The Role of Using Processes and Production Methods in International Trade Law to Achieve the Sustainable Consumption and Production Goals: Challenges and Opportunities for Asian Countries

Thu Minh Do

Abstract The Sustainable Consumption and Production (SCP) Goals focus on minimizing environmental impacts and maximizing socio-economic benefits. The shift toward SCP, therefore, has been promoted after the pandemic, particularly in low- and middle-income countries (LMICs). Nevertheless, LMICs are far behind in the race. Since the majority of Asian countries are LMICs, of which 13 countries are low-income countries, the shift toward SCP would be tremendously significant. One of the most effective methods to achieve SCP would be the Processes and Production Methods (PPMs) which is also a crucial issue in the relationship between trade and the environment. The paper will analyze the importance of PPMs in the shift toward SCP. Recently, numerous PPMs-related issues have been witnessed in Asia, such as the issue of genetically modified organisms (GMOs) products approval as the greater demand for food sources in the most crowded countries–China and India) and the most recent hotly-debated law case between European Union and Indonesia about biofuels. The paper will scrutinize the legality of trade-related PPMs measures in the 1994 General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT 1994]. (the GATT 1994), the Sanitary and Phytosanitary Agreement (The SPS Agreement), and the Technical Barriers to Trade Agreement (the TBT Agreement) to shed light on obstacles Asian developing countries are facing in practicing PPMs in the pathway toward SCP patterns. Finally, the paper will propose some recommendations on how to produce sound PPMs measures for Asian developing countries, such as promulgating consultation with other stakeholders before implementing PPMs, enhancing technical aid and fund from developed countries, and setting regional PPMs-related standards.

Keywords Sustainable consumption and production (SCP) · Processes and production methods (PPMs) · Like products · Asian countries

T. M. Do (✉)
Macquarie University, Sydney, Australia
e-mail: minh.thu-do@students.mq.edu.au

A. T. Nguyen et al. (eds.), *Contemporary Economic Issues in Asian Countries: Proceeding of CEIAC 2022, Volume 1*,
https://doi.org/10.1007/978-981-19-9669-6_11

1 Introduction

In 1972, a study found that unsustainable development can lead to the collapse of both the global economy and the environment (Meadows, 1982). Therefore, sustainable development is identified as "without alternatives" for the survival of humankind (Seiffert & Loch, 2005). To the best practice of sustainable development (SD), integrating consumption and production systems with SD has been considered and has become one of the core sustainable development goals (SDGs) (Akenji et al., 2017). In response to this, the Johannesburg Plan of Implementation in 2002 calls for all states to promote SCP patterns, with developed countries taking the lead and all states benefiting equally from the shift toward SCP patterns (Von Frantzius, 2004).

After years of moving toward SCP patterns, it can be seen that SCP strategies of developing/under-developing countries appear to be different from that of developed countries (Wang et al., 2019). While developed countries, with technology and economic strength, undoubtedly seem better at altering over-consumption patterns and enhancing national participation in reducing material and energy intensity, moving faster to the SCP goals, developing/under-developing countries are taking slower with the priority of poverty alleviation and with the attitude "grow first, clean up later". (Staniškis, 2012). In Asian countries, rapidly increasing population and increasing economic growth results in the over-consumption of natural resources and thus unsustainable consumption and production patterns (Rock & Angel, 2007). The unsustainable pattern makes a negative impact on the way to completing SCP goals in the Asia area (based on Asia–Pacific Sustainable Development Goals Progress Report in 2022). Even the Asia–Pacific Sustainable Development Goals Progress Report in 2022 states that "*Widening disparities amid COVID which reveals that the progress to SCP in Asian countries has not been occurring at a satisfactory rate, even worse alarming regression on responsible consumption and production has occurred"*. With firm commitments to SDGs, Asian countries are being urged to decouple environmental considerations in economic recovery strategies after the pandemic, achieving SCP targets.

To complete the SCP goals, harmony between trade and the environment is vital; however, international legal frameworks and policies show opposite tendencies, hindering countries from achieving their SCP goals (Jackson, 1992). From some environmentalists' ideas, international trade has become an obstacle to the contemporary environmental protection effort (Gaines, 2002). Specifically, the Agenda 21 of the United Nations Conference on Environment and Development states that the continued deterioration of the global environment is caused by unsustainable consumption and production patterns. States, hence, are responsible for setting set standards to regulate PPMs to produce goods and services, so environmental deterioration is eliminated (Jere, 2017). In this context, PPMs are considered the most intense topic in the trade-environment debate (Potts, 2008). It has been argued that in most PPMs-related cases, trade liberalization has been considerably prioritized over the environment.

Part I of this paper will examine the role of practicing PPMs in achieving SCP goals to prove that practicing PPMs could be a massive opportunity for all countries, particularly Asian developing countries, to achieve SCP goals progressively. Part II will scrutinize the legality status of PPMs under WTO law to shed light on challenges Asian developing countries are facing. Part III covers some proposals about how to build PPMs-related trade-restrictive measures to push SCP races in Asia faster.

2 Sustainable Consumption and Production Goals and Environmental PPMs

2.1 Sustainable Consumption and Production Goals

Chapter IV of the Agenda 21, United Nations Conference on Environment & Development identified two objectives for promoting SCP patterns: (1) "*reducing the negative impact and pressure on our environment*" and (2) "*understanding better the role of consumption in sustainable development and seek feasible approaches to move successfully toward sustainable production*". One of the recommendations of Agenda 21 points out that using economic instruments such as environmental charges and taxes as approaches to influence customers' and producers' behaviors should be promoted. It calls for all states to replace unsustainable consumption and production patterns and use efficient natural resources to minimize depletion and reduce pollution.

The importance of the SCP goals continued to be reaffirmed after the Rio Summit, which focuses on enhancing the role of international trade in promoting sustainable development, and ten years later in the Johannesburg Plan of Implementation (the JPOI), which focuses on changing unsustainable patterns of consumption and production (set out in Chapter III). The JPOI provides that changing the consumption and production pattern is indispensable for achieving SDGs and encourages all states to change to SCP patterns (Johannesburg declaration on sustainable development and plan of implementation of the world summit on sustainable development, 2002). The JPOI also states that moving toward SCP patterns by decoupling economic growth with environmental factors through improving efficiency and sustainability in using natural resources and production processes in constructing a domestic 10-Year Framework of Programs.

Numerous points are being made about the entailment of SCP goals, such as the level of focusing on consumers and lifestyle, emphasizing the difference between sustainable consumption and sustainable production, and changing the aggregate level of consumption (Katila et al., 2019). Nevertheless, SCP is closely related to the efficient and sustainable use of resources and energy to produce consumer goods and services (Farber, 2012). In "Sustainable Consumption & Production Indicators for The Future SDGs"–UNEP Discussion Paper, SCP is defined as "*the use of services and related products, which respond to basic needs and bring a better quality of life*

while minimizing the use of natural resources…as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations". (Farber, 2012). The Declaration of the United Nations Conference on Sustainable Development–The Future We Want, held in Rio in 2012, states that achieving SCP patterns can mitigate environmental and natural resource depletion caused by economic activities. As reaffirmed in numerous international documents, the SCP goals will play a crucial role in achieving SDGs formulated in the United Nations Summit in New York in 2019 (so-called The 2030 Agenda for Sustainable Development).

To sum up, SCP goals aim to maintain human beings' use of natural resources and pollution intensity within the environment's capacity (Dernbach, 1998). SCP patterns mitigate environmental damage during the life cycle of goods and services (Dernbach, 1998). SCP goalkeepers thus should balance the population and the population's demand for goods by using technologies and efficiently utilizing renewable and non-renewable resources (Shibin et al., 2016).

With all the benefits of SCP stated above, achieving SCP is paramount because we are witnessing the population boom and demand for materials in the ten years (based on Asia–Pacific Sustainable Development Goals Progress Report in, 2022: Widening disparities amid COVID). In terms of the progress toward the SCP goals in Asia, although in Asia–Pacific Sustainable Development Goals Progress Report, 2022, data shows a reduction in hazardous waste generated, an improvement in renewable energy capacity, and compliance with hazardous waste conventions, these trends, nevertheless, show insufficient progress. In general, the region has regressed in responsible consumption and production goals.

2.2 Processes and Production Methods (PPMs) and SCP Goals

PPMs link closely to consumption and production processes. Additionally, PPMs are regulated by international trade law and environmental law tools because countries tend to impose PPMs measures both inside territories and outside their sovereignty practices (on their trade partners) to protect the environment.

Environmental policies, laws, and regulations dealing with environmental degradation and internalizing all costs during the life cycle of products for trade purposes can be categorized into three broad types: (1) product characteristics, (2) resources assessment regulation, and (3) PPMs regulation (Gaines, 2002). PPMs are the most common and diverse class among these types (Gaines, 2002). Based on the paper prepared by the Organization for Economic Co-operation and Development about PPMs analyzing possible methods to enforce PPMs regulations, the PPMs can be defined as methods in which products are produced or processed or natural resources are harvested or extracted.

PPMs, if implemented properly for environmental purposes, can benefit both developed and developing countries making progress toward SCP. Under international trade law, two types of PPMs identified: product-related-PPMs (pr-PPMs) and non-product-related-PPMs (npr-PPMs) (Silveira et al., 2013, and Nielsen, 2007). The former is closely relevant to product characteristics or physical and chemical properties of products (e.g., any mandatory type of packaging and containers, waste disposal, retrieval, and recycling of products can be categorized as PR-PPMs). The latter does not show any trace in the quality of products (they can be regulations about animal welfare, labor treatment, the methods to extract natural resources, the methods of hunting or fishing) (Gaines, 2002).

PPMs enable countries to keep consumers informed about green choices and remind consumers to use efficient renewable and non-renewable resources, hence formulating an SCP lifestyle among consumers (so-called green consumerism stated in the United Nations 10-Year Framework). On the consumption side, environmental PPMs can be used as market-oriented tools influencing consumers' choices. With sufficient product information, consumers can easily recognize which is environmentally friendly and make wise choices (Gaines, 2002). This information helps to enhance consumers' awareness about environmental protection and change consumers' preferences and behaviors toward sustainability. A great demand for green goods and services would also become a strong driving force to encourage or enforce producers/suppliers to apply environmental PPMs to produce and process more green products. The number of green products thus would be increasing, driving down the relative prices, making green goods and services more affordable and accessible, and creating a closed cycle. Consumers will gain their pursuing power in the market during this cycle. The appearance of green goods and services in the market will reinforce the SCP lifestyle.

Implementing environmental PPMs requires the participation of governments (through "top-down" sustainable efforts by policymakers) and other stakeholders in society ("bottom-up activities by companies). Therefore, companies play an essential role in achieving SCP goals (Wang et al., 2019). On the production side, since environmental PPMs include waste disposal management, implementing environmental PPMs enables corporations to internalize the life-cycle approach to product management fully, wherein a company's responsibility would be extended to waste disposal and recycling of end-use products (Gaines, 2002). That means the polluting output of one set of industrial processes can be utilized to feed others (Gaines, 2002). That also helps corporations manage waste disposal, reducing hazardous waste and cost-saving by not dealing with high amounts of toxic waste. In addition, PPMs measures (such as carbon taxes and other carbon pricing schemes) have been proposed and applied for domestic producers and foreign exporters. Applying environmental PPMs also helps producers precisely calculate the amount of carbon dioxide embedded in their products during their life cycle (Kuik & Gerlagh, 2003). Proper carbon calculation indirectly eliminates the unsustainable subsidies for fossil fuels, alleviates carbon leakage, and encourages the shift to renewable resources in the long term (Kuik & Gerlagh, 2003).

Every corporation wishes to attract more investors and financing and shine its reputation in the eyes of the public. The more they can contribute to society and the environment, the more trustworthy they are, leading to increased investment attraction and public trust. Therefore, applying environmental PPMs also helps corporations to easily integrate sustainability information into their sustainability reports (ESG report as an example–Environment, Society and Governance Reports) which tools to assess corporations' trustworthiness, social responsibility, and environmental responsibility (Plastun et al., 2020).

In developing countries, the lack of resources constitutes the primary obstacle to the shift to SCP. Governmental policies in developing countries tend to address poverty alleviation and accelerate economic growth, paying less attention to environmental issues, even though they have been observed to have severe environmental failures. The excuse for this might be the so-called environmental Kuznets curve which is conventional thinking in developing countries (Cole et al., 1997). Based on this conventional school of thought, Kuznets curve shows a hypothesized inverted U-shape relationship between economic growth and environmental quality (Cole et al., 1997). The developing countries are persuaded to think that they must go through a high environmental degradation and pollution phase to concentrate on their economic development before they become more affluent and can overcome environmental challenges (Cole et al., 1997). This attitude formulates the so-called grow first and clean up after. However, with SDGs agreed upon by the international community, this conventional thinking becomes no longer valid and is even a mistake. With the prevalence of PPMs in the future, developing countries, especially active Asian developing countries, can be able to utilize funds and technology aids from developed countries, making a leapfrog to more sustainable modes of production and consumption by decoupling economic and environmental objectives at the same time. In other words, by practicing PPMs, they can be able to complete two objectives (economic and environmental objectives) at the same time.

3 WTO Law-Compatible PPM Measures in SCP Focus Areas

3.1 PPMs in Food Safety, Security, and Nutrition

*** The Context of GM (Genetic Modified) Products in Asia**

Gene-editing or genome modification covers a wide range of genetic engineering techniques used to modify the genetics of organisms (Cole et al., 1997). The modification involves inserting, deleting, and editing DNA sequences of genomes in any living organism (Marris, 2001). The method to produce and consume a GM product falls under the spectrum of PPM. GMOs are mainly for livestock and other animal feed. In Asia, the amount of GM crop materials imported into Asia for processing

food and animal feed has grown substantially as almost Asian countries import and develop GM crops (Anderson et al., 2004).

GM products so far are treated as a bullet point to address poverty, particularly in low and middle-income countries like Asia. Poverty has been considered an urgent task in many developing countries. In 2008, a report pointed out that the surging cost of rice and wheat threatened many Asia citizens, pushing them into poverty (Laxman & Ansari, 2011). From 2008 to 2019, the poverty rate was alleviated; however, as the pandemic happened, it set back the fight of Asian countries against poverty (according to figures from 'Pandemic Sets Back Fight Against Poverty in Asia by At Least 2 Years, Has Likely Hurt Social Mobility' published by Asia Development Bank) (Asian Development Bank, 2022). For now, while most economic indicators show strong recovery, many people seem harder to get out of poverty (Tsatsakis et al., 2017). The pandemic also influences the perspective of some countries about sustainable food resources. For example, after the dreadful COVID-19 pandemic and trade war with the USA, China–the most crowded country in Asia–has come to acknowledge the importance of GM products might be an alternative and available food source (Herring, 2009) (Tsatsakis et al., 2017). In India–the second most crowded country, the government has paid much attention to GM products in response to the booming population (Tsatsakis et al., 2017). Additionally, many other Asian countries are dealing with the pressure of food and economic growth, which is multiplied by shrinking farmland, rising labor costs, and a shortage of farm workers (Anderson et al., 2004). Not only does poverty, but also some argue that biotechnology enhances the capacity to resist hostile weather and enhance the taste and nutrition of products. That has been inextricably tied to SCP goals (food nutrition and environment fall under the SCP spectrum). In such a case, using GM products as an alternative source seems to be the ideal method to ensure food security in Asia's most challenging time (Lang, 2002).

The question of staying competitive in global trade is one primary driver for many Asian developing countries to invest in biotechnology (Thomas, 2003). Indeed, most Asian developing countries look to biotech as a future driver of economic growth (Thomas, 2003). Strong domestic regulation will be a prerequisite for the biotechnology industry to thrive. More crucially, a proper biosafety regulation will act as a tool to avoid trade disputes in the future and step steadily on the successful SCP path (Sengupta, 2016).

Confronting consumers' concerns about potential allergenic and long-term toxic effect rooting from GM products and other concerns about the negative effect that GM products causing damage to the environment and inmate animals and plants, (Marris, 2001) many countries, including Asian developing countries, deem to be cautious in building up their legal framework regulating GM products, such as conducting risk assessment models, mandatory labeling schemes and quarantine (Marris, 2001). The stringency level of regulations varies. Many countries also have regulatory schemes for commercializing and approving food safety of GM crops, such as Japan and South Korea, which get tough on GM crops; (Thamali & Jayawardana, 2022) other countries, such as Malaysia, Philippines, Thailand, and Vietnam, are more "welcome" to GM crops (Thamali & Jayawardana, 2022). However, one of Asia's challenges

is building domestic biotechnology regulations in sync with complex international trade and environment regulations.

*** Considering Some Legal Issues in Building Domestic Biosafety Regulation**

As stated above, producing GM products raises several concerns about the environment, and human, animal, and plant health. Since GM products are listed as goods traded globally, GMOs are under cover of both WTO law and environmental legal framework, more specifically the GATT 1994, the SPS Agreement, the TBT Agreement, and some international environmental agreements such as the Cartagena Protocol on Biosafety. Both frameworks encourage country members to establish their domestic biotechnology regulation as their sovereignty practice. In practice, a country may be able to draft and implement broad regulations that contain some requirements covered by the TBT Agreement (i.e., grading and mandatory labeling scheme) and others covered by the SPS Agreement (treatment of GM products to prevent diseases).

The SPS Agreement has been in correlation with the Cartagena Protocol on Biosafety regarding GMOs. The Protocol reaffirms the rights of ratifying countries to set up their domestic regulations but also respects the conditions that countries accept importing GM products according to their socio-economic situation (Bail et al., 2014). The Protocol also reflects the acceptance of the precautionary principle, allegedly reflected in Article 5.7 of the SPS Agreement. Besides, the SPS Agreement makes import restrictions subject to many requirements. In particular, any restrictive measures on GMOs for sanitary and phytosanitary purposes (namely, to protect human, animal, and plant health) must be based on scientific evidence of a risk assessment that conforms to specific standards in the Agreement (WTO, 1995). In case of uncertain risks, article 5.7 of the SPS Agreement allows state members to apply trade measures if relevant scientific evidence is insufficient, based on available pertinent information, and in a reasonable period. In the SPS Agreement, there is no "like product analysis" because the focus is the "scientific assessment" (Ansari & Mahmod, 2008). According to these articles, an import ban on a GM product would have to meet the risk assessment criteria of the SPS Agreement, and scientific justification would have to be made if risks are in excess of what sets out in recommended international standards (WTO, 1995). WTO emphasizes that members must consider related processes and production methods when assessing risks (WTO, 1995).

The TBT Agreement establishes specific criteria that technical regulations such as mandatory labeling schemes have to fulfill and might apply to restrictions on GMOs import. Similarly to the SPS Agreement, the TBT Agreement is linked to the Cartagena Protocol, requiring the modified organisms for direct use as food, feed, or processing. The Protocol requires a label stating that "the product may contain such GMOs" (Eggers & Mackenzie, 2000). The difference between the SPS Agreement and the TBT Agreement, in the TBT Agreement, the "likeness" concept is significant and applied. Whether the difference in PPMs to create GM products can differentiate it from other conventional counterparts remains unclear as mixed arguments exist.

The SPS and TBT Agreement encourage the use of recommended international standards, guidelines, and recommendations from expertise organizations, such as the

realm of Codex Alimentarius (the FAO's international standards for GM products). Take Vietnam as an example of using Codex Alimentarius standards and drafting biosafety regulations based on this realm (FAO GM Foods Platform). However, states also have the right to set domestic standards higher than recommended international ones. International harmonization of regulations is currently under discussion in several forums.

There are some issues identified:

- The "protecting human, animal, and plant health" objective is of paramount importance under the SPS Agreement. When applying trade-restrictive measures to protect human, animal, and plant health, a risk assessment based on scientific evidence must be conducted to assess products. Different countries have different approaches when treating GM products (Sheldon, 2002). Among them, the precautionary principle approach would be the most controversial. Countries following this approach conduct risk assessment and manage GMOs based on this precautionary principle as they revise their regulations and adopt rules and guidelines for the mandatory labeling of GMOs and food containing GM ingredients (Sheldon, 2002). The European Union (the EU), Japan, South Korea, and Sri Lanka are examples of the second approach (Sheldon, 2002). In the EU, the prudence principle (similar to the precautionary principle) is prevalent and applied in any legal framework, including food safety regulation (Andorno, 2004). Since the EU has been a critical trade partner with most of Asian developing countries, the EU's stringent regulations on GM products concerning compulsory label schemes and risk assessments have become hurdles to Asian developing countries. That is because risk assessments are conducted based on the prudence principle (the precautionary principle), which is allegedly broader than risk assessment under article 5.7 of the SPS Agreement (based on the statement of Panel and Appellate Body in the EU biotech case) (Winham, 2009).
- Similarly, with the labeling schemes under the TBT agreement. The label scheme is varied between countries. For example, Vietnam applied the label requirement to any product containing above or equal to 5 percent of GMOs in its ingredient list ; China is one of the first countries to mandate labeling both GMOs and non-GMOs. On the contrary, owning to the prudence principle applied, the labeling scheme in the EU legal framework is stringent: A food or feed containing or produced from GMOs must present "this product contains GMO", the name of the GMO, the name and address of the representative of manufacturers producing this GMO, and the method to obtain public information of producers' registration (Zheng & Wang, 2021). GM product exporters from Asian developing countries are not likely to afford the onerous cost generated by the labeling scheme.
- In the context of lacking compulsory international standards on GM products' safety, countries with technology strength impose relatively stringent standards, putting their poorer counterparts in a weak position. In the case of not yet international harmonization of food safety regulations imposed, this would increase trade disputes, particularly between wealthy and poorer countries. The trade disputes typically take a long time to process and are money-consuming, specifically for

developing countries, including in Asia. The first formal complaint to the WTO over GMO import regulation concerned a prohibition on imports by Egypt from Thailand of tuna containing GM soybean oil (WT/DS205/1) (Josling & Sheldon, 2002). While the dispute has now been settled, it indicates the likelihood of conflict over GMO regulations as they impact international trade.

- The core of the SPS Agreement is still "risk assessment" and "scientific evidence". Food manufacturers conduct a risk assessment, considering any impact of PPMs on consumers' health and environment. Assessing the possible impact of PPMs requires the strength of research and development capacity, experts, and funds. The lack of thereof in Asian developing countries could lead to insufficient or incomplete scientific evidence. As stated above, Asian countries are majorly low and middle income. They rarely have the full ability as developed countries to conduct and gather more scientific evidence, let alone GMOs themselves are an uncertain aspect and hard to know scientifically precisely, even in developed countries.

3.2 PPMs in Environmental Protection Objective

*** Carbon Tax and Other PPMS Measure Environmental Objectives**

The concept of PPMs in international trade is also relevant to the objective of environmental protection. One of the targets of SCP is reducing hazardous emissions released into the air, water, and soil (Akenji & Bengtsson, 2014). Consumption and production patterns should be developed in the way that chemicals used in consumption and production are in the way to minimize the significant adverse effect on human health and the environment. In international trade, the important is how to regulate PPMs to eradicate hazardous emissions during the consumption and production stage and ensure sustainable resources for future generations.

Asia–Pacific is one of the most crucial areas to combat over-consumed energy, and carbon emissions play an essential role in achieving net zero and change to SCP patterns (Fernandes & Rezaei, 2021). Recently with the commitments to net zero under the Paris Agreement and COP 26 (held in Glasgow, United Kingdom). While most Asian countries develop carbon pricing schemes (or emission trade schemes), such as Japan, Singapore, China, Thailand, and Vietnam, the unilateral effort seems insufficient, highly leading to carbon leakage. In response to carbon leakage, a stringent method has been proposed and applied in several countries–carbon border tax. The efficiency of imposing a carbon tax worldwide to stop carbon leakage has not been proved in practice.

Nevertheless, scientific data shows that if a carbon border tax is imposed globally, it will reverse the carbon leakage cycle. The EU is one of the pioneers in introducing a carbon scheme (so-called the Green Deal), including imposing a carbon tax on heavy-polluted output and highly traded industries such as steel and cement (Siddi, 2020). This Green Deal will be enacted officially in 2023. Despite its emphasis on environmental protection, many countries that are exposed to newly introduced

carbon schemes argue that this new legal framework can be considered "protectionism", enabling the EU to recover its economy, which was damaged by the pandemic (Siddi, 2020). The top traders exposed heavily to the new EU's scheme consist of low, middle-income, and high-income countries. In Asia, China, India, Brazil, South Korea, and especially Mozambique, a top exporter of aluminum to the EU, are called out loud in the list of countries heavily affected by the new EU policy (Teevan et al., 2021). The imposition of a carbon border tax on the products exported from those countries put these countries in a significantly vulnerable position, given that the exportation of industries is an engine of their economies (Teevan et al., 2021). The compliance cost, such as hazardous waste monitoring, could burden them.

Along with environmental objectives, Indonesia raised a PPMs-related case recently against the EU with its new policy (Mayr et al., 2021). According to the EU's recast Renewable Energy Directive (RED II), followed by the RED I, intending to eradicate biofuel produced by palm oil which allegedly releases carbon dioxide emissions three times greater than biofuels produced by other plants, the EU declares that biofuel produced by palm oil will be phased out. In contrast, biofuels produced by other ingredients, such as corn and sugar, will only reduce to 7 percent of use (Mayr et al., 2021). In this case, Indonesia, the biggest palm exporter to the EU, is likely to get hurt by the new RED II imposed by the EU (Mayr et al., 2021). The EU also claims that the increase in the demand for biofuels produced by palm oil led to land-use change in Indonesia, resulting in significant deforestation (lands replaced to grow palm forests), phasing out palm oil to avoid deforestation (Mayr et al., 2021). The palm oil case between Southeast Asia and the EU raises some questions about PPMs in the "likeness" concept and exceptions under Article XX of GATT.

*** PPMs and the "Like Products" Concept and Exemption Under the GATT**

The carbon border tax measure and the phasing-out policy imposed by the EU are nr-PPMs measures. Any trade measures must adhere to the WTO law, with the "likeness" being the main focus. GATT 1994 allows its members to treat different products. It comes down to whether the carbon embedded in products or ingredients used to produce products make them different. The "like product" test remains unfixed and varies on a case-by-case basis. In the Japan Alcoholic case, the "like product" test contains four criteria: (1) physical characteristics of products; (2) different tariff categories; (3) the end-use product; and (4) consumer's habit and preference (Horn & Mavroidis, 2004). Unlike pr-PPMs, nr-PPMs are still controversial among WTO members (Charnovitz, 2002). With nr-PMs, the physical characteristics of products produced by either environmentally friendly or non-environmentally friendly methods rarely make them different (Horn et al., 2004). For example, many argue that steels produced by unclean technology are similar to those produced by clean technology. Likewise, biofuels produced mainly by palm oil are majorly similar to biofuels produced by other plants, even though the efficiency of biofuels by palm oil is more remarkable than those produced by other plants. The second and third criteria do not seemingly play an important role in comparing products. The glimpse of hope lies in the last criteria. Despite rising environmental concerns among consumers, the

product difference is still hard to tell consumers. The nr-PPMs cannot make products different.

However, GATT 1994 allows states to justify their trade measures under Article XX. In other words, these trade measures must satisfy at least one of the objectives in Article XX (a) to (g); and the Chapeau of Article XX. Under Article XX (b) and (g), states justifying their trade measures under these sub-articles have to prove their trade measures imposed to protect human health, animal and plant health. Next, the Chapeau of Article XX states that a trade measure must not be applied in a manner which would constitute "a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail", and is not "a disguised restriction on international trade". In many cases, the word "arbitrary" and "unjustifiable discrimination" and "same condition prevails" have been defined differently. In the case of Indonesia and EU regarding biofuels produced by palm oil and other plants, although EU's objective can be justified under Article XX (g), there is nothing to be sure EU can pass the Chapeau test. Indonesia states that under the "same conditions" prevails, biofuels produced by palm oil and other vegetables should not be treated differently. In other words, other plants' biofuels should also be phased out under RED II (Mayr et al., 2021).

As stated above, with the loopholes of GATT explanations, PPMs measures can be easily used under cover of protecting the environment to protect domestic industry. The question of "environment protection" or "protectionism" will be raised, and eventually, developing countries will still get hurt.

4 Recommendations

The harmonized international regulation on safety biotechnology is still lacking, leading to the increased likelihood of trade disputes. Asian developing countries and other countries inside or outside the region should establish more mutual or regional agreements regulating standards and categories of products differentiated by their PPMs. The standards can be based on recommended international standards or members' objectives and priorities in their territory. These agreements are expected to tighten relationships between members, enabling them to utilize funds and technology from richer member countries to develop PPMs and achieve SCP goals. The standards on PPMs can also be included in free trade agreements. The likelihood of trade disputes will be reduced, and free trade is less likely to be interrupted. However, openness can hardly be seen in several regional organizations. ASEAN is a typical example. Being known as the "ASEAN Way", (Yukawa, 2018) a harmonized regulatory over PPMs seems hard to achieve. The ASEAN Way emphasizes the sovereignty rights of a country. Many researchers thus argue that the ASEAN Way established long ago seems obsolete now, and it is time to change (Yukawa, 2018). In the case of Asian countries, many countries being wary of PPMs in global trade seem to find it harder to accept a standard on PPMs. That would slow down the progress of

establishing the harmonization and even further the progress of SCP goals, among other sustainability goals.

The WTO/GATT objects to achieving and maintaining negotiated levels of market access but, at the same time, to ensure its members practice their sovereignty entirely right over their regulations. A possible solution here might be that countries have the right to set up their domestic standards and even a bound tariff (carbon tax) on exporters. That could be stricter than international standards recommended by international experts. At the same time, they have to grant greater market access to other exporters who meet domestic standards. That can be called "balancing market access" (Bredahl et al., 1990). Balancing the market also allows countries to increase sovereignty over their domestic regulatory choices and still oblige trading obligations. However, "rebalancing market access" is not the most optimal method because countries still face high costs (e.g., labeling non-GM products will require identity preservation of non-GM ingredients). This cost will be passed on to consumers (Bredahl et al., 1990).

In terms of policy recommendations, products from Asian developing countries brought on trade disputes are mostly the targeted industries of countries, generating high levels of profitability. For example, Indonesia and Malaysia count on palm oil industries; most Asian countries are exposed to new carbon schemes (Lim, 2018). Developing countries must reconsider the level of profitability generated from targeted industries. Seeking alternative industries that ensure Asian developing countries' development is not to be hindered and provide as many quality employment opportunities as altered might take time (Lim, 2018). Asian developing countries do not always have enough resources for research and development, especially in the case of new environmentally friendly PPMs. Asian countries should collaborate with developed countries via free trade agreements. The EU, which has been in trade relationships with numerous Asian developing countries, should work together and see if there are other industries in other countries worth investing time in. Aiding developing countries is an obligation of developed countries set out in many documents, including the GATT and multilateral environmental agreements. In addition, before applying any trade-PPMs-related measure, it is mandatory to make advance notice to those who would be possibly exposed to it.

The negotiation must be conducted in good faith, avoiding any trade disputes. In many cases, advance consultation promptly with stakeholders can be helpful. In the case of Indonesia and the EU, given that the free trade agreement between the EU and Indonesia has been a rough ride to implement (Team, 2021), there is still room for EU and Indonesia with regards to palm oil only if palm oil practices are kept "green" and "clean" (Lim, 2018).

5 Conclusion

As PPMs is still not a panacea for addressing environmental and trade law conflicts, they are just a temporary method. PPMs-related SCP goals still cover many issues,

such as illegal/legal wildlife trade and wildlife consumption. In the extent of this paper, PPMs presenting the conflict between trade and the environment have been described. The prevalence of carbon tax, indirect/indirect land use, GMO labeling schemes, and scientific evidence (PPMs measures) has been seen clearly. As stated above, despite the benefits PPMs could bring in the path toward SCP and SD in general, Asian developing countries face several difficulties and challenges from implementing environmental PPMs in trade and even being exposed to stringent PPMs measures from developed countries. Asian developing countries cannot be outside of the game. In the future, we must develop other better methods to keep trade and the environment in harmony. That is also the meaning of fulfilling SDGs.

References

Agenda 21, U.N. Conference on Environment and Development, U.N. Doc. AIConf. 151/26/Rev.1 paragraph 4.3.

Akenji, L., & Bengtsson, M. (2014). Making sustainable consumption and production the core of sustainable development goals. *Sustainability, 6*(2), 513–529.

Akenji, L., Bengtsson, M., & Schroeder, P. (2017). Sustainable consumption and production in Asia—aligning human development and environmental protection in international development cooperation. In Sustainable Asia: Supporting the transition to sustainable consumption and production in Asian Developing Countries, pp. 17–43.

Anderson, K., Nielsen, C. P., & Robinson, S. (2004). Estimating the economic effects of gmos: The importance of policy choices and preferences. *Economic and Social Issues in Agricultural Biotechnology*, 359–391. https://doi.org/10.1079/9780851996189.0359

Andorno, R. (2004). The precautionary principle: A new legal standard for a technological age. *Journal of International Biotechnology Law*, *1*(1). https://doi.org/10.1515/jibl.2004.1.1.11

Ansari, A. H., & Mahmod, N. A. K. N. (2008). Biosafety protocol, SPS agreement and export and import control of LMOs/GMOs. *Journal of International Trade Law and Policy*.

Asian Development Bank (Ed.). (2022). Pandemic sets back fight against poverty in Asia by at least 2 years, has likely hurt Social Mobility. In *Asian Development Bank*. Retrieved from https://www.adb.org/news/pandemic-sets-back-fight-against-poverty-asia-least-2-years.

Asia-Pacific sustainable development goals progress report in 2022: Widening disparities amid COVID. (2022). Retrieved from https://www.unescap.org/kp/2022/asia-and-pacific-sdg-progress-report-2022.

Bail, C., Falkner, R., & Marquard, H. (2014). The Cartagena protocol on biosafety: Reconciling trade in biotechnology with environment and development.

Bredahl, M. E., Josling, T. E., Miner, W. M., Rossmiller, G. E., Tangermann, S., & Warley, T. K. (1990). Bringing agriculture into the GATT: The comprehensive proposals for negotiations in agriculture (No. 938–2016–74512).

Charnovitz, S. (2002). The law of environmental PPMs in the WTO: Debunking the myth of illegality. *Yale J. Int'l L., 27*, 59.

Cole, M. A., Rayner, A. J., & Bates, J. M. (1997). The environmental Kuznets curve: An empirical analysis. *Environment and Development Economics, 2*(4), 401–416.

Dernbach, J. C. (1998). Sustainable development as a framework for national governance. *Case W. Res. L. Rev., 49*, 1.

Eggers, B., & Mackenzie, R. (2000). The Cartagena protocol on biosafety. *Journal of International Economic Law, 3*(3), 525–543.

FAO GM foods platform. Retrieved from https://www.fao.org/food/food-safety-quality/gm-foods-platform/browse-information-by/country/country-page/en/?cty=VNM.

Farber, D. A. (2012). Sustainable consumption, energy policy, and individual well-being. *Vand. L. Rev., 65*, 1479.
Fernandes, E., & Rezaei, F. (2021). Climate actions, COP 26 and Implications on public health for Asia Pacific region. *Epidemiology International*, *6*(4), 1–2. E-ISSN: 2455–7048
Gaines, S. E. (2002). Processes and production methods: How to produce sound policy for environmental PPM-based trade measures. *Colum. J. Envtl. L., 27*, 383.
General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT 1994].
Herring, R. (2009). China, rice, and GMOs: Navigating the global rift on genetic engineering. *The Asia-Pacific Journal: Japan Focus, 7*, 1–12.
Horn, H., & Mavroidis, P. C. (2004). Still hazy after all these years: The interpretation of national treatment in the GATT/WTO case-law on tax discrimination. *European Journal of International Law, 15*(1), 39–69.
Jackson, J. H. (1992). World trade rules and environmental policies: Congruence or conflict. *Wash. & Lee L. Rev., 49*, 1227.
Jere, M. (2017). *Trade and sustainable development: Regulating PPMs in the WTO*. Master's thesis, University of Cape Town.
Johannesburg declaration on sustainable development and plan of implementation of the world summit on sustainable development A/CONF.199/L.7, 2002.
Josling, T., & Sheldon, I. (2002). *Biotechnology Regulations and the WTO*. Working Paper 02–2. The Ohio State University.
Katila, P., Colfer, C. J. P., De Jong, W., Galloway, G., Pacheco, P., & Winkel, G. (Eds.). (2019). *Sustainable development goals*. Cambridge University Press.
Kuik, O., & Gerlagh, R. (2003). Trade liberalization and carbon leakage. *The Energy Journal, 24*(3), 97–100.
Lang, T. (2002). Can the challenges of poverty, sustainable consumption and good health governance be addressed in an era of globalization? *The nutrition transition*, 51–70.
Laxman, L., & Ansari, A. H. (2011). GMOs, safety concerns and international trade: Developing countries' perspective. *Journal of International Trade Law and Policy, 10*(3), 281–307.
Lim, S. (2018). EU-Indonesia FTA relations: Palm oil–in for a rough ride?. EU-Asia at a Glance.
Marris, C. (2001). Public views on GMOs: Deconstructing the myths. *EMBO Reports, 2*(7), 545–548.
Mayr, S., Hollaus, B., & Madner, V. (2021). Palm oil, the RED II and WTO law: EU sustainable biofuel policy tangled up in green? *Review of European, Comparative & International Environmental Law, 30*(2), 233–248.
Meadows, D. H. (1982). *The limits to growth: A report for the club of Rome's project on the predicament of mankind*. Universe Books.
Nielsen, L. (2007). *The WTO, animals and PPMS*. https://doi.org/10.1163/ej.9781571051868.i-355
Plastun, A., Makarenko, I., Khomutenko, L., Osetrova, O., & Shcherbakov, P. (2020). SDGs and ESG disclosure regulation: Is there an impact? Evidence from top-50 world economies. *Problems and Perspectives in Management*, *18*(2), 231–245. https://doi.org/10.21511/ppm.18(2).2020.20
Potts, J. (2008). The legality of PPMs under the GATT: Challenges and opportunities for Sustainable Trade policy. *International Institute for Sustainable Development*.
Rock, M. T., & Angel, D. P. (2007). Grow first, clean up later? Industrial transformation in East Asia. *Environment: Science and Policy for Sustainable Development*, *49*(4), 8–19.
Seiffert, M. E. B., & Loch, C. (2005). Systemic thinking in environmental management: Support for sustainable development. *Journal of Cleaner Production, 13*(12), 1197–1202.
Sengupta, R. (2016). International trade and the 2030 agenda for sustainable development. *Spotlight on Sustainable Development*, pp. 130–139.
Sheldon, I. M. (2002). Regulation of biotechnology: Will we ever 'freely'trade GMOs? *European Review of Agricultural Economics, 29*(1), 155–176.

Shibin, K. T., Gunasekaran, A., Papadopoulos, T., Dubey, R., & Mishra, D. (2016). Sustainable consumption and production: need, challenges and further research directions. *International Journal of Process Management and Benchmarking*, *6*(4), 447–468.

Siddi, M. (2020). The European green deal: Asseasing its current state and future implementation. *FIIA Working Paper 114*.

Silveira, L. D. D. O., & Obersteiner, T. (2013). The scope of the TBT Agreement in light of recent WTO case law. *Global Trade and Customs Journal, 8*(4), 112–120.

Staniškis, J. K. (2012). Sustainable consumption and production: How to make it possible. *Clean Technologies and Environmental Policy, 14*(6), 1015–1022.

Sustainable consumption and production indicators for the future SDGs' UNEP discussion paper.

Team, E. I. A. S. (2021). EU-indonesia FTA relations: Palm oil – in for a rough ride? In *EIAS*. Retrieved from https://eias.org/policy-briefs/eu-indonesia-fta-relations-palm-oil-in-for-a-rough-ride/.

Teevan, C., Medinilla, A., & Sergejeff, K. (2021). The green deal in EU foreign and development policy. *ECDPM Briefing Note No. 131*.

Thamali, K. I. S., & Jayawardana, N. U. (2022). The current status of national biosafety regulatory systems in South Asia. *Environment Sustenance and Food Safety: Need for More Vibrant Policy Initiatives for Sri Lanka, 198*, 198.

The future we want – declaration of the un conference on sustainable development. United Nations General Assembly Resolution A/RES/66/288.

Thomas, J. (2003). Recent developments and future needs in developing countries of Southeast Asia. In *International Symposium on Biopesticides for Developing Countries*, Vol. 187.

Tsatsakis, A. M., Nawaz, M. A., Tutelyan, V. A., Golokhvast, K. S., Kalantzi, O. I., Chung, D. H., Chung, G., et al. (2017). Impact on environment, ecosystem, diversity and health from culturing and using GMOs as feed and food. *Food and Chemical Toxicology, 107*, 108–121.

Von Frantzius, I. (2004). World summit on sustainable development Johannesburg 2002: A critical analysis and assessment of the outcomes. *Environmental Politics, 13*(2), 467–473.

Wang, C., Ghadimi, P., Lim, M. K., & Tseng, M. L. (2019). A literature review of sustainable consumption and production: A comparative analysis in developed and developing economies. *Cleaner Production, 206*, 741–754.

Winham, G. R. (2009). The GMO panel: Applications of WTO law to trade in agricultural biotech products. *European Integration, 31*(3), 409–429.

WTO. (1995). *Agreement on sanitary and phytosanitary measures. (hereafter the SPS Agreement)*

Yukawa, T. (2018). The ASEAN way as a symbol: An analysis of discourses on the ASEAN norms. *The Pacific Review, 31*(3), 298–314.

Zheng, Q., & Wang, H. H. (2021). "Do consumers view the genetically modified food labeling systems differently "contains GMO" versus "Non-GMO" labels. *The Chinese Economy, 54*(6), 376–388.