

Institutional Dilemmas and Reform Paths of the WTO from a Sustainable Development Perspective

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Abstract: As the core institution of the multilateral trading system and a pivotal platform for global economic governance, the World Trade Organization (WTO) has underpinned post-war trade liberalization and institutional stability. Adopting historical review, institutional analysis and literature synthesis, this paper traces the WTO's progression from the GATT framework to contemporary operation, clarifies its institutional structure, core functions and operational dilemmas, and systematically incorporates sustainable development into the analytical framework. The study demonstrates that the WTO is confronted with multiple crises: the paralysis of the dispute settlement mechanism, prolonged deadlock in multilateral negotiations, institutional misalignment with digital trade governance, and insufficient integration with environmental and social sustainability targets. The traditional rule-setting neglects the coordination among trade liberalization, ecological protection and inclusive development, eroding the organization's legitimacy and effectiveness. To revitalize the multilateral trading system, targeted institutional reform is imperative: repairing the dispute settlement mechanism, adopting flexible open plurilateralism, updating digital and green trade rules, and embedding sustainable development into all core functions. By supplementing sustainable development objectives into the reform analysis, this paper enhances the logical integrity of WTO reform research and provides a theoretical reference for constructing an open, equitable and green multilateral trading framework.

Keywords: WTO; Multilateral trading system; Dispute settlement; Institutional reform; Sustainable development; Green trade; Global economic governance



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Introduction

The multilateral trading system with the WTO at its core stands as one of the most significant institutional achievements of global economic cooperation since World War II. Since its founding in 1995, the WTO has been committed to formulating universal trade rules, resolving trade frictions, advancing trade liberalization and boosting global economic growth. Its predecessor, the General Agreement on Tariffs and Trade (GATT), facilitated successive tariff cuts through multiple negotiation rounds and laid a solid foundation for post-war economic recovery [1].

Nevertheless, the WTO has fallen into a deep operational dilemma since the early 21st century. The Doha Round negotiations have long been stalled; the Appellate Body of the dispute settlement mechanism has been paralyzed since

2019; unilateralism and trade protectionism have continuously undermined multilateral rules; emerging issues including digital trade, climate change, industrial subsidies and ecological conservation cannot be effectively regulated under the existing rule system. More critically, the original WTO institutional design was rooted in an era prioritizing economic growth, lacking systematic alignment with the UN Sustainable Development Goals (SDGs). The tensions between trade expansion, resource consumption, carbon emissions and equitable development have intensified, severely constraining the long-term legitimacy of the multilateral trading system.

This paper takes the multilateral trading system represented by the WTO and its institutional framework as the research object, covering the historical evolution, institutional

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structure, functional operation, practical challenges and future reform pathways of the WTO, with a focused analysis on the integration logic and implementation path between the WTO and sustainable development. It aims to clarify the development trajectory of the WTO, explore the root causes of its institutional crisis, and propose reform directions that balance trade liberalization, ecological sustainability and social inclusiveness. Theoretically, this paper enriches the research framework of WTO reform by integrating sustainable development; practically, it offers a reference for countries to participate in WTO reform and build a green and inclusive multilateral trading system.

Literature Review

Current research on the WTO concentrates on four dimensions: historical evolution, institutional functions, crisis dilemmas and reform pathways. In recent years, scholarship on the linkage between the WTO and sustainable development has been growing steadily.

Research on the historical evolution of the WTO

Bhagwati [1] argued that the establishment of the WTO was an inevitable response to deepening economic globalization, expanding regulatory coverage from merchandise trade to services, intellectual property rights and investment-related sectors. The WTO Secretariat [13,14] divided its development into three phases: initial establishment (1995–1999), negotiation deadlock (2000–2012) and institutional crisis (2013–present), highlighting the profound impacts of the Doha Round failure and the Appellate Body paralysis.

Research on institutional functions and operational effects

Hoekman & Mavroidis [5] regarded the dispute settlement mechanism as the core competitive edge of the WTO, featuring judicialization and enforceability that effectively restrained power politics in trade relations. However, Pauwelyn [7] and Mavroidis [6] pointed out that the blockage of Appellate Body appointments broke the two-instance adjudication system, drastically weakening the legal binding force of panel rulings.

Research on practical challenges and institutional defects

Wolfe [10] emphasized that the consensus-based decision-making mechanism led to low negotiation efficiency. Bown [2] noted that outdated rules failed to match new trade practices such as digital trade and carbon border regulation. UNCTAD [9] stressed that the development divide between developed and developing countries hindered institutional reform. Additionally, a new wave of literature has focused on sustainability deficiencies: the WTO lacks clear rules governing green trade, environmental subsidies, carbon border adjustment mechanisms (CBAMs) and fossil fuel

subsidies, leaving trade rules unable to support climate goals [11,12,13].

Research on reform paths and future trends

Most scholars advocate moderate institutional innovation. Gao [4] proposed that “open plurilateralism” could break the negotiation deadlock. The World Bank [11,12] recommended priority reforms in three areas: restoring dispute settlement, formulating digital trade rules and strengthening transparency mechanisms. Driven by the SDGs, more studies insisted that the WTO must take sustainable development as a core objective: phasing out harmful fisheries subsidies, liberalizing environmental goods and services, enhancing coherence between trade rules and climate agreements, and improving inclusiveness for developing countries [9,13].

Overall, existing studies have comprehensively discussed the dilemmas facing the WTO, but lack a systematic integration of historical evolution, institutional logic, sustainable development goals and reform pathways. This paper constructs a more comprehensive and rigorous analytical framework based on previous research.

Research Methods

This paper adopts a standardized qualitative research design, combining multiple methods to ensure rigor and credibility. Literature research is applied to collect and organize official documents from the WTO, UNCTAD, the World Bank, IMF and other international organizations, as well as core academic papers and monographs related to the multilateral trading system and sustainable development, forming a solid theoretical foundation. Historical analysis is used to review the transition from GATT to WTO, stage the WTO’s development process, and analyze the institutional logic behind major historical events. Institutional-structural analysis is employed to examine the WTO’s organizational structure, decision-making mechanism and core functions, revealing the institutional causes of its operational difficulties, especially the lack of a sustainable development orientation. Inductive and comparative analysis is adopted to summarize common viewpoints in academic research, compare different reform proposals, and evaluate their applicability to sustainability objectives. All data and facts in this paper are derived from official reports of the WTO, World Bank, UNCTAD and published academic literature, ensuring high authenticity and authority.

Empirical Results and Discussion

Historical evolution of the WTO

The WTO evolved from the GATT established in 1947. The GATT achieved substantial tariff reductions through multiple negotiation rounds, but it was only a provisional agreement with limited regulatory scope and a weak dispute settlement system. The Uruguay Round (1986–1994) laid

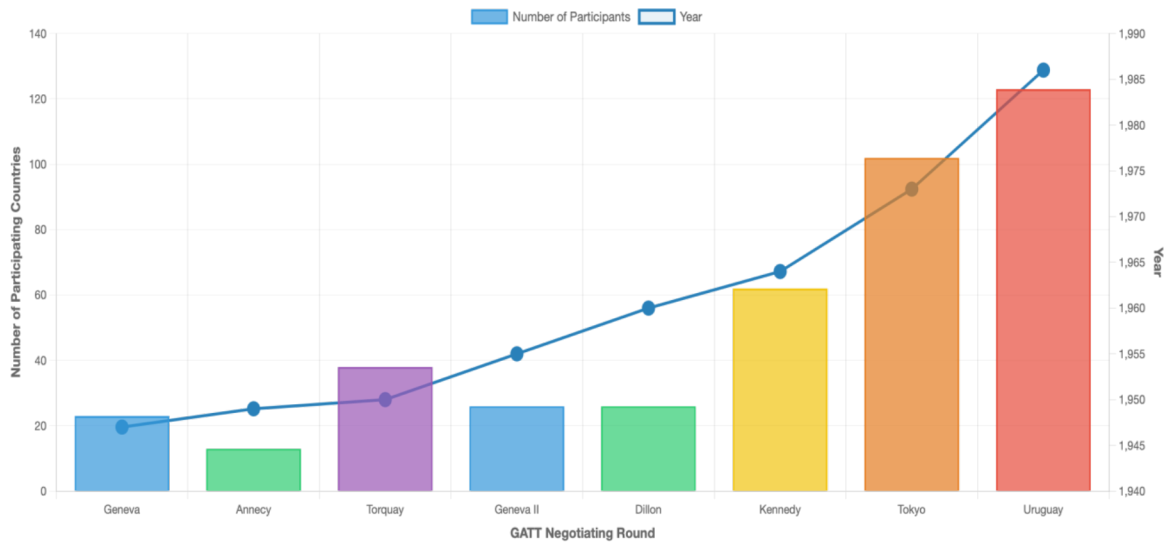


Figure 1 | Evolution of GATT Negotiating Rounds (1947-1994)

the institutional foundation for the WTO, which was officially founded in 1995. Its development can be divided into three phases. The first phase is formation and expansion from 1995 to 1999, during which the dispute settlement mechanism was put into operation and the Singapore Ministerial Conference expanded the negotiation agenda. The second phase is negotiation stalemate from 2000 to 2012, marked by the launch of the Doha Development Agenda that deadlocked over agriculture and non-agricultural market access, as well as the rapid proliferation of regional trade agreements. The third phase is institutional crisis and adaptation from 2013 to the present, characterized by the paralysis of the Appellate Body, the promotion of plurilateral agreements such as the Trade Facilitation Agreement and the Fisheries Subsidies Agreement by members, and the establishment of the MPIA interim appeal mechanism. An important empirical trend is that sustainable development has gradually become a key agenda of the WTO since 2015. The 2022 Fisheries Subsidies Agreement is the first multilateral agreement in WTO history targeting environmental sustainability, contributing to curbing overfishing and protecting marine ecosystems [9, 13].(See **Figure 1** and **Figure 2**)

Institutional structure and core functions

The WTO’s top decision-making body is the Ministerial Conference, and its daily operating body is the General Council, which also acts as the Dispute Settlement Body (DSB) and the Trade Policy Review Body (TPRB). It has three specialized councils for goods, services and TRIPS, plus special committees on trade and environment, trade and development and other fields. The core functions of the WTO include implementing and supervising multilateral trade agreements, providing a negotiation platform for developing new trade rules, resolving trade disputes through quasi-judicial procedures, conducting regular trade policy reviews to

enhance transparency, and cooperating with international organizations such as the IMF and World Bank. A critical finding is that the WTO has basic institutional carriers for sustainable development such as the Committee on Trade and Environment, but lacks binding rules, mandatory transparency and incentive mechanisms, leaving sustainability marginalized in daily operation.

Core challenges: Including sustainable development defects

The WTO is currently facing a series of severe core challenges. The dispute settlement mechanism is paralyzed as the Appellate Body lacks members, leading to the phenomenon of “appeal into void” for panel rulings and a sharp decline in the enforceability of trade rules. The negotiation function is dysfunctional because the consensus mechanism results in low efficiency, making it difficult to reach unified rules on emerging trade issues. The existing rule system is seriously outdated and fails to cover new fields such as digital trade, data flow, climate-related trade measures and industrial subsidies. Geopolitical shocks brought by unilateralism and the abuse of national security exceptions have continuously eroded the fundamental non-discrimination principle of the multilateral trading system. There is a prominent development divide with sharp divergences between developed and developing countries over the implementation of special and differential treatment. In terms of sustainability, the WTO presents obvious misalignment, including the absence of clear rules for CBAMs, environmental subsidies and green technology trade, ineffective restrictions on fossil fuel subsidies and harmful fisheries subsidies, insufficient coordination between trade rules and the Paris Agreement, and the lack of capacity for developing countries to participate in green trade governance [12, 13].

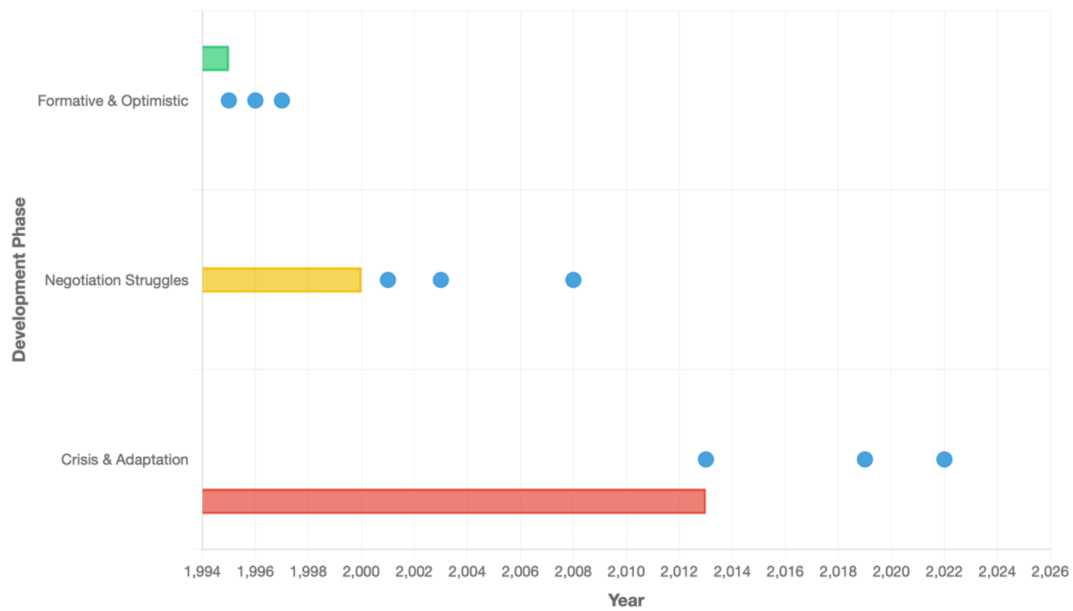


Figure 2 | Key Phases in WTO Development (1995–Present)

Future development directions: Integrating sustainable development

The future development of the WTO needs to take institutional reform as the core and fully integrate the concept of sustainable development. The first priority is to restore and reform the dispute settlement mechanism, improve judicial procedures, limit excessive interpretation and establish a sustainable appeal mechanism. Meanwhile, it is necessary to clarify the interpretation rules for environmental and climate exceptions in dispute settlement to prevent legitimate green policies from being misjudged as trade barriers. The second direction is to promote open plurilateralism, advance negotiations in e-commerce, investment facilitation and other fields through coalitions of the willing, while ensuring the inclusiveness of the negotiation process and providing necessary special and differential treatment for developing countries. The third key path is to update modern trade rules with sustainability as the core, formulate digital trade rules that balance data flow and public interests, establish a complete system of green trade rules to promote the liberalization of environmental goods and services, standardize climate-related trade measures and phase out harmful subsidies, and improve disciplines on industrial subsidies and state-owned enterprises to prevent market distortion and carbon leakage. In addition, the WTO should strengthen transparency and sustainable development monitoring, improve the notification mechanisms for subsidies, carbon-related policies and environmental measures, and integrate green indicators into trade policy reviews to strengthen global supervision. Finally, the WTO must highlight inclusive and sustainable development, strengthen technical assistance and capacity building for developing countries, effectively implement special and differential treatment, and help low-income countries fully share the

dividends of green trade. A key logical conclusion is that the WTO can only regain legitimacy and effectiveness by embedding sustainable development into all core functions and realizing the coordinated development of trade, environment and social equity.

Conclusion

The WTO serves as the cornerstone of the multilateral trading system. Since its establishment in 1995, it has promoted global trade liberalization and maintained the stability of the international trade order. However, affected by institutional defects and external environmental changes, the WTO is currently facing the most severe crisis in its history. The paralysis of the dispute settlement mechanism, stagnation of negotiation functions, obsolescence of the rule system, development concept division and insufficient integration with sustainable development goals jointly restrict its operational effectiveness.

The future of the WTO lies in targeted institutional reforms that balance economic openness, ecological sustainability and social inclusiveness: restore the binding force of dispute settlement, adopt flexible plurilateral negotiation methods, formulate rules adapting to digital and green trade, strengthen transparency, and balance the interests of developed and developing countries. In particular, the WTO must take sustainable development as a long-term goal, strengthen coordination between trade rules and climate/environmental agreements, phase out harmful subsidies, promote the liberalization of environmental goods and services, and support green transformation in developing countries. Only in this way can the multilateral trading system overcome the risk of fragmentation and continue to play a central role in global economic governance.

This paper is limited to qualitative institutional analysis. Future research can conduct quantitative analysis on the economic and environmental effects of WTO green reforms, or carry out case studies on specific fields such as carbon border adjustment and environmental goods trade to further test the feasibility of reform plans.

Conflicts of Interest: The authors have no competing interests to declare that are relevant to the content of this article. No financial support, commercial relationships or personal interests have influenced the work presented in this study.

Author Contributions: Haoming Liu: Conceptualization, Methodology, Writing – Original Draft Preparation; Dingxiong Gu: Data Curation, Formal Analysis, Writing – Review & Editing.

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