

The Precautionary Principle under the WTO Legal Framework: Legal Status and Application

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Abstract: As the relationship between environment and trade becomes increasingly closer, the precautionary principle that was rooted in environmental law has gradually progressed into the international trade legal system represented by WTO laws. Under this principle, where scientific evidence is insufficient, countries are entitled to adopt precautionary measures during the import and export quarantine of animals and plants to protect human life or health and environmental security. Since this principle has somewhat exceeded the scientific evidence principle, its legal status and application under WTO laws has always been disputed. Based on sorting relevant international treaties, domestic legislation, and international judicial precedents, it is found that the precautionary principle is evolving into a general principle under WTO laws. Paragraph 7, Article 5 of the SPS Agreement has become a foundation connecting this principle and WTO laws. Further expanding the application of the precautionary principle under WTO laws is profoundly significant for addressing issues arising between environment and trade.

Keywords: WTO Laws, Precautionary Principle, Scientific Evidence Principle, SPS Agreement, Risk Assessment

I. RAISING THE ISSUE

In the context of current economic globalization, international trade has undergone extensive development, but potential risks are also threatening human life or health and environmental security. The Agreement on the Application of Sanitary and Phytosanitary Measures (the SPS Agreement) reached by the WTO during the Uruguay Round intends to strike a balance between freedom of international trade and human life or health, and risk assessment in the scientific evidence principle has become a precondition for countries to adopt SPS

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measures. However, in recent years, as transgenic product import and export trade has rapidly developed, the risk assessment principle is facing the dilemma of a lack of sufficient scientific evidence to prove the security risks of transgenic products. Hence, the risk assessment principle is treating transgenic products and non-transgenic products based on the substantially equivalent principle. Current technologies cannot prove the security risks of transgenic products, but this does not mean that risks will not appear in the future. In this context, the precautionary principle¹ that was rooted in German environmental law and later gradually evolved into a general principle in international environmental law has been applied to international trade law. Unlike the scientific evidence principle, the precautionary principle emphasizes that where risks are likely to occur, necessary restrictive measures should be taken despite the lack of scientific certainty to regulate international trade that may threaten human life or health and environmental security. However, the precautionary principle is considered a violation of long-trusted scientific evidence principle and can be easily alienated as a tool for adopting trade protective measures. Therefore, although the precautionary principle has developed into a general principle under international environmental laws, there have always been disputes over it under the WTO legal framework. There have been no explicit solutions to either macroscopic issues such as the legal status of the precautionary principle under the WTO legal framework or microscopic issues such as its specific application under the SPS Agreement. Although relevant cases involving the precautionary principle have provided clues, the WTO Dispute Settlement Body has been unable to thoroughly settle these issues.² Hence, it is necessary to define the legal status and application of the precautionary principle under the WTO legal framework by sorting its connotation and legislative evolution to effectively regulate risks threatening human life or health and environmental security that arise during international trade.

1 The precautionary principle is rooted in German law and has different Chinese translations (literally corresponding to the prevent principle, the early warning principle and the prudential principle) in different contexts.

2 Shu Pei, *Research on the Precautionary Principle under the SPS Agreement*, Dissertation of Shandong University, 2015, p. 1.

II. THE PRECAUTIONARY PRINCIPLE'S LEGISLATIVE EVOLUTION AND PERMEATION INTO WTO LAWS

A. The Precautionary Principle's Legislative Evolution

1. The Precautionary Principle's Domestic Law Origin

As a legal concept, the precautionary principle first appeared in the environmental law of the Federal Republic of Germany. In 1976, the Federal Republic of Germany adopted the Law of the Federal Republic of Germany on the Prevention and Control of Atmospheric Pollution, introducing the precautionary principle into its legal text. However, this law did not explicitly define this principle, and lacked necessary expression of specific application conditions and restrictive factors. During subsequent judicial practice, German courts responded to these issues, holding that this principle originates from citizens' right to health under the Constitution. Where citizens' right to health is likely to get infringed on and it is difficult to use science to learn about the possibility of infringement, actions must be taken when the situation is certain. Finally, the Federal Republic of Germany established the precautionary principle's legal status as one of the five principles under its Environmental Law. Generally speaking, this principle must have three elements, i.e. irreversible risk threats, scientific uncertainty, and conformity with cost-effectiveness.³ Despite this, the application of this principle is still somewhat restricted. First, when determining the possibility of infringement, the role of science must be included, and all well-founded scientific views must be considered; second, measures adopted against possible infringement must be fundamental and temporary.⁴ As a result, even though scientific uncertainty is an element of the precautionary principle and precautionary measures are allowed where sufficient scientific evidence is lacking, a reasonable scientific assessment of risks is still demanded to guarantee rational and restrained precautionary measures.

³ Xu Ying, International Legal Status of the Precautionary Principle, Dissertation of East China University of Political Science and Law, 2018, p. 11.

⁴ Huei-Chih Niu, Research on the Precautionary Principle — Efforts of and Disputes over Handling Environmental Risk Issues Lacking Scientific Evidence under International Environmental Laws, *Taiwan University Jurisprudential Symposium*, No. 3, 2005.

2. The Precautionary Principle's Development in International Environmental Law

The International Conference on the Protection of the North Sea in 1984 is generally considered the precautionary principle's entry point into international law. The Declaration of the First International Conference on the Protection of the North Sea that was reached at the Conference acknowledged the necessity to adopt precautionary measures related to the environment. This expression was further detailed in the subsequent Declaration of London and Declaration of the Hague, which specifies that even if sufficient scientific evidence is lacking to prove the causal relationship between the damage and potential harmful consequences, countries should still immediately adopt precautionary measures to prevent environmental destruction. The precautionary principle's application scope was still narrow at this stage, as it mainly applied to regional environmental issues such as marine environmental protection of the North Sea. These international legal documents undeniably initially promoted the precautionary principle's international legislative progress. In the 1990s, the precautionary principle began to expand from regional environmental legislation to international environmental law. The Rio Declaration reached in Rio de Janeiro in 1992 was the most important of this legislation because it marked the United Nation's first adoption of the precautionary principle. Since then, this principle has increasingly appeared in international legal documents. People have gradually realized that it not only applies to international environmental law, but its application to all fields as a fundamental principle of international law should be comprehensively considered.

3. The Precautionary Principle's Evolution in International Trade Law

As international trade has increasingly extensive environmental impacts, the precautionary principle is starting to appear in international trade law. Restricting and prohibiting international trade that potentially harms human health and environmental security aligns with this principle's meaning. Legal documents in international trade law related to the precautionary principle mainly include the Cartagena Protocol on Biosafety (the Protocol) and the SPS Agreement. The Protocol is an international legal document mainly providing for transgenic technologies. This principle thereunder is a significant aspect of security

regulation on transgenic products. It empowers signatory countries to take necessary measures against imported or exported animals and plants even if sufficient scientific bases are lacking, which can prevent potentially harmful consequences. However, the Protocol does not stipulate on specific standards for lacking scientific bases, and its ambiguous expression gives signatory countries extensive application space and leads to adverse influences restricting trade in disguised form. In addition, the Protocol has not established its own dispute settlement mechanism, and the precautionary principle's application "lacks enforceability, predictability and exclusivity".⁵ On the contrary, WTO laws represented by the SPS Agreement have their own dispute settlement mechanism to which trade disputes must resort and under which Members must accept the arbitration results. Therefore, discussing this principle's legal status and application conditions under the WTO legal framework has more realistic significance.

B. The Precautionary Principle's Permeation into WTO Laws

Agreements reflecting the precautionary principle under the WTO legal framework mainly include the General Agreement on Tariffs and Trade 1994 (the GATT 1994) and the SPS Agreement. The provision embodying the precautionary principle under the GATT 1994 is Article XX: "... nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures: ... (b) necessary to protect human, animal or plant life or health ...". This points out that on the condition of not restricting trade in disguised form, Members can take necessary exceptional measures to prevent damage to human, animal or plant life or health.⁶ The GATT 1994 demonstrates that in order to protect human, animal or plant life or health, necessary restrictions can be imposed on international trade, which aligns with this principle's objective and basic spirit. Otherwise, the GATT 1994 rarely mentions this principle.

The subsequent SPS Agreement mainly regulates Members' rights and obligations regarding import and export sanitary or phytosanitary measures, and

5 Zhou Xinjun, Chai Yuan and Wang Jie, On International Law Regulation on Transgenic Agricultural Products Security during International Trade, *Journal of Changchun Normal University*, No. 7, 2019.

6 Ma Yirong and Ruan Zhiqun, Thoughts on the Precautionary Principle's Development under New International Trade Situations, *Business Times*, No. 30, 2014.

its most important content is the risk assessment rule focused on scientific evidence. It provides in Paragraph 3, Article 3 as follows: “Members may introduce or maintain sanitary or phytosanitary measures ... if there is a scientific justification”. The risk assessment rule requires that a risk assessment based on scientific evidence be conducted before implementing a SPS measure, which is legal only if risks actually exist as proved based on scientific evidence.⁷ However, in the meantime, Paragraph 7, Article 5 stipulates on exceptional cases where SPS measures are adopted according to scientific evidence: “In cases where relevant scientific evidence is insufficient, a Member may provisionally adopt sanitary or phytosanitary measures on the basis of available pertinent information, including that from the relevant international organizations as well as from sanitary or phytosanitary measures applied by other Members. In such circumstances, Members shall seek to obtain the additional information necessary for a more objective assessment of risk and review the sanitary or phytosanitary measure accordingly within a reasonable period of time”. This provision conforms to the precautionary principle’s objective of protecting human, animal and plant life or health and the precondition of lacking sufficient scientific evidence. Some scholars believe this provision possesses this principle’s basic element, but apparently it cannot be thus affirmed that this provision constitutes this principle. The most direct doubt is that its concept and term does not appear throughout the SPS Agreement. The precautionary principle is not admitted thereunder as a standard for evaluating a SPS measure’s legality, but is just a related concept generated from the provision of Paragraph 7, Article 5. As such, further analyses must be made by combining trade disputes related to this principle to identify its legal status under the WTO legal framework.

III. EXAMINING WTO TRADE DISPUTES RELATED TO THE PRECAUTIONARY PRINCIPLE

There have been a total of 22 WTO trade disputes related to the SPS Agreement, of which 21 involved Article 5, and 5 cases were submitted to the WTO Dispute Settlement Body for handling.⁸ It is possible to sort and analyze the

7 Xin Fang, On the Risk Assessment Rule under the SPS Agreement, *New Economy*, No. 11, 2019.

8 Qi Chunjie (Ed.), *Detailed Annotation on WTO Rules Regarding Agriculture*, Hunan Science & Technology Press, 2006, p. 164.

precautionary principle's legal status under WTO laws based on the attitudes and explanations of disputing parties and the WTO Dispute Settlement Body regarding this principle in typical trade dispute cases.

A. EEC vs. US Cattle Hormone Case

This case's background lies in contradictory attitudes of the EU and the United States towards hormone as a growth-promoting drug. In North America, hormones are extensively used to promote the growth of beef cattle, but Europe has a more prudent attitude towards this technology. In 1981, the European Economic Community (EEC) promulgated the 81/602 Act, regulating that before the hazards of hormones are certain, imports of hormone-raised beef and other products are prohibited. The EEC's prohibition caused huge losses to agricultural product export trade in North America. In January 1996, the United States requested to consult with the EEC regarding this prohibition, and Canada requested to join in February 1996. In April 1996, the United States requested the WTO Dispute Settlement Body to establish a panel, claiming that the EEC prohibiting the import of hormone-raised animal products had violated Articles 2, 3, and 5 of the SPS Agreement.⁹ The EEC always actively promoted the precautionary principle starting with its progression from environmental law to international trade, involving extremely strict administration over agricultural product import and export. During the hearing process, the EEC consistently stressed that it had prohibited the import of hormone-raised animal products based on the precautionary principle, holding that it is a customary international law with greater effect than specific provisions on risk assessments under the SPS Agreement. Where the hazards of hormones cannot be scientifically confirmed, the EEC had the power to adopt necessary control measures without any risk assessment in order to protect its citizens' life or health. However, according to the United States and Canada, the precautionary principle indeed existed, but not as a customary international law. In their view, Paragraph 7, Article 5 of the SPS Agreement merely provided for exceptional cases of risk assessments, and the adopted measures served only as "provisional measures". In this case, the panel did not define the precautionary principle's legal

⁹ Wang Min, Research on the Precautionary Principle under the SPS Agreement, Dissertation of Hunan Normal University, 2012, p. 12.

status. The SPS Agreement only involved the concept of provisional precautionary measures, which should not be confused with this principle. This case was appealed and the panel's ruling was maintained. The Appellate Body argued that Paragraph 7, Article 5 embodied the precautionary principle, but rulings must be made based on the provisions under the SPS Agreement rather than this principle. The Agreement did not admit this principle as a legal basis for adopting SPS measures against the risk assessment rule, and the EEC must abide by regulations on risk assessments. Fundamentally, the dispute focus in the EEC vs. US Cattle Hormone case is this principle's status in WTO laws. In this case, the WTO Dispute Settlement Body provided a narrow explanation of this principle, but did not thoroughly deny its existence in WTO laws. As a result, the dispute over the precautionary principle's legal status continued to exist.

B. US vs. Japan Apple Fire Blight Case

Fire blight is a plant bacteria disease originating from North America. It mainly damages plants such as apple and pear trees. Japan's climate tends to trigger the spread of this disease, but similar incidents have never happened before. In order to prevent fire blight from entering Japan through apples, Japan stipulated that the import of products from trees infected by fire blight was prohibited, which was later revised as only apples and pears that have passed Japanese import and export health quarantine could enter its domestic market. This undoubtedly caused tremendous losses for the United States' apple exports. In April 2002, the United States requested to consult with Japan. In June 2002, the United States requested the WTO Dispute Settlement Body to establish a panel, claiming that Japanese health quarantine measures against fire blight violated the SPS Agreement. In July 2003, the panel ruled against Japan and the Appellate Body maintained the panel's opinions in November 2003. In this case, both parties' dispute focus was on their understanding of sufficient scientific evidence, as well as how to judge if a SPS measure conforms to provisional measures under Paragraph 7, Article 5 of the SPS Agreement where sufficient scientific evidence was lacking. Japan held that its SPS measure conformed to Article 2 of the SPS Agreement with sufficient scientific bases, and that it conformed to Paragraph 7, Article 5 even if there was insufficient scientific bases, i.e. taking provisional measures to protect domestic human, animal

and plant life or health where sufficient scientific evidence is lacking. On the other hand, the United States argued that Japan's health quarantine measures lacked sufficient scientific bases while the precondition for the application of Paragraph 7, Article 5 should be that scientific evidence is insufficient to the extent of making any risk assessment impossible. Japan did not meet this condition. This case did not directly involve the precautionary principle, but both parties' understanding of sufficient scientific evidence and argumentation over the implementation conditions of provisional measures under Paragraph 7, Article 5 objectively promoted this principle's development.

C. EU Transgenic Product Case

Transgenic technology has been highly controversial since its creation. When faced with the global food crisis, commercial cultivation of transgenic crops has provided a solution. There is currently no scientific conclusion as to whether risks of transgenic technology exist and the extent of the consequences resulting from these risks, but "once environmental disasters are confirmed to have occurred, damages are irreversible".¹⁰ Hence, each region has very different attitudes towards transgenic products. The opposing group represented by the EU supports the precautionary principle and strictly controls the import and export of transgenic products. The supporting group represented by the United States insisted on the substantially equivalent principle on a long-term basis, asserting that the same control measures should be adopted when there is no substantial difference between transgenic products and general products. In 2001, the EU promulgated the No. 18 Administrative Instruction to implement strict control over the import of transgenic products, which created discontent among the United States, Canada and Argentina. They believed that the EU's control measures lacked a scientific basis. The three countries requested the WTO Dispute Settlement Body in August 2003 to establish a panel. In 2006, the panel ruled against the EU and its Members. In this case, the EU provided the following reasons for taking its control measures: first, it held that the precautionary principle had become a general legal principle under international laws, so it was entitled to invoke this principle as a legal basis of its SPS

¹⁰ Zhang Jun, *Research on Legal Regulation on the Environmental Risks of Transgenic Technology*, Dissertation of Nanhua University, 2019, p. 11.

measure; second, the precautionary principle is also stipulated under the Protocol, which is a multilateral environmental convention that can be referenced during settlement of the WTO's international trade disputes. Regarding the first issue, the United States did not admit the precautionary principle's status as a general legal principle under international law, which the panel approved. Regarding the second issue, the panel did not directly conclude whether the multilateral environmental convention can be a reference basis for settling WTO disputes, but denied the EU's opinion on the ground that the three countries including the United States had not signed the Protocol that took effect later than the panel's establishment.

Using these three cases as an entry point, it can be found that the WTO Dispute Settlement Body does not deny the precautionary principle's existence under WTO laws and holds that Paragraph 7, Article 5 of the SPS Agreement embodies this principle's basic spirit. However, it points out that it cannot be directly deducted merely from a multilateral environmental convention and domestic law texts of EU Members that this principle has become a general legal principle under international law. The WTO Dispute Settlement Body's denial of the precautionary principle's status is based on the restriction of its organizational tenet. As a trade organization, its principal tenet is to eliminate trade barriers and promote international trade freedom. Once the precautionary principle's legal status is admitted, it will negatively affect trade freedom. However, in the opinions of countries represented by EU Members, international trade should not exclusively consider economic interests, and human life or health and environmental security should not be damaged while trade freedom is promoted. The conflicts between these two concepts have not disappeared as the cases end. The contradiction between domestic laws and WTO laws regarding their attitudes towards this principle's legal status and application will continue to exist for a very long time.

IV. THE PRECAUTIONARY PRINCIPLE'S LEGAL STATUS AND APPLICATION UNDER THE WTO LEGAL FRAMEWORK

A. The Precautionary Principle's Legal Status

Since the precautionary principle was officially adopted by the United Nations

in the Rio Declaration in 1992, it has become a general principle or a customary international law in international environmental law, thus gradually turning into a mainstream academic viewpoint. However, its legal status under the WTO legal framework has always been greatly disputed. Opponents hold that first, despite the trend of progressing from international environmental law to WTO laws, the precautionary principle still has major space for development. Judging from the above-mentioned cases, it can also be found that this principle has not become a general principle observable under international trade laws. Second, this principle's embodiment under WTO laws is mainly in Paragraph 7, Article 5 of the SPS Agreement, which has no explicit expression on this principle and hence no legal binding force at all. This principle can exist as a part of international law only after it concurrently has meaning, application conditions, and effect.¹¹ Third, this principle can be admitted as a general principle under WTO laws only after it is transformed into a domestic law and internationally verified. However, in the foregoing cases, the United States is a determined opponent of this principle. Regarding opponents' viewpoints, scholars supporting this principle argue that first, although the WTO Dispute Settlement Body has not made a positive conclusion on this principle's legal status, it has become an unavoidable focus during trade disputes, and international courts tended to admit it as a customary international law as early as the end of the 20th Century.¹² Second, the lack of an explicit concept and meaning cannot deny its status as a general principle under WTO laws. Although it lacks a unified academic concept, it is stipulated in numerous international legal documents. This ambiguity does not affect its value and effect under international laws. Third, regarding international verification, EU Members have legislatively confirmed this principle in terms of domestic laws with its practical application. As for international laws, increasingly more international legal documents have regulated on this principle, and it is gradually gaining recognition as being objectively visible.

11 Sun Young Oh, *The Precautionary Principle in the SPS Agreement: Management, Public Participation and a New Standard of Review*, Dissertation of The American University, 2010, p. 15.

12 Owen McIntyre and Thomas Moselle, *The Precautionary Principle as a Norm of Customary International Law*, *Journal of Environmental Law*, No.9, 1997, pp. 232-233.

Philippe Sands argued as follows: “the precautionary principle’s legal status is under constant evolution. Existing national practices show that this principle’s status has at least been minimally proved”.¹³ The discussion on the precautionary principle’s legal status does not necessarily lead to a definite conclusion. Examining it from a dynamic perspective is more helpful for clarifying the objective development trend of its legal status. In 1950, the International Law Commission submitted a report to the United Nations Conference, which mentioned that the formation bases of a customary international law rule include international treaties, domestic legislation, international or domestic judicial precedents, diplomatic correspondence, and practices of international organizations. The precautionary principle’s legal status under WTO laws can be analyzed in this way. First, regarding international treaties, this principle is mainly represented under WTO laws in Paragraph 7, Article 5 of the SPS Agreement, which stipulates that even if scientific evidence is insufficient, Members can still adopt certain provisional measures based on existing information. Basic principles under the SPS Agreement include scientific evidence, risk assessment, and appropriate protection, which embody basic content of the Agreement to which all provisions must be subject. In the foregoing cases, one of the reasons why the United States and other countries denied the precautionary principle’s legal status was that Paragraph 7, Article 5 was merely an “exceptional provision” of the risk assessment principle and itself did not create new rights and obligations. A trade disputing party can invoke Paragraph 7, Article 5 but must prove that its measures are based on risk assessments. However, based on this viewpoint, the application space of Paragraph 7, Article 5 will be extremely narrow, and the WTO Dispute Settlement Body has not approved it. In fact, the WTO has deemed Paragraph 7, Article 5 as embodying this principle in the *EEC vs. US Cattle Hormone* case. This provision itself reflects an “anti-scientific” attitude, so how can it be possible to require that its application be based on scientific evidence? This provision contradicts the scientific principle but conforms to Paragraph 3, Article 3 under which Members

13 James Cameron and Julia Bouchar, *The Status of the Precautionary Principle*, In David Freestone and Ellen Hey (Eds.), *The Precautionary Principle and International Law — The Challenge of Implementation*, Kluwer Law International, 1996, p. 37.

are allowed to adopt a higher level of protection than international standards.¹⁴ This should be Members' autonomous right whose basis is the precautionary principle. Second, regarding domestic legislation, EU Members introduced this principle into environmental law in the 1970s and expanded it into international trade and food security. For example, regarding the security regulation of transgenic products, the EU has developed a strict mandatory labeling and traceability system for these products that is guided by this principle.¹⁵ More convincingly, the United States' domestic legislation has changed its attitude towards this principle. On a long-term basis, the US security regulation on transgenic food has always included a voluntary labeling system, which largely follows the substantial equivalent principle. In other words, special labeling is unnecessary when transgenic food and non-transgenic food lack a substantial difference. However, in 2016, the US adopted the Transgenic Mandatory Labeling Act and a coping scheme resembling that of the EU. This "first loose then tight" regulation mode has inevitably "affected people's perception of transgenic food and adherence to principle".¹⁶ The precautionary principle has gradually replaced the substantial equivalent principle as the United States' guiding principle for food security regulation. Third, regarding international judicial precedents, even though the above-mentioned three cases have not settled this principle's legal status, they affirmed its effect and value, and admitted its application space in WTO trade disputes.

Based on the above analyses, it is currently difficult to conclude that the precautionary principle has become a general principle under WTO laws, but its legal status is continually evolving and has been affirmed to different extents by international treaties, domestic legislation, and international judicial

14 Paragraph 3, Article 3 of the SPS Agreement stipulates: "Members may introduce or maintain sanitary or phytosanitary measures which result in a higher level of sanitary or phytosanitary protection than would be achieved by measures based on the relevant international standards, guidelines or recommendations, if there is a scientific justification, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5. Notwithstanding the above, all measures which result in a level of sanitary or phytosanitary protection different from that which would be achieved by measures based on international standards, guidelines or recommendations shall not be inconsistent with any other provision of this Agreement".

15 Zhai Xiangjuan, Research on the Transgenic Food Mandatory Labeling System, *Economic Law Review*, No. 1, 2018.

16 Hu Jiaxiang, Changes in US Transgenic Food Labeling System and Enlightenment to China, *Journal of Comparative Law*, No. 5, 2017.

precedents. Its legal status within the WTO legal framework will be further enhanced. Based on its optimistic development prospects, it can be reasonably considered as an evolving general principle under WTO laws.

B. The Precautionary Principle's Application

After the precautionary principle's legal status under the WTO legal framework is clarified, we can analyze its specific application under WTO laws based on its status. Since this principle is mainly embodied in Paragraph 7, Article 5 of the SPS Agreement, discussing its application under WTO laws is to some extent a discussion of the application of Paragraph 7, Article 5 under the SPS Agreement. Before this, a question must be answered: What is the relationship between the precautionary principle and Paragraph 7, Article 5 of the SPS Agreement? As a matter of fact, Paragraph 7, Article 5 does not simply embody this principle's spirit as indicated by the WTO Dispute Settlement Body. Instead, this provision has been embodied with this principle's basic elements and can be further understood as its materialization under the SPS Agreement. It constitutes a precautionary measure that specifically applies the precautionary principle. Therefore, the application conditions of Paragraph 7, Article 5 can be understood as application conditions of precautionary measures. First, relevant scientific evidence is insufficient. In the *US vs. Japan Apple Fire Blight* case, the panel held that when a measure without sufficient scientific evidence is considered to breach Paragraph 2, Article 2 of the SPS Agreement, it is not naturally decided as conforming to circumstances where relevant scientific evidence is insufficient under Paragraph 7, Article 5. The expressions "without sufficient scientific evidence" and "relevant scientific evidence is insufficient" have different meanings. The former emphasizes that sufficient scientific evidence objectively exists, but disputed measures have not been developed based on this evidence. The latter stresses that sufficient scientific evidence does not objectively exist to serve as a basis of the development of disputed measures, or this evidence is very limited. Second, necessary additional information should be provided. Where relevant scientific evidence is insufficient, Members can develop necessary precautionary measures, but to more objectively assess risks, they should seek necessary additional information that must be closely related to risk assessments. Third, precautionary measures

should be reviewed within a reasonable period of time. Precautionary measures developed under circumstances where relevant scientific evidence is insufficient are temporary and do not necessarily remain applicable on a perpetual basis. Insufficient scientific evidence will gradually disappear as science continues to develop. When scientific evidence is sufficient for a risk assessment, precautionary measures should be abolished. The precautionary principle's application conditions under WTO laws as reflected in Paragraph 7, Article 5 are highly consistent with those in international environmental law. In international environmental law, the precautionary principle's application must meet three conditions: risks exist and scientific evidence providing for the existence of risks is insufficient; the precautionary measures as developed should be equivalent with risk levels; the acquisition of relevant information after precautionary measures, as well as later review and adjustment of precautionary measures are developed.¹⁷ The precautionary principle's highly consistent application conditions under WTO laws and international environmental law can also reflect that this principle is an evolving general principle under international laws.

Currently, the precautionary principle has not developed into a general principle under the WTO legal framework, and its inappropriate application may lead to the generation of trade barriers and hinder trade freedom. However, as prosperous development occurs in international trade, potential environmental security issues have become increasingly prominent. The large-scale spread of COVID-19 has forced many countries to rely on domestic legislation to strengthen their risk regulation of animal and plant import and export quarantine. At the international level, considering the precautionary principle's important role in coping with environmental risks that lack sufficient scientific evidence, the WTO can further develop Paragraph 7, Article 5 of the SPS Agreement into precautionary measures under the WTO legal framework, and use them as this principle's specific application under WTO laws to show respect for Members' public health policy and autonomous rights. In the long run, this principle also helps to effectively and institutionally regulate risks threatening human life or health and environmental security that occur during international trade.

17 Gao Xiaolu, On the Precautionary Principle within the WTO Framework — From the Perspective of Article 5.7 of the Agreement on the Application of Sanitary and Phytosanitary Measures, *Law Science Magazine*, No. 11, 2011.