

Navigating the WTO's Working Group on Trade and Transfer of Technology: A Critical Analysis from the Perspective of Developing Countries

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NAVIGATING THE WTO'S WORKING GROUP ON TRADE AND TRANSFER OF TECHNOLOGY: A CRITICAL ANALYSIS FROM THE PERSPECTIVE OF DEVELOPING COUNTRIES

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ABSTRACT

This paper critically analyzes the operations and effectiveness of the World Trade Organization's (WTO) Working Group on Trade and Transfer of Technology (WGTTT). Despite the establishment of the WGTTT in 2001 with a mandate to enhance technology flows to developing countries, the Group has struggled to produce meaningful outcomes due to divergent priorities between developed and developing countries. This paper finds that the WGTTT remains an exploratory discussion forum rather than a negotiation platform with the capacity to generate new initiatives that address the technology transfer needs of developing countries. Key reforms are proposed, including transitioning to a negotiation-oriented approach, improving the balance of member priorities, and focusing on actionable themes to enhance the WGTTT's effectiveness in fostering technology transfer to developing countries.

Ce document analyse de manière critique le fonctionnement et l'efficacité du Groupe de travail du commerce et du transfert de technologie de l'Organisation mondiale du commerce (OMC). Bien qu'il ait été créé en 2001 avec pour mandat d'améliorer les flux de technologie vers les pays en développement, le groupe a peiné à produire des résultats significatifs en raison des priorités divergentes entre les pays développés et les pays en développement. Ce document constate que le Groupe de travail reste un forum de discussion exploratoire plutôt qu'une plateforme de négociation ayant la capacité de générer de nouvelles initiatives répondant aux besoins des pays en développement en matière de transfert de technologie. Des réformes clés sont proposées, notamment la transition vers une approche axée sur la négociation, l'amélioration de l'équilibre entre les priorités des membres et la concentration sur des thèmes concrets afin d'améliorer l'efficacité du Groupe de travail sur le transfert de technologie vers les pays en développement.

Este documento analiza críticamente el funcionamiento y la eficacia del Grupo de Trabajo sobre Comercio y Transferencia de Tecnología (GTTT) de la Organización Mundial del Comercio (OMC). A pesar de su creación en 2001 con el mandato de mejorar la transferencia de tecnología hacia los países en desarrollo, el Grupo ha tenido dificultades para producir resultados debido a las prioridades divergentes entre los países desarrollados y los países en desarrollo. Este documento concluye que el GTTT sigue siendo un foro de debate exploratorio más que una plataforma de negociación con capacidad para generar nuevas iniciativas que aborden las necesidades de transferencia de tecnología de los países en desarrollo. Se proponen reformas clave, como la transición a un enfoque orientado a la negociación, la mejora del equilibrio de las prioridades entre los miembros y enfoque en temas que puedan aumentar la eficacia del GTTT en el fomento de la transferencia de tecnología a los países en desarrollo.

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1. INTRODUCTION

Technology transfer is essential for development. It is one of the means to promote innovation across organizations, industries, and countries. It can accelerate economic growth by diversifying production, enhancing productivity and follow on innovation and boosting competitive advantage.¹ Developing countries, in particular, can reap significant benefits, as they gain access to technologies that can contribute to expand local added value, create jobs and address those countries' needs in critical areas such as the green transition, healthcare, food security and education.² The acquisition and adaptation of technology can bolster competitiveness in traditional manufacturing sectors, which are vital to many developing economies. Moreover, technology can open opportunities for higher value addition in manufacturing. For developing countries, technological advancement is likely the only path to improving terms of trade in traditional manufacturing exports, avoiding the trap of low value-added production and exports.³

Therefore, transfer of technology is critical to achieving the goal of the Marrakech Agreement that established the World Trade Organization (WTO) of undertaking positive efforts to ensure that developing and least developed countries (LDCs) secure a share in the growth in international trade commensurate with the needs of their economic development.

However, trade rules, including on intellectual property (IP) protection, can negatively impact the international transfer of technology.⁴ For instance, trade barriers and restrictive regulations can limit access to cutting-edge technologies.⁵ Moreover, stringent IP rules may hinder technology diffusion to developing countries, exacerbating inequality.⁶ The balance between protecting innovators' rights and ensuring widespread access to technology remains a critical challenge in international trade policy.

Hence, to address the interface between trade and technology transfer, the WTO Working Group on Trade and Transfer of Technology (WGTTT) was established at the Doha Ministerial Conference in 2001. The purpose of this paper is to critically assess the operations and effectiveness of the WGTTT. It investigates how the WGTTT has performed in its mandate to enhance technology flows to developing countries and explores why it has struggled to achieve meaningful outcomes. The paper encompasses a detailed analysis of the WGTTT's origins, mandate, and discussions. It scrutinizes barriers to technology transfer under current trade rules, including intellectual property regulations, and evaluates the group's overall impact on technology transfer outcomes. The paper also proposes reforms, such as shifting to a negotiation-oriented approach, addressing structural inefficiencies, and focusing on specific,

¹ Grossman, G. M., & Helpman, E. (1991). *Innovation and Growth in the Global Economy*. MIT Press.

² Lall, S. (2000). *Technological Change and Industrialization in the Developing World*. UNU-INTECH Working Paper No. 3.

³ Sachs, J. D. (2005). *The End of Poverty: Economic Possibilities for Our Time*. Penguin Press.

⁴ Chang, H.-J. (2001). Intellectual Property Rights and Economic Development: Historical Lessons and Emerging Issues. *Journal of Human Development*, 2(2), 287–309. doi:10.1080/14649880120067232. See also, Munoz-Tellez, V. and Syam, N. (2024), "WTO MC13: TRIPS and Technology Transfer", Policy Brief No.125, 12 February 2024, South Centre, Geneva. Available from https://www.southcentre.int/wp-content/uploads/2024/02/PB125_WTO-MC13-TRIPS-Issues-and-Technology-Transfer_EN.pdf.

⁵ Hoekman, B., & Maskus, K. E. (2004). *Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options*. World Bank Policy Research Working Paper No. 3332.

⁶ Correa, C. M. (2000). *Intellectual Property Rights, the WTO, and Developing Countries: The TRIPS Agreement and Policy Options*. Zed Books. Vishnoi, A.S. and Meena, R. (2021), "Technology Transfer at the WTO: Old Promises and New Hopes of the Developing World", *Global Trade and Customs Journal*, vol.16 (no.7/8), pp.343-54. Available from <https://doi.org/10.54648/gtcj2021038>.

actionable themes, to improve the WGTTT's effectiveness in fostering technology transfer and supporting the economic development goals of developing countries.

1.1 Importance of transfer of technology as a central part of the multilateral trading system

As noted, transfer of technology is pivotal for economic growth in developing countries. These countries often lack appropriate technologies necessary to enhance productivity, efficiency, and competitiveness in the global market. By receiving technology from more advanced economies, developing countries can, *inter alia*, improve their manufacturing processes, increase agricultural yields, and boost service industries. This can lead to job creation, higher incomes, and improved standards of living. Moreover, technology transfer can help diversify economies, making them less dependent on a narrow range of exports and more resilient to global economic fluctuations.

In this way, technology transfer can enable developing countries to compete more effectively in international markets. This can help reduce the income gap between countries, fostering a more equitable global economy. Transfer of technology also aligns with the Sustainable Development Goals (SDGs) set by the United Nations, particularly Goal 9, which emphasizes building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation.

Innovation is a driving force behind economic development and competitiveness. Technology transfer can facilitate the spread of new ideas, processes, and products, which can inspire local innovation in recipient countries. This is not only beneficial for the countries receiving the technology but also contributes to the global pool of knowledge and technological advancement.

A balanced international trading system relies on efficient production and exchange of goods and services. Technology transfer can enhance the efficiency of global trade by improving production methods, reducing costs, and increasing the quality of goods produced in developing countries. This can lead to more competitive pricing and a greater variety of products in the global market, benefiting consumers worldwide. Additionally, technology can facilitate smoother and more secure trade transactions, including through advancements in digital trade and e-commerce.

Discussions on the centrality of transfer of technology to the international trading system preceded the establishment of the WTO. At the first session of the United Nations Conference on Trade and Development (UNCTAD) in 1964, it was recommended that competent international bodies should explore and consider adoption of legislation concerning international transfer of technology to developing countries, including the possibility of concluding appropriate international agreements in this field. Pursuant to the Work Program of the UN General Assembly's Resolution on the Establishment of a New International Economic Order,⁷ Member States undertook negotiations between 1978-1985 on a Draft International Code of Conduct on Transfer of Technology (hereinafter "Draft TOT Code").⁸ Though the Draft TOT Code was not adopted, it remains a relevant document pointing to an unmet need of developing countries in the realm of multilateral cooperation.

⁷ See <https://investmentpolicy.unctad.org/international-investment-agreements/treaty-files/2775/download>.

⁸ U.N. Doc. TD/CODE TOT/47 (1985).

Three chapters of the Draft TOT Code were dedicated to increasing access to technology for developing countries. The focus of these chapters included special treatment for developing countries and international cooperation for facilitating international flow of technology aimed at strengthening technological capabilities of all countries. However, while the Draft TOT Code adopted a regulatory approach prescribing specific interventions in the market for technology to rectify perceived asymmetries in the bargaining power of technology owners and recipients, the provisions in the WTO agreements follow a market-based approach to transfer of technology which focuses on creation of conditions for a free-market transfer of technology.⁹

The market-based approach is exemplified by the technology transfer provisions of the TRIPS Agreement. Article 7 of the TRIPS Agreement states that the protection of IPRs should promote technological innovation, transfer, and dissemination of technology to benefit both producers and users of technological knowledge, supporting social and economic welfare. Article 66(2) requires developed country Members to incentivize enterprises and institutions to promote technology transfer to least developed country Members, creating a viable technological base. Additionally, Article 67 mandates developed country members to provide technical and financial cooperation to facilitate the implementation of the TRIPS Agreement for developing and least developed country members. Despite these provisions, the primary focus of the TRIPS Agreement is the protection of IPRs, underpinned by the belief that technology transfer is best encouraged in an environment where IPRs are fully protected and the market remains competitive. This approach emphasizes a shift from regulating technology transfer transactions to fostering a more open market-based model, encouraging technology transfer to developing countries through market operations.

⁹ UNCTAD(2001), Transfer of Technology. [UNCTAD/ITE/IIT/28](#).

2. THE ROLE OF THE WGTTC

2.1 *Mandate and objectives of the WGTTC*

The WGTTC was established to examine the relationship between trade and the transfer of technology, particularly to developing countries. This initiative emerged from the growing recognition of the pivotal role technology plays in economic development and the need to bridge the technological gap between developed and developing countries. It also recognized that there was a relationship between trade rules and the diffusion of and access to technologies. In this regard, the WGTTC was mandated to make recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries.

The 2001 WTO Doha Ministerial Conference agreed "... 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."¹⁰ This agreement was part of a package of a number of other issues that were agreed to be discussed in the WTO as part of a work programme (the Doha Work Programme) known as the Doha Development Agenda.¹¹ The Doha Ministerial Declaration also instructed the WTO General Council to report to the Fifth Session of the WTO Ministerial Conference on progress in the examination undertaken by the WGTTC.¹²

The primary objective of the WGTTC is to identify and analyze the ways in which the WTO agreements and the multilateral trading system influence the transfer of technology to developing countries. The Working Group was set up to enhance understanding of the barriers that impede technology transfer and to propose measures that could facilitate this process. The mandate encompasses examining the existing provisions in WTO agreements that pertain to technology transfer, assessing their effectiveness, and recommending improvements.

The essence of the mandate of the WGTTC is "to examine how transfer of technology takes place in practice and if specific measures might be taken within the WTO to encourage such flows of technology."¹³ The mandate is to discuss trade and transfer of technology in an "educational" mode under a working group that could make recommendations for the consideration of WTO members, instead of undertaking discussions in a "negotiating" mode. WTO members had adopted the modality of working groups for discussions of contentious issues without any commitment to negotiating new agreements on such issues during the Singapore Ministerial Conference in 1996, when developed countries had attempted to pursue rule-making on new issues – investment, competition, government procurement, and trade facilitation in the WTO, referred to as the "Singapore issues". However, developed countries had been persistent in subsequent ministerial conferences to transform the discussions on some of the Singapore issues from the educational mode to negotiating mode. A significant outcome of the Doha Ministerial Conference was that it was agreed that negotiations would take place after the Fifth Ministerial Conference in Cancun on the Singapore issues on the

¹⁰ WTO, Doha Ministerial Declaration, op. cit.

¹¹ Martin Khor, "The WTO, the Post-Doha Agenda, the Future of the Trade System: A Development Perspective", Third World Network, May 2002. Available from <https://twon.my/title/mkadab.htm>.

¹² Doha Ministerial Declaration, 2001, op. cit.

¹³ United Nations, Transfer of Technology for Successful Integration into the Global Economy", (New York and Geneva, 20023), p.198. Available from [UNCTAD/ITE/IPC/2003/6](https://unctad.org/ite/ipc/2003/6)

basis of agreement on the modalities of negotiations.¹⁴ Between the Doha and Cancun ministerial conferences, the working groups on the Singapore issues were mandated to undertake work to clarify specific issues. Conversely, the mandate of the newly established WGTTC was very general and broad. As discussed below, this has contributed to the WGTTC becoming a boondoggle that has not led to any meaningful outcome on trade and transfer of technology-related issues.

2.2 Topics discussed in the WGTTC

In furtherance of its mandate, the WGTTC discussions have been based on a work programme comprised of the following elements:

- analysing the relationship between trade and the transfer of technology;
- examining the work by other international intergovernmental organizations and academia;
- sharing country experiences;
- identifying provisions in the WTO agreements relating to the transfer of technology;
- exploring recommendations on potential steps to take within the mandate of the WTO to increase flows of technology to developing countries;
- exploring other topics raised by members.

From the outset, reaching agreement in the WGTTC on the substantive issues to be discussed and the process to be followed was difficult. A joint submission by 15 developing countries - Bangladesh, Cuba, Dominican Republic, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan, Sri Lanka, Tanzania, Uganda, and Zimbabwe - regarding the objectives and possible terms of reference for the WGTTC was introduced at the first session held in April 2002.¹⁵ It proposed that the work in the WGTTC should be pursued in 5 clusters – provisions in WTO agreements relating to transfer of technology including exploring existing flexibilities in WTO agreements like TRIPS, TRIMS, and GATS to promote technology transfer and identify home country measures that encourage such transfer; specific analysis of how new technologies are created, transferred, and diffused to understand the current benefits to developing countries and identify areas for improvement; technical cooperation with a focus on capacity building efforts, including supporting the development of scientific and technological infrastructure in developing countries to facilitate the adoption and management of new technologies; consensus building on measures to prevent practices by technology right holders that hinder technology transfer and encourage regional cooperation to reduce transaction costs associated with intellectual property systems; and, collaborate with international and intergovernmental organizations, such as UNCTAD, to leverage their expertise in technology transfer and develop effective policies and financing mechanisms.¹⁶

¹⁴ Martin Khor, Analysis of the Doha Negotiations and the Functioning of the World Trade Organization. Research Paper 30 (Geneva, South Centre, 2010). Available from https://www.southcentre.int/wp-content/uploads/2013/05/RP30_Analysis-of-the-DOHA-negotiations-and-WTO_EN.pdf (accessed 8 July 2024).

¹⁵ World Trade Organization document WT/WGTTC/W/2, 15 April 2002. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/WGTTC/W2.pdf&Open=True> (accessed 10 June 2024).

¹⁶ *ibid.*

At the third session of the WGTTC, 10 developing countries – Cuba, Egypt, Honduras, India, Indonesia, Jamaica, Kenya, Mauritius, Pakistan and Zimbabwe – made another joint submission¹⁷, in accordance with the tenor of the previous joint proposal from developing countries on the terms of reference of the WGTTC. This submission pointed to the provisions of the following WTO agreements that relate to transfer of technology – TRIPS, the Agreement on Sanitary and Phytosanitary Measures (SPS), the Agreement on Technical Barriers to Trade (TBT), the General Agreement on Trade in Services (GATS), the Telecommunications Annex to GATS, and the Agreement on Subsidies and Countervailing Measures (SCM).

At the second session of the WGTTC the European Communities (EC) had submitted a proposal laying down the EC position on the relationship between trade and technology transfer.¹⁸ The EC proposed a work programme comprised of establishing a common understanding of technology transfer, identifying various channels for its transfer, and assessing their effectiveness to increase technology flows to developing countries. This proposed programme emphasized the role of foreign direct investment, trade in services and goods, licensing of intellectual property, and government procurement as key channels for technology transfer.¹⁹

It is noteworthy that the developing countries' joint proposal was proactive and action-oriented, seeking to actively address barriers to technology transfer and promote a more equitable system. It challenged the existing *status quo* by advocating for changes to WTO agreements and practices that may be perceived as hindering technology transfer to developing countries. In contrast, the EC proposal was explanatory in approach, based on the (unproven) assumption that market mechanisms and existing trade agreements provided adequate channels for technology transfer. It aimed at preserving the *status quo* rather than advocating for solutions to the current obstacles. The developing countries' proposal emphasized the role of government intervention and policy measures to promote technology transfer. The EC proposal placed more emphasis on market-driven mechanisms and the role of private actors.

At the sixth session of the WGTTC, a group of 9 developing countries - Cuba, India, Indonesia, Jamaica, Kenya, Nigeria, Pakistan, Tanzania, Venezuela and Zimbabwe – made another 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".²⁰ The proposal recommended a comprehensive review of existing WTO provisions related to technology transfer, particularly those within the TRIPS Agreement, arguing that they are insufficient and often hinder technology transfer to developing countries. It called for examining restrictive practices by multinational enterprises and the impact of tariff peaks and escalation in developed countries on technology transfer. The proposal advocated the development of a self-contained agreement on trade-related technology transfer and development, arguing that such an agreement would address the cross-cutting nature of the issue and promote trade and development. These recommendations were based on the recognition that technology is critical for development and that existing WTO provisions are ineffective in facilitating

¹⁷ World Trade Organization document WT/WGTTC/3/Rev.1, 21 October 2002. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:WT/WGTTC/3R1.pdf&Open=True> (accessed 20 May 2024).

¹⁸ World Trade Organization document WT/WGTTC/1, 10 June 2002. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:WT/WGTTC/1.pdf&Open=True> (accessed 15 June 2024).

¹⁹ Ibid.

²⁰ World Trade Organization document WT/WGTTC/W/6, 7 May 2003. Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-HTML.aspx?Id=34460&BoxNumber=3&DocumentPartNumber=1&Language=E&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True&Window=L&PreviewContext=DP&FullTextHash=371857150#KV_GENERATED_FILE_000020.htm (accessed 30 June 2024).

technology transfer to developing countries. The proposal also emphasized the need for a supportive international environment and rules to promote technology transfer, particularly for developing countries facing challenges in meeting new trade standards due to technological backwardness.

Developed countries were, however, collectively opposed to the approach proposed by developing countries. The United States of America (US) contended that there was no obligation on the WGTTC to make recommendations to the fifth Ministerial Conference regarding provisions in WTO agreements pertaining to transfer of technology. Instead, the US preferred that the WGTTC restrict itself to an exchange of national experiences and a debate on mechanisms to promote technology development and transfer without interfering with the existing WTO obligations.²¹

In the face of this divergence of positions, the Chair of the WGTTC had proposed analyzing the intricate relationship between trade and technology transfer, examining the work conducted by other intergovernmental organizations and academia in this field, facilitating the sharing of valuable country experiences, identifying existing provisions concerning technology transfer in WTO agreements, and exploring potential recommendations within the WTO's mandate to enhance the flow of technology to developing nations.²² The WGTTC failed to agree on recommendations on steps that might be taken within the WTO mandate to increase transfer of technology. Both developed and developing countries agreed to discuss themes they identified, and accordingly the General Council extended the mandate of the WGTTC for another 2 years.²³

2.2.1 Relationship between trade and transfer of technology

The following is a summary of the discussion in the WGTTC from 2003 to 2023 on the theme of the relationship between trade and transfer of technology, focusing on the distinct views of developed and developing countries.²⁴

From 2003 to 2005, developing countries advocated for more robust support from the WTO to facilitate technology transfer due to perceived inadequacies in existing provisions, especially within the TRIPS Agreement. They stressed the need for a conducive international environment and rules that would aid in technology transfer, noting challenges in meeting trade standards due to technological disparities. On the other hand, developed countries emphasized the importance of protecting intellectual property rights and endorsed market-driven technology transfer.

The following years continued to witness a divergence in perspectives. Developing countries persisted in their calls for proactive WTO engagement to bolster technology transfer, accentuating the significance of addressing tariff barriers within developed nations. Conversely, developed countries remained steadfast in their belief in the primacy of intellectual property rights for fostering innovation and technology transfer.

²¹ ICTSD-IISD, "Developments Since the Fourth WTO Ministerial Conference: Trade and Transfer of Technology", Doha Round Briefing Series, vol.1, no.11, February 2003. Available from https://www.iisd.org/system/files/publications/wto_doha_trade_tech.pdf (accessed 16 May 2024).

²² Ibid.

²³ ICTSD-IISD.

²⁴ This analysis is based on the discussions on the theme of the relationship between trade and transfer of technology as described in the annual reports of the WGTTC to the WTO General Council from 2003-2023.

After more than two decades of discussions, the WGTTT was not able to draw any agreed conclusion on the relationship between trade and transfer of technology with a clear divergence of views between developed and developing countries. The discussions held in several sessions of the WGTTT illustrates this:

-During the 9th Session of the WGTTT in 2004, developing countries emphasized the need to examine existing provisions within WTO agreements related to technology transfer, notably Articles 7, 8, 31, 40, and 66.2 of the TRIPS Agreement. They argued these provisions could be more effectively operationalized to facilitate technology transfer to developing countries. In contrast, some developed countries contended that the WGTTT was not the appropriate forum for amending existing provisions, suggesting these discussions should occur within the relevant WTO bodies. They believed that eliminating trade barriers would more effectively promote technology transfer and expressed doubts that existing provisions hindered such transfer. Despite general agreement to continue discussions, significant differences remained between developed and developing countries on the WGTTT's role in promoting technology transfer.

-At the 10th Session in 2003, discussions persisted on the first two recommendations in a joint proposal²⁵ by developing countries: examining the various provisions within WTO Agreements related to technology transfer and identifying those that might hinder such transfer. Some members suggested building upon existing work in other WTO bodies, proposing to request information from the Council for Trade in Services on implementing Articles IV and XXV of the GATS.

-The 11th Session included a brief discussion on the same recommendations, with developing countries keen to continue the dialogue. The Secretariat provided information on the GATS architecture, emphasizing its reliance on negotiated bilateral commitments. Discussions in the Special Session of the Services Council had also focused on operationalizing Article IV to increase developing countries' participation through negotiated specific commitments, particularly concerning transfer of technology on a commercial basis to strengthen domestic service capacity, efficiency, and competitiveness.

-During the 12th session in 2005, Cuba proposed intensifying work on the two recommendations submitted in 2003 in the joint proposal by developing countries, in order to present concrete solutions at the sixth WTO ministerial conference. This proposal was supported by other developing countries. However, developed countries highlighted the complexity of the issue and the need for a comprehensive understanding of the nexus between trade and technology transfer. They noted that proponents had not sufficiently elaborated their proposals or provided specific examples showing that WTO Agreements hindered technology transfer. Developed countries reiterated that the examination and review of provisions in various WTO Agreements should fall under the purview of relevant WTO bodies, asserting that the WGTTT lacked the technical expertise to undertake such examination.

-At the 13th session of the WGTTT in 2005, India, Pakistan and the Philippines made a joint submission on steps that might be taken within the mandate of the WTO to

²⁵ See WTO document WT/WGTTT/W/6, 7 May 2003 (communication from Cuba, India, Indonesia, Kenya, Pakistan, Tanzania and Zimbabwe). Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=13330,2909,1541,15753&CurrentCatalogueIdIndex=2&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True.

increase the flow of technology to developing countries.²⁶ It suggested the following possible recommendations:

1) Expand Technical Assistance Under TRIPS:

- Link Article 67 with Articles 66.2 and 7 to facilitate technology transfer, focusing support on institutions and firms in developing countries, especially least developed countries (LDCs).

2) Formal Adoption of Voluntary Guidelines:

- Encourage governments to incentivize their multinational firms to perform science and technology development work in host countries, grant licenses on reasonable terms, and adopt practices that facilitate the transfer and rapid diffusion of technology to developing countries.

3) Improve Competition Policies:

- Help developing countries implement competition policies to monitor and discourage restrictive business practices by technology owners.
- Developed countries' competition authorities could examine practices affecting developing countries and support licensing, subcontracting, and access to technological information.

4) Assist in Formulating and Implementing Technical Standards:

- Establish mechanisms to help developing countries' standard monitoring authorities acquire necessary technology, similar to the national biosafety clearing house model.

5) Encourage Mobility of Scientists and Technologists:

- Expand or encourage the mobility of scientists, technologists, and technicians under the General Agreement on Trade in Services (GATS).
- Develop agreements to promote international scientific and industrial R&D collaboration, and encourage firms and public institutions to employ graduates and experts from developing countries.

6) Provision of Targeted Incentives:

- Exchange information on investment and technology-related incentives provided to firms.
- Develop mechanisms to disseminate this information, encourage best practices in technology transfer, R&D investment, and creating new technology.

7) Enhance Use of Patent Information:

- Encourage cooperation among patent offices to share information and regulatory standards.
- Develop databases for developing countries to make patent information accessible.

²⁶ World Trade Organization document WT/WGTTT/W/10, 13 October 2005. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/WGTTT/W10.pdf&Open=True> (accessed 19 April 2024).

- Utilize Article 29 of the TRIPS Agreement to ensure patent applicants disclose the best mode of carrying out their inventions to enhance the practical value of patents as sources of technological information.

However, developed countries questioned the competence of the WGTTT to address some of the issues raised in the submission. They argued that these issues should ideally be addressed in the relevant WTO bodies which were equipped with the necessary knowledge and expertise to do so. However, developing countries reiterated that the Working Group was the appropriate forum to discuss these issues because Ministers at Doha had mandated it to do so, and even more importantly, because transfer of technology was a cross-cutting issue which could only be considered in a holistic manner in a body which had a broader perspective.

Discussions continued in this manner at the 15th session of the WGTTT in 2006. Cuba made a submission in relation to transfer of technology in the context of the SPS and TBT agreements.²⁷ It pointed to the following:

- **Technical Barriers and Sanitary Measures:** TBT and SPS measures have become major obstacles, surpassing tariff barriers. These measures often require technology and infrastructure that developing countries lack.
- **Cumbersome Assistance:** The technical assistance provided under the TBT and SPS agreements is often slow and complex, acting as another barrier for developing countries.
- **Weak Provisions for Developing Countries:** The provisions for special and differential treatment in both the TBT and SPS Agreements are vague and do not result in concrete solutions for developing countries.
- **High Costs and Technological Gaps:** Developing countries face significant difficulties due to high costs of required technology and equipment, lack of accredited testing bodies, and detailed infrastructural plans that are impractical for them.

In this context, Cuba recommended the WGTTT to discuss and adopt measures ensuring that developed countries transfer necessary equipment and technology on preferential terms to developing countries and LDCs. This would help these countries meet technical regulations, standards, and sanitary and phytosanitary requirements crucial for market access, especially when they cannot afford such technology. It also recommended that financial assistance should be considered to overcome infrastructural obstacles. Additionally, developed countries should consult directly with developing countries at an early stage of preparing the SPS and technical requirements that exporting countries must meet, and consider their technological and infrastructural capacities and explore feasible alternatives, ensuring the measures do not hinder their market participation.²⁸

Discussions continued through the subsequent sessions of the WGTTT without any meaningful engagement on the submissions by developing countries. For instance, in one session developing countries would provide verbal responses to questions raised by developed countries, to which developing countries requested written responses. When these were provided in a subsequent session developed countries would only state that they would consider the matter in the future, reiterating their stated positions. Even a proposal in 2008 to establish a specialized WTO webpage that could serve as a bridge between various technology related links, as well as provide information on reasonably priced serving as a

²⁷ World Trade Organization document, WT/WGTTT/W/12, 14 March 2006. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/WGTTT/W12.pdf&Open=True> (accessed 1 April 2024).

²⁸ *ibid.*

forum for matchmaking was questioned by developed countries.²⁹ As mentioned in the minutes of the 23rd session of the WGTTT in 2008, "Overall, the discussions were somewhat lukewarm and lacked effective participation by Members."³⁰ The frequency of the WGTTT sessions also diminished gradually, clearly pointing to an unstated sense of frustration and waning interest among members.

From 2008 till 2021, discussions in the WGTTT were mainly limited to establishing a web page. Even in this regard, the *onus* was placed on the developing countries that had submitted several informal room documents proposing the establishment of a web page to submit a formal proposal. At the 65th session of the WGTTT in May 2021, the Philippines attempted to narrow the focus of the WGTTT to thematic areas where trade intersects with the public domain, such as health, environment, energy, agriculture and infrastructure. The Philippines suggested that the WGTTT further examine how technology transfer could: (i) continue to improve the capacity of developing countries' regulatory authorities in dealing with standards and technical barriers to trade; or (ii) could be leveraged by MSMEs to meet international standards, by making patents, technologies and information on them more readily and easily available.³¹ In the same session, the Chairperson expressed that major responsibility for propelling the work towards meaningful progress lies with members, especially the proponents i.e. developing countries.³² This shifting of the *onus* of progress in the discussions on this theme back upon the proponents of the joint proposal from 2008 has continued since then. At the 70th session of the WGTTT held in July 2017, India reminded the WGTTT that the proposals from 2008 "... could not be taken further due to the lack of willingness of non-proponent to engage on those crucial issues."³³

Discussions at the WGTTT went on with the same divergences and frustrating outcomes for developing countries till the time of writing of this paper.

²⁹ World Trade Organization document WT/WGTTT/M/24, 6 October 2008. Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=98433,75433,109136,64884&CurrentCatalogueIdIndex=1&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True (accessed 12 April 2024).

³⁰ World Trade Organization document WT/WGTTT/M/23, 15 May 2008. Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=98433,75433,109136,64884&CurrentCatalogueIdIndex=2&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True (accessed 20 April 2024).

³¹ World Trade Organization document WT/WGTTT/M/65, 1 October 2021. Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?MetaCollection=WTO&SymbolList=%22WT%2fWGTTT%2f%22+OR+%22WT%2fWGTTT%2f*%22&Language=ENGLISH&SearchPage=FE_S_S001&languageUIChanged=true# (accessed 20 June 2024).

³² *ibid.*

³³ World Trade Organization document WT/WGTTT/M/70, 10 October 2023. Available from https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?MetaCollection=WTO&SymbolList=%22WT%2fWGTTT%2f%22+OR+%22WT%2fWGTTT%2f*%22&Language=ENGLISH&SearchPage=FE_S_S001&languageUIChanged=true# (accessed 9 June 2024).

3. EVALUATING WGTTT'S EFFECTIVENESS

3.1 *Impact on technology transfer outcomes*

The effectiveness of the WGTTT can be measured by its ability to influence technology transfer policies and practices. Despite extensive discussions and proposals, the WGTTT has not achieved any meaningful outcome or made practical policy recommendations to the General Council on fostering technology transfer to developing countries. The Working Group's failure stems from divergent views among its members. Developing countries consistently push for proactive measures, while developed countries emphasize maintaining the *status quo*, focusing on voluntary market-driven mechanisms and IP rights protection. This resistance prevents any examination of the effectiveness of WTO provisions impacting technology transfer.

Effective and expanded technology transfer between developed and developing countries requires funding and supportive policies from both home and host countries.³⁴ This includes developing practical mechanisms for effectively implementing existing technology-related provisions in WTO agreements.

However, the WGTTT has made no progress in this respect. It has failed in its primary objective of identifying and analyzing how WTO agreements and the multilateral trading system influence technology transfer to developing countries. The Working Group was intended to enhance understanding of barriers impeding technology transfer and propose facilitating measures, but developed countries reject the notion that trade rules can create such barriers.

The current situation in the WGTTT should not be surprising. While the WTO mandate does not explicitly define the WGTTT as an educational mode forum, the limited competence of a working group in the WTO and its operational focus on discussions rather than negotiations have led many experts to interpret it as such. As designed, the institutional mode of the WGTTT inherently limits its ability to negotiate new rules for adoption by the WTO membership. This mode emphasizes knowledge sharing for deeper understanding rather than negotiation and norm setting, making the WGTTT more of a forum for dialogue and learning than a body that can engage in rule-making. However, the Doha Ministerial Conference's mandate, while focused on examining the trade-technology transfer relationship, also mandated the Working Group to make recommendations that may include new rules or procedures (for instance regarding the supply of information).

Fundamental and persistent divergences between developed and developing countries complicate the WGTTT's effectiveness. As noted, developed countries prioritize IP protection and market-driven mechanisms, while developing countries seek proactive measures, supportive policies and the removal of obstacles to technology transfer. This fundamental differences in priorities results in a continuous lack of consensus on critical issues and no progress. Consequently, the WGTTT has had no impact whatsoever on actual technology transfer.

³⁴ Roffe, P. and Tesfachew. T, Revisiting the Technology Transfer Debate: Lesson for the New WTO Working Group, *Bridges*

4. PROPOSED AGENDA ITEMS AND RECOMMENDATIONS FOR IMPROVING THE WGTTC

4.1 *Proposals by WTO members*

In 2023 two new proposals were made by developing countries for reviving the stalled discussions in the WGTTC. The African Group proposed reinvigorating the work by organizing discussions by themes and deepening experience sharing.³⁵ The main themes proposed for discussion were centered around the issues of trade and technology transfer, with a focus on developing recommendations for Trade Ministers at the Thirteenth WTO Ministerial Conference to be held in Abu Dhabi in March 2024. The discussions aimed to explore several critical areas.

Firstly, the TRIPS agreement and its impact on technology transfer was proposed as a key focus theme. This included examining how WTO rules and TRIPS flexibilities have affected member countries' ability to respond to crises such as the COVID-19 pandemic. This included delving into how the TRIPS Agreement influences the manufacturing capacity of developing and least developed countries (LDC), particularly in the pharmaceutical and industrial sectors.

Secondly, the role of digital technologies in trade facilitation was proposed to be explored. This area is of growing interest, particularly in the context of developing countries and LDCs. The proposed discussions included analyzing how IP protections and other regulatory factors affect the smooth transfer and diffusion of technology for trade facilitation.

The transfer of technology to enhance agricultural resilience was also suggested as a significant theme. This involves understanding the importance of technology transfer in building resilience to food security emergencies. The discussions were to explore state interventions, institutional frameworks, and research programmes that support technology adaptation and adoption in agriculture. It was suggested that there should be a particular focus on the role of international and regional agricultural research centers and the development and dissemination of agricultural technologies.

In the context of climate change, it was proposed to reassess the application of WTO rules on technology transfer for climate change technologies, with a focus on enhancing coherence and coordination with existing international mechanisms and environmental law principles to support technology transfer for climate resilience.

Finally, in the context of the 1998 Work Programme on Electronic Commerce it was proposed to discuss the safety and cybersecurity of hardware and software systems through source code, based on an assessment of policy and legal considerations for balancing source code accessibility within a secure, transparent, and trusted technological environment.

In another communication in October 2023, India submitted a room document proposing a roadmap to facilitate the development and transfer of environmentally sound technologies (EST) among WTO members to address the challenges of climate change.³⁶ The proposal emphasized the creation of a database for ESTs, coupled with a technology transfer platform,

³⁵ World Trade Organization document WT/WGTTC/M/34/Rev.1, 5 July 2023. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:WT/GC/W883.pdf&Open=True> (accessed 5 May 2024).

³⁶ Mathew, J. "India proposes WTO roadmap for transfer of climate-friendly tech", *Fortune India*, 30 October 2023. Available from <https://www.fortuneindia.com/enterprise/india-proposes-wto-roadmap-for-transfer-of-climate-friendly-tech/114594> (accessed 9 June 2024)

and advocated for the effective utilization of TRIPS flexibilities. The proposal aimed to stimulate discussions on the intersection of trade and technology transfer to developing countries, promoting access and adaptation of climate-friendly technologies.

Key aspects of India's proposal include establishing a WTO web portal to consolidate information on ESTs, improving transparency, and ensuring the smooth sharing of data regarding patent-protected technologies. This initiative sought to bridge the gap between information access and the actual transfer of ESTs, facilitating developing countries' ability to implement these technologies effectively. India's suggestions also called for streamlined licensing practices, encouraging public-funded technology inventories, and innovative IP rights-sharing arrangements to foster joint development of environmental goods and services.

Additionally, India also proposed measures to fully utilize TRIPS flexibilities, such as exempting crucial inventions from patentability on a case-by-case basis, reducing patent protection terms for urgent public interest needs, and waiving patents on essential climate-friendly products.

However, these proposals did not find any endorsement in the Abu Dhabi Ministerial Declaration. The Declaration made a passing reference to the WGTTC recognizing its role in "holding discussions within the WTO", encouraging their continuation.³⁷ This essentially allows the WGTTC to continue with its business-as-usual approach and does not urge it to conclude its work in accordance with the mandate set by the Doha Ministerial Conference in 2001 by making 'recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries'.

4.2 Recommendations for making the WGTTC effective

To achieve its overall mandate, the WGTTC must move beyond its current limitations and adopt a more dynamic and proactive approach. By addressing the structural limitations, reconciling member priorities, and focusing on actionable themes and practical measures, the WGTTC can become a more effective platform for facilitating technology transfer to developing countries.

First and foremost, there is a need for the WGTTC to shift from its current educational mode to a more negotiation-oriented approach. This change would empower the Working Group to implement substantial policy changes and enforce binding agreements. While eventually useful for knowledge sharing, the educational mode has proven insufficient for driving the policy agenda necessary to address the technology transfer needs of developing countries.

The WGTTC should also reconcile the differing priorities of developed and developing countries. As discussed above, developed countries emphasize IP rights and market-driven mechanisms, whereas developing countries call for proactive measures and supportive policies to facilitate technology transfer. A balanced approach that addresses both sets of priorities could help bridge this gap. For instance, establishing voluntary guidelines for governments to incentivize multinational firms to engage in technology transfer activities and guidelines to improve competition policies to monitor restrictive practices could be beneficial.

³⁷ World Trade Organization document WT/MIN(24)/DEC, 4 March 2024. Available from <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN24/DEC.pdf&Open=True> (accessed 20 June 2024).

The WGTTT should focus on specific, actionable themes to ensure targeted and effective recommendations. Rather than creating new initiatives, the WGTTT could propose practical steps to enhance the effectiveness of existing mechanisms, such as the UN Technology Facilitation Mechanism (TFM) and the LDCs' Technology Bank. Suggestions could include activating and expanding their reach to better support technology transfer in the context of WTO agreements. For instance, the WGTTT might recommend strengthening assistance to developing countries for formulating and implementing technical standards, enhancing the dissemination of information on green technologies via a dedicated WTO web portal, and providing clear guidance on utilizing TRIPS flexibilities to enable access to critical inventions and data. These measures could align with public interest objectives, such as addressing public health challenges and protecting the environment.

The WGTTT can also analyze and recommend several other actions that can be taken within the WTO framework to enhance transfer of technology to developing countries. These could include incorporating technology transfer commitments into a new approach to Special and Differential Treatment by developing a differentiated set of obligations where developed countries provide technology transfer incentives to developing countries and LDCs through technical assistance, preferential access to new technologies, and capacity-building programmes.³⁸ Technology transfer-related policy initiatives can also be integrated into existing WTO agreements such as the Agreement on Subsidies and Countervailing Measures and TRIPS. For instance, making the current waiver on IPR enforcement requirements for LDCs during the transition period available for LDCs under article 66.1 of TRIPS permanent could be highly beneficial in explicitly facilitating technology transfer. Extending Article 66.2 of TRIPS, which calls for incentives for technology transfer to LDCs, could be adapted to include other developing countries that face significant capacity constraints, while ensuring the focus remains on those most in need..³⁹ Establishing a framework within the WTO where developed countries report annually on their technology transfer activities, including the nature of technologies transferred, sectors involved, and recipient countries, would enhance accountability.⁴⁰ This information could be reviewed by a multilateral body, perhaps in the nature of the WTO Trade Policy Review Mechanism, to encourage compliance and facilitate continuous improvement in technology transfer practices.⁴¹ The WGTTT could also consider the legal basis, scope and impact of bans established by some countries for investment and the transfer of advanced technologies.⁴²

³⁸ Hoekman, B.M., Maskus, K. and Saggi, K. Transfer of Technology to Developing Countries: Unilateral and Multilateral Policy Options. World Bank Policy Research Working Paper 3332, June 20024. Available from <https://documents1.worldbank.org/curated/en/737591468762912473/pdf/wps3332.pdf> (accessed 16 June 20224).

³⁹ Ibid. Also see Moon, S., Does TRIPS Art.66.2 Encourage Technology Transfer to LDCs? An Analysis of Country Submissions to the TRIPS Council (1999-2007). UNCTAD-ICTSD Project on IPRs and Sustainable Development. Policy Brief No.2, December 2008. Available from https://unctad.org/system/files/official-document/iprs_pb20092_en.pdf (accessed 29 June 2024).

⁴⁰ In order to be useful, such information should refer to technology transfer for production, excluding information on study visits, participation in scientific seminars and other activities that are not directly related to enhancing production capacities in the recipient countries.

⁴¹ Ibid. However, to be effective such a mechanism must be based on clear articulation of what type of activities can qualify as technology transfer activities, noting the problem of developed countries generally reporting a broad range of general activities including grant of scholarships in research institutions to researchers from LDCs as measures promoting or incentivizing transfer of technology.

⁴² Teran, D.U. Foreign Direct Investment Screening for 'National Security' or Sustainable Development: a blessing in disguise? Geneva, South Centre, Research Paper No. 205, 30 July 2024. Available from https://www.southcentre.int/wp-content/uploads/2024/07/RP205_Foreign-Direct-Investment-Screening-for-%E2%80%98National-Security-or-Sustainable-Development_EN.pdf.

5. CONCLUSION

The WGTTT was established with the goal of examining the relationship between trade and technology transfer, particularly focusing on developing countries. Despite its noble objectives, an analysis of the WGTTT's responsiveness reveals several key issues and shortcomings:

- a) *Divergence in member priorities:* One of the fundamental challenges faced by the WGTTT is the divergence in policy approaches between developed and developing countries. Developed countries emphasize the protection of intellectual property rights and market-driven mechanisms for technology transfer. In contrast, developing countries advocate for proactive measures, policy interventions, and supportive international rules to facilitate technology transfer. This divergence has led to a lack of consensus on critical issues, stalling progress and making it difficult for the WGTTT to undertake analyses of relevant issues and propose meaningful recommendations.
- b) *Inherent structural limitations:* The WGTTT has struggled to fulfill its dual mandate of serving as an educational forum and making actionable recommendations to enhance technology transfer to developing countries. While its educational mode limits its ability to negotiate or enforce binding agreements, it has also fallen short of delivering meaningful recommendations, as required by its mandate. This lack of substantive outcomes has diminished its relevance, leaving it unable to address critical barriers to technology transfer or effectively respond to the needs of developing countries. The group's focus on dialogue and knowledge sharing has not translated into impactful proposals, largely due to structural limitations and resistance from developed countries. To regain its effectiveness, the WGTTT must balance its educational role with its recommendations function and adopt a more proactive approach to fostering practical solutions that address the developmental and technological priorities of its members.
- c) *Ineffectiveness in policy implementation:* Despite extensive discussions and numerous proposals, the WGTTT has not achieved any outcomes influencing technology transfer policies and practices. The Working Group's primary objective of identifying and analyzing how WTO agreements and the multilateral trading system influence technology transfer to developing countries has seen little or no progress. Developed countries' resistance to acknowledging that trade rules can create barriers to technology transfer has hindered any potential advancements. Consequently, the WGTTT has failed to enhance understanding of these barriers or propose effective measures to facilitate technology transfer.

Developing countries have repeatedly submitted elaborated initiatives to WGTTT to better address their needs. Proposals have included calls for the examination and amendment of WTO provisions related to technology transfer, the development of a self-contained agreement on trade-related technology transfer, and the creation of practical mechanisms to operationalize existing provisions. However, developed countries have countered these calls as they aim at maintaining the *status quo* and focusing on voluntary, market-driven mechanisms.

In recent years, there have been renewed efforts to revitalize the WGTTT. Proposals from developing countries have suggested organizing discussions around specific themes such as the impact of the TRIPS Agreement on technology transfer, the role of digital technologies in trade facilitation, technology transfer for agricultural resilience, and climate change

technologies. These proposals aim to create more focused and actionable discussions within the WGTTC. However, the success of these initiatives remains uncertain, given the historical challenges and persistent divergence in member approaches and priorities.

The WGTTC's responsiveness to the needs of developing countries has been hampered by structural limitations, divergent member policy approaches, leading to a lack of actionable outcomes. While there have been ongoing efforts to address these issues, the Working Group has yet to achieve meaningful progress in facilitating technology transfer to developing countries. For the WGTTC to become more effective, it must find ways to reconcile the differing positions of its members and move beyond its current, but still limited, educational mode towards more substantive policy discussions and recommendations. This shift is crucial for addressing the technology transfer needs of developing countries and supporting their sustainable development.

By focusing on actionable themes and practical measures, the WGTTC can better facilitate technology transfer to developing countries. Transitioning from an educational to a negotiation-oriented approach would empower the group to recommend substantial policy changes, moving beyond mere knowledge sharing to drive the necessary policy reforms for developing countries.

The African Group has been particularly active in recently proposing new ways to discuss technology transfer within the WTO framework. Their proposals in the General Council and the TRIPS Council have emphasized the need for more flexible and supportive international rules to facilitate technology transfer. For instance, their suggestions have included the exploration of TRIPS flexibilities and the establishment of mechanisms to assist developing countries in implementing technical standards. These initiatives reflect a proactive approach to addressing the technology transfer needs of developing countries and highlight the importance of international cooperation in this area.

Moreover, reconciling the positions of developed and developing countries is crucial. A balanced approach, such as encouraging voluntary guidelines for incentivizing technology transfer and improving competition policies, could help address some of these differing perspectives. Additionally, focusing on specific, actionable themes—such as developing mechanisms to support technical standards and exploring TRIPS flexibilities—could lead to more targeted and practical discussions. Proposals to incorporate technology transfer commitments into Special and Differential Treatment or to interpret existing WTO provisions more flexibly might help address some obstacles to technology flows, supporting developing countries' sustainable development. However, the impact of these measures will likely be gradual and dependent on continued dialogue and cooperation between member states.

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