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Least-developed countries, transfer of technology and the TRIPS Agreement

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Abstract

This paper examines the background of Article 66.2 of the TRIPS Agreement, the nature of this obligation on developed country Members that pertains to the promotion of technology transfer to LDC Members and how it is being implemented and how such implementation is being monitored in the TRIPS Council.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) mandates to developed country Members to provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least developed country (LDC) Members in order to enable them to create a sound and viable technological base.

This paper introduces the background to this legal obligation; Part 2 provides an understanding of the definition of LDCs in the World Trade Organization (WTO), and thus identifies the potential beneficiaries of this obligation. Part 3 recounts the role of LDCs in the TRIPS negotiations in the Uruguay Round and how their demands were reflected in the final outcome. Part 4 focuses on the text of Article 66.2 and breaks out its main elements in order to analyse the scope and extent of this obligation. Part 5 tracks the monitoring phases of the implementation of Article 66.2 in the TRIPS Council: (a) 1995-1998: not present in the Council's agenda, (b) 1998-2000: inclusion in the agenda and notification of the first reports, (c) 2001-2003: negotiating a monitoring mechanism resulting in the Decision on Implementation of Art. 66.2 of 19 February 2003, with specific provisions on the periodicity and content of the developed country reports, (d) 2003-2016: the implementation of the monitoring mechanism, detailing the first annual review in 2003, the Secretariat-organized workshops from 2008 onwards between developed country and LDC members to review Art. 66.2 annual reports, and revised reporting format proposed by LDC Group in 2011. Part 6 analyses the reports submitted by developed country members from 2003 to 2016. The analysis focuses on the number of reports received, the broad areas of technology in which incentive programmes are being reported and how it has evolved between 2003 with 2016, which LDCs have been beneficiaries of the reported incentives and in which areas of technology. Part 7, highlights the differences in the understanding of terms "transfer of technology" and "incentives". Part 8 concludes that both developed country Members and LDC Members should take steps to improve the implementation of Article 66.2 in order to assess the impact of the Article 66.2 incentives on ground in the beneficiary LDCs.

Key Words: technology transfer, LDCs, Article 66.2, TRIPS, incentives.

JEL classification numbers: F13, O3, O31, O34, O38

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1. Introduction

The TRIPS Agreement includes a number of provisions on technology transfer. More precisely, as an essential part of the balance inherent in the agreement, Art.7 ("Objectives") states that the protection and enforcement of IP rights *should* contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations.

Developed countries have a positive, legal obligation to provide incentives to enterprises and institutions in their territories to promote and encourage technology transfer to least-developed countries (LDCs), which is in Art.66.2 of the agreement. It should be noted that decisions by WTO bodies have addressed the question of technology transfer and reiterated the commitment to implement Art.66.2, such as in the Doha Declaration on the TRIPS Agreement and Public Health and in the special export compulsory licence decisions of 2003 and 2005.[2] LDCs have long demanded that this requirement be made more effective. At the Doha Ministerial Conference in 2001, ministers agreed that the TRIPS Council (hereinafter the Council) would "put in place a mechanism for ensuring the monitoring and full implementation of the obligations". The Council adopted a decision setting up this mechanism in February 2003. It details the information developed countries are to supply by the end of the year, on how their incentives are functioning in practice. This decision is now being implemented, and submissions made and discussions held in the Council are available as formal documents that can be found online.

This chapter outlines in more detail how this decision was negotiated in the WTO and how this provision in Art. 66.2 is being monitored in the Council. This chapter provides a factual review of notified material; hence it does not in any way aim to interpret the provision from a legal point of view nor to evaluate if developed country members are in compliance with Art.66.2; the data presented here is merely illustrative and makes no claim to be comprehensive.

2. Definition of LDCs in the WTO

There are no specific definitions of developed and developing countries within the legal framework of the WTO, despite the fact that several of the WTO agreements use these terms. Members decide for themselves whether they are developed or developing countries. However, other members could, in principle, challenge the decision of a member to make use of provisions available to developing countries.

However, when it comes to least developed countries (LDCs), the WTO recognizes as LDCs only those countries which have been designated as such by the United Nations.[3] The three UN criteria for inclusion are;
(i) gross national income per capita;
(ii) Human Assets Index (HAI) composed of percentage of population undernourished, under-five mortality rate, gross secondary enrolment ration and adult literacy rate; and
(iii) Economic Vulnerability Index (EVI) composed of population, remoteness, merchandise export concentration, share of agriculture, forestry and fisheries in GDP, share of population in low elevated

[2] See text of the Doha Declaration here: https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm; the 2003 Decision here: https://www.wto.org/english/tratop_e/trips_e/implem_para6_e.htm and the 2005 Decision here: https://www.wto.org/english/tratop_e/trips_e/wtl641_e.htm accessed on 01/11/2017.
[3] See https://www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm accessed on 19 July 2017.

costal zones, victims of natural disasters, instability of agriculture production and instability exports of goods and services.[4]

Thirty-six of the forty-seven LDCs currently listed by the UN[5] are members of the WTO as of the date of writing. These are, in alphabetic order, Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Democratic Republic of the Congo, Djibouti, Gambia, Guinea, Guinea Bissau, Haiti, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Solomon Islands, Tanzania, Togo, Uganda, Vanuatu, Yemen, and Zambia. In addition, Bhutan, Comoros, Ethiopia, Sao Tomé & Principe, Somalia, Sudan, and Timor-Leste are observers and are at various stages of acceding to the WTO.[6] And Eritrea, Kiribati, South Sudan, and Tuvalu are neither members nor observers.

In recent years, five countries have graduated from LDC status: Botswana (1994), Cabo Verde (2007), Maldives (2011), Samoa (2014) and Equatorial Guinea (2017). In general terms, a country may be eligible for graduation when it ceases to meet two of the inclusion criteria or when its gross national income has doubled the graduation threshold and this income is regarded as sustainable.[7]

In this paper the terms developing country and LDC are treated as mutually exclusive, although strictly speaking LDCs are a subset of developing countries.

3. TRIPS negotiations in the Uruguay Round and the role of LDCs

Analysts have conventionally maintained that developing countries were not influential in the Uruguay Round TRIPS negotiations and that the outcome was thrust upon them by developed countries, notably the US and the EU.[8] This has been in large part rebutted in the book recently put out by the WTO on how the TRIPS Agreement was negotiated, with contributions being made by the actual negotiators themselves.[9] What is certainly true is that the then LDC contracting parties to the GATT were not active in the TRIPS negotiations, except for Bangladesh, Tanzania and the Republic of Zaire (now the Democratic Republic of Congo), which participated in to some extent at the early stages of these negotiations. These countries essentially sought special provisions for themselves, almost all of which were accepted in Art.66.1 and Art. 66.2 of the TRIPS Agreement.[10]

More specifically, well before the TRIPS Negotiating Group began the drafting work on the legal text of the TRIPS Agreement in 1990, Bangladesh, on behalf of the group of LDCs, had made clear that LDCs wanted:

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[4] Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures (2015), available at: https://www.un.org/development/desa/dpad/publication/committee-for-development-policy-handbook-on-the-least-developed-country-category-inclusion-graduation-and-special-support-measures-second-edition/

[5] See http://unctad.org/en/pages/aldc/Least%20Developed%20Countries/UN-list-of-Least-Developed-Countries.aspx accessed on 19 July 2017.

[6] See https://www.wto.org/english/thewto_e/whatis_e/tif_e/org7_e.htm accessed on 19 July 2017. See also https://www.wto.org/english/tratop_e/dda_e/negotiating_groups_e.pdf, accessed 2 August 2017.

[7] Handbook on the Least Developed Country Category: Inclusion, Graduation and Special Support Measures (2015), available at: https://www.un.org/development/desa/dpad/publication/committee-for-development-policy-handbook-on-the-least-developed-country-category-inclusion-graduation-and-special-support-measures-second-edition/

[8] See, for example Peter Drahos's paper here: https://www.anu.edu.au/fellows/pdrahos/articles/pdfs/2002devcountriesandipstandards.pdf .

[9] See *The Making of the TRIPS Agreement: Personal Insights from Uruguay Round Negotiations* (2015), WTO, and particularly the chapter on Patents – An Indian Perspective by one of the authors, at https://www.wto.org/english/res_e/booksp_e/trips_agree_e/chapter_16_e.pdf, accessed on 20 July 2017.

[10] See "Patents – An Indian Perspective" by one of the authors in *The Making of the TRIPS Agreement: Personal Insights from Uruguay Round Negotiations* (2015), WTO, p. 308 at https://www.wto.org/english/res_e/booksp_e/trips_agree_e/chapter_16_e.pdf, accessed on 20 July 2017.

i. to be exempt from applying TRIPS obligations in order to adopt measures and policies that would most effectively assist their economic development and not affect their vital interests;
ii. to be provided with technical assistance on mutually agreed terms to assist in the preparation of eventually implementing TRIPS; as well as
iii. to have provisions relating to improved access to, and ensure the effective transfer of technologies.[11]

All of these were obtained by LDCs, to a large extent, in the final agreement and the subsequent extensions of transition periods. LDCs had made a demand in the negotiations for such extensions that they should be exempt altogether from TRIPS obligations as long as they remain LDCs. This blanket extension was not accepted as such but with every successive extension granted, LDCs have effectively come closer to achieving this objective.[12]

During the Uruguay Round negotiations, demands similar to those made by LDCs with respect to technology transfer were also made by developing countries that were not categorized as LDCs. Brazil, for example, demanded that patent owners have an obligation to contribute to the transfer of technology to the host country through transparent and more favourable licensing conditions.[13] However, large developing countries having been the target for those demanding stronger IPR protection in the Uruguay Round, it is not surprising that these demands were not treated with the same degree of sympathy. Indeed, as experience in China shows, countries with large markets have the ability to attract or even force technology transfer in exchange for market access whether or not there are international rules in place that oblige such transfer.[14]

4. Art 66.2 – the obligation

The text of Art.66.2 is reproduced below:

> "Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base." (Emphasis added)

On the face of it, this provision has several self-evident features:

i. It is an obligation that is both mandatory and continuing, like many other obligations in the TRIPS Agreement, as signified by the use of the word "shall" and not "may" or "should" that are used in certain other provisions of the Agreement, as well the absence of any set time-limit for this obligation.
ii. This obligation is only applicable to developed country members.

[11] See GATT document MTN.GNG/NG11/W/50, 16 November 1989.
[12] See WTO document IP/C/W/583, submitted by Haiti on behalf of the LDC group.
[13] See GATT document MTN.GNG/NG11/W/57, 11 December 1989.
[14] Indeed, at the time of writing, the USTR has begun action under the so-called Section 301 process against China for forced technology transfer. *Inside US Trade* (1 August 2017), "Sources: USTR to self-initiate Section 301 investigation into China's forced tech transfers", at https://insidetrade.com/daily-news/sources-ustr-self-initiate-section-301-investigation-china%E2%80%99s-forced-tech-transfers?s=em , accessed on 2 August 2017. This report states that the April 2017 Special 301 report finds that "China imposes requirements that U.S. firms develop their IP in China or transfer their IP to Chinese entities as a condition to accessing the Chinese market. China also requires that mandatory adverse terms be applied to foreign IP licensors, and requires that U.S. firms localize research and development activities." More details can be found at https://ustr.gov/sites/default/files/301/2017%20Special%20301%20Report%20FINAL.PDF .

iii. This obligation is targeted only at LDC members – in other words, LDCs shall be the beneficiaries of this obligation.
iv. The obligation does not say that developed country members shall transfer technology to LDCs nor even ensure the transfer of technology to LDCs, but only obliges developed country members to provide incentives to enterprises and institutions in their territory with the objective of promoting and encouraging technology transfer to LDCs. Therefore the incentive provided must have for its objective the promotion and encouragement of technology transfer to LDCs.[15]
v. Such incentives must be provided in order to enable LDC members to create a sound and viable technological base. The phrase "in order to" is possibly stronger than an alternative phrase "with a view to" as the former could signify "as a means to" and the latter simply "with the hope, aim, or intention of".[16]
vi. There is no further specificity about what technology transfer means, what type of technology should be involved, and in particular, nowhere in the text does it specify that the technology should be covered by IPRs.[17]

The language of Art.66.2 therefore expresses a positive obligation that developed country members took upon themselves, despite not obliging actual transfer of technology to LDCs. But there are several questions that are arguably still open, in the absence of relevant WTO jurisprudence – there is no agreed definition of technology transfer nor a definition of on what would constitute incentives to promote and encourage technology transfer - certainly not in TRIPS - and various concepts surrounding this issue have been repeatedly raised by WTO members in the discussions in the Council as we shall see below.

5. Four phases in the monitoring of the Art.66.2 obligation in the Council

Obligations in any international agreement need to be implemented by the parties to that agreement and those who benefit from any particular obligation need to closely monitor its implementation. The WTO is a member-driven organization in which it is difficult for the Secretariat to take any independent initiative that may affect members' rights and obligations under the covered agreements, without the prior approval - as usual by consensus - of its members. The question that arises therefore is whether and how the beneficiary members, namely the LDCs, monitor the implementation of Art.66.2 in the Council.

The Council is the body set up in the Agreement itself and its functions are described in Art.68 *inter alia* as follows:

> "The Council for TRIPS shall monitor the operation of this Agreement and, in particular, Members' compliance with their obligations hereunder, and shall afford Members the opportunity of consulting on matters relating to the trade-related aspects of intellectual property rights…." (emphasis added).

We can, with hindsight, divide the monitoring of the implementation of Art.66.2 in the Council into four periods or phases as set out in sub-sections a. to d. below.

[15] This obligation may well include grants or subsidies to entities located in developed country members. In this context TRIPS promotes subsidies, while other WTO agreements try to reduce and discipline them. Matthew Kennedy refers to this paradox in his book, *WTO Dispute Settlement and the TRIPS Agreement*, Cambridge University Press, 2016, at p.275.
[16] See https://en.oxforddictionaries.com/definition/us/in_order_to and https://en.oxforddictionaries.com/definition/with_a_view_to .
[17] It may be easy to understand, given the context, object and purpose of TRIPS, why LDCs questioned whether the technology whose transfer was to be promoted or encouraged to their territories would be covered by IPRs. This is discussed later in this chapter.

a. 1995-1998: Not on the agenda

While the subject of technical and financial assistance under TRIPS Art. 67 was raised regularly in the Council since its inception in 1995, the implementation of TRIPS Art. 66.2 was raised for the first time in the Council meeting of 19 September 1997, and that too in passing under the agenda item "Technical Cooperation", when Bangladesh, an LDC member, drew the attention of developed country members to this obligation. There was no immediate response to this point in the meeting, although other points related to technical cooperation that were raised in the meeting were addressed.[18]

b. 1998-2000: the first reports

In the run up to the Seattle WTO ministerial meeting that took place in December 1999, the implementation of Art.66.2 was placed for the first time as a separate agenda item in the Council in the meeting of 12 December 1998. This was also the case with another new agenda item in the same meeting, that is the implementation of the so-called "mailbox" and exclusive marketing rights provisions in Art. 70.8 and Art. 70.9. From a review of the discussion under the Art. 66.2 agenda item, it is clear that there was a link made by delegations between these two items being added to the Council's agenda. Thus, it appears that even placing the review of the implementation of Art. 66.2 on the Council's agenda was a negotiated outcome. [19]

As for the monitoring of the implementation of Art. 66.2 at this meeting, the only LDC Member to speak at the meeting of December 1998 was Haiti, which asked how Art 66.2 was being implemented. Several developing country members spoke to demand that information be given by developed country members on the implementation of this provision. Some developed country members seemed to be willing to provide information on programmes destined for developing countries and there was no immediate rebuttal of this by any LDC delegation. In the end, Haiti's question was circulated in an informal document. [20]

Since December 1998 the review of Art.66.2 was placed on each Council session's agenda until 2003 when it was agreed to review its implementation annually. New Zealand was the first developed country member to make a submission under this agenda item to the Council, namely in document IP/C/W/132. In the Council meetings held in 1999, the discussion continued initially between developed and developing country members, as if the obligation applied also to developing countries. This is also reflected in the fact that several programmes targeted at developing countries were included in the submissions made by the US, Japan, Australia, EC and some member States, Switzerland, Norway and Canada (see IP/C/W/132 Add. 1-7). As we shall see later, although the inclusion of programmes destined for developing country members in reports submitted to the Council has reduced, even if unevenly, over the years, this remains one of the sticking points in discussions between developed country and LDC delegations.

In this first round of submissions, activities of government agencies involved with development assistance were described; little specificity was provided about the kind of incentives provided nor on how these programmes were targeted at promoting technology transfer in LDCs. Nor was there any engagement on the part of LDC delegations, or any discussion of the content of these documents.

[18] IP/C/M/15, paragraph 59.
[19] IP/C/M/21, paragraphs 36-44.
[20] IP/C/M/21, paragraphs 43. WTO informal documents are not publicly available.

At the request of the Council in early 2000, the WTO Secretariat made a summary of the first round of submissions. This summary noted candidly that "It was not possible to distinguish between developing countries generally and least-developed country Members in most of the information submitted." In the table citing the types of incentives, many were said to be covered under the provision of technical assistance and expertise or the provision of education and training to developing countries. LDCs continue to reiterate to date that Art.66.2 reports should not report on technical assistance programmes that are meant to be covered under Art.67 reports. According to the Secretariat 2000 report, only seven developed country members, including EU member States, had specifically mentioned LDCs in their submission at least once from among those that had made submissions.[21]

This summary by the Secretariat provoked discussion in the meeting of June 2000.[22] This was the time that the TRIPS delegate from Zambia[23] began to take serious interest in this subject and raised a number of questions in the Council meeting. This delegate pointed out that the answers provided by developed countries did not target LDCs specifically as they included all countries.[24] However, this delegate may himself have confounded the issue by referring to the broader issue of technology transfer to developing countries, an issue raised in the WTO Committee on Trade and Development (CTD) as well as linked to work in UNCTAD, WIPO, World Bank, UNIDO. It is possible that Zambia was trying to make an alliance with developing countries to garner larger support on this issue. Indeed, developing countries succeeded in obtaining a Working Group on Trade and Technology Transfer in the Doha Ministerial Declaration of 2001, which continues to be in operation.[25]

In its response at this meeting, Australia specifically took the cover of Art.1.1 of TRIPS saying that

> "Members had given effect to their obligations in different ways reflecting the need for a flexible and workable approach to technology transfer."[26]

On whether the most-favoured-nation obligation (MFN) in Art.4 applies to Art.66.2, a question raised by Zambia, the US replied promptly in the following meeting that TRIPS Art.4 regarding MFN applied only with respect to "protection of IPRs" and Art.66.2 was not covered here. More importantly, on whether developed country members needed to introduce new laws, regulations or other measures pursuant to Art. 66.2, the US said that if a developed country member was already compliant with this provision, nothing more needed to be done to fulfil this obligation after the date of application of the TRIPS Agreement.[27]

LDCs, evidently not satisfied with discussions in the Council, took up the matter of the implementation of Art. 66.2 in the Special Session of the General Council,[28] which agreed, at its meeting of 18 October 2000, on what can be considered to have been a negotiating mandate for the Council. With a view to facilitating full implementation of Art. 66.2, the Council was to give consideration to drawing up an illustrative list of incentives of the sort envisaged by Art. 66.2; and to put on a regular and systematic basis its procedure for the notification and monitoring of measures in accordance with the provisions of Art. 66.2 and, in doing so, was to give consideration to avoiding

[21] See IP/C/W/169 on 3 May 2000. This summary excluded the submissions of Norway and Canada, as these came towards the end of 2000.
[22] This is recorded in IP/C/M/27.
[23] The US delegate personally thanked Edward Chisanga of Zambia in the Council of February 2003 after the adoption of the decision and said he had been reflecting about the implementation of Art.66.2 since 1999. See IP/C/M/39, para. 165.
[24] Chisanga's statement was later circulated as IP/C/W/200.
[25] See paragraph 37 of WT/MIN(01)/DEC/1, available at https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm#technology.
[26] IP/C/M/27, para. 54.
[27] IP/C/M/28, para. 36.
[28] In the WTO structure, the General Council is the highest decision making body outside the ministerial conference.

unnecessary burdens in notification procedures.[29] The subsequent Council meetings in 2000 decided to focus on consultations in order to obtain, presumably from LDC delegations, such an illustrative list of incentives they would like to see put in place as well as a proposal for notification and monitoring of these measures.

c. 2001-2003: Negotiating a monitoring mechanism

It was clear that by April 2001 LDC delegations were yet to prepare the previously promised illustrative list of incentives.[30] However, in the meeting of June 2001, the delegation of Zambia asked developed country members to provide information on the following:[31]

(1) the fields of technology in which each incentive has been applied in transferring technology to LDCs;
(2) the modes in which technology is being transferred to LDCs under each incentive (for instance: training of personnel, licensing agreements, commercial establishment, sale of goods, etc.);
(3) any factors which are perceived to have made some incentives more effective in transferring technology to LDCs than others;
(4) how LDCs can have input into the choice of the fields in which technology is transferred to them under each incentive.

Zambia articulated these demands as if there was a positive obligation on the part of developed country members to provide incentives to transfer technology to LDCs, reading out of the Art. 66.2 text the words to *promote and encourage* the transfer of technology. Zambia argued in 2001 that if Art.66.2 was not leading to a sound and viable technological base being developed in LDCs, then LDCs may not be able to implement TRIPS provisions by 2006, as was envisaged under Art.66.1, and would thus need further extensions of the transition period.

Interestingly, LDCs have progressively obtained extensions of the grace or transition periods, the last of which exempt them from the application of TRIPS obligations up to mid-2021 in general and up to January 2033 for pharmaceuticals.[32] Indeed in the decision of June 2013,[33] one of the provisions in the preamble states:

> *Recognizing* the special needs and requirements of least developed country Members, the economic, financial and administrative constraints that they continue to face, *and their need for flexibility to create a viable technological base* (emphasis added)

Thus the WTO membership seemingly recognized a connection between LDCs being able to create a viable technological base and extending time to comply with the obligations under the TRIPS Agreement.[34]

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[29] WT/GC/M/59, para 46.
[30] IP/C/M/30, paras. 34-25. In 2001, the focus of both LDC and developing country delegations had shifted to negotiations on TRIPS and public health that finally resulted in the adoption of the Doha Declaration on the TRIPS Agreement and Public Health. See https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm
[31] IP/C/W/298 reproduced Zambia's statement.
[32] See the latest extensions of transition periods granted to LDCs in IP/C/64 that gave LDCs up to 1st July 2021 and IP/C/73 that extended the transition period for complying with TRIPS provisions relevant for pharmaceutical products until 1 January 2033.
[33] IP/C/64.
[34] Indeed, the transition period itself could be one of the major incentives to transfer technology to LDCs from developing countries that have to already comply with TRIPS. One well-known example is the production of newer anti-retroviral medicines in Uganda by an Indian generic companyafter the introduction of pharmaceutical patent protection in India.

In the run up to the Doha ministerial meeting of November 2001, developed country members may have been reluctant to agree to any rigid format of reporting, in view of the fact that they had to collect the information that goes into the Art. 66.2 reports from varied and numerous government agencies. As a compromise, due to the efforts of the Zambian delegate, and with the facilitation of the Chairman of the Council, the then Ambassador of Zimbabwe, and the WTO Secretariat, ministers at Doha were in a position to adopt the Doha ministerial decision[35] which in its para. 11.2 calls for the Council to put in place a monitoring mechanism for ensuring the full implementation of Art. 66.2, and for developed countries to submit detailed reports by end of 2002, to be updated annually. However, the monitoring mechanism still needed to be fleshed out in the Council.

This ministerial decision was taken up in the Council in early 2002,[36] and the reaction of some of the developed country members was that they needed more time to reflect on whether proposals for a monitoring mechanism and detailed reports from them could be submitted by end-2002. In the next meeting,[37] Senegal and Uganda joined Zambia in defending the interests of LDCs in ensuring that a proper monitoring mechanism was in place in the WTO and to ensure that developed country delegations submitted detailed reports accordingly. In that meeting, the US delegate questioned why the current system of monitoring was not adequate. He said that his delegation had not received any questions or comments from LDC delegations on the reports submitted so far. As we shall see later, it is this lack of detailed feedback from LDCs - quite obviously due to genuine constraints of being small delegations trying to cover all of WTO work as well as that in other Geneva-based international organizations - that has continued to be a major stumbling block in making further - mutually agreed upon - improvements in the Art. 66.2 reports.

In the Council meeting of June 2002, the LDC group, led by Uganda, made a submission requesting that there be a correlation between the particular regime of incentives and the obligation under Art.66.2; and that the incentives reported are specific only to enterprises and institutions transferring technology to LDC members and do not fall within the general rubric of official development assistance (ODA). More specific points were also made by the LDC group in its written submission.[38]

By September 2002, evidently after informal consultations facilitated by the Chairman of the Council and the Secretariat, developed country and LDC members were presented with an informal document, prepared by the Chair (a precursor to the eventual Council decision of 19 February 2003). Both sets of delegations needed further time to study this document. In the meanwhile, developed country delegations were requested to submit detailed reports, using the information contained in this informal document, if they found it useful to do so. Canada, New Zealand, Australia, Switzerland, Japan, Norway, EC[39] and its member States and the US submitted reports on this basis by the end of 2002.[40]

One sticking point in these discussions was the request by LDCs to obtain the terms of the transfer of technology. The EC responded that the submission of this information was impossible for several reasons. First, information was not always available on licensing terms; no list of licensing agreements concluded in the world was publicly available. Second, transfer of technology was often informal, especially in the case of transfer of know-how or transactions between different

[35] WT/MIN(01)/17.
[36] IP/C/M/35.
[37] IP/C/M/36.
[38] IP/C/W/357.
[39] Before 2009 the European Union was called the European Communities (EC).
[40] IP/C/M/38, para. 252. Developed country reports are in IP/C/W/388 and addenda.

geographic entities of foreign firms. Finally, a lot of information on transfer of technology was considered as business confidential information.[41]

Another point raised by Zambia was that “developed country Members must show exactly what they had done in terms of the law or policy to implement their obligations. In other words, it was critical that developed countries would show that they had enacted either a specific law, identifiable policy or regulation to implement Art.66.2 rather than provide generalized statements. "He emphasized that international obligations were always implemented by identifiable laws, regulations or policies, and that Art.66.2 was no exception.[42] In this connection, it must be recalled that some developed countries had previously noted in the Council that if members were already compliant with a TRIPS obligation, there was no need to introduce new measures.[43]

Days before the Council decision was adopted, the EC and its member States made a submission to both the WTO's Working Group on Technology Transfer and the Council that was entitled "Reflection Paper on Transfer of Technology to Developing and Least developed countries", and specifically referred to Art.66.2.[44] One of its objectives was to "help to identify the most useful incentives developed countries give to their enterprises and institutions in order to contribute to a 'sound and viable technological base' in LDCs, in accordance with Art.66.2 of the TRIPS Agreement." It pointed out that the most appropriate policies are capacity-building programmes, training, technical assistance on macroeconomic reforms, as well as regional integration through free trade agreements, among others. It called upon facilitating business partnerships involving direct investment with technical and financial incentives. The first incentives were to aim at EU firms seeking potential partners in LDCs, and at improving LDCs firms' competencies through operational advice. The second incentives were to include financing, insuring prospective activities, supporting risks or facilitating loans.

After further consultations, on 19 February 2003, the Council adopted a Decision on Implementation of Art.66.2 (IP/C/28), by consensus, with the objective of setting up a monitoring mechanism, with these main provisions on periodicity and content of developed country reports:

Periodicity and timing of the reports:

- Annual reports must be submitted [on actions taken or planned with respect to the implementation of Art.66.2];
- New detailed reports must be submitted every third year;
- In the intervening years, updates of their most recent reports must be submitted;
- Annual reports must be submitted before the last Council meeting scheduled for the corresponding year.

Content that must be provided in the reports:

- Actions taken or planned with respect to the implementation of Art.66.2, subject only to protection of confidential business information;
- An overview of the incentives regime put in place to fulfil the obligations of Art.66.2, including any specific legislative, policy and regulatory framework;
- Identification of the type of incentive and responsible authority (government agency or other entity) making it available;

[41] IP/C/M/38, para. 259.
[42] IP/C/M/39, para. 262.
[43] IP/C/M/28, para. 36. It must be noted that it is difficult to say what, if anything, developed countries are doing additionally, pursuant to the obligation under Art.66.2, that they were not doing earlier. Thus, Art.66.2 may, in the worst case scenario, have only brought more transparency to incentives already being provided by developed country members to LDC members.
[44] IP/C/W/398, WT/WGTTT/W/5 dated 14 February 2003.

- Identification of the enterprises or other institutions eligible to receive such incentives in developed country members;
- Any information available on the functioning in practice of these incentives.

Illustrative examples of the additional information included:

- statistical and/or other information on the use of the incentives in question by the eligible enterprises and institutions;
- the type of technology that has been transferred by these enterprises and institutions and the terms on which it has been transferred;
- the mode of technology transfer;
- LDCs to which the enterprises and institutions in developed country members have transferred technology and the extent to which the incentives are specific to LDCs; and
- any additional information available that would help assess the effects of the measures in promoting and encouraging technology transfer to least-developed country members in order to enable them to create a sound and viable technological base.

Given the details included in the Council Decision, the LDC group must have been fairly satisfied with its hard-fought achievements.[45] The Decision provided for the review by the Council of these arrangements after three years in the light of experience of the new system of reporting under Art.66.2. Such a review of the Decision has not taken place, although the implementation of Art. 66.2 is reviewed annually by the Council in its last meeting for each year.

d. 2003-2016: Implementation of the monitoring mechanism

The question is whether the hard fought gains made by LDC negotiators have borne fruit in the implementation phase. In this sub-section we give details of the initial review, the workshops organized by the Secretariat, and the new proposed LDC format.

First annual review in 2003

On 18 November 2003, the Council conducted its first annual review of developed country members' reports on their implementation of Art.66.2.[46] On this occasion, the representative of Bangladesh again requested developed country delegations to provide the terms of technology transfer, but added also the appropriateness/local adaptability of the technology transferred and the name of the beneficiary enterprise or institution in the LDC. She said that the reports were not complying with these and other basic requirements. She then added that the incentives reported should not be under the general ODA, but should only be incentives specific to enterprises and institutions transferring technology to LDCs.

In response, the EU said that there were different elements present in a technological base, including scientific knowledge, physical objects, actual production and know-how, along with different channels for transferring technology. Since it is the private sector that holds most technology, LDCs also needed in the long term to take action. For example, advice and expertise were key elements which some LDC enterprises lacked, as well as the ability to identify suppliers of technology before entering into contractual relationships and, once the technology had been acquired, the ability to adapt it to local contexts. The EU said that it had identified six large groups of incentives/projects which they considered important in this context: (1) promoting projects among

[45] Indeed, this Decision was widely seen as an important step forward that reduced developed countries' discretion in implementing Art.66.2. See UNCTAD-ICSTD Resource Book on TRIPS and Development, p. 734.
[46] See IP/C/W/412 and its addenda and the discussion in IP/C/M/42.

private enterprises (e.g. foreign direct investment, licensing, franchising, sub-contracting, etc.); (2) improving access to available information and technologies; (3) supporting common research projects; (4) technology management training to ensure effective incorporation of the transferred technology in their productive capacity; (5) encouraging trade in technological goods; (6) certain capacity-building initiatives.[47] Furthermore, the EC said that transfer of technology was rarely done in isolation, and required "a *demandeur* of technology, a provider of technology, as well as technology that was really adapted to the local economy", thus agreeing in principle to the point made by the LDCs on the local adaptability of technology.

The representative of the United States simply asked the representative of Bangladesh to explain what particular aspect of the US submission she had found not to be in compliance with the requirements and offered to meet with her bilaterally. This question was never answered.

The second and subsequent annual reviews also did not really provide any feedback from LDCs on the specific incentives reported by developed country members, except to point out in general terms that incentives specific to LDCs were not being provided. What is clear to date is that developed country reports on this subject are only an illustrative compilation of incentives given by them and are not meant to be comprehensive. Moreover, they are based on material received from different government agencies, adding up to a considerable bulk, which LDC delegations find difficult to read and make sense of from their point of view.

Secretariat-organized workshops from 2008 onwards between developed country and LDC members to review Art. 66.2 annual reports

Soon after the June 2008 Council meeting, Lesotho, on behalf of the LDC Group, requested the Secretariat to organize a workshop between developed country and LDC delegations back to back with the last TRIPS Council meeting in October 2008.[48] Since 2008, the Secretariat has organized such workshops every year, back to back with the last Council meeting, where the developed country delegations briefly highlight the main projects/programmes included in the latest reports submitted in the year and respond to questions raised by LDC delegations orally at the same meeting if possible, or subsequently in writing.

These - usually half-day - workshops have provided a forum for a fuller dialogue than had been possible in Council meetings. Unfortunately, many of the reports from developed countries are submitted later than the deadline of one month before the last Council meeting. However, it is not clear if this is the only constraint that LDC delegations have as even those that are submitted on time are not necessarily studied by them in advance. As noted earlier, Geneva-based LDC delegations, which usually deal with many WTO bodies as well as other UN agencies, genuinely lack the resources and time to make a deep study of these reports. Despite these constraints, some LDC delegations have made major efforts in recent years to prepare questions in advance. The answers from developed country members - usually submitted later in writing - may have helped them better understand these reports, although there has generally not been much LDC reaction to these responses.

Revised reporting format proposed by LDC Group in 2011

Before the fourth annual workshop, in order to better comprehend the vast amount of information submitted by developed country members, a revised reporting format was proposed by LDC members in document IP/C/W/561 of 6 October 2011. It is significant that the LDC group chose to

[47] This format was changed to accommodate the proposed LDC format from 2012 onwards.
[48] This request is recorded in IP/C/M/58.

focus on the relatively easy question of format rather than the nature and content of the incentives provided. Even before this proposed format, many developed country jurisdictions, notably the EU, had made efforts to organize their reports in a sensible way.[49] The proposed tabular format is as follows:

Report on the Implementation of Art.66.2 of the TRIPS Agreement
1. Title of project/programme[50]
2. Policy objective and/or purpose
3. Government agencies or institutions eligible in the provision of incentives for technology transfer in developed member
4. Enterprises or other institutions eligible for incentives in LDCs (Transferor)
5. Targeted LDC Members (Transferee)
6. Type of incentives measures for technology transfer
7. Field or sector of technology transfer activities
8. Type of technology transferred
9. Expected output related to technology transfer
10. Outcomes/impact
11. Budget or funds allocated
12. Duration
13. Status
14. Contact point for information

The initial reaction of some developed country members was to question the utility of such a rigid framework. There has nonetheless been progressive improvement in the structure of the reports submitted since then. Developed country members have increasingly used elements from the proposed framework to improve the structure of their reports and this improvement is clearly noticeable by the 2016 reports. Australia,[51] Canada,[52] Japan,[53] New Zealand ,[54] and Switzerland,[55] as well as the EU, including some EU member States[56] followed the LDC format to a large extent. Even for others, reports are more streamlined, better structured, and the information more focused on Art.66.2 objectives. Norway and the US continued to report as they were doing since 2003, and Japan introduced an annex which contained a table with specific details including beneficiary countries.

Clearly more important than the format is the content of the reports, more particularly the nature and impact of incentives being reported, and this is a more difficult and complex output to discern from the reports.

6. Analysis of Art 66.2 reports submitted from 2003 to 2016

What can we usefully learn about the implementation of Art.66.2 from the reports submitted by developed country members from 2003 to 2016?

[49] See http://trade.ec.europa.eu/doclib/docs/2007/october/tradoc_136431.2%20and%2067.pdf, which appears to be instructions to EU member States dated 12.09.2007 to report their Art. 66.2 incentives in a structured way not too different from what LDCs proposed later.
[50] Note that the words used by the LDC group in the proposed format is "project/programme" and not "incentive".
[51] see annex of IP/C/W/616/Add.1.
[52] see annex of IP/C/W/616/Add.4.
[53] see annex of IP/C/W/616.
[54] see annex of IP/C/W/616/Add.6.
[55] see annex of IP/C/W/616/Add.2.
[56] See annex IP/C/W/611/Add.7.

- First, we can learn whether all those WTO members who have an obligation under Art.66.2 and are subject to the Council decision of February 2003 have actually submitted reports.

- Second, we can see in which categories of technology are the incentive programmes being provided and the difference between the early reports and the latest ones.

- Third, we can see which LDC members have benefited from the reported programmes: again which LDCs have benefitted regularly over the period 2003-2016 and which specific categories of programmes have each LDC received.

It would have been also interesting to see if the reported incentives provided by developed countries do actually promote and encourage the transfer of technology to LDCs. Unfortunately, no beneficiary LDC member has informed the Council or the annual workshop of any assessment done on ground on whether the incentives reported have actually led to the promotion or encouragement of technology transfer to them. Unless this is done, the dialogue will remain one-sided with the developed country members reporting incentives without much feedback on the impact of these incentives at the ground level.

a. Submission of reports to the Council

While there is no precise way to identify developed country members in the WTO, if we take the UN DESA count as illustrative only and not a legally binding classification, there may be as many as 36 developed country members that can be currently identified as having an obligation under Art.66.2, namely Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland, United States, along with the European Union and its 28 member States.[57] This should result in the submission of nine individual annual reports, including the European Union's combined reports for the European Union and its 28 members, at least from the time that they joined the EU.[58]

Since 2003, the Secretariat has received reports regularly from eight jurisdictions: Australia (from 2005), Canada, Japan, New Zealand, Norway, Switzerland, United States, and the European Union. Iceland has not participated, either in the Council meetings or in the Art. 66.2 workshops held since 2008, and has never submitted a report.

Concerning the EU member States that have submitted separate reports on their national-level incentive programmes that are included in the EU reports, France and Sweden appear to have reported every year from 2003 to 2016; Finland missed reporting only in one year; Spain and the U.K. missed reporting for only two years; Austria, Denmark, Germany and the Slovak Republic appear not to have reported for four years; Ireland for five years; and Belgium, for six years. The Czech Republic submitted a report six times during this period, although it submitted its 2003 report before it had joined the EU. Estonia has reported thrice; Netherlands twice; and Lithuania, Luxembourg and Italy once. Bulgaria, Cyprus, Greece, Hungary, Latvia, Malta, Poland, Portugal, Romania, and Slovenia appear to have never submitted separate reports. Similarly, Croatia, which joined the EU in 2013, appears not to have submitted any report yet.

[57] World Economic Situation and Prospects 2017, United Nations, New York 2017. Available at: https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/2017wesp_full_en.pdf . The 28 EU member States as of date of writing are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, and the United Kingdom.

[58] The EU report combines a report on incentives given at the EU level and then attaches some individual member State reports. Note that Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovak Republic, and Slovenia joined in 2004; Bulgaria and Romania in 2007 and Croatia in 2013.

Over the 14 year period from 2003-2016, had all the so-called developed country members submitted annual reports, the Council should have received 126 individual/combined EU reports plus 364 reports from EU member States, assuming that they had all provided and reported on national-level incentives, in addition to the EU-level incentives already provided.[59] The Council actually received 239 total reports, i.e. 104 individual/combined EU reports plus 135 EU member States' reports.

It should be noted that just the fact that a member has not submitted a report to the Council does not mean that it has not fulfilled its obligation under Art.66.2 as it may well have implemented incentives benefiting LDCs but failed on reporting them to the Council. Conversely, just because a developed country member has submitted a report to the Council may not necessarily mean that the obligation in Art.66.2 is being met, particularly from the viewpoint of the LDC members. However, the presumption may be in favour of the reporting member if no LDC beneficiary member rejects these reports either in the workshop or in the Council meetings.

Indeed, a number of Art.66.2 type incentives being provided to LDC members are not reported upon or not reported in any useful detail, and developed country members always make it point to note that the reports are only illustrative of the kind of incentives they provide. For example, FinnFund has incentive programmes in some LDC members that can be found on its website but have not been reported to the Council.[60] This is also true of Japanese ODA[61] or the EU development cooperation[62] or indeed Canadian assistance to the private sector seeking to invest abroad,[63] to name just a few examples. True, the programmes on these websites are not exclusively devoted to LDC members but there is useful information pertaining to them. Clearly, developed country members have a difficult task of collecting the relevant information from different government agencies within their jurisdictions and reporting it in a timely way and in the requested format.

Moreover, developed country members also find it difficult to completely exclude programmes that include developing countries. In response to the LDC request to only report incentive programmes for LDCs, the developed countries, particularly the EU, have consistently replied that it is not possible to separate the programmes in this way as many programmes are implemented by region, which would necessarily mean having a mix of developing countries and LDCs. More importantly, while developed countries could have only reported on the LDC part of the programmes, including budgets, this would be misleading as it would not give the full picture on the programme. Hence, it is unclear if LDC members would benefit from such partial reports. The LDC members, while keeping up the demand to report on programmes targeting LDCs, need to consider if they are adversely affected by being a part of programmes that also include developing countries.

b. What are the broad fields in which incentive programmes are being reported and how has this changed over time?

Of interest is what kind of incentive or other programmes are being reported upon by developed country members and what are the main sectors of activity? It was not always easy to categorize the programmes in one or other category. Broadly, we found that most programmes reported between 2003-2016 fall into the following sixteen categories, including a catch-all "other":

[59] Taking into account the different dates of adherence to the EU as noted above.
[60] See projects implemented in Bangladesh, Sierra Leone, Tanzania and Uganda here. https://www.finnfund.fi/sijoitukset/en_GB/investment_examples/
[61] See http://www.mofa.go.jp/policy/oda/page_000012.html.
[62] See https://ec.europa.eu/europeaid/node/37626, in particular the LDC member webpages.
[63] See https://www.canada.ca/en/services/business/trade/invest-foreign-markets.html in particular the LDC member webpages.

1. **Environment/Water** incentives comprise programmes for environment and climate change matters as well as for water supply and management, such as the Canadian International Development Agency (CIDA), which is water/sanitation project in Uganda for the transfer of gravity-flow methods to a local technical service organization for Uganda (IP/C/W/412/Add.7)

2. **Public health** incentives concern programmes that relate to public health, including research, capacity building or awareness programmes relating to medicines, vaccines, or diagnostic kits. For instance The Project for Development of Innovative Research Technique in Genetic Epidemiology of Malaria and Other Parasitic Diseases in Lao PDR for Containment of their Expanding Endemicity in Lao PDR provided by Japan (IP/C/W/616).

3. **Intellectual property** (IP) incentives relate to any kind of capacity building in the area of IP, including training programmes to government officials, e.g. training courses on intellectual property rights for government officials for Bangladesh provided by Japan (IP/C/W/412)

4. **Agriculture/Food** incentives refer to programmes seeking to increase crop productivity or food security, containing the establishment of agro-processing units, such as the PRO€INVEST, specialised in the production of jam, fruit juices and syrups for Senegal by the European Union (IP/C/W/412/Add.5)

5. **Energy** incentives cover programmes that encourage the development of energy resources, be it conventional or renewable energy, namely the Clean Energy for Development Initiative in Nepal by Norway (IP/C/W/616/Add.3)

6. **Education** incentives comprise short term and long term study programmes of any kind, such as scholarships or other incentives for education and skill development. For instance, the Australia Awards, which is a government funding for scholarships enabling citizens of LDCs to undertake study in Australia, one of the beneficiaries is nationals from Tanzania. (IP/C/W/616/Add.1)

7. **MSMEs/Business** incentives consist of programmes for business development, access to credit, improvement of managerial skills, covering MSMEs, such as the Executive Programme on Corporate Management Enhancement of participants' capabilities of corporate management, with utilizing managerial functions, pursuing to upgrade corporate management of their companies as executives by Japan to Cambodia.(IP/C/W/616)

8. **Financial** incentives include programmes that offer any kind of financial resources for general or specific purposes, such as programmes that are part of the Green Climate Fund (GCF), in which the Ministry of Natural Resources of Rwanda has been accredited to implement GCF projects and programmes provided by Australia (IP/C/W/616/Add.1)

9. **Construction/Infrastructure** incentives cover any programmes that improve infrastructure, as road safety, highway administration or construction programmes, e.g. the Department of Transportation's (DOT's) Africa Aviation Initiative for Federal Highway Administration provided by United States of America to Malawi. (IP/C/W/412/Add.3)

10. **Aid relief** incentives are programmes that offer immediate relief in the wake of natural disasters or other emergencies. For example the Satellite image monitoring of earthquake-

and monsoon-initiated landslides in Nepal by European Union, specifically United Kingdom (IP/C/W/616/Add.7)

11. **Information Technology** (IT) covers capacity building programmes in that area, such as the FTF Programming in Bangladesh by United States of America (IP/C/W/616/Add.5)

12. **Standardization/Metrology** are for programmes focused on developing standardization or metrology techniques and practices, namely the Asia-Pacific Metrology Programme (APMP) and Asia Pacific Legal Metrology Forum (APLMF) by Australia benefiting Nepal and Myanmar (IP/C/W/616/Add.1)

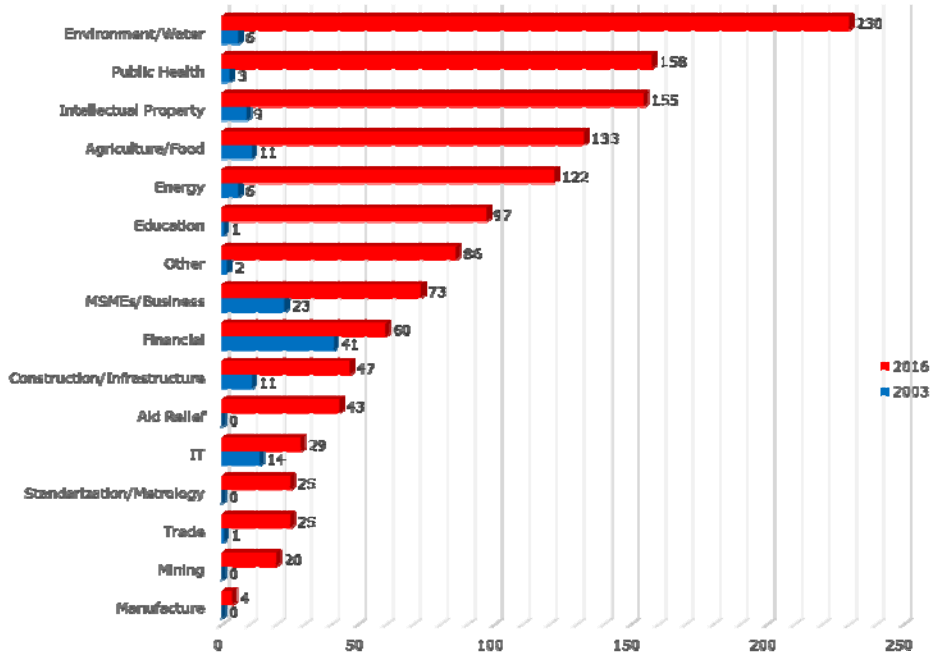
13. **Trade** includes capacity building in any area of international trade, such as the CEB UN Cluster on Trade and Productive Capacities to support LDCs' integration into the world trading system by Switzerland in Lao PDR (IP/C/W/616/Add.2)

14. **Mining** comprehends any aspect of mining activities including regulation, e.g. the Support of the Burundian Government in regulating the mining sector by Germany in the European Union (IP/C/W/616/Add.7).

15. **Manufacture** covers programmes relating to manufacture capacity, performance, and improvement, such as he Better Work Programme which aims to improve working conditions in global textile and apparel supply chains by monitoring factories' compliance with national labour laws and international labour standards and providing technical assistance to factories that need to improve their compliance in Cambodia by the United States of America (IP/C/W/616/Add.5)

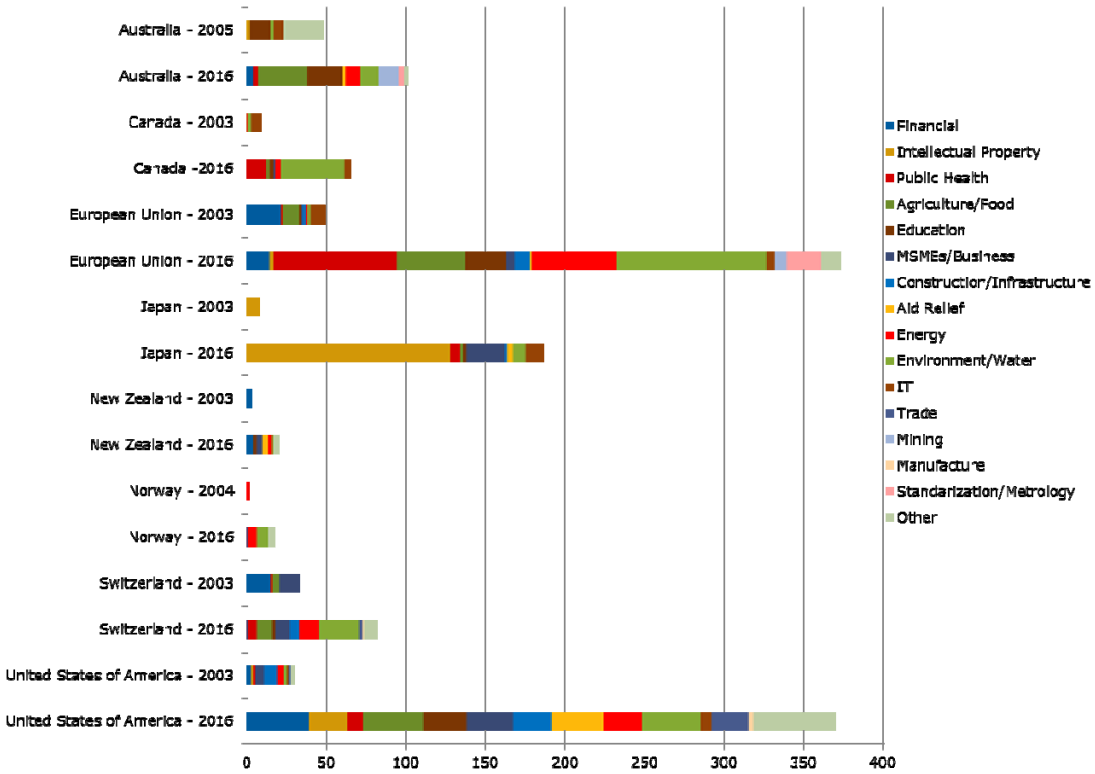
16. **Other** is for programmes not entirely suited for one of the aforementioned sectors, e.g. Consolidation Electoral Process for Zambia by the European Union (IP/C/W/616/Add.7)

Figure 1: Sectors where incentives provided in 2003 and 2016



From Figure 1 above, even if admittedly there may be double counting with the same programmes repeated over several years, we can see that overall in 2016 environment/water programmes were the largest category from among those reported; followed by those in public health, intellectual property, agriculture/food, energy and education. Programmes for MSMEs/businesses, construction/infrastructure, and information technology follow in much smaller numbers.

Figure 2: Sectors where incentives provided, by reporting members in 2003, 2016



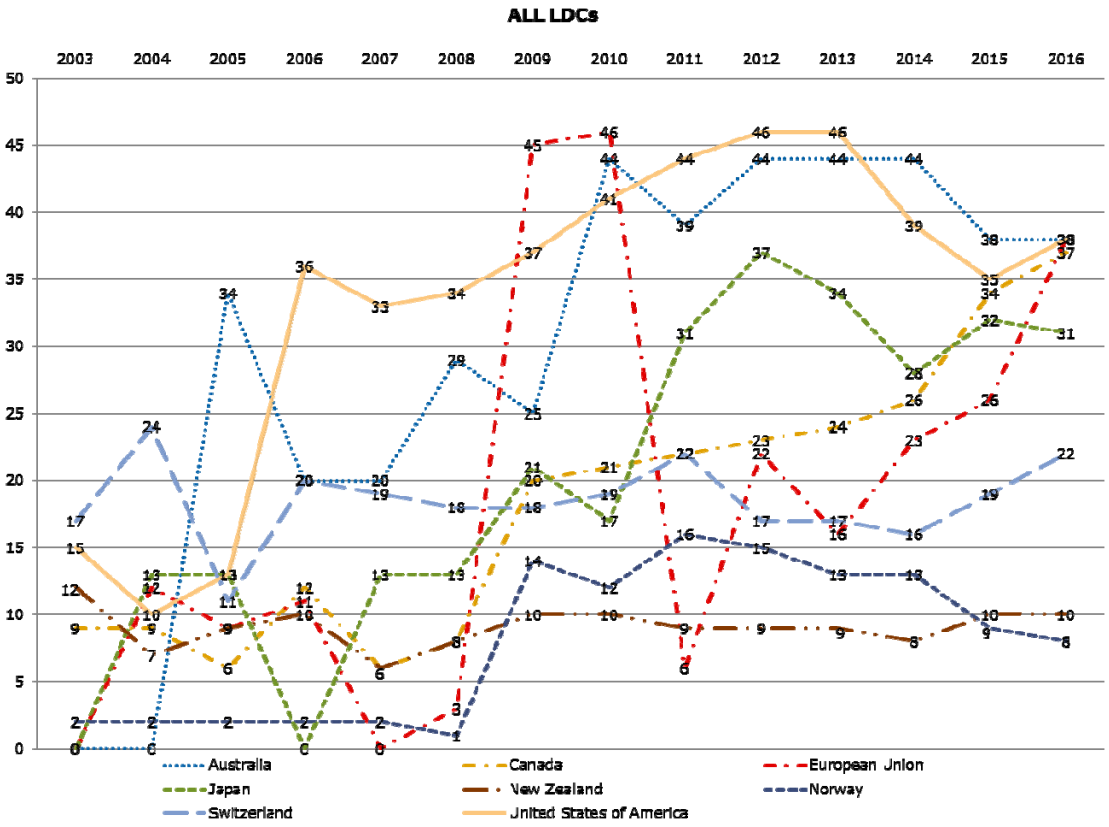
But it is important to know which developed country members reported programmes in which sectors. The largest and most varied number of programmes in 2016 have been reported by the US and the EU, followed by Japan, Australia, Switzerland and Canada. The sector where mainly Japan reported a significant number of programmes was IP, a category also reported upon by a few others. We have seen above that this has been the subject of some discussion in the Council as to whether these should be reported under Art.66.2 or Art.67.

c. How many LDC members have benefitted from the reported incentives?

In 2003 developed country members mentioned 27 LDC members as beneficiaries of various incentive programmes; this figure went up to 35 in 2016. But if we look at the reporting on LDC programmes, whether these are WTO members or not, the EU and the US have reported programmes for as many as 46 LDCs in a particular year as seen from the graph below (Figure 3). Australia has reported as many as 44 of the LDCs and Canada went from 9 LDCs in 2003 to 37 LDCs in 2016. Japan had a maximum of 37 LDCs during this period. Switzerland has consistently reported programmes related to 17-24 LDCs during this period. Norway began with only 2 LDCs in its 2003 and 2004 reports but went on to include as many as 16 LDCs in any one year, its latest reports showing eight LDCs. New Zealand indicates that it only includes LDCs in the Pacific region and for this reason has consistently reported 8-12 LDCs.

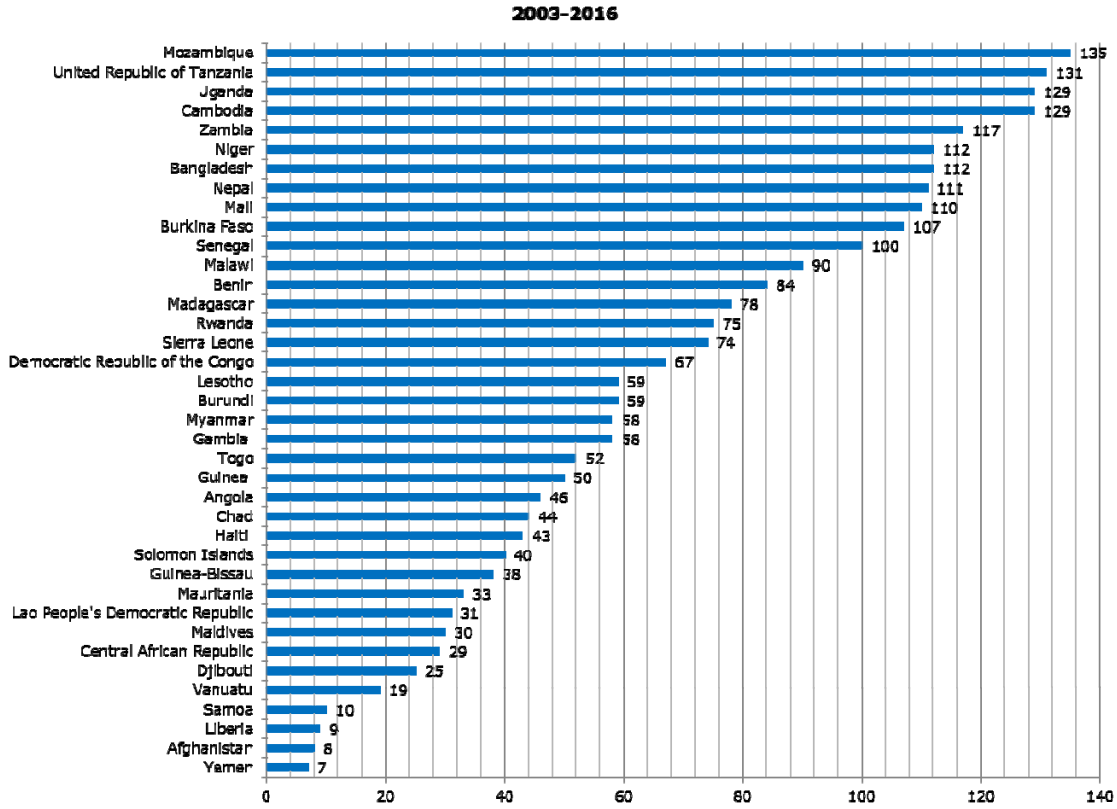
It is understandable that these reports include LDCs which are not members of the WTO, such as Eritrea, Kiribati, South Sudan and Tuvalu, along with LDCs with observer status in the WTO, namely Bhutan, Comoros, Ethiopia, Sao Tome and Principe, Somalia, Sudan, and Timor-Leste. This has not been expressly objected to by LDC members – perhaps because such reporting is less problematic to them than the reporting of developing country members.

Figure 3: Total number of LDCs mentioned at least once in the annual report/update 2003-2016



Counting each LDC member only once per report submitted from 2003-2016, we construct another graph (Figure 4 below) to see which LDCs have benefited most regularly from the programmes reported under Art.66.2.

Figure 4: Cumulative count of LDCs (by name) mentioned at least once in each country report 2003-2016



Since 2003, the top 10 LDCs mentioned at least once in each of the 221 reports received during 2003-2016 are Mozambique (135), Tanzania (131), Uganda (129), Cambodia (129), Zambia (117), Bangladesh (112), Niger (112), Nepal (111), Mali (119) and Burkina Faso (107). From the bottom up, the least mentioned are Yemen (7), Afghanistan (8), Liberia (9) and Samoa (10) as either they joined the WTO recently and/or graduated from LDC status.[64]

The authors recognize that aggregating all programmes reported each year is not ideal, as it may represent a number of projects repeated each year. For example, if the same project that mentions, say, Uganda has been repeated in each of the reports of a particular developed country for say four years, then this LDC has a score of four for these years even though it has only benefitted from one project during this period. This applies to even the overall chart in Figure 1 where double counting is involved as it is not always easy to identify whether it is the same programme or not.

Could we combine the programmes and the countries and see which LDC members are being provided with what kind of programmes? The following two charts, Figure 5, 6 below give us the picture in 2003 and 2016.

[64] Afghanistan joined the WTO in 2016, therefore only 2016 is counted; Cambodia joined the WTO in 2004, therefore only 2004-2016 is covered; Lao joined the WTO in 2013, therefore only 2013-2016 is covered; Maldives graduated as an LDC in 2011, therefore only 2003-2011 is covered; Liberia joined the WTO in 2016, therefore only 2016 is counted; Nepal joined the WTO in 2004, therefore only 2004-2016 is covered; Samoa graduated as LDC in 2014 and joined the WTO in 2012, therefore only 2012-2014 is covered; Vanuatu joined the WTO in 2012, therefore only 2012-2016 is covered; and Yemen joined the WTO in 2014, therefore only 2014-2016 is covered.

Figure 5: Areas covered by reports submitted in 2003 with LDCs mentioned in each area

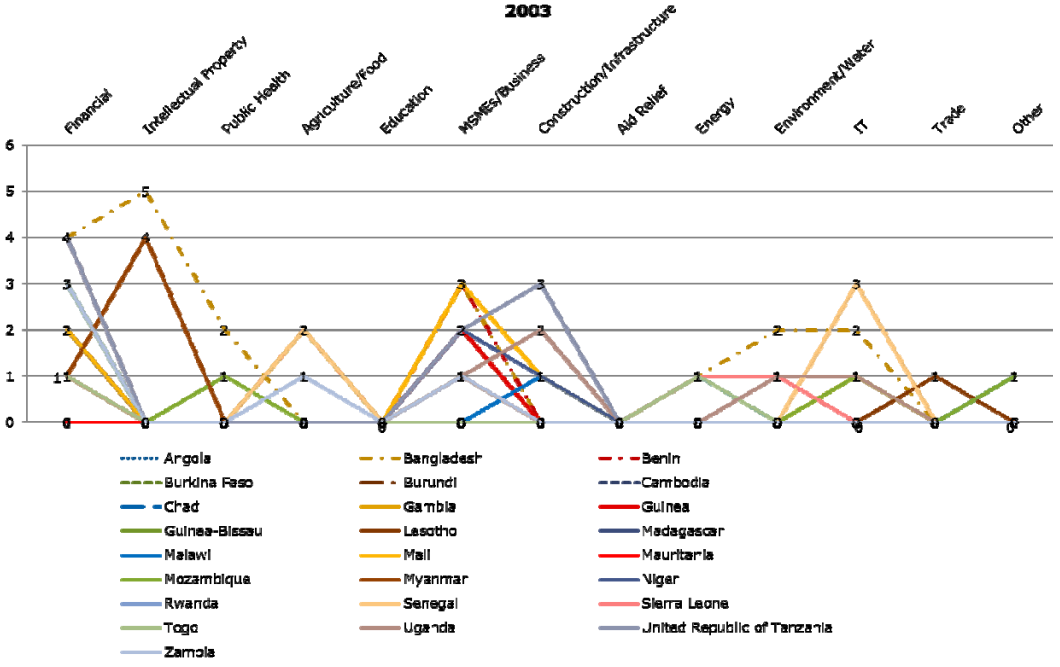
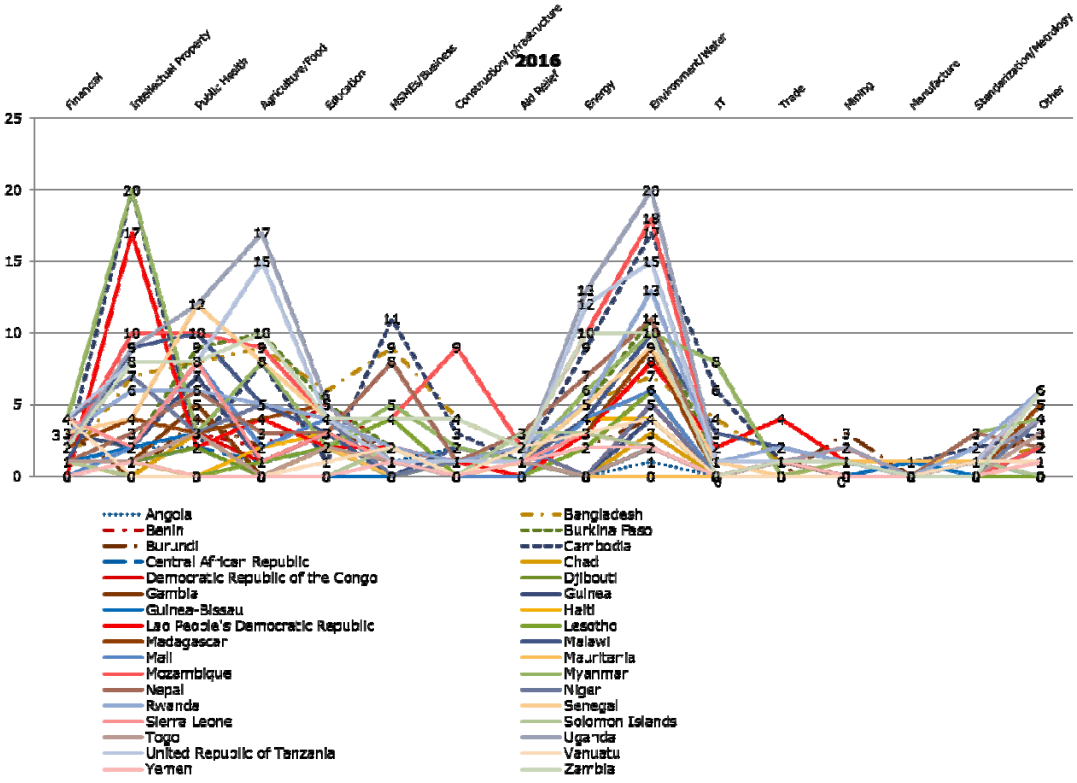


Figure 6: Areas covered by reports submitted in 2016 with LDCs mentioned in each area



Clearly, there has not only been diversification of programmes overall in 2016 but also for many LDC members. Most LDC members seem to have obtained projects in the areas of environment/water, IP, agriculture/food and public health.

7. Understanding of "transfer of technology" and "incentives"

The absence of a common understanding on fundamental concepts - such as "transfer of technology" or "incentives" used in the text of Art.66.2 - is reflected in many of the annual reports. More than the question of whether developed countries are meeting their obligation, the manner in which the reports are presented does not provide a clear picture of the action taken to incentivize the promotion of technology transfer to LDCs in a way that would enable them to have a sound and viable technological base. The two main unresolved substantive issues are the lack of common definition of technology transfer and lack of common understanding of the type of incentive required for promoting and encouraging technology transfer in LDC members.

From the initial years, taking 2003-2004 together, developed countries as a whole seemed to have focused on capacity building programmes as against, for example financial incentives to enterprises located in their territories. For example, Japan reported in 2003 and 2004 on several training programmes organized in intellectual property (IP) for government officials from LDCs. Japan, US and others continue to report on such programmes, as a part of the incentives that they provide. Faced with criticism that such programmes should be reported as a part of Art.67 and not Art. 66.2, there has been a strong defence by these and other developed country delegates that such IP programmes are a part of improving the enabling environment for technology transfer in LDCs.[65] Furthermore, numerous developed countries have given their own understanding of the concept of technology transfer, either in their reports and/or in Council meetings, which may or may not have a link to the type of activities reported by them.

Delving into developed country members' understanding of technology transfer,[66] certainly New Zealand has the most comprehensive definition. It interprets it broadly to include training, education and "know-how", along with any capital component. Four key modes of technology transfer are mentioned: (i) physical objects or equipment; (ii) skills and human aspects of technology management and learning; (iii) designs and blueprints which constitute the document-embodied knowledge on information and technology; and (iv) production arrangement linkages within which technology is operated.[67]

The EU has said that technology transfer refers to the ways and means through which companies, individuals and organizations acquire technology or know-how from third parties, whether such technology is IPR-protected or not (i.e. including confidential know-how). It understands that "the acquisition by least developed countries (LDCs) of a sound and viable technological base does not depend solely on the provision of physical objects or equipment, but also on the acquisition of know-how, on management and production skills, on improved access to knowledge sources, as well as on adaptation to local economic, social and cultural conditions".[68]

Japan interprets technology transfer to include a variety of measures such as financial support and support for business environment and states that "support for business environment by strengthening IP protection is one of the effective measures to promote technology transfer by private sectors."[69]

[65] See for example, IP/C/W/661 para. 2 and IP/C/W/661/Add.2, para. 2.
[66] Norway and the United States do not provide a clear definition or understanding of the term "technology transfer" but list all the programmes reported upon.
[67] IP/C/W/580/Add.1.
[68] IP/C/W/616/Add.7
[69] IP/C/W/580

For Australia training, education and know-how, along with export-related activity, facilitating strong IP protection, as well as, incentives provided on bilateral and regional development assistance programme, are a part of the incentives to encourage technology transfer.[70] However, in an early Council meeting the delegate from Australia had pointed to one way of implementing Art.66.2 that was possibly one of the most effective.

> "Australia considered that the provision of money to enterprises and institutions not only qualified as an incentive to encourage and promote technology transfer to least-developed countries for the purposes of Art.66.2, but was possibly one of the most effective means of meeting its objectives."[71]

For Canada promotion of technology transfer comes in the form of IP embedded in transferred goods and services, management and business know-how to support production and distribution of goods and services, and human capacity building. These are accompanied by domestic incentives financial and non-financial incentives (co-financing, loans, insurance, tax relief, technical advice, networking and partnership contacts, and linkages).[72] Canada notes that there are inevitable overlaps between the concepts of technology transfer and technical assistance. "For instance, some forms of technical and financial assistance can constitute incentives for the transfer of technology, particularly given that the legal and regulatory context in a country (including with respect to IP) can be a key consideration in creating the enabling conditions for sustainable technology transfer."[73]

Switzerland states that "incentives and activities directed at the provision of technical equipment in the industrial sector, capacity building in LDCs, technology transfer in the health sector and development of administrative institutions" are all part of such incentives. One concrete example is the Swiss Organization for Facilitating Investments (SOFI) which promotes investment projects between companies in Switzerland and OECD countries and their counterparts in developing and transition countries, to enable the transfer of capital, technological know-how and managerial expertise. Some of examples of SOFI projects include mango processing in Burkina Faso and coffee processing in Zambia.[74]

8. Concluding remarks

It has been widely established in the development community that LDCs have the ownership, leadership and primary responsibility for their own development,[75] and indeed the language in Art.66.2 is also about enabling LDC members themselves to build a sound and viable technological base. They are the ones that need to map out their own path for growth and development, evidently with help from other development agencies and taking into account the changing global technological scenarios where LDCs can leap-frog older technologies to adopt newer ones, for example the use of mobile telephony for digital banking. More specifically, it is more appropriate for LDC members to determine the areas of emphasis and directions for the sound and viable technological base that best fits their development needs and priorities, rather than deferring to developed country partners. This, in turn, presupposes a proactive rather than a passive approach to technology acquisition by LDCs. This includes both the improvement in local absorptive capacities as well as the adaptation of technologies to local conditions.

[70] IP/C/W/452/Add.7
[71] IP/C/M/23, para.33.
[72] IP/C/W/551/Add.6
[73] IP/C/W/631/Add.3, para.3.
[74] IP/C/W/431/Add.2
[75] Istanbul Declaration by the Fourth UN Conference on the Least Developed Countries held in Istanbul, Turkey, on 9-13 May 2011. Available at: http://unohrlls.org/UserFiles/File/political%20declaration.pdf

Compliance with a legal obligation requires a thorough understanding of its scope. Developed country members have significantly enriched their annual reports, emphasizing several relevant technology areas that have programmes targeting LDCs, particularly in the later years. Most of them have begun reporting in an improved structure guided in part by the proposed LDC format, focusing more on development-oriented projects.

Nevertheless, in the absence of active feedback from LDC members, the impact of the reported programmes in enabling LDCs to build a sound and viable technological base remains unaddressed. The reports, and consequently the actions behind them, are likely to improve further when LDCs - perhaps with external assistance - make thorough field level assessments of the programmes reported upon and actively participate in the WTO workshops and Council meetings to give detailed feedback and make precise demands based on their own assessment of their technological needs, as well as of the impact of programmes implemented thus far.

In the report by the Director-General of the World Health Organization (WHO) to the Executive Board regarding the Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property, one the actions recommended concerns the promotion of transfer of technology where the WHO secretariat is to work with the WTO secretariat to identify how TRIPS Article 66.2 "could be implemented more effectively in relation to health technology transfer in countries."[76] If adopted, this cooperation may represent a significant step within the multilateral framework to suggest ways for improving the implementation of this obligation within the health sector.

In sum, meaningfully improving Art.66.2 implementation and reporting requires continuous and effective engagement on the part of both developed country and LDC member delegations. The developed country members need to invest time and efforts to find ways to efficiently gather - and present in a digestible and distilled form - the most relevant information from the innumerable government agencies in their jurisdictions that have appropriate incentive programmes. The LDC members for their part need not only to read and digest these reports and their relevance to enabling them to build a sound and viable technological base, but also to provide timely and effective feedback about what they appreciate about these programmes, and what they do not - something that they have begun to do in the annual workshops. In addition, there needs to be effective communication between the reporting developed country entities to whom incentives are provided and their LDC counterparts. Clearly, the impact of these incentive programmes can only be assessed by their beneficiaries. Therefore, it falls to the LDCs to point out which incentives have had a positive impact in their countries, and which require further improvement. For this to happen, the LDCs have to not only engage in a constructive dialogue with developed country members at the annual workshops and Council meetings, but also to verify the status on ground of the projects reported upon and provide a useful feedback about them. Given the inherently difficult nature of these tasks, LDC members would need to be assisted by external agencies - and perhaps even make requests to developed country members under Art.67 - in making these assessments. However, the obligation in Art.66.2 is like any other positive TRIPS obligation and ultimately the onus is on developed country members - rather than on LDC members - to fulfil this obligation, including through the supply of technical and financial assistance set out in Art.67.

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[76] World Health Organization, Executive Board 124nd Session, Provisional Agenda Item 3.7, EB142/14, 27 November 2017