Policy Brief No. 7

Trade and Environment Negotiations Status under the WTO:

An Investigation into the tariff-alone approach negotiation

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Murali Kallummal & Somdutta Banerjee

1. Introduction

Under the GATT, the discussions on trade and the environment began as early as 1971.[1] The formation of WTO in 1995 led to the reignition and furthering of the focus of rulemaking on the optimal use of the world's resources towards sustainable development goals.[2]. Since the inception of the WTO in 1995, the preservation of the environment has remained the fundamental objective and towards achieving the goal and seeking to protect, identification of environmental goods and services was a necessity. More than two decades after, the complexities in negotiations can be seen in the most recent WTO document titled, 'An introduction to trade and environment in the WTO. This reiterated that the WTO Members should aim to uphold and safeguard an open and non-discriminatory multilateral trading system, along with a mutually supportive role in the protection of the environment and the promotion of sustainable development.[3]

The nearly two-and-half-decade-old discussions under the WTO covered a large gamut of possible areas of disciplining. With a special focus on some of them like sustainable development and environmental protections; trade liberalisation and stable and predictable trade conditions which support the environment; adoption of trade-related measures aimed at protecting the environment permissible under the WTO rules; advance dialogue and understanding of trade and environment linkages particularly with multilateral environmental agreements (MEAs)[4]; and lastly the precedent set by the WTO disputes. Some of the issues

[1] WTO, n.d., Early years: emerging environment debate in GATT/WTO https://www.wto.org/english/tratop_e/envir_e/hist1_e.htm#:~:text=In%20November%201971%2C%20the%20GATT,the%20request%20of%20GATT%20members.

[2] The preamble of the Marrakesh Agreement establishing the WTO specified the overall spirit.

[3] WTO, 2021, An introduction to trade and environment in the WTO, World Trade Organisation, October 11, https://www.wto.org/.

[4] Multilateral Environment Agreements (MEAs) outside the WTO.

concerning sustainable resources that were first raised in the committee on trade and environment (CTE) have become fully-fledged negotiations — for instance, on fisheries subsidies and the relationship between the WTO and the MEAs. WTO Agreement on Fisheries Subsidies, adopted at the 12th Ministerial Conference (MC12) on 17 June 2022, and only pending are a few of the outstanding issues that address the differential treatment of developing countries.[5] And the concerns on sustainability issues are separately dealt with as new rules on disciplining the subsidies like the fossil fuel subsidy reform, informal dialogue on plastics pollution and environmentally sustainable plastics trade. The policy brief deals to address some of the most recent discussions within the context of the discussion under the CTEs since the Doha Round mandate.

1.a. Doha round and beyond

The Doha Development Agenda and the environment discussions focused on three main themes: the relationship between the WTO rules and MEAs, the collaboration between the WTO and MEA secretariats, and the elimination of tariffs and non-tariff barriers on environmental goods and services. As these were adopted by the Doha Ministerial as its work programme under Para 31. (WTO, 2001)[6] Under the Doha Round, WTO members, considering the urgency to address the trade rules in protecting the global environment and mitigation of climate change, came up with paragraph 31 (iii), which mandated the following disciplines:

> *With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on:*
>
> *(iii) the reduction or, as appropriate,* ***elimination of tariff*** *and* ***non-tariff barriers to environmental goods and services.*** [7, 8]

Like all the plurilateral agreements in 2014, some forty-six members were engaged in the WTO negotiations to eliminate tariffs on several essential environmental goods (EGs). These could help achieve environmental and climate protection goals, such as generating clean and renewable energy, improving energy and resource efficiency, controlling air pollution, managing waste, treating wastewater, monitoring the quality of the environment, and combatting noise pollution. The 18 participants in EGs negotiations accounted for most global trade; hence, the group proposed a new sectoral called the Environmental Goods Agreement.

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5 WTO, Agreement on Fisheries Subsidies, World Trade Organization, Trade Topics, Rules Negotiations, Fisheries Subsidies, https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm.

6 WTO, 2001, Ministerial Declaration, adopted on 14 November 2001, World Trade Organisation https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm

7 WTO, 2001, Ministerial Declaration, adopted on 14 November 2001, World Trade Organisation, https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm.

8 The Doha ministerial decision of November 2001, paragraph 31(iii) stated that "the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services (https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm#tradeenvironment).

It further, called for the need to extend these tariff reductions to the entire WTO membership so that all WTO members enjoy improved market access in EGs.

Almost a decade of negotiations has led to the identification and clarification of the EGs by the membership. It further draws heavily from the GATT Article XX on General Exceptions lays out several specific instances in which members may be exempted from GATT rules. The provision seeks, among other things, to ensure that environmental measures are not applied arbitrarily and are not used as disguised protectionism. The commitment of WTO members to sustainable development and the environment can also be seen in WTO rules. WTO rules set up the appropriate balance between the right of members to take regulatory measures, including trade restrictions, to achieve legitimate policy objectives (e.g., protection of human, animal or plant life or health, and natural resources) and the rights of other members under basic trade disciplines. (WTO, 2021)[9]

A successful EG negotiation had to decouple economic growth from environmental impact by creating a triple-win situation across trade, environment, and development. First, if negotiations were successful, trade would be facilitated by way of reduced or eliminated tariffs along with non-tariff barriers for both goods and services. With the expectation that it would reduce the cost of environmental technologies, increase their usage, and stimulate innovation and technology transfer. (WTO)[10] None of these claims on the free flows or the 'trickle downs' has been empirically established. Especially the elimination of non-tariff barriers (measures) was not possible as the WTO provided a window, for the members to deviate citing national differences in economic conditions, to quote:

> *.....We recognize that under WTO rules no country should be prevented from taking measures for the protection of human, animal or plant life or health, or of the environment at the levels it considers appropriate, subject to the requirement that they are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, and are otherwise in accordance with the provisions of the WTO Agreements. (WTO, 2001, Para. 6[11])*

The benefit assured for the developing countries was from the betterment of market access conditions in the environmental trade in goods and services (EGs and ESs). Producers of EGs would have better access to large markets in Europe, the US, and high-income Asia. It would be easier for developing countries as a whole to obtain high-quality environmental goods in world markets. Such access should, among other environmental benefits, increase energy efficiency and improve the water and sanitation situation in developing countries. Through technology transfer and reducing barriers in ESs, improved technologies and better-performing ESs would reduce emissions. Third, at the global level, the environment would be better preserved, especially if a wide definition of environmental goods were adopted to include as

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9 Ibid., WTO, 2021, para

10 WTO, Eliminating trade barriers on environmental goods and services, Trade Topics, Environment Negotiations, World Trade Organizations,https://www.wto.org/english/tratop_e/envir_e/envir_neg_serv_e.htm.

11 WTO | Doha https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm

EGs those environmental products and services with production characteristics that avoid damaging the environment (e.g. the use of biodegradable materials or goods produced in an environmentally preferable way) (WTO and UN, 2018)[12].

1. b. Definitional Issues

As there was no clear understanding or definition, members like the APEC and others like the EU had different proposals on the EGs. The EU proposals were those products that were traded for environmental protection to prevent, reduce and eliminate pollution or any other degradation of the environment. They include measures undertaken to restore degraded habitats and ecosystems. Examples are electric vehicles, catalysts and filters to decrease pollutant emissions, wastewater and waste treatment services, or noise insulation works[13]. (EU, 2021) The total list of the EU was 21 NACE classifications of which close to 18 belonged to service sectors. On 24 January 2014, the EU and 13 other WTO members[14] pledged to launch negotiations to liberalise the global trade in environmental goods and services. The initiative was to strengthen the rules-based multilateral trading system, support its mission to liberalise the trade, provide important impetus to the DDA negotiations and benefit all WTO Members, including by involving all major traders and applying the principle of Most Favoured Nation, once a critical mass of Members agrees to participate.[15] The joint statement cut their tasks and suggested that they committed to begin preparations for negotiations to liberalise trade in environmental goods, building on the APEC List of Environmental Goods.[16] In contrast, the APEC had identified them under the 54 types of products having a similar purpose with no clear definition.

Today, some eighteen participants representing 46 WTO members are engaged in negotiations to eliminate tariffs on many critical environment-related products. These include products that can help achieve environmental and climate protection goals, such as generating clean and renewable energy, improving energy and resource efficiency, controlling air pollution, managing waste, treating wastewater, monitoring the quality of the environment, and combatting noise pollution.

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[12] WTO and UN (2018): Making trade work for the environment, prosperity and resilience, WTO and UN Environment, Accessed from https://www.wto.org/english/forums_e/public_forum18_e/pf18_session_fullpage_e.htm?session=20 on January, 2023.

[13] Out of a total of 21 NACE classification (European industry standard classification system similar in function to Standard Industry Classification (SIC) and North American Industry Classification System (NAICS) for classifying business activities) nearly 18 belonged to services and general administration classification sub heads.

[14] Australia; Canada; China; Costa Rica, Hong Kong, China; Japan; Korea; New Zealand; Norway; Singapore, Switzerland; Chinese Taipei and the United States.

[15] See, https://ustr.gov/about-us/policy-offices/press-office/press-releases/2014/July/Joint-Statement-Regarding-Launch-of-Environmental-Goods-Agreement-Negotiations

[16] See, https://eeas.europa.eu/archives/delegations/wto/documents/press_corner/final_joint_statement_green_goods_8_july_2014.pdf

1. c. Methodology and data source

For the policy brief, we are analysing the EGs of the Asia Pacific Economic Cooperation (APEC-listed EGs), which have increased from 54[17] to 59 environmental goods based on the two-way transposition exercise performed on the HSN 2012 and 2017. WITS Comtrade[18] online trade database is used for the trade values for 2019[19] (exports and imports). The MFN-bound tariff rates[20] are extracted from the WTO Tariff profile[21]. The study presents exploratory data analysis to identify the existing trade scenario of the selected countries. The tariff liberalisation indicated the removal of existing bound tariffs by the governments.

There are some basic questions on the trade measures recommended and those seen in terms of efforts, while tariff elimination and the harmonisation of standards were mandated as market access measures. The CTE submissions up until 2011 focused on tariff harmonisation or liberalisation. The Policy Brief will examine three contentious aspects of bound tariff elimination and its implication on trade flows. The questions are: who are the prominent exporters of environmental goods; who are the major importers of environmental goods; gainers and losers in the APEC list of EG trade? How much policy space erosion by eliminating the bound tariffs by the proposed EG Agreement? What are the future possibilities of an Agreement on EGs? Finally, how should the intended spirit be accommodated under a plurilateral agreement framework need to be analysed?

2. APEC list of Environmental Goods

It is believed that the APEC List of 54 Environmental Goods directly and positively contributed to green growth and sustainable development objectives. The APEC members reduced the applied tariff rates to 5 per cent or less by 2015. It was a unilateral commitment undertaken by the APEC economies. Further, they committed to continue capacity-building activities to assist economies in implementing tariff reductions on the agreed list of 54 EGs (APEC, 2012).[22] The available literature on the WTO negotiations is based on the APEC 54 EGs according to the HS 2012 version. HS 2017 transposition exercise has led to an increase of the old list of 54 EGs of HS 2012 to 59 tariff lines under the HS 2017 version – this is derived from the transposition exercise by the authors and led to an increase of four[23] additional EG tariff lines.

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[17] The original list of APEC list of environmental goods contains 54 products. We have updated the list using the transposition to understand the actual impact of tariff liberalisation.

[18] World Integrated Trade Solution (WITS) | Data on Export, Import, Tariff, NTM Accessed from https://wits.worldbank.org/ on December, 2021

[19] Data for 2020 to 2022 would not provide a correct picture owing to the impact of Covid-19 pandemic,

[20] The MFN bound rate provides the data on average bound rate applied by the countries on their import.

[21] WTO | Tariff Download Facility: WTO tariff data base Accessed from http://tariffdata.wto.org/default.aspx

[22] APEC, 2012, 2012 Leaders' Declaration - ANNEX C - APEC List of Environmental Goods, Asia Pacific Economic Cooperation, 08, September, https://www.apec.org/meeting-papers/leaders-declarations/2012/2012_aelm/2012_aelm_annexc.aspx.

[23] The list of products at 6-digit of the both versions are listed in the Table 1A and 2A. Firstly, HS code 441872 of 2012 version has been split in two HS codes (441875 and 441873) in 2017 version. 441875 is the newly

2.a. *Top global exporters of the environmental goods*

The analysis of the top exporters by country in environmental goods (58) suggested that they accounted for nearly 93 per cent of the total global export of the total USD 494.7 billion.

Table 1: 25 Top Exporters in the APEC revised list of 58[#] EGs (2019)

Rank	*Top 25 exporting Countries*	*Export Value (USD Mn.)*	*Import Value (USD Mn.)*	*Shares of export in members total trade (%)[&]*	*% Share in World EG Export*
1	China	95,561.4	83,321.6	53.4	19.3
2	Germany[*]	71,755.7	35,171.1	67.1	14.5
3	United States	47,939.1	62,431.3	43.4	9.7
4	Japan	36,782.7	17,958.1	67.2	7.4
5	Korea, Rep.	24,030.2	15,652.1	60.6	4.9
6	Hong Kong, China	17,108.6	17,260.1	49.8	3.5
7	Italy[*]	16,323.7	8,968.3	64.5	3.3
8	United Kingdom	16,118.2	12,626.9	56.1	3.3
9	Singapore	15,719.1	11,851.2	57.0	3.2
10	Other Asia, nes (Taiwan)[#]	12,903.4	7,915.4	62.0	2.6
11	France[*]	12,111.0	12,719.2	48.8	2.4
12	Netherlands[*]	11,937.9	10,705.2	52.7	2.4
13	Switzerland	9,245.9	5,151.7	64.2	1.9
14	Malaysia	8,608.6	6,189.3	58.2	1.7
15	Denmark[*]	8,422.2	3,190.0	72.5	1.7
16	Canada	7,238.4	10,850.7	40.0	1.5
17	Vietnam	6,286.9	11,208.1	35.9	1.3
18	Austria[*]	5,813.0	4,403.0	56.9	1.2
19	The Czech Republic[*]	5,698.7	4,902.8	53.8	1.2
20	Sweden[*]	5,446.5	4,202.1	56.4	1.1
21	Thailand	5,121.1	6,777.7	43.0	1.0
22	India	4,756.3	12,119.1	28.2	1.0
23	Spain[*]	4,675.8	7,569.6	38.2	0.9
24	Hungary[*]	4,047.4	4,304.5	48.5	0.8
25	Poland[*]	3,751.2	5,343.8	41.2	0.8
Sub Total of 25 Countries		***457,403.0***	***382,792.9***	***54.4***	***92.5***
All Countries		***494,709.2***	***471,846.8***	***51.2***	***100.0***

*Note: & = Share of exports in total trade (exports plus imports) of 25 top exporters, * = European Union Members, # = Taiwan[24], # = based on the data availability of HS codes.*
Source: Online WITS Comtrade database.

In terms of bilateral exports of EG in 2019, excluding the intra-region exports between the EU countries, China topped with a share of 19 per cent of the total global exports. The second rank is Germany, with 14.5 per cent of exports in EGs, which includes both intra-EU and extra-EU exports in EGs. However, the extra-EU exports to the world in EG are recorded as 19.4 per cent, which is 0.1 per cent higher than China's share in total EG's exports to the world.

formed HS code in 2017 and some part of 441872 has been moved to 441873. Secondly, HS code 847989 has been separated into 847971, 847979 and 847989. Finally, 903300 has also been fragmented and some part of it moved to 9962000.

[24] See, https://unstats.un.org/unsd/tradekb/Knowledgebase/50104/Taiwan-Province-of-China-Trade-data

Therefore, with a share of 19.4 per cent, the European Union[25] topped the EG's exports to the world, with a marginal advantage of 0.1 percentage points. The members of the EU, which recorded top slots across 25 countries, are Italy, France, Netherlands, Denmark, Austria, Czech Republic, Sweden, Spain, Hungary and Poland.

The other dominant exporters of EGs are countries like the United States with USD 48 billion with a share of 9.7 per cent followed by developed countries like Japan (7.4 %), Korea, Republic (4.9 %), the United Kingdom (3.3 %), Taiwan (2.6 %), Switzerland (1.9 %) and Canada (1.5 %). Among the developing countries, the top exports after China are Hong Kong (China) with USD 17.1 billion and 3.5 per cent nearly one-sixth times lower than the export value of China. The other dominant countries are Malaysia with an export value of USD 8.6 billion, followed by Vietnam (1.3 %), Thailand and India at 1 per cent each.

2. b. Top global importers of the environmental goods

The analysis of the top importer of environmental goods accounted for only 83 per cent of the total USD 472 billion global imports of 58 EGs products. The top 25 importing countries imports values of USD 394 billion is almost USD 100 billion for 2019. Table 2 suggests that of the 25 importing countries, China has remained at the top with a share of nearly 18 per cent of the total global imports of EGs and accounting for a compositional share of 47 % of imports of EGs. The US ranked as second place with 13.2 per cent of global imports of EGs, and following behind at nearly six percentage points lower is Germany with 7.5 per cent of the total EG's World imports.

Total of EGs imports by the EU, excluding the intra-regional imports of 11.8 per cent, suggesting as a block EU has a lower compositional import share in total trade of EGs and thus having relative advantage in exports. The other dominant EU countries are France (2.7 %); Netherlands (2.3 %); Italy (1.9 %); Spain (1.6 %); Poland (1.1 %) and the Czech Republic with one per cent share. The other dominant developed countries like Japan (3.8 %), the United Kingdom (2.7 %), Canada (2.3 %), Taiwan (1.7 %), Australia (1.5 %) and Switzerland (1.1 %) total USD 472 billion imports of environmental goods. Other than China, the developing country importers are Hong Kong, China (3.7 %), Korea, the Republic (3.3 %), India (2.6 %), Singapore (2.5 %), Vietnam (2.4 %), Thailand (1.4 %), Brazil (1.4 %), Malaysia (1.3 %) and Indonesia with 1.2 per cent of the total EGs imports of USD 472 billion.

Based on compositional share of imports in total trade (exports plus imports) of 25 top exporters, the authors have divided the countries with very high imports shares, there are five countries[26] like Indonesia (90.5), Russian Federation (82.1 %), Brazil (81.7 %), Australia (78.9

[25] Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

[26] Import shares above 70 per cent in the total trade of EGs.

%), India (71.8 %) followed by eight countries with moderately high imports[27] share like Vietnam (64.1 %), Spain (61.8 %)*, Canada (60.0 %), Poland (58.8 %)*, Thailand (57 %), United States (56.6 %), France (51.2 %)* and Hong Kong, China (50.2 %).[28] The other countries across the top 25 importers belonged to less than 50 per cent share with potentially lesser domestic displacement impact in terms of EG trade.

Table 2: 25 Top Importers in the APEC revised list of 58 EGs (2019)

Rank	***Top 25 importers***	***Imports (USD Mn.)***	***Exports (USD Mn.)***	***Shares of import in members' total trade &***	***% Share in World EG Import***
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1	China	83,321.6	95,561.4	46.6	17.7
2	United States	62,431.3	47,939.1	56.6	13.2
3	Germany*	35,171.1	71,755.7	32.9	7.5
4	Japan	17,958.1	36,782.7	32.8	3.8
5	Hong Kong, China	17,260.1	17,108.6	50.2	3.7
6	Korea, Rep.	15,652.1	24,030.2	39.4	3.3
7	France*	12,719.2	12,111.0	51.2	2.7
8	United Kingdom	12,626.9	16,118.2	43.9	2.7
9	India	12,119.1	4,756.3	71.8	2.6
10	Singapore	11,851.2	15,719.1	43.0	2.5
11	Vietnam	11,208.1	6,286.9	64.1	2.4
12	Canada	10,850.7	7,238.4	60.0	2.3
13	Netherlands*	10,705.2	11,937.9	47.3	2.3
14	Italy*	8,968.3	16,323.7	35.5	1.9
15	Other Asia, n.e.s (Taiwan)#	7,915.4	12,903.4	38.0	1.7
16	Russian Federation	7,716.3	1,684.1	82.1	1.6
17	Spain*	7,569.6	4,675.8	61.8	1.6
18	Australia	7,239.6	1,938.3	78.9	1.5
19	Thailand	6,777.7	5,121.1	57.0	1.4
20	Brazil	6,612.7	1,480.0	81.7	1.4
21	Malaysia	6,189.3	8,608.6	41.8	1.3
22	Indonesia	5,705.4	600.4	90.5	1.2
23	Poland*	5,343.8	3,751.2	58.8	1.1
24	Switzerland	5,151.7	9,245.9	35.8	1.1
25	The Czech Republic*	4,902.8	5,698.7	46.2	1.0
Sub Total of 25 Countries		***393,967.2***	***439,376.8***	***47.3***	***83.5***
All Countries (Except the EU as a group)		***471,846.8***	***494,709.2***	***48.8***	***100.0***

Note: *& = Share of imports in total trade (exports plus imports) of 25 top exporters, * =* European Union Members, # = Taiwan[29].
Source: Online WITS Comtrade database.

We have selected a list of 19 developed and developing countries to understand the overall implication of the tariff liberalisation exercise undertaken in environmental goods (see table 3.[30] Additional countries on the list are Brazil, Norway, Pakistan, South Africa and Sri Lanka. The five countries have added only 1.1 per cent EGs exports share with three countries South Africa and Norway with 0.4 % and Brazil with 0.3 % shares. In terms of imports, the same countries accounted for 3.2 per cent of shares. Brazil with 1.4 per cent followed by Norway

[27] Import shares above 50 to 70 per cent in the total trade of EGs.
[28] * = three countries belonged to European Union group and these are Spain, Poland and France.
[29] See, https://unstats.un.org/unsd/tradekb/Knowledgebase/50104/Taiwan-Province-of-China-Trade-data.
[30] European Union has a common external tariff and

with 0.8 per cent share of total environmental products. Suggesting that the dominant economies have the technological advantage and further having an upper hand in exports of EGs which is expected to gain as the tariffs on 59 tariff lines are eliminated.

Table 3: Common List of Developed and Developing WTO Members

SN.	Countries	Import Value (in mn.)	Import Share (%)	Export Value (in mn.)	Export Share (%)
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
1	EU	55,651.9	11.8	95,778.1	19.4
2	China	83,321.6	17.7	95,561.4	19.3
3	USA	62,431.3	13.2	47,939.1	9.7
4	Japan	17,958.1	3.8	36,782.7	7.4
5	Hong Kong, (China)	17,260.1	3.7	17,108.6	3.5
6	UK	12,626.9	2.7	16,118.2	3.3
7	Switzerland	5,151.7	1.1	9,245.9	1.9
8	Malaysia	6,189.3	1.3	8,608.6	1.7
9	Canada	10,850.7	2.3	7,238.4	1.5
10	Vietnam	11,208.1	2.4	6,286.9	1.3
11	Thailand	6,777.7	1.4	5,121.1	1.0
12	India	12,119.1	2.6	4,756.3	1.0
13	South Africa	2,179.4	0.5	2,010.3	0.4
14	Australia	7,239.6	1.5	1,938.3	0.4
15	Norway	3,542.2	0.8	1,804.3	0.4
16	Brazil	6,612.7	1.4	1,480.0	0.3
17	Indonesia	5,705.4	1.2	600.4	0.1
18	Sri Lanka	304.9	0.1	67.6	0.0
19	Pakistan	1,709.8	0.4	5.4	0.0
World		471846.8	100.0	494709.2	100.0

Source: WITS Comtrade database.

Overall the exporters of the EGs have the upper hand as increasing trade flows may alter the production activities in their favour, especially under the lack of technology transfer and the imbalances seen in the intellectual property rights regime. Until the technology transfer is meaningfully executed to all the covering parts which also include the total systems (like the know-how, goods and services, equipment, and organisational and managerial procedures) just liberalisation of tariffs on equipment or "hardware" may not yield the expected results. We have provided a detailed examination of the extent of reduction undertaken by 19 groups/countries for the APEC list of environmental goods.

2. c. The extent of policy space erosion by eliminating bound tariffs under the proposed APEC Agreement?

The differential impact of tariff elimination across the selected list of 19 countries belonging to developed and developing countries can be observed in table 4.

Table 4: Country-wise, Average bound duty and tariff lines

SN.	Countries	Share of Imports (2019)	Average Bound duty	National Tariff Line	Tariff lines bound at 6-digit level
Developing Countries					
1	Pakistan	100.0	61.5	80	54
2	Brazil	81.7	31.4	238	56
3	Indonesia	90.5	25.3	95	52
4	India	71.8	24.0	66	53
5	Sri Lanka	82.0	16.3	4	4
6	Thailand	57.0	15.0	81	56
7	Egypt*	N/A	12.2	67	54
8	South Africa	52.0	10.3	74	50
9	Malaysia	42.0	6.1	110	56
10	China	47.0	4.9	119	54
11	Viet Nam	64.1	1.6	119	54
12	Hong Kong, Ch.	50.2	0.0	57	53
Average		***51.06***	***17.4***	***92.5***	***48.8***
Developing Countries					
13	Australia	79.0	6.4	81	54
14	Canada	60.0	2.6	181	56
15	Norway	66.0	1.7	97	33
16	UK#	43.9	1.4	155	54
17	USA	56.6	1.1	206	53
18	Japan	32.8	0.0	65	53
19	Switzerland	35.8	0.0	131	53
Average		***42.28***	***1.9***	***130.9***	***50.9***

Note: * Data on import shares for 2018 and 2019 are unavailable, # = Pre-Brexit values and UK was an integral part of the EU.
Source: CTS files of 19 countries, WTO Tariff profile, WTO.

From the analysis of the twelve developing countries, the most onerous elimination would be faced by Pakistan having bound rates of nearly 62 per cent with 100 per cent of imported shares of EGs. Clearly, in the case of Pakistan, the compositional share of imports in total trade suggests a minimal loss of invested capital and related employment across the EGs Sector. Of the other eleven countries undertaking a bound tariff cut of up to 10 per cent are Brazil (31%), Indonesia (25%), India (24%), Sri Lanka (16%), Thailand (15%), Egypt and South Africa, with 12 and 10 percentages respectively. Countries with less than a ten per cent bound cut are Malaysia (6.1%), China (5%), Viet Nam (2%) and Hong Kong, China[31] with no impact, see table 4. Twelve developing countries from the table 4 as a group would undertake an average cut of 17.4 % in terms of bound tariffs. On the other hand, the developed countries on an average would undertake a cut of meagre 2 per cent. Individually, the case of developed countries the highest cut in bound tariff of 6.4 per cent with 79 per cent of import composition is in the case of Australia. Canada would undertake the second-highest cut in the bound rates

[31] For Hong Kong, China the Plurilateral on EG would lead to increase in the bound coverage of 23 tariff lines, See Annex Table 3.

at 2.6 per cent and almost closely followed by Norway (1.7%), the UK (EU) (1.4%) and the USA with 1.1 per cent.

The EG plurilateral agreement would help in furthering the bound coverage of the unbound tariff lines for countries like Egypt, and India by two tariff lines and 52 tariff lines in the case of Sri Lanka.[32] The APEC Agreement would further the elimination of 26 tariff lines in which there was an application of non-ad valorem tariffs (specific duties) by Switzerland. A simple interplay between the extent of tariff reduction and the compositional share of imports suggests trade diversion possibilities. Those with less than bound tariff cuts are Viet Nam (64.1%), China (47%), Hong Kong, China (50.2%), and Malaysia with a share of 42 per cent. The developing countries undertaking more than ten per cent of bound tariff cuts are countries with more than 50 per cent import composition shares like Indonesia (91%), Brazil (82%), Sri Lanka (82%), India (72%), Thailand (57%), Egypt (n.a.) and South Africa (57%). Countries with above 60 per cent compositional share of imports are Indonesia (90.5%), Sri Lanka (82.0%), Brazil (81.7%), India (71.8%), and Viet Nam (64.1%). The average compositional shares of imports across twelve developing countries is nearly ten percentage points higher than the developed countries. Suggesting the displacement of domestic production of EGs as a result of tariff cuts. However, a detailed analysis is necessary for confirming the same[33]. Additionally, the difference between the national tariff lines and 58 EGs suggests towards difference in the usage of ex-outs between the WTO members. The analysis of nineteen countries/groups suggests that the developing countries would have undertaken a significant tariff cut as the bound rates would be eliminated down to zero.

2.d. The future possibility for a plurilateral agreement?

The average bound tariff of twelve developing countries with their external tariff at zero would open an additional share of 36 per cent[34] of the total trade in the developing countries. Suggesting that the reduction of the bound rate would give an advantage to the developed countries, see Table 4. Suppose the APEC 54[59] list gets the WTO acceptance in the present formulation of only tariff reduction and no action on the non-tariff barriers. In that case, it will provide a clear advantage and an upper hand to the developed countries with a lower compositional share of imports in the total trade of EG, as observed in 2019.

Avoiding the imbalance in these market access should account for other parameters like NTMs across the APEC list of 54 products. In this context, the membership needs to harmonise the

[32] See Annex Table 3.

[33] The detail es-ante analysis on the impact of tariff cut on the trade for India and other countries has been done in Kallummal. M., and Banerjee, S., "WTO negotiations on EGs: The gap between demand and supply-side perspective" (forthcoming CWS working paper) and Kallummal. M., Khosla. S., and Gurung. H., "Environment Sectoral and the Usage of Technical Regulation and Standards: Analysis of the proponents of the list-based approach" (forthcoming CWS working paper).

[34] Excluding Pakistan as it has already 100 per cent imported products of EGs.

market access barriers (Tariffs – Ad valorem and non-Ad valorem and Non-Tariff measures like SPS and TBT measures and other domestic regulations). A study done by the Centre for WTO Studies in 2010 found the presence of considerable trade barriers across countries like Japan, South Korea, European Communities, China, Brazil, the United States of America, Canada, India and South Africa in the forms of SPS and TBT measures.[35] Harmonisation of the same along with tariff reduction can only achieve a meaningful result. The EG agreement would need a more profound analysis based on holistic and extensive impact analysis across the membership in the context of the hollowing-out of capacities and associated loss of employment which can impact countries with considerable mid-level capabilities and market size.

Thus, the environmental goods negotiation should address the following concerns first address the welfare of all members - suggesting that an EGs agreement should refrain from creating large-scale disinvestments and loss of employment. Second, the special and differential treatment principle to support the developing countries. Thirdly creating a multilateral fund[36] or removal of intellectual protection rights (IPR) on all such technologies to be agreed upon.

3. Conclusion and Recommendations

The preservation of the environment has remained a fundamental objective of the WTO, and as of today, some WTO members have launched negotiations to liberalise global trade in environmental goods and services. For the policy brief, we have analysed the APEC-listed 59 environment goods (EGs) and examined three contentious aspects of bound tariff elimination and its implication on trade flows.

Firstly, the analysis of the top exporters in EGs showed that they accounted for nearly 93% of the total USD 494.7 billion of the EGs exports. In total global exports analysed by individual countries China would have an absolute advantage followed by Germany. From among the developing countries, the top share in exports Hong Kong, China and Malaysia.

China is also the top importer followed by Hong Kong (China) both these economies suggesting a possibility of high Intra-industry trade. However, other major importers with more than three per cent global import shares are Germany, Japan, and Korea (Rep.). The analysis further suggested that the dominant economies having a technological advantage does have a natural upper hand in exports and is expected to gain further with tariff elimination. The second question looked at how much policy space will be eroded by eliminating the bound tariffs? The twelve developing countries as a group would undertake an average cut of 17.4 %

[35] Rajan R.S., Kallummal M., and Hari Maya Gurung, 2010, "WTO Negotiations on Market Access on Environmental Goods: Identification of Existing NTMs on Proposed Items", CWS discussion 06, July, https://wtocentre.iift.ac.in/discussion_papers.asp.

[36] Similar to the Multilateral Fund for the implementation of the Montreal Protocol as established in 1991 under Article 10 of the treaty.

in terms of bound tariffs. Whereas, the average of the developed countries would undertake a cut of almost 2% only. As all tariffs would have to be eliminated and bound at that level the analysis found that the developing countries would have to concede and would be a very onerous commitment.

Lastly, the policy brief highlighted some concerns that need to be accommodated under a future plurilateral agreement which are as follows: firstly, it should address the welfare of all members; in other words, an EGs agreement should refrain from creating large-scale disinvestments and loss of employment. Secondly, there is a need for special and differential treatment principles to support developing countries. Thirdly, a multilateral fund should be created to provide free exchange of such green technologies. The rising NTMs notifications with regulatory and mandatory requirement provisions on the imported products put further stumbling blocks in the effort on the discussion on technology transfers and other issue like funding provision. As long as the CTE negotiation does not include a binding commitment on the private sector to transfer technology which is otherwise protected by intellectual property rights, it is difficult to expect a meaningful mandate on EGs. Therefore, the membership needs to harmonise the market access barriers (Tariffs – Ad valorem and non-Ad valorem and Non-Tariff measures like SPS and TBT measures and other domestic regulations) to achieve a meaningful result in environmental negotiation on goods and services.

Annexure Table 1: Updated List of 59 Environmental Goods (HS 2017)

S. N.	H S 6-digit Code	Status (Transposition)	Product Description
1	441872	APEC 54	Other, multilayer for assembled flooring panels
2	441873	HS 2017	Assembled flooring panels: Of bamboo or with at least the top layer (wear layer) of bamboo
3	441875	HS 2017	Wood; assembled flooring panels,
4	840290	APEC 54	Boilers; parts of steam
5	840410	APEC 54	Auxiliary plant for use with boilers
6	840420	APEC 54	Condensers for steam or Other vapour power units
7	840490	APEC 54	Boilers; parts of auxiliary plant
8	840690	APEC 54	Turbines; parts of steam and other
9	841182	APEC 54	Turbines; gas turbines of a power exceeding 5,000 kW
10	841199	APEC 54	Turbines; parts of gas turbines
11	841290	APEC 54	Engines; parts, for engines and motors
12	841780	APEC 54	Furnaces and ovens, and other
13	841790	APEC 54	Furnaces and ovens, parts
14	841919	APEC 54	Heaters; instantaneous or storage, other
15	841939	APEC 54	Dryers; for products n.e.c. in head
16	841960	APEC 54	Machinery; for liquefying air or other gases
17	841989	APEC 54	Machinery, plant and laboratory equipment, and other
18	841990	APEC 54	Machinery, plant and laboratory equipment, parts
19	842121	APEC 54	Machinery; for filtering or purifying water
20	842129	APEC 54	Machinery; for filtering or purifying water, other
21	842139	APEC 54	Machinery; for filtering or purifying water, other
22	842199	APEC 54	Machinery; for filtering or purifying water, other
23	847420	APEC 54	Crushing or grinding machines
24	847971	HS 2017	Machinery and mechanical appliances
25	847979	HS 2017	Machinery and mechanical appliances
26	847982	APEC 54	Mixing, kneading, crushing, grinding, screening, sifting, homogenising, emulsifying or stirring machines
27	847989	APEC 54	Machines and mechanical appliances; other
28	847990	APEC 54	Machines and mechanical appliances; parts
29	850164	APEC 54	Electric generators; AC generators, of an output exceeding 750 kVA
30	850231	APEC 54	Electric generating sets; wind-power
31	850239	APEC 54	Electric generating sets, other
32	850300	APEC 54	Electric motors and generators, Parts suitable for use solely or principally with the machines of heading 85.01 or 85.02.
33	850490	APEC 54	Electrical transformers, parts
34	851410	APEC 54	Resistance-heated furnaces and ovens; electric
35	851420	APEC 54	furnaces and ovens functioning by induction and dielectric loss
36	851430	APEC 54	Furnaces and ovens; electric, other
37	851490	APEC 54	Furnaces, ovens and heating equipment, parts
38	854140	APEC 54	Electrical apparatus; Photosensitive semiconductor device
39	854390	APEC 54	Electrical machines and apparatus; parts
40	901380	APEC 54	Optical devices, appliances and instruments, and other
41	901390	APEC 54	Optical appliances and instruments; Parts and accessories
42	901580	APEC 54	Surveying equipment; articles, Other instruments and appliances
43	902610	APEC 54	Instruments and apparatus; for measuring or checking the flow or level of liquids
44	902620	APEC 54	Instruments and apparatus; for measuring or checking pressure

45	902680	APEC 54	Instruments and apparatus; for measuring, Other instruments or apparatus
46	902690	APEC 54	Instruments and apparatus; parts and accessories
47	902710	APEC 54	Instruments and apparatus; Gas or smoke analysis apparatus
48	902720	APEC 54	Chromatographs and electrophoresis
49	902730	APEC 54	Spectrometers, spectrophotometers and spectrographs
50	902750	APEC 54	Instruments and apparatus; using optical radiations, Other instruments and apparatus using optical radiations (UV, visible, IR)
51	902780	APEC 54	Instruments and apparatus; for physical and chemical analysis, Other instruments and apparatus
52	902790	APEC 54	Microtomes; parts and accessories
53	903149	APEC 54	Optical instruments and appliances; other
54	903180	APEC 54	Instruments, appliances and machines, and other
55	903190	APEC 54	Instruments, appliances and machines, Parts and accessories
56	903289	APEC 54	Regulating or controlling instruments, other
57	903290	APEC 54	Regulating or controlling instruments, Parts and accessories
58	903300	APEC 54	Parts and accessories (not specified or included elsewhere)
59	962000	HS 2017	Monopods, bipods, tripods and similar articles.

Source: Authors.

Annexure Table 2: Import Share (HS 2017) in % (2019)

`	HS (2017)	United States	Japan	UK	Canada	Australia	Switzerland	Norway	China	Hong Kong, China	Vietnam	Thailand	Malaysia	Brazil	Indonesia	India	South Africa	Pakistan	Sri Lanka	Total except for EU
1	441873	20.61	1.65	27.04	0.33	5.05	1.68	0.37	0.01	0.03	0.42	0.22	0.31	0.00	0.07	0.04	0.13		0.06	58.02
2	441875	8.02	1.00	5.47	1.53	1.71	7.45	5.35	3.16	0.63	0.02	0.10	0.03	0.04	0.03	0.19	0.37	0.00	0.00	35.09
3	840290	6.74	8.03	1.81	2.91	0.45	0.42	0.32	3.26	0.29	4.27	1.53	4.42	0.45	11.60	2.25	0.45	0.93	0.18	50.32
4	840410	7.76	3.53	3.38	1.67	0.18	0.42	0.40	4.08	0.10	5.35	2.40	1.50	1.00	23.62	2.68	0.16	0.24	0.05	58.53
5	840420	7.08	1.77	0.49	1.25	0.43	0.21	0.03	0.69	0.00	2.75	0.58	5.99	28.18	29.70	0.32	0.10	4.90	0.01	84.49
6	840490	7.13	10.05	1.39	1.23	0.53	0.30	0.27	0.82	0.32	1.27	0.81	2.14	0.75	12.13	5.14	1.08	0.58	0.12	46.06
7	840690	9.11	7.67	4.33	2.18	1.90	1.12	0.28	6.68	0.30	2.35	0.71	2.27	1.93	5.06	5.00	2.26	4.42	0.21	57.77
8	841182	6.09	3.64	18.49	6.51	3.75	0.13	3.70	6.66	0.35	0.37	2.91	2.48	1.08	2.79	1.75	0.02	0.65		61.38
9	841199	14.35	3.33	4.11	4.42	1.25	2.95	0.29	3.26	0.94	0.26	1.99	1.92	0.42	1.54	1.13	0.05	0.44	0.02	42.68
10	841290	33.89	2.11	6.15	2.45	3.75	0.24	0.58	3.59	0.42	0.12	0.23	0.19	0.45	0.54	1.03	0.28	0.05	0.01	56.07
11	841780	3.43	0.38	0.34	5.41	0.33	0.32	0.04	9.06	0.02	5.48	4.02	1.11	4.23	21.05	4.46	0.40	0.36	0.09	60.53
12	841790	13.27	5.64	1.86	5.74	0.78	1.33	1.08	4.71	0.12	1.21	2.16	2.47	1.34	2.43	4.97	0.62	0.33	0.03	50.11
13	841919	26.78	0.05	3.71	9.49	0.69	4.31	0.28	0.21	0.05	0.37	0.14	0.20	0.33	0.97	0.27	0.20	0.03	0.04	48.13
14	841939	9.90	2.19	0.84	2.23	1.51	1.57	1.28	18.57	0.61	5.74	1.99	1.30	2.26	3.00	2.58	0.34	0.38	0.16	56.47
15	841960	22.12	1.83	0.83	1.55	0.15	0.61	0.15	3.05	0.03	0.24	0.61	1.28	0.27	6.46	2.54	2.02	1.41	0.14	45.28
16	841989	10.65	2.79	1.49	2.29	1.15	1.69	0.44	11.01	1.16	1.65	1.35	1.49	1.54	1.68	3.55	0.47	2.98	0.11	47.48
17	841990	16.70	5.16	3.18	4.66	1.29	1.73	0.71	6.63	1.45	0.26	1.20	1.00	0.92	1.88	2.36	0.61	0.26	0.03	50.04
18	842121	16.88	1.80	2.85	4.10	2.05	1.29	0.85	7.37	0.92	1.78	0.72	3.66	1.13	2.31	1.50	0.62	0.39	0.51	50.72
19	842129	13.37	1.70	2.87	2.99	2.50	2.38	0.73	11.51	0.27	0.68	1.17	1.13	1.99	1.18	1.80	0.55	0.24	0.03	47.10
20	842139	15.92	2.71	3.33	4.85	1.20	0.91	0.34	7.87	0.44	0.75	0.86	0.75	0.73	1.68	1.37	0.25	0.14	0.03	44.14
21	842199	11.52	4.15	3.37	2.55	1.17	1.18	0.73	12.43	0.85	0.90	1.72	1.52	1.60	1.16	2.83	0.83	0.11	0.10	48.74
22	847420	9.28	0.96	1.89	3.93	4.36	0.78	2.12	5.89	0.07	2.08	1.08	0.92	1.68	3.04	1.79	0.98	0.50	0.15	41.50
23	847971	1.81	13.22	0.02	1.91	0.16		0.10		6.94	0.51	18.29	0.21	5.34	2.25	2.36	0.00	0.01		53.12
24	847979	4.96	0.00	0.85	1.77	2.21	0.04	1.15	0.03		0.81	0.99	2.21	0.27	6.59	6.44	0.58	0.08	0.15	29.15
25	847982	11.67	3.48	3.40	2.26	1.41	1.78	0.81	16.00	0.46	2.47	3.17	1.64	1.54	4.63	1.87	0.55	0.17	0.26	57.57
26	847989	11.57	2.33	2.21	2.08	1.77	1.25	0.83	21.13	3.12	2.77	1.60	1.24	1.38	0.80	3.08	0.40	0.27	0.10	57.93
27	847990	14.37	5.25	2.37	2.93	1.04	1.79	2.20	7.42	1.37	0.80	0.34	3.13	0.72	0.77	2.50	0.46	0.11	0.03	47.59
28	850164	15.57	1.32	11.77	0.62	10.97	0.18	1.24	3.44	0.01	5.22	0.54	0.61	1.51	1.87	2.04	0.13	0.16	0.01	57.22
29	850231	1.90	3.86	6.80	4.18	6.75	0.01	13.54	0.20	0.00	1.70	0.12	0.01	0.16	0.79	0.14	5.36	0.02	0.02	45.58
30	850239	5.59	0.38	1.11	1.89	0.54	0.18	0.12	2.03	2.27	13.59	6.85	10.44	9.57	6.90	2.30	0.55	5.50	0.08	69.89
31	850300	13.38	3.74	2.17	1.75	0.97	0.97	0.29	4.35	2.16	1.58	0.91	0.60	1.21	1.03	3.31	0.33	0.20	0.14	39.10
32	850490	13.21	2.29	2.33	1.22	0.34	1.21	0.38	10.63	17.65	1.23	0.36	1.00	0.72	0.97	5.90	0.25	1.04	0.06	60.81
33	851410	9.50	1.36	1.12	1.14	0.28	2.69	0.39	33.34	1.01	2.07	1.07	1.19	1.75	1.32	1.01	0.19	0.02	0.02	59.47
34	851420	15.85	1.68	3.52	1.95	0.84	0.69	0.79	22.70	0.70	4.29	2.28	1.36	0.99	1.30	0.80	0.90	0.48	0.06	61.19
35	851430	7.56	2.21	0.56	1.58	0.39	0.80	0.14	8.98	0.84	6.51	4.89	5.97	0.83	30.21	4.79	0.42	0.77	0.13	77.56
36	851490	20.80	3.82	2.32	2.49	0.47	1.58	0.98	8.63	0.90	1.10	0.83	2.04	0.73	2.97	1.82	0.80	0.19	0.03	52.52

`	HS (2017)	United States	Japan	UK	Canada	Australia	Switzerland	Norway	China	Hong Kong, China	Vietnam	Thailand	Malaysia	Brazil	Indonesia	India	South Africa	Pakistan	Sri Lanka	Total except for EU
37	854140	15.80	6.70	0.71	0.77	2.81	0.40	0.07	13.42	7.54	5.80	1.60	1.22	2.14	0.27	4.61	0.60	0.66	0.05	65.17
39	854390	24.56	4.31	2.35	1.60	0.45	0.75	0.32	14.55	11.84	0.38	1.75	1.66	0.43	0.77	1.32	0.19	0.05	0.01	67.29
40	901380	6.71	1.26	0.29	0.45	0.13	0.15	0.03	64.69	10.67	4.84	0.43	1.32	0.13	0.10	0.31	0.03	0.02	0.00	91.55
41	901390	5.59	3.01	1.26	0.57	0.14	0.71	0.07	60.58	6.86	0.36	0.04	0.55	0.06	0.09	0.41	0.06	0.00	0.04	80.41
42	901580	14.43	2.74	2.42	2.51	3.71	0.67	4.58	13.54	2.32	1.51	0.98	1.08	1.24	1.30	3.73	0.56	0.75	0.07	58.14
43	902610	15.17	2.44	3.82	3.47	1.82	1.35	1.49	9.85	0.72	0.91	0.93	1.41	1.68	0.80	1.53	0.93	0.08	0.10	48.51
44	902620	17.46	1.90	3.04	3.38	0.93	1.01	0.66	14.97	0.61	0.58	0.99	0.60	1.06	0.84	0.72	0.36	0.07	0.03	49.21
45	902680	10.82	1.69	5.17	2.97	1.40	1.18	1.00	12.31	0.72	2.13	1.55	1.23	1.06	1.76	2.78	0.58	0.39	0.07	48.80
46	902690	14.16	6.60	4.58	2.06	1.01	1.75	1.08	14.48	1.76	1.54	1.27	1.73	0.78	0.63	1.80	0.33	0.08	0.04	55.69
47	902710	13.29	1.21	3.08	2.76	0.76	0.56	0.41	14.72	0.73	0.52	0.67	0.50	1.57	0.30	1.88	0.32	0.04	0.02	43.34
48	902720	8.75	2.11	1.62	1.26	0.50	1.02	0.15	32.64	10.09	0.99	0.54	0.35	1.33	0.40	6.71	0.18	0.21	0.05	68.90
49	902730	14.03	4.85	2.92	1.77	1.48	1.62	0.31	17.73	2.87	0.97	0.94	0.54	0.80	0.95	4.46	0.52	0.11	0.08	56.95
50	902750	14.88	2.57	3.32	2.35	1.38	1.22	0.34	20.57	1.99	0.10	0.59	0.31	1.41	0.84	1.86	0.53	0.07	0.02	54.36
51	902780	12.80	3.58	2.41	1.95	1.52	1.14	0.41	26.64	3.40	1.26	0.91	0.56	1.25	0.45	3.11	0.35	0.24	0.10	62.10
52	902790	16.71	5.62	4.23	2.00	1.22	2.06	0.40	10.89	3.90	0.67	0.44	0.73	1.14	0.21	2.46	0.46	0.06	0.02	53.24
53	903149	11.17	2.39	1.86	1.32	0.62	1.88	0.18	35.17	1.98	1.00	0.73	0.89	0.71	0.37	0.90	0.27	0.03	0.01	61.50
54	903180	11.33	3.72	2.70	2.33	1.29	1.18	0.43	23.88	2.08	3.50	1.90	1.10	1.42	0.73	3.67	0.42	0.07	0.05	61.77
55	903190	13.36	9.91	3.48	1.67	0.56	1.07	0.53	17.96	4.42	1.62	1.78	1.96	0.56	0.52	2.27	0.28	0.09	0.03	62.09
56	903289	12.45	5.99	2.66	2.76	1.17	0.51	0.33	17.46	1.23	1.81	4.61	0.56	4.47	0.84	2.67	0.37	0.23	0.07	60.19
57	903290	7.54	13.23	2.25	2.21	0.73	0.69	0.39	8.74	3.59	7.86	1.56	2.16	1.85	1.19	4.04	0.21	0.04	0.01	58.30
58	903300	4.86	0.97	5.14	1.39	0.47	1.89	1.44	3.14	9.66	1.48	8.04	2.47	0.51	0.92	4.41	0.31	0.10	0.31	47.53
59	962000	7.15	6.93	8.82	1.64	2.13	2.23	0.47	1.88	2.25	0.12	1.84	0.11	0.56	1.08	1.88	0.31	0.03	0.01	39.45

Source: Calculation based on WITS Comtrade data

Annexure Table 3: Environmental Goods Tariff lines and Bound Status (Bound, Unbound and Partial)

HS (2017)	56 APEC EG (Transposition TLs)	Australia	Brazil	Canada	China	Egypt	European Union	Hong Kong	India	Indonesia	Japan	Malaysia	Norway	Pakistan	South Africa	Sri Lanka	Switzerland	Thailand	USA	Viet Nam
441872	APEC 54	5.0	NA	3.2	NA	60.0		0.0	U	NA	NA	NA	0.0	75.0	15.0	50.0	S	NA	3.7	4.0
441873	T. New TL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
441875		5.0	NA	3.2	NA	60.0		0.0	U	NA	NA	NA	0.0	75.0	15.0	50.0	S	NA	3.7	4.0
840290	APEC 54	15.0	35.0	8.2	2.0	60.0	2.7	U	25.0	40.0	0.0	5.0	1.5	70.0	0.0	U	S	20.0	4.3	0.0
840410		15.0	35.0	6.4	8.5	20.0	2.7	U	40.0	30.0	0.0	5.0	2.0	70.0	5.0	U	S	30.0	3.5	5.0
840420		15.0	35.0	6.5	14.0	40.0	2.7	U	25.0	30.0	0.0	5.0	2.0	70.0	5.0	U	S	20.0	5.6	5.0
840490		15.0	35.0	6.4	8.5	20.0	2.7	U	25.0	40.0	0.0	5.0	2.0	70.0	5.0	U	S	U	3.5	5.0
840690		0.0	35.0	4.6	2.0	5.0	2.7	U	25.0	40.0	0.0	5.0	3.0	60.0	0.0	U	S	20.0	3.4	0.0
841182		0.0	10.0	7.9	3.0	5.0	2.1	U	25.0	33.3	0.0	0.0	4.0	60.0	0.0	U	S	20.0	0.8	0.0
841199		0.0	35.0	4.5	5.0	5.0	2.1	U	25.0	33.3	0.0	5.0	4.0	60.0	0.0	U	S	20.0	0.8	0.0
841290		7.5	35.0	4.7	5.0	20.0	1.2	U	25.0	30.0	0.0	5.0	4.0	70.0	15.0	U	S	U	0.0	0.0
841780		10.0	35.0	3.1	9.0	20.0	1.7	U	25.0	40.0	0.0	5.0	4.0	55.0	0.0	U	S	20.0	3.9	5.0
841790		10.0	35.0	4.9	7.0	20.0	1.7	U	25.0	40.0	0.0	5.0	4.0	55.0	0.0	U	S	20.0	3.9	5.0
841919		15.0	35.0	7.5	35.0	40.0	2.6	U	40.0	40.0	0.0	28.3	3.0	50.0	12.5	U	S	30.0	0.0	10.0
841939		12.5	35.0	3.7	9.0	6.0	1.7	U	32.5	40.0	0.0	7.5	4.0	55.0	7.5	U	S	20.0	0.0	5.0
841960		10.0	35.0	6.1	12.0	10.0	1.7	U	40.0	40.0	0.0	5.0	4.0	55.0	15.0	U	S	20.0	2.1	0.0
841989		15.0	35.0	4.2	0.0	4.0	1.3	0.0	40.0	30.0	0.0	5.0	4.0	75.0	15.0	U	S	14.0	1.4	1.3
841990		10.0	35.0	0.0	1.3	7.3	0.9	0.0	30.0	20.0	0.0	16.0	0.0	75.0	15.0	U	0.0	15.0	0.6	1.4
842121		10.0	35.0	6.1	15.0	25.0	0.9	U	25.0	40.0	0.0	5.0	4.0	75.0	12.5	U	S	20.0	0.0	8.3
842129		5.0	35.0	0.0	5.0	20.0	0.9	0.0	40.0	30.0	0.0	12.2	2.0	75.0	15.0	U	0.0	20.0	0.0	0.0
842139		8.0	35.0	0.0	6.7	10.0	0.9	0.0	40.0	30.0	0.0	30.0	2.0	65.8	25.0	U	0.0	30.0	0.0	0.0
842199		7.5	27.5	0.0	7.5	U	1.7	0.0	40.0	30.0	0.0	18.3	1.5	70.0	17.5	U	0.0	30.0	0.0	3.0
847420		5.0	32.5	0.0	5.0	5.0	0.0	0.0	25.0	30.0	0.0	5.0	0.0	72.5	0.0	U	0.0	20.0	0.0	5.0
847971	T. Exercise	5.0	33.4	0.0	0.0	10.0	0.7	U	40.0	30.0	0.0	1.1	2.0	60.0	10.0	U	0.0	3.0	0.7	0.0
847979		5.0	33.4	0.0	0.0	10.0	0.7	U	40.0	30.0	0.0	1.1	2.0	60.0	10.0	U	0.0	3.0	0.7	0.0
847982	APEC 54	10.0	28.3	5.0	7.0	10.0	1.7	U	40.0	40.0	0.0	5.0	4.0	60.0	10.0	U	S	20.0	0.0	5.0
847989		5.0	33.4	4.4	0.0	10.0	0.7	0.0	40.0	30.0	0.0	1.1	2.0	60.0	10.0	U	0.0	3.0	0.7	0.0
847990		7.5	35.0	5.1	0.0	10.0	0.7	0.0	25.0	2.7	0.0	0.6	1.3	60.0	10.0	U	0.0	0.0	0.0	0.0
850164		0.0	35.0	9.7	7.3	20.0	2.7	U	25.0	40.0	0.0	U	3.0	60.0	20.0	U	S	U	2.4	5.0
850231		5.0	35.0	6.2	8.0	10.0	1.4	U	25.0	40.0	0.0	30.0	3.0	55.0	20.0	U	S	U	1.3	5.0

HS (2017)	56 APEC EG (Transposition TLs)	Australia	Brazil	Canada	China	Egypt	European Union	Hong Kong	India	Indonesia	Japan	Malaysia	Norway	Pakistan	South Africa	Sri Lanka	Switzerland	Thailand	USA	Viet Nam
850239		5.0	35.0	6.2	10.0	10.0	1.4	U	40.0	40.0	0.0	30.0	3.0	60.0	20.0	U	S	U	1.3	0.0
850300		15.0	30.0	5.8	6.5	30.0	2.7	U	25.0	40.0	0.0	25.0	3.0	70.0	15.0	U	S	U	3.1	5.0
850490		0.0	35.0	0.0	7.3	U	1.3	0.0	12.5	40.0	0.0	5.0	0.0	75.0	15.0	U	0.0	U	0.0	4.3
851410		23.0	35.0	4.4	0.0	5.0	1.5	U	25.0	20.0	0.0	2.5	1.5	55.0	0.0	U	S	10.0	0.0	0.0
851420		23.0	35.0	4.4	0.0	5.0	1.5	U	25.0	20.0	0.0	2.5	1.5	55.0	0.0	U	S	10.0	1.6	0.0
851430		11.5	35.0	0.0	0.0	5.0	1.1	0.0	25.0	13.3	0.0	1.7	0.0	55.0	0.0	U	0.0	6.7	0.7	0.0
851490		11.5	35.0	0.0	2.7	5.0	1.1	0.0	25.0	13.3	0.0	1.3	1.0	55.0	0.0	U	0.0	6.7	1.3	0.0
854140		0.0	19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	10.0	U	0.0	0.0	0.0	0.0
854390		0.0	23.3	0.0	0.0	10.0	1.5	0.0	13.3	26.7	0.0	0.0	0.0	50.0	15.0	U	0.0	10.0	0.0	0.0
901380		0.0	35.0	4.6	9.7	20.0	1.6	0.0	20.0	40.0	0.0	2.5	1.0	60.0	10.0	U	0.0	U	4.2	0.0
901390		0.0	35.0	0.0	7.2	20.0	2.4	0.0	20.0	40.0	0.0	2.5	2.5	60.0	10.0	U	0.0	U	5.1	0.0
901580		0.0	20.7	0.0	5.0	10.0	3.1	0.0	40.0	30.0	0.0	10.0	0.0	60.0	0.0	U	0.0	30.0	0.0	0.0
902610		8.0	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	16.7	5.0	0.0	0.0	0.0	0.0
902620		8.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	17.1	5.0	0.0	0.0	0.0	0.0
902680		8.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	10.0	U	0.0	0.0	0.0	0.0
902690		0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	60.0	10.0	5.0	0.0	0.0	0.0	0.0
902710		0.0	22.5	0.0	7.0	10.0	2.5	0.0	25.0	U	0.0	5.0	0.0	60.0	10.0	U	0.0	30.0	0.0	0.0
902720		0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	10.0	U	0.0	0.0	0.0	0.0
902730		0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	10.0	U	0.0	0.0	0.0	0.0
902750		0.0	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	10.0	U	0.0	0.0	0.4	0.0
902780		0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.0	10.0	U	0.0	0.0	0.0	0.0
902790		0.0	27.3	0.0	0.0	5.0	1.7	0.0	12.5	0.0	0.0	0.0	0.0	60.0	10.0	U	0.0	15.0	0.0	0.0
903149		0.0	35.0	0.0	0.0	5.0	0.0	0.0	20.0	20.0	0.0	2.5	0.0	60.0	10.0	U	0.0	0.0	0.0	0.0
903180		0.0	25.2	0.0	5.0	10.0	2.3	0.0	40.0	30.0	0.0	5.0	0.0	60.0	10.0	U	0.0	30.0	0.0	0.0
903190		0.0	31.7	0.0	0.0	0.0	1.4	0.0	13.3	20.0	0.0	1.3	0.0	55.0	10.0	U	0.0	10.0	0.0	0.0
903289		5.8	30.9	0.8	7.0	10.0	1.4	0.0	40.0	30.0	0.0	2.5	2.5	60.0	30.0	U	0.0	30.0	0.8	1.0
903290		5.0	31.0	0.0	5.0	10.0	1.4	0.0	40.0	U	0.0	0.0	2.5	60.0	30.0	U	S	30.0	0.6	0.0
903300		5.0	25.0	0.0	6.0	5.0	3.7	0.0	40.0	U	0.0	2.5	2.5	65.0	10.0	U	S	30.0	1.1	0.0
962000	T. New TL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Average Bound Rate of 56 TLS		**6.4**	**31.4**	**2.6**	**4.9**	**12.2**	**1.4**	**0.0**	**24.0**	**25.3**	**0.0**	**6.1**	**1.7**	**61.5**	**10.3**	**16.3**	**0.0**	**15.0**	**1.1**	**1.6**
No. of Bound TLs		**57**	**55**	**57**	**55**	**55**	**55**	**34**	**55**	**52**	**55**	**54**	**57**	**57**	**57**	**5**	**31**	**46**	**57**	**57**

Note: B = Bound, U = Unbound and P = Partial bound Status; S = bound with specific duties (non-Ad Valorem); NA = not available.

The author's transposition exercise has increased the 54 tariff lines belonging to the APEC list of Environmental goods to 59 tariff lines.

Source: WTO, IDB, and CTS files for 19 WTO members.

ABOUT THE AUTHORS

PROF. MURALI KALLUMMAL

Professor at the Centre for WTO Studies, he has been associated with the Centre since 2003. He has worked in the area of tariff and non-tariff measures and also specialises in the areas of market access and the FTAs. His pioneering work has been conceiving and executing India's first web-based portal on SPS and TBT measures. The database provides trade links for all the WTO-notified measures on SPS and TBT since 1995. Email: muralik@iift.edu.

DR. SOMDUTTA BANERJEE

Consultant at the Centre for Regional Trade, Indian Institute of Foreign Trade, New Delhi. She holds a PhD in Economics from the University of Calcutta, India. Her main fields of research include environmental economics and international economics. At the centre, she is working on market access issues and trade and environment issues. Email: somdutta@iift.edu

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Centre for WTO Studies

5th to 8th Floor, NAFED House,
Siddhartha Enclave, Ashram Chowk,
Ring Road, New Delhi - 110014
Phone Nos: 91- 011- 38325622, 38325624

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