrial Development Organization and ICS, the International Centre for Science and High Technology, are organizing in collaboration with ECO, the Economic Cooperation Organization.

I am expected to talk to you about UNIDO and its mission and about this course and its significance. Mr. Raymond Tavares will present in more detail the activities of ICS. But before going into that, allow me to have a word of appreciation and thanks to the ECO Secretariat for being our partners in the organization of this course and for their perseverance and commitment to make it happen. My appreciation and thanks also go to the Ministry of Industry and Mines of the Islamic Republic of Iran and its Institute for Productivity and Human Resource Development for hosting the event and providing all the logistic arrangements, so important for the smooth and successful implementation of the programme.

Ladies and Gentlemen,

Nowadays, the role and importance of investment and technology have reached dramatic proportions. Record highs of investment combined with an accelerating wave of technological innovation are rapidly changing the development paradigm. The global economy has become knowledge-driven and technology-driven; but while innovation and technological progress are the reasons for unprecedented prosperity and growth in industrialized countries, many developing countries are at risk of irreparable marginalization, trapped into an increasing technology divide and investment gap. Concerning foreign direct investment, the share of developing countries declined from 37 per cent in 1997 to 28 percent in 1998; Africa, for instance, accounted for only 1.2 percent of international investment, while South-East Asia attracted almost 20 percent (more precisely 18.9 percent).

As far as technology is concerned, a small number of industrialized countries provide practically all of the world's technology innovation; some developing countries are able to adopt these technologies in production and consumption; the remaining part is

technologically disconnected, neither innovating nor adopting foreign technologies. In this context, foreign direct investment as well as acquisition and diffusion of technology are, and more than ever, critical issues for developing countries. Additionally, there are two elements for consideration:

- a) One element is that: the acquisition and the management of technology by developing countries and economies in transition has to meet the requisites of a fast-moving and aggressive competitive environment and rely not only on the adoption of technologies produced elsewhere, but also on their own technological efforts and innovation systems;
- b) The other element is that: investment and technology should not be seen in isolation; they have to be seen as intrinsically linked and as parts of a process which aims at improving the competitiveness at the enterprise level and sustainable growth at the national level; that is UNIDIO is so committed to promote investment and stimulate technology transfer operations and technological innovation.

Because of the innovative context and the need of achieving competitive production, we believe that any strategy of investment and technology promotion for developing countries and countries with economies in transition should take into account the following perspectives:

- it has to involve and articulate various key players that should learn collectively, not only at the enterprise level but also at the level of academia, R&D institutions, technology centers, development financing, and other institutions which form and support the national innovation system;
- It has to include extension services to enterprises, because enterprises of developing countries and transition economies, and SMEs in particular, cannot alone manage the technology acquisition process and the innovation process, which they need to achieve and sustain their competitive position in the market place;
- It has to involve a consistent international cooperation whereby developing countries can learn from those countries, industrialized or more advanced developing countries that have upgraded their technological institutions and learned how to make them relevant to the private sector.

The above problems and issues are the backdrop of the present course on technology management and technology transfer negotiation and, in that connection, I would like to say the following: the importance of events like this course is not only because they expose you to outside experts who share with you their specialized knowledge; the importance of all of us being here is also because you can share among yourselves and with us your problems and perceptions and reflect on how to address the needs of your countries and the needs of your enterprises in the area of technology management, and help them become competitive and survive. We may also jointly

reflect on how organizations like ECO, UNIDO and ICS can help in that process. In other words: this event should be regarded as a part of a process that should be continued, strengthened and made sustainable.

We will be listening to you and wish you a productive course and fruitful deliberations.

Thank you very much for your attention.

Programme

Day 1 (23 June 2001)

Opening ceremony

09:00-10:00 - *Welcome address of H.E.Mr. Reza Ashraf Semnani,
Vice Minister, Ministry of Industry & Mines*

*Opening Statement of H.E.Dr.Abdolrahim Gavahi,
Secretary General ECO.*

Introduction by Mr. J. De Caldas Lima

09:45-10:00 - Coffee Break

Technology Management

10:00-10:30 - Presentation by the ICS-UNIDO TM and BA Programme
By R. Tavares.

10:30-11:15 - Introduction to the course and rationale of its articulation.
The visionary organizations (GA).

11:15-13:00 - The formulation of corporate strategy: strategic analysis
and competitive positioning (GA)

13:00--14:00 - Lunch Break

14:00-15:45 - From corporate strategy to technology strategy: how can
technology contribute to competitive advantage and socio-
economic development? (GA)

15:45-16:00 - Coffee Break

16:00-17:30 - Drawing tools to identify technology needs at firm level:
Technology assessment: Technology selection:
Technology portfolio analysis (GA)

Day 2 (24 June 2001)

- 09:00-10:45 - The Management of internal technology development: Make or Buy Approach (MF)
- 10:45-11:00 - Coffee Break
- 11:00-13:00 - The New Product Development Process (MF)
- 13:00-14:00 - Lunch Break
- 14:00-15:45 - Organizational Structure of Innovation and the critical behavioral roles of the staff (GA)
- 15:45-16:00 - Coffee Break
- 16:00-17:30 - Implementation problems in the process of development a new product (MF)

Day 3 (25 June 2001)

Technology Transfer Negotiations

- 09:00-10:45 - Global Technology Scene and Technology Transfer (JCL)
- 10:45-11:00 - Coffee Break
- 11:00-13:00 - Modes of technology transfer (JCL)
- 13:00-14:00 - Lunch Break
- 14:00-15:45 - Technology Market and Intellectual Property (GA)
- 15:45-16:00 - Coffee Break
- 16:00-17:30 - Technology Acquisition: Exercises (JCL and MF)

Day 4 (26 June 2001)

- 09:00-10:45 - Alliances as a Route for Technology Acquisition (MF)
- 10:45-11:00 - Coffee Break
- 11:00-13:00 - Structure of Technology Transfer Agreements (JCL)
- 13:00-14:00 - Lunch Break

- 14:00-15:45 - Payments in Technology Transfer Transactions (JCL)
- 15:45-16:00 - Coffee Break
- 16:00-17:00 - Negotiation Techniques and Strategies (MF) or National experiences
- 17:00-17:30 - Summary and Recommendations - Closing Ceremony.

GA: Mr. Giovanni Abramo

MF: Mr. Marco Ferretti

JCL: Mr. Jose Manuel De Caldas Lima