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Medlemmerne af Folketingets Europaudvalg
og deres stedfortrædere

Asiatisk Plads 2
DK-1448 København K
Tel. +45 33 92 00 00
Fax +45 32 54 05 33
E-mail: um@um.dk
Telex 31292 ETR DK
Telegr. adr. Etrangeres
Girokonto 300-1806
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teknologioverførsel.

P. B. Olsen

TRADE AND TRANSFER OF TECHNOLOGY

Communication from the European Communities

Work of the Working Group under the auspices of the General Council pursuant to paragraph 37 of the Doha Ministerial Declaration

INTRODUCTION

The European Communities (EC) welcomes the agreement reached by WTO Members in Doha on a Working Group under the auspices of the General Council to examine the relationship between trade and transfer of technology, and of any possible recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries. The EC intends to contribute to this work programme, which should address the issue of technology transfer in a comprehensive and ambitious manner, taking due account of the objective of sustainable development, and recalls the agreement to report to the 5th WTO Ministerial on progress in the examination.

The present contribution aims to contribute to a discussion on the approach of the Working Group (WG). The EC is of course open to look at additional issues that other Members may suggest related to transfer of technology, including in co-operation with international organisations, and intends to provide additional contributions on specific elements for consideration in the WG.

CONSIDERATIONS FOR A WORKING PROGRAMME

In its examination of the relationship between trade and transfer of technology, the EC suggests that the WG focuses on (1) a common understanding of the definition of technology transfer; (2) the identification of various channels for transfer of technology; and (3) the conditions under which these channels are most effective. The understanding reached on these issues would constitute the basis for possible recommendations on steps that might be taken, within the mandate of the WTO, to increase flows of technology to developing countries.

- **Considerations on a common understanding of technology transfer**

In order to move towards a common understanding of technology transfer, the Working Group should seek to agree on a clear, simple and workable definition of its two components (technology and transfer). In doing so, we should bear in mind the overall objective of helping developing countries in their efforts to integrate in the global economy and make use of the opportunities it offers through access to and use of technology. A narrow definition of technology transfer would risk excluding relevant factors and processes and hinder progress towards this overall objective. The EC therefore believes that a definition should seek to be inclusive, comprising processes and factors relating to *inter alia* the access and use of technology (flow, the diffusion or the making available in any other way of know-how, experience, skills and equipment, including by learning, utilising and replicating processes and factors).

The WG should take into account discussions in and results from relevant WTO committees and working groups, while avoiding any duplication of progress already made. It should also take account of relevant existing international agreements and understandings and generally of discussions in any relevant fora.

- **Technology transfer channels**

The objective in identifying channels for technology transfer is to provide a common basis for assessing the effectiveness of these channels with a view to considering recommendations for further improvement. In assessing the effectiveness of the channels for technology transfer, a distinction should be made between problems inherent to the channels themselves, problems caused by capacity constraints of both technology recipients and transferring entities, and absence of factors that could help constitute an enabling environment for technology transfer. In this context, it should be noted that most technology is held by private firms and that the decision to make such technology available will form part of their overall business strategy, thus including considerations that relate to the long term interest and profitability in making the technology available.

On this basis, and in a wholly preliminary manner, the EC wishes to highlight the following channels for consideration:

- (i) *Investment*

Foreign direct investment (FDI) often involves technology transfer via the transfer of production factors, the provision of services, or by a licensing agreement linked to the investment. Investment can imply the creation of a subsidiary or a joint venture with a local company in the host country. Technology may be transferred as part of installation of production or service-related equipment or in intangible form such as know-how and skills.

FDI as a means to transfer technology represents a long-term interest of the investor in the host country. The investor often has an interest in maintaining and up-dating technology and in ensuring its effective use, and is therefore likely to invest continuously in the technology and provide training for its application. Trans-national companies in fact often provide entire packages, including technology, training, management, marketing and other production factors that will help bring effective application of the technology in question. Different rationales behind investments, e.g. market searching, efficiency seeking or linked to natural resource licensing brings different levels and types of technology transfer.

As FDI is a major channel of technology transfer, an increase in FDI brings more technology, and conditions that stimulate FDI will thus tend to increase technology transfer. Key conditions for FDI are *inter alia* good governance and stable, transparent and predictable regulatory frameworks, including the protection of IPR. The multilateral framework envisaged in the WTO to secure transparent, stable and predictable conditions for long-term cross-border investment will be an important contribution to increased FDI flows. Commitments to simplify trade procedures in the context of the WTO agenda on trade facilitation can also contribute to the establishment of the requisite transparent and predictable trade and investment environment.

An issue for consideration is how to optimise the benefit of FDI to the host country economy and to sustainable development in that context. A key element is the capacity of developing countries to attract and absorb appropriate and high-quality technology. In this context, consideration should be given to measures and methods, including capacity building measures, to encourage the creation of growth opportunities in the host country, e.g. by backwards linkages and contracting with local suppliers, and the promotion of good Corporate Social Responsibility as a means to increase technology transfer by FDI. Another important element is the ability of host governments to avoid that anti-competitive practices hinder technology transfer or diminish its positive implications for the

host country. The multilateral framework envisaged in the WTO to enhance the contribution of competition policy to international trade and development is an important factor in this context. There would be interest therefore in examining how the encouragement of domestic competition policy capacity and international co-operation could address anti-competitive practices that inhibit technology transfer.

(ii) *Trade in services*

Trade in services can be an important channel for the transfer of technology. This can involve skill building and access to knowledge among local service providers and other economic operators being users of services. Trade in services, in particular when taking place through commercial establishment (that is, mode 3), can serve as a channel for technology transfer, e.g. by creating a subsidiary or a joint-venture in the host country to provide a service either in relation to own production or to service the local market, and/or linked to a licensing arrangement.

GATS Article IV recognises this potential. It aims at increasing developing countries' participation in world trade through the negotiation of specific commitments relating to the strengthening of their domestic services capacity and its efficiency and competitiveness, through access to technology on a commercial basis.

Consideration should be given to the impact of liberalisation in relevant service sectors and modes of supply and how to maximise the technology transfer benefit of service liberalisation.

(iii) *Trade in goods*

Like trade in services, trade in goods as a channel for technology transfer may be linked to investment, i.e. the transfer of equipment or machinery for a production process or as part of a licensing agreement.

Sales of such **equipment or machinery, embodying technology, play a crucial role in the diffusion of technology and may also be a stand-alone transfer, which is effectuated by use of the production factors in recipient country production or by reverse engineering in relation to an intermediary or capital goods.**

Consideration should be given to the impact of liberalisation in high technology and intermediary sectors as a means to increase technology diffusion. This, inter alia, could include examination of the role played by high tariffs, non-tariff barriers, and tariff escalation in promoting or inhibiting diffusion of technology.

(iv) *Licensing of technology subject to intellectual property rights*

Where the technology in question is subject to intellectual property rights, the transfer of this technology implies transfer of the legal rights to the technology in question by selling patent rights or licensing the right to make use of the right. Know-how and skills linked to the licensed technology will normally become available through the learning process of the licensee country, and might be facilitated where the licensing is linked to investment, e.g. in the form of a joint venture.

The decision to license in a given country is that of the right-holder and forms part of the right-holder's business strategy or, in the event of a non-profit organisation holding the right, its objectives. The existence and enforcement of an IPR system in the recipient country is often a prerequisite and the confidence of the right-owner in that system is a key element.

It should be noted that most existing technologies are not patented anymore and, in principle, can be exploited free of charge. In such circumstances, the core point is the access to technological

information and the identification of the most appropriate technologies to each country. Other channels, such as investment or trade are relevant.

(v) *Government procurement*

Government Procurement as a tool to purchase goods and services of high quality for public customers is an appropriate vehicle to import technology and know-how, which may be diffused to and benefit the private sector. The tendering process, as an open and competitive system to obtain not only the lowest price but also the highest quality, ensures competition and innovation among bidders.

Central, regional or local governments are important purchasers in terms of budget spent and solvability, with an important capacity to mobilise resources and attract new technology. This is often organised through a public contest where suppliers are called to compete in the development of new designs, crafts, models, technology or simply ideas. Companies that consider participating in a public tender exercise will be concerned with issues of confidentiality, legal certainty and data protection, and transparency and predictability in government procurement are some of the important elements in attracting private participation in public projects and in relation to technology transfer in that context. Improved transparency in government procurement will support the creation of an environment conducive to private participation and thus facilitate access to technology via government procurement.

(vi) *Development co-operation*

Development programmes in sectors that are technology dependent – e.g. customs, health, and education - may imply technology transfer. Transfer of technology and know-how as part of development assistance often builds on one of the channels outlined above (e.g. investment in local production, transfer or production equipment or machinery), but in principle always combined with technical assistance and capacity building. Development co-operation involving technology transfer may take various forms. Examples are provision of factors of production or products that involve technology, thus building on trade in goods, services or possibly a licensing agreement; training and exchange programmes; investment promotion and support, thus using the investment channel; research programmes; and targeted credit schemes. Development co-operation, including trade related and environment related technical assistance and capacity building, should therefore be considered an instrument or a facilitator for the purposes of the work of this Working Group. Attention should be given to ways of rendering assistance more effective in supporting appropriate technology transfer.

Multilateral Environment Agreements

Most Multilateral Environment Agreements (MEAs) contain technology transfer provisions as part of positive measures aimed at assisting developing countries meet their MEA obligations. Examples of MEAs that provide for technology transfer are the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, the Montreal Protocol on the Ozone Layer, the Convention on Biological Diversity, the Climate Change Convention and its related Kyoto Protocol. Chapter 34 of Agenda 21 "*Transfer of environmentally-sound technology, co-operation and capacity building*" is also relevant in this context. The WG should take account of MEAs as an instrument for technology transfer, including by considering the inter-action between MEAs and the channels indicated above.

- **Assessment of technology transfer channels with a view to recommendations**

The common understanding of technology transfer and the identification of channels for technology transfer should form the basis for an assessment of the effectiveness of the various channels and the potential for improving these. The assessment to be carried out could also lead to clearer

identification of other factors in host country or country of origin influencing technology transfer - notably conditions that contribute to the creation of a legal and regulatory environment conducive to technology transfer, or which in their absence constitute disincentives to technology transfer. The immediate objective may be possible recommendations by the Working Group to the General Council, as foreseen in the Doha Ministerial Declaration. Consideration should, however, also be given to complementary measures for which WTO members could invite consideration by governments or relevant international organisations. In particular, consideration should be given to capacity constraints in relation to technology transfer and the need for improved capacity building to help countries absorb and make use of technology.

ORGANISATION OF THE WORK OF THE WORKING GROUP

The EC suggests that, as a first step, the WG request that the WTO Secretariat prepare an outline of (i) work of relevant WTO committees and working groups and (ii) existing international agreements, conventions and understandings or other relevant documentation, included that prepared by other international organisations (e.g. UNCTAD), that could be of relevance to the work of the WG. In this context, it may also be useful to look at existing bilateral or autonomous instruments as well as private sector initiatives and the EC suggests that members be invited to provide information pertaining to their instruments and experiences relating to access to and use of appropriate technology.

In carrying out its work, the WG should invite the contribution of other international organisations in order to widen the scope of reflections and allow for consideration by other organisations on steps that could be taken within their respective mandates in support of WTO efforts.

The Working Group should co-operate with, without duplicating the work of, relevant WTO committees and working groups. In particular, it should take account of work in the Council for Trade in Services, Council for Trade in Goods, the TRIPS Council, the Working Group on the Relationship Between Trade and Investment, the Working Group on the Interaction between Trade and Competition Policy, the Committee on Trade and Development, including in relation to work on trade related technical assistance and capacity building, and the Committee on Trade and Environment.
