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WTO LAW AND THE QUEST FOR FOOD SECURITY: EXPORT RESTRICTIONS, PUBLIC STOCKHOLDING, AND CLIMATE SUBSIDIES IN A FRAGMENTED GLOBAL ORDER

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Introduction

Global food security has rapidly intensified over the past few years primarily due to the shock caused by over COVID 19 pandemic and other factors like wars compounding to preexisting vulnerability in food system worldwide. Several export bans and restrictions were imposed by major agricultural exporters including India's rice export ban in 2022-2023 and Russia's fertilizer limitation increasing prices and precipitating acute shortage in several importing nation. WTO Being the leading multilateral body governing food and agriculture trade plays an important role in this context through its various agreements like Agreement on Agriculture (AoA) and General Agreement on Tariff and Trade (GATT) 1994. Yet the current regulatory instruments are increasingly tested by the convergence of food trade and security imperative.¹ Government face issues balancing the sovereign right to secure domestic food supply chain against the commitment to free and predictable global trade. This magnifies during the time of crisis where export restrictions appear as one of its policy tools to insulate domestic market but often worsen insecurity elsewhere. The WTO as a Forum and enforcing authority has the task of reconciling such conflicts within its limitation in bringing clarity enforcement and consensus building among its diverse members.²

Statement of Problem

Global food security continues to be a persistent issue due to increasing population demands, effects of climate change, and unpredictable agricultural markets. In this context, the number of export restrictions on food and fertilizers has increased, frequently used by countries to

¹ Giovanni Anania, Agricultural Export Restrictions and the WTO: What Options do Policy-Makers Have for Promoting Food Security? (International Centre for Trade and Sustainable Development 2013), <https://www.jstor.org/stable/resrep65744.10> (last visited Sept. 24, 2025)

² Sudha Narayanan, The National Food Security Act vis-à-vis the WTO Agreement on Agriculture, 49 Econ. & Pol. Wkly. 40, 40-46 (Feb. 1, 2014), <https://www.jstor.org/stable/24479146> (last visited Sept. 24, 2025)

secure domestic supply or address crises. Although these trade actions may tackle urgent national issues, they risk distorting international markets, worsening food insecurity in other regions, and eroding confidence in the World Trade Organization (WTO) system. This research examines how WTO law currently regulates export restrictions, public stockholding, and climate-related subsidies in agriculture, analyzing their interconnected role in the global quest for food security.

Objectives

- To examine the legal regime under WTO law that regulates export restrictions for food and fertilizers, and relevant dispute settlements.
- To explore the WTO's response to public stockholding programs for food security and associated negotiation trends.
- To examine the implications of climate subsidies for agricultural trade under the WTO's current subsidy disciplines.
- To evaluate the efficacy and limitations of WTO law in achieving food security in a fractured global order.

Rationale of the Study

The growing application of export restrictions revealed the precarious ability of WTO law to cope with trade measures distorting global food flows. In addition, the gap between trade liberalization and internal food security strategies such as public stockholding programs bring about regulatory uncertainty. Climate change introduces yet another layer of complexity, requiring subsidies for favoring sustainable agriculture but imposing risks of trade distortion. The research makes analysis of these cross-cutting WTO challenges in relation to food security that supports the identification of directions toward more integrated and just world governance.

Research Question

1. In what ways do WTO regulations govern export limitations on food and fertilizers, and what effects do they have on global food security?
2. What legal and policy obstacles exist regarding WTO public stockholding rules in aiding food security goals?
3. What are the regulatory gaps and trade-offs associated with climate subsidies in agriculture within the framework of WTO subsidy rules?

4. Is it possible to reform WTO law to more effectively balance trade liberalization with food security and sustainability objectives amid a fragmented global system?

Scope of the Study

This analysis is centered on WTO law and dispute settlement in respect of food and fertilizer export restrictions, regulatory treatment of public stockholding programmes, and the developing issue of climate subsidies in agriculture. The analysis is based on case law, WTO ministerial negotiations, international organization reports, and academic writing available until 2025. The geographical coverage is international, with examples from developing and developed member nations' experience.

Research Methodology

The research employs a doctrinal approach to legal research with policy analysis. Primary sources are WTO agreements (e.g., the GATT, Agreement on Agriculture, SCM Agreement), ministerial declarations, and official WTO dispute settlement reports. Secondary sources are current policy papers, international organization reports, and academic articles.

Scheme of Chapterization

Chapter 1 - Introduction

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CHAPTER II - Export Restrictions on Food and Fertilizers under WTO Law

Food security, as defined by the FAO, encompasses four key elements: availability, access, utilization, and stability of safe and nutritious food for all individuals at all times. This comprehensive approach highlights that food security is not just about having enough food but ensuring equitable distribution, proper nutritional use, and resilience against supply disruptions. In international law, food security is recognized as a normative goal, yet it often

competes with WTO principles emphasizing free trade and market access.³ While the WTO preamble supports social and sustainable development objectives, its core agreements prioritize trade liberalization, leaving limited policy space for countries to address food crises domestically. This has sparked debate among scholars about balancing trade openness with governments' rights to secure food access, underscoring the need for WTO law to foster a framework that allows states to manage food insecurity without severely disrupting global markets.⁴

The rules for when and how countries can restrict their exports under the WTO reveal a political economy tension between the advantages created by open, predictable trade and the sovereign rights of states to protect their domestic food supplies in cases of crisis. This legal framework is based mainly on the General Agreement on Tariffs and Trade (GATT) 1994 and the Agreement on Agriculture (AoA), which contain general disciplines prohibiting export controls but also provide important carve-outs – these allow, however, for transitory policies designed to meet pressing domestic requirements. Centrally, it's Article XI of GATT, the “General Elimination of Quantitative Restrictions.” It provides a general rule that no WTO member shall adopt or maintain, directly or indirectly restrictions on a party's exportation of products in the form of “absolute” prohibitions from exporting, prohibition accompanied by export quotas and other quantitative limitations.⁵ Put another way, countries are supposed to keep export markets open, allowing for the free flow of agricultural products and fertilizers into world markets. This principle is also in line with the objective of market predictability that benefits producers and consumers all around the world by preventing sudden shocks or blockages in supply chains.⁶ But this ban is not categorical. Knowing that strict enforcement would disrupt countries with pressing need for goods, Article XI:2(a) provides an important qualification. It allows countries to temporarily restrict exports where those restrictions are needed to prevent or relieve critical shortages of foodstuffs or other essential products in their own countries. This provision recognizes the right of a country to react to ‘domestic food emergencies’ such as famines or disruptions in markets by curtailing its exports so that supply remains available for local needs.

³ Jennifer Clapp, WTO Agriculture Negotiations: Implications for the Global South, 27 *Third World Q.* 563 (2006), <http://www.jstor.org/stable/4017724> (last visited Sept. 24, 2025)

⁴ WTO MEMBERS SHOULD AVOID EXPORT RESTRICTIONS ON FERTILIZERS TO DELIVER ON FOOD SECURITY | INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT, <https://www.iisd.org/wto-export-restrictions-fertilizers-food-security>

⁵ Export restrictions and the WTO law, https://www.wti.org/media/filer_public/f6/fd/f6fddaff-1b0e-4f46-9239-c9901f1e47d9/bk-export_restrictions_slides.pdf (last visited Sep 24, 2025)

⁶ Giovanni Anania, *Agricultural Export Restrictions and the WTO: What Options do Policy-Makers Have for Promoting Food Security?* (International Centre for Trade and Sustainable Development 2013), <https://www.jstor.org/stable/resrep65744.10> (last visited Sept. 24, 2025)

The WTO has indicated in rivalling cases that ‘public morals’ is read restrictively and must fulfil a number of criteria to be recognised. For one, the measure has to be genuinely temporary, lasting no longer than is necessary in order to address the shortage. That way country cannot use export bans as a permanent form of trade barrier by calling it an emergency measure. Second, the shortage should be acute or severe, not a natural fluctuation in the market. Third, the restricted product must be such that it is necessary or indispensable for the country’s population as a whole or its economy. Any measure of the export restriction type not meeting these three conditionality’s would be found to breach WTO commitments. In addition to the substance-based rules, as one of these, Article 12 of the Agreement on Agriculture provides for procedural requirements and transparency and co-operation among Members of the WTO. Countries applying measures under Article XI:2(a) are obligated to inform the WTO Committee on Agriculture, including relevant information related to the restriction. They also must consult with countries affected by these measures. It aims at minimizing confusion and trade impediments by means of dialogue, and possibly induce early lifting or modification of export controls. There is little the WTO can do to enforce these procedural obligations if a country falls short, with implications for their course in practice. Crucially, WTO law allows for export taxes or duties, which many countries use as a policy lever. Only traditional quantitative limitations on volume exported or outright bans are forbidden. This is the subtle dance of political economy realities in trade negotiations, where tariffs are generally viewed as being more transparent and controllable tools than opaque quotas or blanket export bans.⁷

This legal framework was largely created when export restrictions were far less prevalent in the increasingly interconnected global economy. But the recent spate of disasters has challenged its resilience. Several countries imposed export restrictions on staple foods during the COVID-19 pandemic in order to preserve domestic access. By the same token, Russian actions in Ukraine also resulted in export quotas for fertilizers and hence also a cut to global agricultural production. Such moves exposed uncertainties and lacunae in W.T.O. rules in particular, what qualifies as a “temporary” or “critical” shortage, and how to balance the geopolitical sensitivities of export controls for vital goods. In practice, while WTO rules formally restrict the imposition of export limitations, they are often implemented under the “critical shortage” clause with little critical analysis or counteraction by other countries against such measures, in turn causing erratic trade flows and worsening food insecurity in import-

⁷ MC12: An opportunity to find an enduring solution on public stockholding | International Institute for Sustainable Development, <https://www.iisd.org/articles/mc12-solution-public-stockholding> (last visited Sep 24, 2025)

dependent areas. The transparency procedures under AoA have also been uneven, with many steps notified after they have taken and consultations typically being pro-forma.⁸

The absence of WTO complaints on food export restrictions in situations of crisis suggests political hesitation to bring such cases and practical difficulties of enforcing these limited exceptions in emergencies. In short, the WTO export restriction regime finds itself at a crossroads where the WTO rhetoric of free and fair trade intersects with the hard facts about food security considerations. Achieving this balance will depend on a well-honed interplay of careful legal readings, policy innovation, and institutional reform.

Important Cases

1. China – Raw Materials

Facts: China applied export quotas, duties, and other measures on various raw materials (such as bauxite, coke, magnesium, and others), claiming such raw materials were needed domestically and that the measures were justified under Article XI:2(a) (critical shortages) and Article XX of GATT.⁹

The Panel and Appellate Body dismissed China's defense, holding that the export quotas were not "temporarily applied" and were not intended to relieve an actual, current, or near-future critical shortage. The rationale of shortage was not supported by actual or near-future crisis, and the restriction was not temporary in nature but was more permanent in nature. In addition, the exceptions under GATT Article XX were not available pursuant to China's accession protocol in this case. The court established a strict test to invoke Article XI:2(a): export restrictions should be of a limited duration, have been caused by a genuine and pressing shortage, and not constitute a veiled trade barrier. Even the vital resources have to satisfy tough factual and temporal requirements.¹⁰

2. India – Agricultural Export Restrictions (Rice and Wheat, Recent Practice rather than Dispute)

Facts: India cited successive rice (2022–2023) and wheat export prohibitions during times of domestic inflationary stress and international price fluctuations. These actions sent tremors in

⁸ International Centre for Trade and Sustainable Development (ICTSD), *Agricultural Export Restrictions, Food Security and the WTO: Information Note* (June 2014), <https://www.files.ethz.ch/isn/182723/Agricultural%20Export%20Restrictions,%20Food%20Security%20and%20the%20WTO.pdf> (last visited Sept. 24, 2025)

⁹ World Trade Organization WTO, https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds394_e.htm (last visited Sep 24, 2025)

¹⁰ WorldTradeLaw.net, <https://www.worldtradelaw.net/document.php?id=reports%2Fwtotpanels%2Fchina-rawmaterials%28panel%29.pdf> (last visited Sep 24, 2025)

global markets, especially among import-dependent nations. Although not entirely adjudicated at the WTO, such cases have appeared in formal notices, consultations, and acrimonious discussions at WTO committees.¹¹

India invoked safeguarding Indian food security as grounds. The absence of formal settlement is a mirror of practical constraints (political sensitivities, urgency) and acknowledged uncertainties in GATT/WTO provisions. The case illustrates the gap between real-world enforcement and the authority disparity between exporting and importing Members.¹²

CHAPTER III - Public Stockholding Programs for Food Security

Public Stockholding for Food Security Legal Framework Under AoA Article 6 and Annex 2 (“Green Box”), subsidies that are considered not to distort trade including, inter alia, certain food security, rural development and environmental schemes would be allowed. However, if governments buy staples through administered prices (India’s Minimum Support Price scheme, for example), then support is considered as “Amber Box” (trade-distorting) which is subject to caps on the basis of a reference price from the mid-80s. This restricts how states can respond to inflation or changes in the market. WTO Negotiations The Bali Ministerial Decision (2013) represented a breakthrough: the so-called “peace clause” was formulated and adopted as a temporary solution, which set aside the legal challenges under public stockholding programs on food security grounds for developing countries until an agreed permanent settlement could be reached. Even after multiple rounds of negotiations, and the MC12 process, members are at a standstill most notably on how to calculate adjustable support and whether commodities’ inflation-indexed reference prices can be used instead of long-outdated historical benchmarks.¹³

India – Agricultural Products (DS430) centered on SPS measures, it shed light on India’s rationales behind PSH policy in safeguarding its right to food and poverty reduction. Analogies are numerous, the US and EU subsidy systems are technically acceptable and profit from more generous reference price calculations, whereas India and other developing countries get punished by a structural frame.¹⁴

¹¹ India’s Rice Export Restrictions Need Multilateral Solutions | east asia forum, <https://eastasiaforum.org/2023/10/18/indias-rice-export-restrictions-need-multilateral-solutions/> (last visited Sep 24, 2025)

¹² Economic impacts of the Indian ban on non-basmati rice exports - sciencedirect, <https://www.sciencedirect.com/science/article/abs/pii/S0306919225000983> (last visited Sep 24, 2025)

¹³ Export restrictions and the WTO law, https://www.wti.org/media/filer_public/f6/fd/f6fddaff-1b0e-4f46-9239-c9901f1e47d9/bk-export_restrictions_slides.pdf (last visited Sep 24, 2025)

¹⁴ Dispute settlement - DS430: India — measures concerning the importation of certain agricultural products WTO, https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds430_e.htm (last visited Sep 24, 2025)

Contemporary Challenges include persistently high inflation and supply shocks induced by climate change have made PSH programs doubly vital and controversial. Foreign governments face charges that such programs manipulate world prices and displace more competitive producers abroad, even when their motivation is legitimate food security concerns. PSH programs are more legitimate when they reflect the global understanding of right to food. In the absence of a more permanent solution that provides greater policy space to developing countries, WTO law threatens the very social goals enshrined in its founding instruments. Agreement on reform is vital to strike a balance between neutrality of trade and equitably flexible food policies.¹⁵

CHAPTER IV - Climate Subsidies and Food Security

Climate Subsidies and Food Security Climate Change Climate change is playing a significant role in redefining agricultural yields and supply certainties, which will require adaptive policy interventions such as subsidies for fertilizer efficiency or the adoption of renewable energy farming techniques, and drought resistant crops. Such environmental imperatives are met in WTO law principally through the SCM Agreement, which disciplines subsidies that distort trade, and AoA Annex 2 for “Green Box” style environmental payments so long as they do not stimulate production above historic levels. GATT XX(b) and XX(g) carve out specific exemptions for health and the environment, leaving member states with some discretion. Relevant Jurisprudence Cases such as Canada – Renewable Energy challenge the limits of “green” subsidies thereby leaving open the possibility that climate-smart agriculture programmes could, in principle, be compatible with WTO rules if designed effectively.¹⁶ Analogs to food security interventions, however, even in the service of new climate subsidies risk being objected to as disguised protectionist measures.¹⁷ There are debates as to whether climate-motivated agricultural subsidies can be squeezed into the “Green Box” or might need WTO rules rewritten. Critics caution that there is a danger in latent protectionism, as states employ rationales of climate policy to protect domestic producers. At the same time, not offering positive inducements to adopt means of adapting to climate change in agriculture may threaten long-term food security, again indicating a tension between

¹⁵ International Export Regulations and controls: Navigating the global framework beyond WTO rules Base instance, <https://www.wto-ilibrary.org/content/books/9789287075079> (last visited Sep 24, 2025)

¹⁶ Global trade rules threaten food security amid climate shocks - sciencedirect, <https://www.sciencedirect.com/science/article/pii/S2589811623000356> (last visited Sep 24, 2025)

¹⁷ Climate change and food security: Risks and responses, <https://openknowledge.fao.org/server/api/core/bitstreams/a4fd8ac5-4582-4a66-91b0-55abf642a400/content> (last visited Sep 24, 2025)

environmental policy and trade neutrality that lies at the heart of WTO system.¹⁸

CHAPTER V - Normative and Policy Analysis

The world order after 2020 is becoming more fragmented. Geopolitical conflicts such as Russia-Ukraine, US-China trade confrontations, and post-pandemic recoveries have undermined trust in WTO's consensus-based norms and encouraged great power unilateral trade policy experimentation. Many states are broadening export controls and introducing new subsidy regimes, highlighting shortcomings in WTO ability to broker modern crises.¹⁹

Limitations of the existing WTO structure are apparent: AoA provisions are still comparatively frozen in the early 1990s, and weak enforcement translates to notification and consultation obligations being respected mainly in violation. The persistent stalemate surrounding public stockholding illustrates the incapacity of consensus-based instruments to keep up with changing security demands.²⁰

Effectiveness and Drawbacks of the Legal Framework

1. **Narrowness of Article XI Exceptions:** The WTO system shows widespread aversion to export restrictions, and they are allowed only under limited and strictly interpreted exceptions. Decisions such as China – Raw Materials and China – Rare Earths interpret the letter and spirit of Article XI:2(a) narrowly. Even basic food or fertilizer exports are not excluded unless rigorous evidence requirements are fulfilled. This strict doctrine is aimed at discouraging covert protectionism and supporting world food market stability.
2. **Administrative Loopholes and Enforcement Flaws:** The AoA Article 12 procedural regime, though theoretically well-intentioned, is flawed in reality. Exporting Members frequently notify and "consult" merely to satisfy formalities, rather than address importing countries' substantive issues. There is no sanction for non-notification, and historical experience indicates WTO Members seldom employ the facility to protest against export prohibitions at times of crisis.
3. **Relevance in Crises:** In the time of global shocks (COVID-19, Russia-Ukraine conflict), the system was inadequate to avoid or offer efficient remedies for export

¹⁸ Climate change, the Food Energy Water Nexus and ..., http://awsassets.wwf.org.za/downloads/1__a16231_wwf_climate_change_few_and_food_security_in_sa__online.pdf (last visited Sep 24, 2025)

¹⁹ Whang, *A Study of Foodstuff Export Bans and Restrictions under WTO* (2018), *Revista Brasileira de Direito — Passo Fundo*, vol. 14, no. 3, 7–23, <https://dialnet.unirioja.es/descarga/articulo/6786099.pdf>

²⁰ WTO and FAO Outline Impact of cooperation in support of WTO members' priorities WTO, https://www.wto.org/english/news_e/news25_e/igo_19sep25_e.htm (last visited Sep 24, 2025)

prohibitions. Nations usually respond first to safeguard local supply, at times disregarding notification requirements or distorting the definition of "critical shortage."

4. Development Country Issues: Developing and least-developed countries prefer greater flexibility, positing that disciplined approaches unnecessarily restrain their capacity to react to pressing internal food and input requirements. They argue that developed nations hold greater market leverage and diversified alternatives; hence, stiff interpretations can increase disparity in global food availability.

Reform proposals are many.

- More specific definitions of "temporary" and "critical shortage" to restrain export restrictions
- A permanent remedy on PSH, with revised and inflation-indexed reference prices
- Clear inclusion of climate adaptation and mitigation subsidies as "green box" allowed
- More transparency and notice requirements would enable more effective early warning and prevention of restrictive trade measures.

Regional trade agreements (RTAs) such as RCEP, CPTPP, and AfCFTA have become laboratories for rules that balance trade and public policy in a flexible way, providing potential blueprints for the WTO to emulate in future rounds. Overall, integrated, responsive mechanisms are needed at both multilateral and regional levels.

CHAPTER VI - Conclusion

The WTO is at a moment of historic turning point: with crises proliferating and food security needs building, it has to re-tune trade rules to allow for sovereign policy space for the provision of affordable, secure food and the attainment of climate resilience. Evidence reveals that export restrictions are insufficiently regulated and often misused now, further destabilizing the global food system. Public stockholding programs hang in the balance, frustrated by outmoded technical boundaries and ongoing negotiation stalemate. Climate subsidies once on the periphery have become the cutting edge of food-trade policy, calling for new environmental-adjustment legal frameworks.

The path ahead is one of gradual but directed reform: revising regulation to make clear what emergency measures are allowed, installing a permanent mechanism for public stockholding in food-deficit states, and recalibrating subsidy disciplines to induce climate-smart development without facilitating disguised protectionism. These actions, augmented by regional innovation and cross-institutional cooperation, will be essential to close the gaps

among trade regulation, food security, and climate imperatives in a rapidly unbalancing world order.

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