Policy Brief No. 10

Global Trends in SPS Measures and Stringent SPS-Based MRLs Notifications

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1. Introduction

International trade has been undergoing continuous liberalisation under the GATT since 1947 and further under the WTO since 1995. The world trading system has benefited from eight rounds of multilateral trade liberalisation and unilateral and regional liberalisation[1]. The Agreement on Sanitary and Phytosanitary Measures (SPS) came into existence with the adoption of the WTO in 1995, which necessitated binding trade disciplines and liberalisation of agricultural goods.

The SPS Agreement is an integral part of the WTO and is a covered agreement annexed to the Marrakesh Agreement, which established the WTO. During the Uruguay Round (1986 to 1994), the agricultural goods became part of the negotiation process, with binding commitments in terms of transparency and progressive harmonisation (a synonym for liberalisation), enacted through the requirement to notify all technical measures, either under the standard process (draft notifications) or via the emergency measures.

The SPS Agreements builds upon the Article XX of the GATT 1994 agreement, and thus enables a WTO member to take, adopt or enforce measures necessary to protect human, animal or plant life, or health, subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between the WTO members where the same conditions prevail or a disguised restriction on international trade. Therefore, the SPS measure is one of the 16 non-tariff measures with transparency-related commitments under the WTO. (UNCTAD, 2019)

The SPS Agreement mandates the harmonisation of the measure with three sister organisations at the international level – Codex, WOAH, and IPPC. However, the SPS agreement provides legal provisions for countries to set their standards while stipulating that regulations must be based on scientific evidence. Furthermore, under Article 5.7 of the SPS Agreement, where relevant scientific evidence is insufficient, a member can provisionally adopt a measure based on available pertinent information from international

[1] Understanding The WTO: Basics https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm?msclkid=38e6096ab44911ecbad7f2d2f4e79b73#:~:text=Freer%20trade:%20gradually%2C%20through%20negotiation,longer%20to%20fulfil%20their%20obligations.

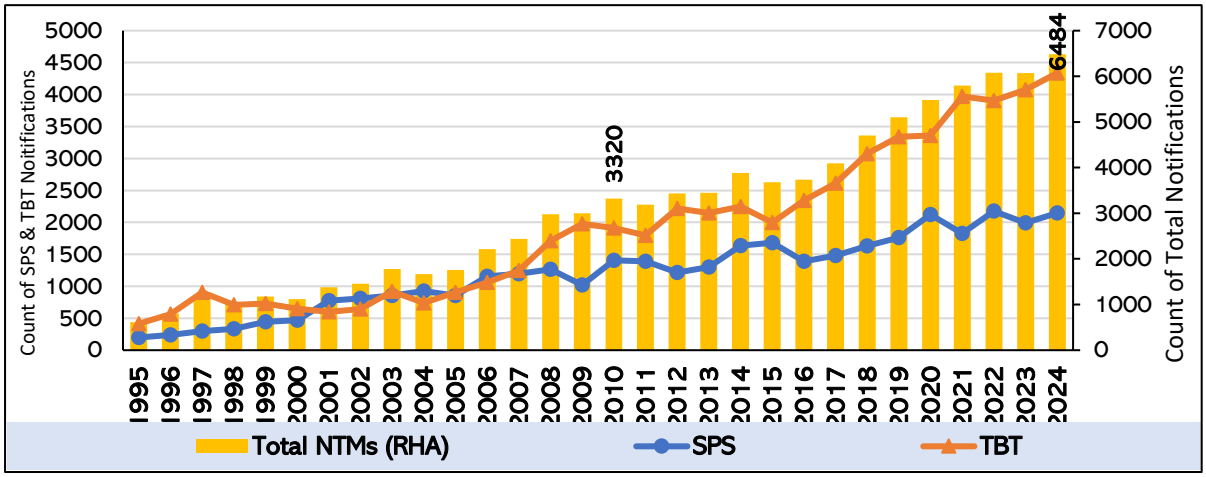
organisations or other members. Such temporary measures need a risk assessment dossier's support to remain a permanent regulatory measure. Therefore, WTO members are encouraged to utilise the international standards, guidelines, and recommendations; however, they may adopt higher levels of protection if there is scientific justification for doing so or based on an appropriate risk assessment. The SPS Agreement permits countries to employ various control, inspection, and approval procedures to verify compliance with adopted standards. Transparency regarding governments' SPS regulations is key to avoiding unnecessary trade barriers.

Due to differences in climate, existing pests, diseases, or food safety conditions, imposing identical SPS requirements on food, animal, or plant products from different countries is not always appropriate. Therefore, SPS measures may vary depending on the product's country of origin. This is considered in the SPS Agreement under Article 6, wherein it allows the adaptation of measures to regional conditions, such as appropriately adapting their requirements to products from disease-free areas, which may not correspond to political boundaries. The agreement, however, checks unjustified discrimination in using SPS, whether in favour of domestic producers or among foreign suppliers.

2. Profiling the Global Trend in SPS Measures

The number of notifications about SPS and TBT has increased since the formation of the WTO in 1995. As of March 2025, 166 WTO members had notified 36,577 SPS measures. Similarly, in the case of TBT, 58,461 measures were notified to the WTO (see Figure 1). Therefore, 166 members notified approximately 95 thousand[2] NTMs to the WTO have come into sharp focus in the debate on market access liberalisation.

Figure 1: WTO's Total Non-Tariff Measures - 1995 to 2024

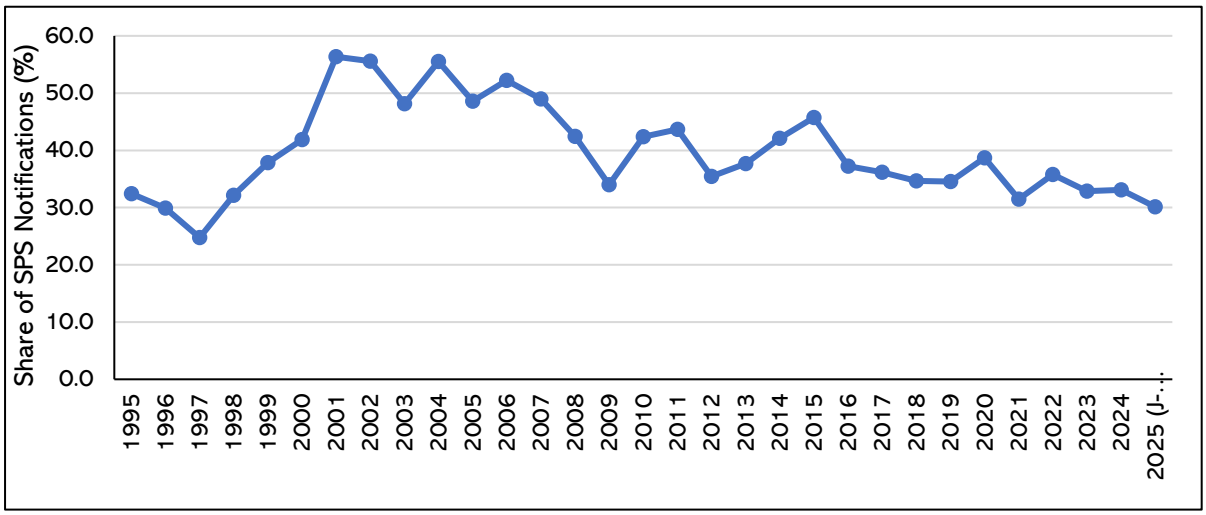


Sources: Authors compiled based on CWS online database (1995 to 2022) and E-ping databases (2023 and 2024).

[2] These notifications included additions, revisions, corrigenda, and supplements, as it was felt that nearly all of these trade-related barrier contents.

As seen in Figure 2, the share of SPS notifications in total NTMs has seen an upward trend. In 1995, the share of SPS notifications stood at approximately 32%. By the early 2000s, the share crossed 40%, and it reached a peak of 56% by 2001. Although the share declined after 2016, the values have remained above 30%. Members submitted until 2024.[3] 23,205 regular notifications (including 236 revisions), 3,591 emergency notifications (including 16 revisions), 8,507 addenda and 668 corrigenda, totalling 36,001 notifications.[4]

Figure 2: Share of SPS Measures in Total Non-Tariff Measures[5] (SPS and TBT) (%) –1995 to March 2025



Sources: Authors compiled based on CWS online database (1995 to 2022) and E-ping databases (2023 and 2024).

Figure 3 presents a time-series dataset of SPS notifications submitted to the WTO from 1995 to 2024, by countries categorised into Developed, Developing, and Least Developed Countries (LDCs) status according to their WTO Membership.

As mentioned above, there is a dramatic rise in the total number of SPS notifications over the past 30 years. The most striking trend is the exponential growth in notifications from developing countries. Starting from 121 in 1995, their number climbed to 1,335 in 2020 and has remained consistently above 1,000 in recent years. In 2024, developing countries contributed 1173 notifications, accounting for about 75%. Additionally, WTO emphasised in the Sixth Review of the SPS Agreement in March 2025 that a record number of SPS notifications from developing economies were received in 2024.[6]

Developed countries were early leaders in SPS notifications, with 78 notifications in 1995 and 579 in 2006. However, their contribution plateaued after 2006 and showed greater annual fluctuations. In 2024, developed countries contributed 514 notifications.

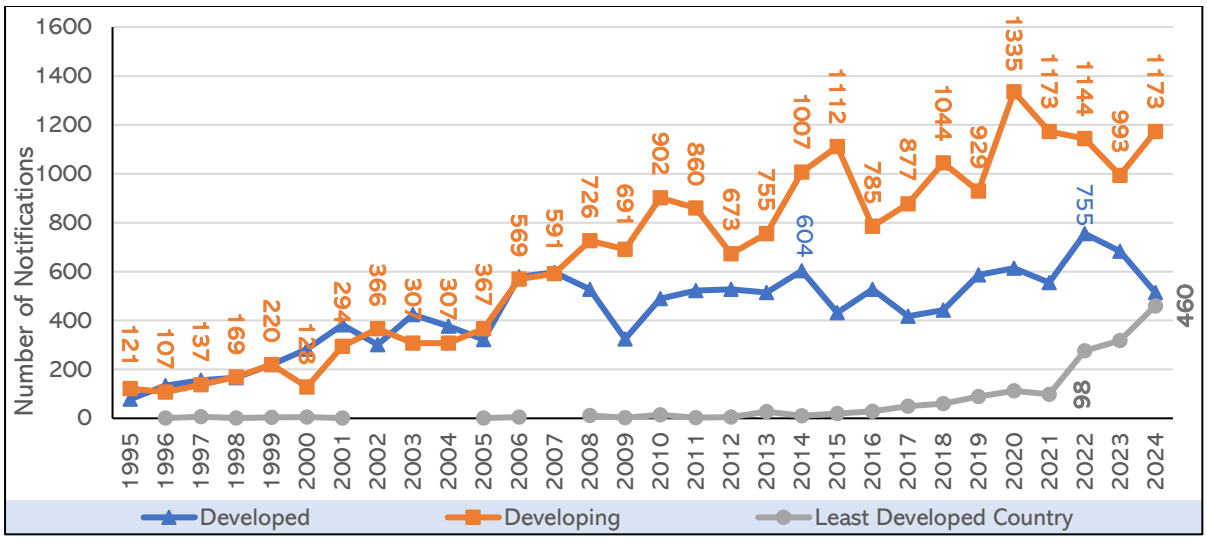
Figure 3: SPS Measures according to WTO Definition

[3] For this Note, submission refers to the date of distribution of the notification by the Secretariat.

[4] The total of 36,001 also includes 19 supplement notifications and 11 equivalence notifications.

[5] The Non-Tariff Measures cover only TBT and SPS measures and does not include the other 14 different Measures.

[6] WTO, 2025, Members conclude Sixth Review of SPS Agreement, note record notifications, https://www.wto.org/english/news_e/news25_e/sps_20mar25_e.htm.



Sources: Authors compiled based on CWS online database (1995 to 2022) and E-ping databases (2023 and 2024).

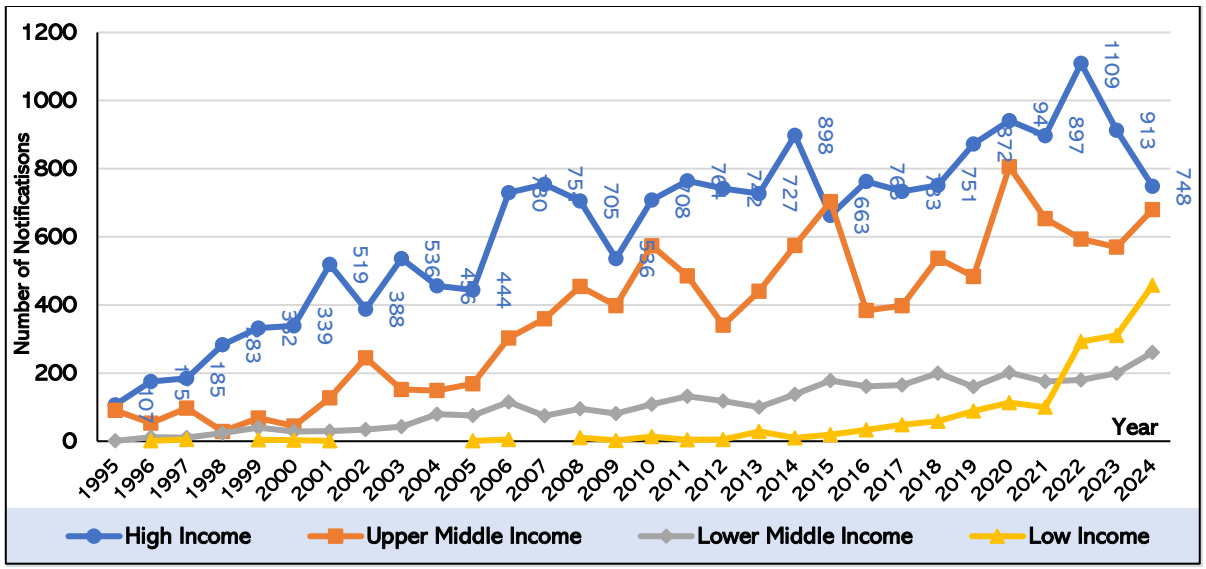
LDCs were virtually absent from SPS notifications in the early years, with either zero or single-digit submissions until the mid-2000s. Their engagement has increased noticeably since 2010, reaching 276 notifications in 2022 and 460 notifications in 2024. This surge may be attributed to increased technical assistance, the WTO's and its members' capacity-building efforts, and greater participation of LDCs in the global agricultural trade.

Figure 4 provides a breakdown of SPS measures from 1995 to 2024, categorised by World Bank income classifications. High-income countries have historically notified more SPS notifications, with 107 notifications in 1995, which has rapidly risen to 1,109 notifications in 2022. This group contributed 18,718 notifications, representing over 54% of all submissions.

Upper-middle-income countries have also shown an increase in SPS notifications over time. From 91 notifications in 1995, they surged to 806 notifications in 2020 and have consistently remained above 650 notifications annually. This group is the second-largest contributor to SPS notifications with a cumulative total of 10,926 notifications.

Lower middle-income countries were initially slower in notifying but have steadily increased their SPS engagement. From just one notification in 1995, their contributions rose to 261 notifications in 2024, totalling 3,224. This rise is particularly notable post-2010. Low-income countries remain the smallest contributors but have seen an increase in recent years. Notifications from this group were virtually absent in the 1990s and early 2000s, with single-digit notifications until 2010. However, since 2014, there has been a sharp uptick, reaching 458 notifications in 2024, and a cumulative total of 1,618 notifications. Hence, Graph 1 reveals how high-income and upper-middle-income countries remain key players.

Figure 4: SPS Measures according to World Bank Definition



Sources: Authors compiled based on CWS online database (1995 to 2022) and E-ping databases (2023 and 2024).

Table 1 below provides a granular look into which economies are the most active and the top notifying members among high-income countries. These seven countries account for 75% of the total notifications by high-income countries.

The United States accounts for 23.61% of all SPS notifications from high-income members, with 4,420 notifications. Canada, with 2,759 notifications, makes up 14.74% of the total notifications and is the second highest notifier in this group. Even though the European Union is known for its regulatory sophistication, it has notified approximately 1,827 SPS notifications, which is 9.76% of the total notifications.

Mid-sized economies like Chile, with 1,141 notifications, and Chinese Taipei, with 1,099 notifications, have high notification counts, accounting for 6.1% and 5.87% respectively. It is also notable that Chile and Chinese Taipei, while classified as developing members under the WTO, are categorised as high-income economies by the World Bank. Their high volume of SPS notifications is at par with that of many developed nations, which reflects their advanced regulatory capacities and strategic use of SPS measures.

India is negotiating trade with many of these countries, so it must consider their regulatory behaviour. These trading partners are prolific users of SPS measures and have well-established institutional frameworks that emphasise food safety, animal and plant health, and risk-based regulation. Their high volume of SPS notifications signals a proactive and precautionary approach to managing trade-related health standards. For India, market access will hinge on tariffs and its ability to meet evolving SPS requirements.

Table 1: Top notifying members among High-Income Countries

Top Notifying Members	Total Number of Notifications	Share (% ages)
United States	4420	23.61
Canada	2759	14.74
European Union	1827	9.76

Japan	1735	9.27
Chile	1141	6.10
Chinese Taipei	1099	5.87
New Zealand	1000	23.61
Total Notifications by High Income	**18718**	**100**

Sources: Compiled based on CWS online database and E-ping databases.

Table 2 below provides a granular look into which economies are the most active and the top notifying members among upper-middle-income countries. These seven countries account for 80% of the total notifications by upper-middle-income countries.

Interestingly, while these countries are classified as developing under WTO rules, the World Bank designates them as upper-middle-income economies, reflecting their relatively advanced economic and institutional capacities. For example, Brazil alone accounts for over 30% of total notifications in this group, followed by China, which accounts for 13.67%, and Peru, whose share stands at 11.6%.

The data highlights the strategic deployment of SPS measures to protect domestic health standards and the intention to influence trade flows. Countries like Brazil and China, major agricultural exporters, stand out because of their regulatory assertiveness and the use of SPS notifications to safeguard their markets and enhance the competitiveness of their food sectors.

This trend underscores the importance of building technical capacity and improving coordination among regulatory agencies for India, a competitor and trade partner to many of these nations. In other words, India's exporters face SPS barriers that are no less demanding than those posed by high-income countries. Hence, India's exporters must be equipped to navigate these increasingly complex SPS environments, while its trade negotiators must be alert to the shifting power dynamics among developing economies.

Table 2: Top notifying members among Upper Middle-Income Countries

Top Notifying Members	Total Number of Notifications	Share
Brazil	3303	30.13%
China	1498	13.67%
Peru	1272	11.60%
Thailand	936	8.54%
Mexico	670	6.11%
Colombia	643	5.87%
Costa Rica	435	3.97%
Total Notifications by Upper Middle Income	**10962**	**100**

Sources: Compiled based on CWS online database and E-ping databases.

3. Challenges faced by India

The challenges faced by India in terms of SPS adoption cum application are primarily two. Firstly, the adoption and application of the legal provisions of the SPS Agreement have come under considerable strain, mainly due to the land-holding characteristics. India's agricultural economy comprises many small farmlands spread across the Indian subcontinent, with most agriculture relying on subsistence farming. The average size of Indian farmland is just above 1 ha (1.15 ha), with two-thirds of these holdings being marginal (<1 ha) and having an average size of 0.39 ha, resulting in a fragmented holding pattern (Agricultural Census, 2014). As per the latest information from the Agriculture Census, the average size of operational holdings has decreased from 2.28 hectares in 1970-71 to 1.84 hectares in 1980-81, to 1.41 hectares in 1995-96 and 1.08 hectares in 2015-16 (PIB, 2020). Therefore, India's agricultural exports largely depend on aggregators (a long chain of intermediaries), and the economic agents (farmers and the intermediaries) face multiple barriers. Plagued by information asymmetry issues among economic agents exacerbates the problem, often leaving importing countries' genuine health and food safety concerns unaddressed, especially since many of these products are consumed domestically.

Other specific SPS barriers fall within stringent or otherwise unreasonable trade measures, which generally have developed country-centric standards focusing on large-scale farming operations. To overcome this, in 2013, Farmer Producer Organizations (FPOs) were established as legal entities owned and managed by farmers, aiming to improve their livelihoods by leveraging collective strength for the production, processing, and marketing of agricultural produce, to enhance economic strength by way of improving the bargaining and negotiating power by consolidating the fragmented and marginal farming community. Alongside enhancing access to technology and resources, FPOs improve financial inclusion, address concerns about a lack of value addition and processing, and improve market linkages by adopting better standards.

As per the Small Farmers' Agri-Business Consortium (SFAC) and National Association of Farmer Producer Organisations (NAFPOs), success stories include value-added products like potato papad-making and soybean production. Other areas include establishing wholesale counters for vegetable sales, ensuring better remuneration for farmers, and setting up retail outlets, making essential agricultural supplies more accessible to farmers. FPOs also promoted organic farming practices and connected farmers to assured markets.

The second challenge for India stems from the first and is faced by all developing countries. These are the Maximum Residue Limits (MRLs) for food safety, which began to take shape as domestic regulations in various countries during the mid-20th century. For

example, the United States established its first pesticide residue limits under the Federal Food, Drug, and Cosmetic Act (FFDCA) in 1954. Although MRL measures predated the formation of the WTO, Article 7 of the SPS Agreement mandated that members with high technological capabilities notify these measures. Maximum Permissible Levels (MPLs) are the maximum acceptable concentrations of contaminants (e.g., heavy metals, mycotoxins, microbiological limits) in food, water, or the environment, ensuring overall food safety by controlling contaminants that may pose health risks.

The stringent application of MRLs/MPLs by some countries is primarily due to the concern that an unbalanced application of chemicals will lead to numerous challenges to the agricultural ecosystems and soil health. Proponents argue that due to the incessant use of chemicals in agriculture, substantial quantities of degraded products and residues accumulate in the soil, posing a severe risk to the food chain. This, in turn, will have implications for a sustainable food system. As a result, members of the EU, such as the EU, are bringing in the Sustainable Food Policy (SFP) proposal. The 2021 proposal aims to expand the SPS framework to consider sustainability in food systems by setting guidelines that aim to ensure that food is produced, sourced, consumed, and disposed of in a manner that considers the protection of the environment, benefits society, and sets high standards for animal welfare. As a result, there is an urgent need to transition to sustainable food systems that safeguard food security and ensure access to healthy diets sourced from a healthy planet.

4. Maximum Residue Limits (MRLs)

Over the years, the SPS Committee has raised various trade concerns regarding MRLs. MRLs are regulatory thresholds for how much residue of a specific pesticide is allowed in food products. However, these measures can be trade-restrictive and act as a non-tariff barrier to trade, disproportionately affecting developing countries that rely heavily on agricultural exports. Figure 3 illustrates the number of SPS notifications submitted to the WTO regarding Maximum Residue Levels (MRLs) and Maximum Permissible Levels (MPLs) or residue tolerances from 1995 to 2024.

When MRLs are set without proper risk assessments and are based on hazard-driven approaches at levels that countries find difficult to meet, they can hinder exports and limit access to international markets.[7]

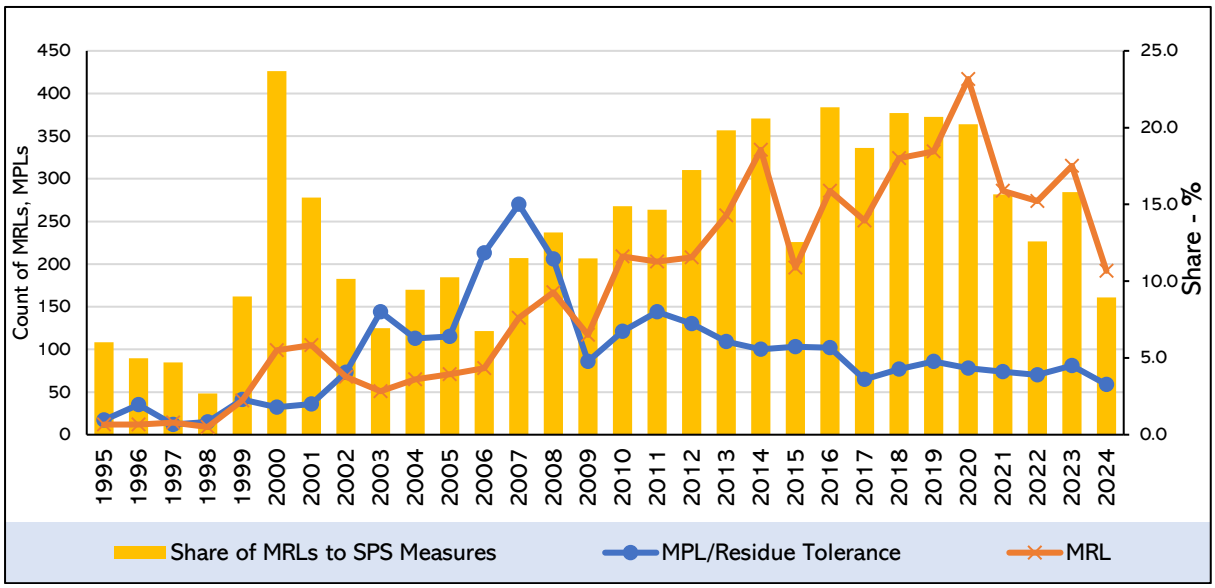
MRL and MPL have similar technical requirements; however, in terms of stringency, the former is considered to have a more significant impact on developing countries.

The number of notifications about MRLs rose between 1999 and 2002, again between 2009 and 2014, and once more in 2020, reaching a peak of 417 MRL-related

[7] India's Submission to WTO – Document Number G/SPS/W/358

notifications in 2020. While there is a widespread belief that MRLs are a recent phenomenon, the MRL requirement as a technical regulation was an integral part of notifications in 1995, accounting for nearly 6% of total SPS measures. This proportion increased to 20% by 2020.

Figure 3: MRL, MPL, and Share in SPS notifications (1995 to 2024)



Source: Online database of CRIT/CWS on SPS Measures https://cc.iift.ac.in/sps/index.asp.

We observed a more than 15 times increase in the MRL requirement in the SPS measures notified during the past thirty years, suggesting that it has gained much larger acceptance in the later years. The increase in MRL requirements indicates a strong and sustained upward trajectory, and it reflects an increasing global regulatory scrutiny of MRLs in agricultural products as the MRL-based related SPS measures target primarily the raw agricultural commodities.

MRLs, which have become the standard in SPS notifications in recent years, measure the presence of agrochemicals, pesticides, and other contaminants in parts per million (ppm) across over 700 agricultural and allied products. The QUAD countries, along with the EU and Canada, play a significant role in the development of technological content (Kallummal, 2013)[8]. Analysis of various MRL cases shows that the application of MRL-based SPS measures has risen as a significant barrier after 2013 (Kallummal & Gurung, 2017[9]; Kallummal et al., 2022[10]).

In 2015, the highest application of active ingredients or substances per agricultural product was observed in developed markets. For milk, the EU has the highest number of

[8] Kallummal M (2013). *SPS measures and market access implication for agricultural trade: WTO's systemic issues and changing scale of technology*. LAP LAMBERT Academic Publishing. ISBN-13-978-3-659-40808-3.

[9] Kallummal, Murali and Gurung, Hari Maya, Technical Barriers to Trade (TBT) by the WTO's Membership: Profiling and Decoding the Commercial vs. Economic Interests (December 10, 2017). Available at SSRN: https://ssrn.com/abstract=3618832 or http://dx.doi.org/10.2139/ssrn.3618832

[10] Agarwal, Muskaan and Kallummal, Murali and Sangeta, Seema, Imposition of Tolerance Limits in Active Ingredients on Fruits: Analysis of the impact on India's Exports (June 30, 2022). Available at SSRN: https://ssrn.com/abstract=4150110 or http://dx.doi.org/10.2139/ssrn.4150110

MRLs. It has 660 MRLs on active ingredients, followed by the USA. Mexico, which is adopting the US restrictions, has 179 MRLs. Japan had 38 MRLs, Brazil and Malaysia followed with 107 MRLs, India imposed 106 MRLs, and Chile notified 103 MRLs. The international body on setting standards - CODEX has harmonised and fixed MRLs for milk for 112 active ingredients. Therefore, it is observed that the EU has approximately six times higher MRL coverage on milk, followed by the USA and Mexico, which have twice as high MRL coverage, and Japan, which has 1.2 times higher MRLs than the CODEX harmonised MRLs (Kallummal & Gurung, 2017).

Although protecting consumer health is essential, nations must also ensure fair food trade practices. Hence, policymakers should engage more actively in the WTO SPS Committee for standard harmonisation. Additionally, they should encourage the acceptance of standard equivalence between countries, which will help reduce trade barriers. Other trade-facilitating measures that members could adopt include flagging potential trade-distorting notifications that lack scientific justifications.

In conclusion, MRLs hurt India's agricultural exports, and there is an urgent need to improve laboratory testing facilities, make sure that national MRLs are in line with Codex, and ensure that farmers have options for pesticides with low-residue

5. Recommendations

Based on the various trade concerns of members, including India, in the WTO SPS Committee, we recommend the following to ensure that non-tariff measures do not become non-tariff barriers.[11]

1. Transparency is essential for implementing the SPS Agreement and addressing potential trade barriers. However, the absence of translation of the notified measures is a significant obstacle to transparency. The WTO Membership should try to address challenges caused by translation barriers.
2. Weak MRL harmonisation is a challenge, and it is imperative to identify practical solutions. Members should work together, in collaboration with the FAO and Codex, to develop guidelines for determining default MRLs in the absence of international standards. In other words, harmonisation must be based on science and open dialogue. Such default MRLs on active substances or ingredients need to be notified to a central pool from which the WTO members can source the barrier existing in the members' territory.
3. Members should comply with the provisions of Article 5.7 of the SPS Agreement when no international MRL standards exist and refrain from using a hazard-based approach

[11] WTO Document Number G/SPS/W/356; G/SPS/W/358

4. Members should allow longer compliance timelines for products originating from developing country Members and LDC Members, as stated in Article 10.2 of the SPS Agreement, and consider requests from these Members for extensions, in the spirit of Article 10.3.
5. Members should receive more technical assistance and support for effectively controlling pests that significantly impact crop production and cause significant losses.
6. Members should work to enhance transparency regarding support provided to developing country members and LDC members to facilitate compliance with new MRLs.
7. Generally, any notification should provide 60 days for comments by the public. However, even in regular and emergency SPS notifications, very little time is given for comments. Thus, the reduced period for comment leads to profound implications for developing and LDC countries, which cannot adopt the SPS measures and maintain their exports. All members should avoid such practices[12].
8. Countries with lower Agricultural WTO-bound rates often impose stringent Maximum Residue Limits (MRLs) to regulate food safety and agricultural imports. Therefore, accounting for all past notifications becomes important for market access analysis; hence, the Stock of SPS should be taken against the flow of Tariffs.
9. The notifications provide broad product coverage without explicitly mentioning HS codes. Such notifications may lead to the use of discretionary powers by customs officials. Hence, this is against the fundamental principle of predictability of trade policy as visualised by the WTO, and members should be encouraged to provide HS codes in their notifications.[13]

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[12] Kallummal, M. (2012). *SPS measures and possible market access implications for agricultural trade in the Doha Round: An analysis of systemic issues* (No. 116). ARTNet Working paper series.
[13] ibid

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India's Foreign Trade Policy (FTP) Statement 2015-20 suggested creating a global institution that can provide a counter-narrative on key trade and investment issues from the perspective of developing countries like India. To fill this, a new institute, the Centre for Research on International Trade (CRIT), was set up in 2016. The CRIT's vision and objective were to significantly deepen existing research capabilities and widen them to encompass new and specialised areas amidst the growing complexity of globalisation and its spill-over effects in domestic policymaking. Secondly, enhancing the capacity of government officers and other stakeholders in India and other developing countries to deepen their understanding of trade and investment agreements.

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The Centre for WTO Studies was set up in 1999 as a permanent repository of WTO negotiations-related knowledge and documentation. Over the years, the Centre has conducted a robust research programme with papers in all spheres of interest at the WTO. The Government of India has regularly called upon it to undertake research and provide independent analytical inputs to help it develop positions in its various trade negotiations at the WTO and other forums, such as Free and Preferential Trade Agreements and Comprehensive Economic Cooperation Agreements. Additionally, the Centre has been actively interfacing with industry, government units, and other stakeholders through its outreach and capacity-building programmes, including seminars, workshops, subject-specific meetings, etc. The Centre thus also acts as a platform for consensus-building between stakeholders and policymakers.

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