

WORLD TRADE ORGANIZATION

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Working Group on Trade and Transfer of Technology

REPORT OF THE WORKING GROUP ON TRADE AND TRANSFER OF TECHNOLOGY TO THE GENERAL COUNCIL

I. INTRODUCTION

1. The Working Group on Trade and Transfer of Technology (Working Group) was established at the Fourth Ministerial Conference in Doha in November 2001, with the following mandate:¹

"We agree to an examination, in a Working Group under the auspices of the General Council, of 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 General Council shall report to the Fifth Session of the Ministerial Conference on progress in the examination."

2. In the period from the Doha Ministerial Conference up to now, the Working Group has held seven formal sessions, on 16 April, 11 June, 10 October, 28 November in 2002 and 3 March, 13 and 26 May, and 10 July in 2003. The Minutes of these meetings are contained in documents WT/WGTTT/M/1 - WT/WGTTT/M/7. The Work Programme was adopted at the fourth session of the Working Group (Annex I). Fourteen informal meetings were also held during this period.

3. The United Nations Conference on Trade and Development (UNCTAD) and the United Nations Industrial Development Organization (UNIDO) requested and were granted observer status. The International Monetary Fund (IMF) and the World Bank were also granted observer status pursuant to WTO's cooperation agreement with the World Bank and the IMF concluded in November 1996.²

II. SUBMISSIONS BY MEMBERS AND PRESENTATIONS OF COUNTRY EXPERIENCES³

4. The delegations of Bangladesh, Cuba, Dominican Republic, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan, Sri Lanka, Tanzania, Uganda, and Zimbabwe made a joint submission⁴ regarding the objectives and possible terms of reference for the Working Group at the first session of the Working Group. It stressed that the terms of reference of the Working Group should reflect the emphasis in the Doha Ministerial Declaration on the relationship between trade and transfer of technology and possible steps that might be taken, within the mandate of the WTO, to increase flows of technology to developing countries.

¹ Paragraph 37 of WT/MIN/(01)/DEC/W/1.

² WT/L/195.

³ The details of the discussions that took place on these submissions, a list of which is contained in Annex II of this report, and presentations of country experiences can be seen in the Minutes of the meetings contained in WT/WGTTT/M/1 – WT/WGTTT/M/7.

⁴ WT/WGTTT/W/2.

5. The delegation of the European Communities introduced its submission⁵ at the second session of the Working Group. The European Communities stated that in its examination of the relationship between trade and transfer of technology, the Working Group should focus on (1) developing a common understanding of the definition of technology transfer; (2) an identification of the various channels of transfer of technology; and (3) the conditions under which those channels could be most effective. In this context, the paper noted that the Working Group would need to pay particular attention in its examination to the importance of foreign direct investment (FDI), trade in goods and services, licensing of technology subject to intellectual property rights, government procurement, development co-operation, multilateral environment agreements, and private and public partnerships in facilitating transfer of technology.

6. In addition, at the second and third sessions of the Working Group, national experts from Brazil, China and Canada shared their country experiences on technology transfer. The Brazilian expert highlighted some of the key issues that his Government had addressed in trying to ensure the flow of technology.⁶ The Chinese expert also highlighted some of the critical issues relating to technology transfer, including in the context of FDI flows and intellectual property rights (IPRs) regimes.⁷ In the presentation by the Canadian expert the function and operation of its Industrial Research Development Programme was explained and information provided on other Canadian technology development models and programmes.⁸

7. The delegations of Cuba, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan and Zimbabwe introduced a joint communication at the third session of the Working Group on "Provisions Relating to Transfer of Technology in WTO Agreements".⁹ The introduction of the paper, stated that as a first step in fulfilling the Working Group's mandate, it would be important to examine the extent to which the existing WTO provisions relating to technology transfer had been effectively implemented; and the difficulties experienced in utilising these provisions. Only thereafter could the Working Group come up with concrete proposals in the context of the Doha mandate.

8. The delegation of Canada introduced its submission on "Technology Transfer – the Canadian Experience"¹⁰ at the third session of the Working Group. The paper provided an overview of factors that the Canadian Government had identified as crucial to the development and growth of Canada's technology transfer. It looked at technology transfer within the context of Canada's innovation strategy and then reviewed the Canadian experience of technology transfer from a number of different perspectives, including Canada as a recipient and provider of technology. The paper noted the linkages between successful transfer of technology and open trade, particularly investment, regimes.

9. The delegation of the European Communities made a second submission entitled "Reflection Paper on Transfer of Technology to Developing and Least-Developed Countries"¹¹ at the fifth session of the Working Group. The paper, which was also submitted to the TRIPS Council, identified the different components that make up the concept of transfer of technology and the ways in which those components complement and interact with each other. It looked at the different types of technology that could be transferred and the ways in which those technologies could be acquired. The paper discussed the important role in the context of technology transfer of the private sector, effective IPR

⁵ WT/WGTTT/1.

⁶ WT/WGTTT/M/2.

⁷ WT/WGTTT/M/2.

⁸ WT/WGTTT/M/3.

⁹ WT/WGTTT/3/Rev.1.

¹⁰ WT/WGTTT/2.

¹¹ IP/C/W/398 - WT/WGTTT/W/5.

protection regimes and the absorptive capacity of host countries. It also considered incentives that could promote and encourage technology transfer to Least-Developed Countries (LDCs).

10. The delegations of Cuba, India, Indonesia, Jamaica, Kenya, Nigeria, Pakistan, Tanzania, Venezuela and Zimbabwe made a joint submission on "Possible recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries"¹² at the sixth session of the Working Group. The paper highlighted a number of areas where the proponents felt that recommendations could be made by the Working Group on concrete and practical steps that might be taken to facilitate transfer of technology to developing countries in the context of the mandate contained in paragraph 37 of the Doha Ministerial Declaration. The recommendations made in that submission included an examination of (1) the different provisions contained in various WTO Agreements relating to technology transfer; (2) the restrictive practices adopted by multi national enterprises in the area of transfer of technology; (3) the impact of tariff peaks and tariff escalation in developed countries on technology transfer; (4) the difficulties faced by developing countries in meeting the standards set by WTO agreements due to the lack of required technology; and (5) the need for and desirability of internationally agreed disciplines on transfer of technology.

11. The delegation of Switzerland also made a submission titled "Creating Incentives for the Transfer of Technology of Environmentally Sound Technologies"¹³ at the sixth session of the Working Group. The submission examined the Swiss experience with transfer of technology to developing countries based on hands-on experience with centres working in the field of transfer of Environmentally Sound Technologies (ESTs). The submission noted the beneficial effects of a stable, transparent and enforceable enabling environment on the transfer of EST.

III. PRESENTATIONS ON TRADE AND TRANSFER OF TECHNOLOGY BY OTHER INTERGOVERNMENTAL ORGANIZATIONS

12. It was agreed by Members that in the Working Group's examination of the relationship between trade and transfer of technology, it would be useful to invite other intergovernmental organisations to make presentations on the work they were doing in the area of technology transfer. At the first session of the Working Group, representatives from UNCTAD and the Institute for New Technologies of the United Nations University introduced the subject and explained what they were doing in the area of trade and transfer of technology.¹⁴ At the third session of the Working Group, UNIDO made a presentation,¹⁵ in which the work that UNIDO had been doing to facilitate transfer of technology and the services offered by UNIDO's International Technology Centres and Investment and Technology Promotion Offices was highlighted. The World Bank made a presentation of the work that it was doing in the field of trade and transfer of technology at the fourth session of the Working Group.¹⁶ At the fifth session of the Working Group, UNCTAD made available to Members three case studies on Transfer of Technology for Successful Integration into the Global Economy.¹⁷ The representative of UNCTAD highlighted that the issues raised in these case studies included how international competitiveness had led to new lines of productive activities and whether similar policy approaches could work in a more open and rules-based global trading environment.

¹² WT/WGTTT/W/6 and Add.1.

¹³ WT/WGTTT/W/7.

¹⁴ WT/WGTTT/M/1.

¹⁵ WT/WGTTT/M/3.

¹⁶ WT/WGTTT/M/4.

¹⁷ WT/WGTTT/M/5.

IV. INPUTS OF WORK IN OTHER WTO BODIES ON TRADE AND TRANSFER OF TECHNOLOGY AND BACKGROUND PAPERS PREPARED BY THE SECRETARIAT

A. INPUTS OF WORK IN OTHER WTO BODIES

13. At the third session of the Working Group, Members decided to request information from other WTO bodies regarding any work that they may have done or that they planned to carry out in relation to trade and transfer of technology. To date 38 responses have been received from other WTO bodies, nine of which indicated that some work had been done or would be done with respect to transfer of technology. These came from the Committee on the Working Group on the Relationship between Trade and Investment, Committee on Sanitary and Phytosanitary Measures, Committee on Trade and Environment, the TRIPS Council, the Working Group on the Interaction between Trade and Competition Policy, the Special Session of the Committee on Trade and Development, Trade Policy Review Body, Committee on Government Procurement and the Committee on Customs Valuation. These responses were made available to Members at the fourth and fifth sessions of the Working Group.

14. The Chairman of the Working Group on the Relationship between Trade and Investment indicated that the issue of FDI and the transfer of technology were discussed at its meeting on 16-18 September¹⁸ under the subject of technical assistance. The Secretariat had prepared a background note on "Key Issues Concerning Foreign Direct Investment and the Transfer and Diffusion of Technology to Developing Countries".¹⁹ The Chairman of the Committee on Sanitary and Phytosanitary Measures indicated that in discussions regarding special and differential treatment, some Members had identified the need for technical assistance to build the capacity of developing countries to make use of new technologies, particularly for the control of chemical residues in food products. The Chairman of the Committee on Trade and Environment indicated that the Committee had touched upon the issue of transfer of technology in the context of several items of its work programme: multilateral environmental agreements; market access; exports of domestically prohibited goods; and the relevant provisions of the TRIPS Agreement.

15. The Chairman of the TRIPS Council indicated that trade and transfer of technology had been the focus of the Council's work under its agenda item "Implementation of Article 66.2".²⁰ He also indicated that issues relating to trade and transfer of technology had been raised under other agenda items, including "Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health", "Technical Cooperation and Capacity-Building" and "Other Outstanding Implementation Issues (Tires 93 and 94 and Proposal by LDCs on their Transition Period)". The Chairman of the Working Group on the Interaction of Trade and Competition Policy indicated that at the Working Group's meeting of 1-2 July 2002, the view had been expressed that one of the effects of international cartels could be to restrict the transfer of technology, especially to developing countries. The Chairman of the Special Session of the Committee on Trade and Development indicated that during its consideration of special and differential treatment (S&D) provisions, the Special Session had received a number of submissions from Members containing proposals relating to the transfer of technology. Those proposals expressed the need to improve transfer of technology and a desire to operationalize various provisions relating to technology transfer in the areas of intellectual property, services, sanitary and phytosanitary measures and technical barriers to trade.

¹⁸ WT/WGTI/M/19.

¹⁹ WT/WGTI/W/136.

²⁰ Subsequently, in February 2003, the TRIPS Council adopted a decision on the "Implementation of Article 66.2 of the TRIPS Agreement" (IP/C/28).

16. The Chairman of the Trade Policy Review Body indicated that although no discussions had been held on trade and technology transfer, the matter was often touched on, especially with respect to a Member's investment regime and its provisions for the protection of intellectual property. The Chairman of the Committee on Government Procurement indicated that in the footnote to Article XVI, paragraph 1 of the Agreement on Government Procurement, licensing of technology was listed as one type of offset used in government procurement to encourage local development or improve the balance-of-payments accounts. Article XVI, paragraph 2 allowed a developing country to negotiate conditions for the use of offsets at the time of its accession to the Agreement. Although the issue of trade and technology transfer had not been specifically addressed by the Committee on Customs Valuation, the Chairman of the Committee in his response had drawn Members' attention to the "Decision on the Valuation of Carrier Media-Bearing Software for Data Processing Equipment" that could effect the transfer of technology through international trade.

B. INPUTS BY THE SECRETARIAT

17. The Secretariat assisted the work of the Working Group by producing background papers on trade and transfer of technology requested by the Working Group. The first background paper "Trade and Transfer of Technology"²¹ and a bibliography²² of reference materials on the subject of trade and technology transfer were introduced and discussed at the first and second sessions of the Working Group.²³ The paper examined how new technologies were created and how they diffused geographically. It also examined empirical evidence on the role of trade in technology diffusion internationally, focusing on how trade led to technology transfer and what factors favoured the absorption of technologies. The second background paper prepared by the Secretariat, "A Taxonomy of Country Experiences on International Technology Transfers"²⁴ was circulated to Members on 8 November and was discussed at the fifth session of the Working Group. The paper examined the justifications for government interventions in relation to technology transfer and provided an overview of the policy approach and policy instruments that governments have adopted to favour technology transfers. A survey was then carried out on a number of country case studies, in order to examine experiences in respect of a range of policies and institutional options available for facilitating technology transfer.

V. RELATIONSHIP BETWEEN TRADE AND TRANSFER OF TECHNOLOGY

18. A large number of issues have been touched upon in the various submissions, presentations, background papers and during the discussions held in the Working Group. The broad themes discussed include the following:

1. Definition of Transfer of Technology

19. During discussions on the approach that the Working Group should take on its work, some Members felt that the Working Group should seek to look for a broad but clear, simple and workable definition of technology transfer. Some Members believed that a narrow definition of technology transfer would risk excluding relevant factors and processes that hindered developing countries in their efforts to integrate in the global economy and from making use of the opportunities that the access to and the use of technology offers. They felt that a definition should be inclusive, and *inter alia* comprise the processes and factors relating to the access and use of technology. Some other Members believed that an understanding reached on the definition of technology transfer; the various channels for transfer of technology; and conditions under which these channels were most effective

²¹ WT/WGTTT/W/1.

²² WT/WGTTT/W/1/Add.1.

²³ WT/WGTTT/M/1 and WT/WGTTT/M/2.

²⁴ WT/WGTTT/W/3.

might constitute a basis for possible recommendations on steps that might be taken, within the mandate of the WTO, to increase flows of technology to developing countries. Some Members believed that the Working Group should not get caught up in the definitional aspect as literature relating to the definition of technology transfer was already available. Later, when this issue was again discussed, those Members were of the view that discussions in the Working Group had gone beyond the definitional level.

2. Transfer of Technology and the Enabling Environment

20. Some Members recognised that the domestic policy framework played a critical role in the domestic generation, transfer and diffusion of technology. They felt that appropriate domestic policies were important for ensuring that foreign investment and strategic partnerships actually supported technology transfer. Some Members believed that the enabling environment of the host country, including human capital, infrastructure, legal framework and macroeconomic conditions were key elements in determining technology transfer flows. Some Members emphasised the importance of a country's absorptive capacity in this regard, which depended on among other things, the level and nature of the domestic education system in attracting technology from abroad. This issue was also touched upon in the presentation by the World Bank in which it was stated that transfer of technology would result in economic gains only if the recipient country was willing and able to absorb the transferred technology. If the transferred technology was too advanced, or did not fit with the production structure, or the capacities or skills of the workers in the recipient country, it would have little impact on the productivity in that country. Members also considered the issue of building, retaining, and attracting back, human resources in the context of building national technological capacity. Some Members felt that an appropriate human resource policy could contribute positively to technology development and technology transfer. However, some other Members said that although they had taken some of the steps suggested for attracting more foreign technology and supporting their domestic demand for foreign technology, the practical experiences had not been positive. Those Members believed that it was therefore critical to consider the steps that advanced countries were taking, and should take, to facilitate the transfer of technology to developing countries.

3. Transfer of Technology and the Role of Home and Host Countries

21. Members considered the role of both home and host countries as being important factors in facilitating the transfer of technology. Some Members believed that the role that policies could play in promoting greater flows of technology transfer could be established by considering both international technology transfer and diffusion of technology within a country, once it had been transferred. Some other Members emphasised the importance of examining the reasons why developing countries faced structural problems in acquiring technology from abroad and considering ways by which the international community could change that situation. Those Members saw the need for further analysis of the types of technologies that might have been transferred in the past from developed countries to developing countries and the policies that may have facilitated such a transfer. At the same time, they felt that developing countries often only received obsolete technologies, with the sharing of the more advanced technologies being limited to developed countries. They also believed that it was important to consider more closely the restrictive business practices of multinational corporations and technology owners in order to see how those could be addressed within the mandate of the WTO. However, some other Members were of the view that there was no evidence to suggest that multinationals were more likely to engage in predatory practices and anti-competitive behaviour than comparable domestic companies. At the same time, they deemed the policies of developing countries as being the major element that could contribute to the successful transfer of technology.

4. Transfer of Technology and Intellectual Property Rights

22. During discussions on the relationship between IPRs and transfer of technology some Members questioned the linkage between IPR regimes and technology transfer stating that one could not be a precondition for ensuring the other. A number of those Members felt that the effect of IPRs on the transfer of technology was dependent on a country's level of economic development and technological advancement. They stated that it was only after a developing country had acquired sufficient national scientific and technological capacity that the protection of intellectual property became an important element in the transfer of technology. However, some other Members believed that a good IPR regime would facilitate the transfer of technology, especially technology otherwise viewed as being sensitive. According to those Members an appropriate IPR regime could play a crucial role in technology transfer as an inducement to direct investment; as a stimulus to innovation; and as a source of inexpensive technological know how. During discussions, some Members raised the issue of the patenting of technologies developed out of public sector funding, and questioned whether those patents could be considered as entirely owned by the private sector, or whether the Governments which had provided funding for their development had any control over the transfer of the technology covered by such patents.

5. Transfer of Technology and Foreign Direct Investment (FDI)

23. During discussions on the possible linkage between FDI and transfer of technology some Members observed that technology transfer was often most successful when accomplished by means of FDI. Those Members believed that the pre-establishment assessment and long-term commitment of foreign direct investors increased the likelihood that transferred technology would be adapted to local needs and be made suitable for the local production environment. They felt that that reinforced the case of FDI as a critical mechanism for technology transfer. However, some other Members felt that although FDI could result in the transfer of technology, its importance in that regard had been overstated. Those Members were sceptical about FDI providing a solution to the problem of technology transfer in much of the developing world, especially since FDI in many cases had only resulted in the transfer of low levels of technology.

6. Transfer of Technology and WTO Agreements

24. The Working Group engaged in preliminary discussions on some of the existing WTO Agreements that contain technology related clauses which might have an impact, whether positive or negative, on facilitating flows of technology to developing countries. Some Members believed that it was important to examine the extent to which the existing WTO provisions relating to transfer of technology had been effectively implemented and the difficulties that developing countries had experienced in utilising those provisions. They believed that most WTO provisions related to technology transfer were of a "best endeavour" nature, rather than binding obligations and believed that they should be made operational so that they actually facilitated transfer of technology to developing countries. Some other Members felt that the WTO provisions were underpinned by several priorities such as integrating countries into world trade, protecting IPRs, increasing the flow of investment and promoting sustainable development. They noted that some of those provisions identified technical assistance, training, provision of information and other forms of developmental cooperation as the principle means of promoting transfer of technology. Those Members, were also reluctant to introduce any element of negotiation into the Working Group and felt that the Working Group was not the correct forum to review the implementation of WTO agreements.

7. Transfer of Technology and Technical Assistance

25. Members acknowledged that technological capacity-building in developing countries could play an important role in the transfer of technology. Some Members believed that as production

became increasingly knowledge and technology-intensive, issues of technology transfer and technological capacity building in developing countries would become even more important for achieving sustained growth and development. They felt that enhancing the effectiveness of the relevant WTO instruments for transfer of technology and capacity-building in developing countries would be important. At the same time, they were of the view that the trade-related capacity building, for which the WTO had expertise, was not geared to support the initiatives that would help developing countries attract foreign technology.

VI. THEMES FOR POSSIBLE FUTURE WORK

26. The Working Group on Trade and Transfer of Technology has proceeded with the examination referred to in the mandate set out in paragraph 37 of the Doha Ministerial Declaration. Discussions have taken place on a number of issues, including in the context of submissions and presentations made by Members and other intergovernmental organisations. Although there is no consensus that recommendations of the kind mandated in paragraph 37 of the Doha Ministerial Declaration could be made at this stage, some Members identified particular themes that they wanted the Working Group to discuss further in the context of continuing its examination of the relationship between trade and transfer of technology,²⁵ and of possible recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries.²⁶ At this stage only brief discussions have been held on the themes highlighted in the submissions and recommendations made for future work, which are detailed in Section II of this report.

²⁵ WT/WGTTT/1; WT/WGTTT/3/Rev.1; IP/C/W/398 – WT/WGTTT/W/5.

²⁶ WT/WGTTT/W/6.

ANNEX I

Working Group on Trade and Transfer of Technology Work Programme 2003

- A. ANALYSIS OF THE RELATIONSHIP BETWEEN TRADE AND TRANSFER OF TECHNOLOGY
- B. WORK BY OTHER INTERNATIONAL INTERGOVERNMENTAL ORGANIZATIONS AND ACADEMIA
- C. SHARING OF COUNTRY EXPERIENCES
- D. IDENTIFICATION OF PROVISIONS RELATED TO TRANSFER OF TECHNOLOGY IN THE WTO AGREEMENTS
- E. ANY POSSIBLE RECOMMENDATIONS ON STEPS THAT MIGHT BE TAKEN WITHIN THE MANDATE OF THE WTO TO INCREASE FLOWS OF TECHNOLOGY TO DEVELOPING COUNTRIES
- F. OTHER TOPICS RAISED BY MEMBERS

ANNEX IIWorking Group on Trade and Transfer of Technology documentsWT/WGTTT**Documents:**

WT/WGTTT/W/1	Trade and Transfer of Technology - Background Note by the Secretariat
WT/WGTTT/W/1/Add.1	Trade and Transfer of Technology – Bibliography - Addendum
WT/WGTTT/W/1/Corr.1	Corrigendum
WT/WGTTT/W/2	The Working Group on Trade and Transfer of Technology – Communication from Bangladesh, Cuba, Dominican Republic, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan, Sri Lanka, Tanzania, Uganda, and Zimbabwe
WT/WGTTT/W/3	A Taxonomy on Country Experiences on International Technology Transfers – Note by the Secretariat
WT/WGTTT/W/4	Draft – Report (2002) of the Working Group on Trade and Transfer of Technology
IP/C/W/398 WT/WGTTT/W/5	Reflection Paper on Transfer of Technology to Developing and Least-Developed Countries – Communication from the European Communities and their member States
WT/WGTTT/W/6	The Working Group on Trade and Transfer of Technology – Communication from Cuba, India, Indonesia, Kenya, Pakistan, Tanzania and Zimbabwe
WT/WGTTT/W/6/Add.1	Addendum - The Working Group on Trade and Transfer of Technology – Communication from Cuba, India, Indonesia, Jamaica, Kenya, Nigeria, Pakistan, Tanzania, Venezuela and Zimbabwe
WT/WGTTT/W/7	Creating Incentives for the Transfer of Environmentally Sound Technologies (EST) – The Experience of the Swiss Development Cooperation

WT/WGTTT/1	Trade and Transfer of Technology – Communication from the European Communities
WT/WGTTT/2	Technology Transfer – The Canadian experience – Communication from the Government of Canada
WT/WGTTT/3	Provisions relating to Transfer of Technology in WTO Agreements – Communication from Cuba, Egypt, Honduras, India, Indonesia, Kenya and Zimbabwe
WT/WGTTT/3/Rev.1	Provisions relating to Transfer of Technology in WTO Agreements – Communication from Cuba, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan and Zimbabwe - Revision
WT/WGTTT/3/Rev.1/Add.1	Addendum
WT/WGTTT/4	Report (2002) of the Working Group on Trade and Transfer of Technology
