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## **INTERNATIONAL AGRI-FOOD TRADE AND SUSTAINABLE AGRICULTURE – THE REASON FOR PROTECTION?**

### *HANDEL ROLNO-ŻYWNOŚCIOWY A ROLNICTWO ZRÓWNOWAŻONE – PRZESŁANKA DLA PROTEKCJI?*

**Key words:** agri-food trade, sustainable agriculture, non-tariff measures, SPS, TBT

*Słowa kluczowe:* handel rolno-żywnościowy, rolnictwo zrównoważone, środki pozataryfowe, SPS, TBT

*JEL codes:* F130, F18, Q1

**Abstract.** The aim of the study was to identify goals of imposing non-tariff measures such as SPS and TBT in agri-food trade in association with the concept of sustainable agriculture. The relationships between agri-food trade and the environment and food safety were described. In quantitative analysis the data from the WTO-TIP Goods database for the years 1996, 2006 and 2016 were used. The study confirmed that the imposing SPS and TBT measures are determined by characteristics of sustainable agriculture and can be treated as premises for non-tariff protectionism.

## **Introduction**

In the context of demographic and economic processes, irrational use of limited natural resources, loss of biodiversity and the need to ensure food security, it was necessary to search for solutions that meet the mentioned challenges of the twenty-first century. The answer may be the bio-economy. Its main task is the rational management of all resources in connection with the use of innovations [Krasowicz 2016]. It may be a chance for guarantee of global food security, improving nutrition and health, creation of intelligent bio-based products and biofuels, as well as for the support of agriculture, forestry, aquaculture and other ecosystems, that have to adapt to climate changes. One of the functions of the bio-economy is to correct the negative impact of agricultural production on the environment. So it can be treated as a part of the sustainable agriculture [Pajewski 2014]. Sustainable agriculture supports for viability of rural areas, is environmentally friendly, produces food of high quality and enable participation in culture [Kwasek et al. 2015]. In other words, a model of sustainable agriculture has to meet the requirements in economic, environmental and social spheres simultaneously [Zegar 2005]. The concept of sustainable agriculture should not be considered only at the national level, because all mentioned spheres are influenced by foreign (agri-food) trade.

The role of international agri-food trade can be considered here in two related areas. On one hand, in the context of foreign trade relationships with the environment and food security. That is particularly important, when the twenty-first century challenges of sustainable agriculture (the irrational management of limited resources, climate change, the need of growing population for food) are taken into account. On the other hand, in the context of the dilemma of whether and how to liberalize world agri-food trade. In conditions of relatively low average tariff protection, which is the result of the WTO Agreement on Agriculture, the importance of non-tariff measures (NTMs) has been steadily increased. The reasons to impose NTMs, such as the health and life of humans, animals and plants, biodiversity protection and food safety, form the concept of sustainable agriculture.

The aim of the study was to identify goals of imposing non-tariff measures as Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) in agri-food trade in association with the concept of sustainable agriculture. The hypothesis assumed that imposing the SPS and TBT measures is determined by characteristics of sustainable agriculture and can be treated as premises for non-tariff protectionism.

## Material and methods

Based on literature some links between agri-food trade and environment and food security (including food safety) were pointed out. The NTMs data from the WTO I-TIP Goods: Integrated analysis and retrieval of European notified non-tariff Measures were used. The research was focused on SPS and TBT measures imposed in the years 1996, 2006 and 2016 by individual countries in relation to all other WTO member countries. Because of limited access to data, the analysis was restricted to the environmental and food safety (as element of food security) aspects of the sustainable agriculture. SPS are understood as laws, regulations, requirements, standards and procedures designed to protect the health and life of humans, animals or plants. TBT means the requirements for the technical specifications of the products and their conformity assessment systems. Time range was determined by the resource data in WTO database. The commodities classified in 1-24 chapters according to Harmonized System (HS) were adopted as agri-food products.

### The agri-food trade, environment and food security relations

The relation of agri-food trade and the environment is determined primarily by agriculture associations with the environment. Its interactions can be either negative or positive. The former includes soil degradation, water pollution, excessive deforestation, desertification and biodiversity reduction. These negative effects justify policy of natural resources management, that is aimed to reduce the environmental and socio-economic problems [Kaczyński 2004]. The latter is positive environmental values. Land creates the welfare of the environment [Czyżewski 2013]. However, the desire to maximize agricultural production structures may reduce the quality of the environment, that can be regarded as a premise of interventionism.

On the international level, in the opinion of some researchers, open trade enables more efficient use of natural resources and reduce the negative impact of trade on the environment<sup>1</sup>. Free trade supports specialization in the sectors, where the countries have comparative advantages, also those based on the environment. So international distribution of ecological technology, goods and services and the income of economic growth and ecological consumer awareness become possible [Wysokińska 2001]. But the intensification of agricultural activity, excessive specialization of agriculture as a result of progressive trade liberalization may increase risks for the environment and natural resources, and be a source of international conflicts. Agri-food trade may in fact violate the sustainability of natural resources and cause negative socio-economic consequences, particularly for trade relations between countries with different levels of economic development (ie. ecological neo-colonialism) [Czaja 2004]. Consequently, this implies also the direction of the impact of agri-food trade to food security<sup>2</sup> (and food safety).

On the positive relationship indicates Matthews [2003]. Foreign trade, by determining economic growth in positive way, creates additional employment and income growth, and improves the economic access to food. The domestic supply of food rises and causes the increase of the level (in the sense of physical accessibility) that the consumer needs are met<sup>3</sup>. International trade<sup>4</sup> can also be

<sup>1</sup> The environmental impact of trade liberalization can be divided into technique, scale and composition effect. All these effects may interact to create an inverted-U relationship between income and pollution, that is known as the environmental Kuznets curve. However it is not clear how robust this relationship is applied to agriculture [Cooper 2005].

<sup>2</sup> Food security are defined as situation when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. In other words the concept encompass physical availability of food, economic access to food and food safety. More about development of food security concept see [FAO 2002, 2003].

<sup>3</sup> Van Dijk [2011] indicates direct and indirect nature of that relationship. Through the indirect channel agricultural trade promotes growth, which implies an increase in income and consequently improves the economic availability of food. In turn, the direct channel is manifested by an increase in the supply of food which improves the physical availability of food. The increased flow of goods between countries will determine the decrease in the average level of prices and reduction of the volatility of food supply.

<sup>4</sup> It should be noted, that restrictions on free trade can generate economic costs, distortions of prices and the limited possibilities of selling products [Martin, Anderson 2011]. The result may be a decrease in the level of food security in the poorest countries [Headey, Fan 2008].

regarded as a channel of technology diffusion, which stimulates long-term economic growth and development, that helps to reduce poverty and to improve income and food availability. However, in conditions of free trade, specialization of production, the primacy of profit maximization, the irrational use of resources at the international level may constrain the ability to achieve food security, also in its quality aspect (food safety). It can be especially difficult for developing countries.

The level of risks associated with the collapse of environmental sustainability and access to safe food determines the imposing of barriers to international trade. According to Budnikowski [2006] ecological conditions will be in increasing extent an important argument against the full liberalization of international trade. On one hand, the applied instruments will contribute to the improvement of quality of environment and food supplied to the market. On the other hand, they may be a sign of non-tariff protectionism.

### SPS and TBT in agri-food trade

The non-tariff measures (NTMs) are all measures other than tariffs, that can potentially have an economic impact on trade turnover by changing the volume or prices of traded commodity or changing quantity and price [UNCTAD 2013]. In global agri-food trade the number of SPS and TBT measures (in force and in initiation) have been steadily increasing during 1996–2016<sup>5</sup>, by dominance of SPS (Tab. 1).

Considering the different sections of agri-food products which are the subject of international trade it should be stated that most of the SPS measures (973) were applied to live animal and products (HS 01-05) and TBT (300) respectively to processed food (HS 16-24). At the same time for these product groups most number of appropriate procedures for the imposing SPS or TBT measures were initiated. The dynamics of introducing SPS and TBT instruments and number of initiatives taken in this scope are the signs of the increasing activity of the countries in this area.

Table 1. SPS and TBT trade measures in agri-food trade in 1996-2016 (as of the 30<sup>th</sup> of June)

*Tabela 1. Środki handlowe SPS i TBT w handlu rolno-żywnościowym w latach 1996-2016 (stan na 30 czerwca)*

HS section of agri-food products/ <i>Produkty rolno-żywnościowe według sekcji HS</i>	SPS						TBT					
	in force/ <i>wprowadzone</i>			initiation/ <i>zainicjowane</i>			in force/ <i>wprowadzone</i>			initiation/ <i>zainicjowane</i>		
	1996	2006	2016	1996	2006	2016	1996	2006	2016	1996	2006	2016
Live animals and products (HS 01-05)/ <i>Zwierzęta żywe; produkty pochodzenia zwierzęcego (HS 01-05)</i>	0	5	973	95	1801	3210	0	6	107	5	234	1032
Vegetable products (HS 06-14)/ <i>Produkty pochodzenia roślinnego (HS 06-14)</i>	0	3	903	92	1120	2887	0	5	143	25	263	1560
Animal and vegetable fats, oils and waxes (HS 15)/ <i>Thuszcze i oleje pochodzenia zwierzęcego lub roślinnego, woski (HS 15)</i>	0	0	52	4	120	361	0	4	53	6	112	480
Prepared foodstuff; beverages, spirits, vinegar; tobacco (HS 16-24)/ <i>Gotowe artykuły spożywcze; napoje bezalkoholowe, alkoholowe i ocet; tytoń (HS 16-24)</i>	0	1	323	40	762	1639	0	13	300	19	394	2352

Source/*Źródło*: [WTO 2016]

<sup>5</sup> The increase in the interest in the non-tariff measures came with the completion of the Uruguay Round of GATT and the conclusion of the Agreement on Technical Barriers to Trade and Agreement on Sanitary and Phytosanitary to Trade. According to WTO regulations the NTMs should to be non-discriminatory and shall not cause a negative impact on international trade.

Table 2. SPS and TBT measures in agri-food trade according to selected objective of its imposing in 1996–2016 (as of the 30<sup>th</sup> of June)  
*Tabela 2. Środki SPS i TBT w handlu rolno-żywnościowym według wybranych celów ich wprowadzenia w latach 1996–2016 (stan na 30 czerwca)*

Objective of imposing measures/Cele wprowadzania środków	1996		2006		2016	
	in force/ wprowadzone	initiation/ zainicjowane	in force/ wprowadzone	initiation/ zainicjowane	in force/ wprowadzone	initiation/ zainicjowane
SPS objectives/Cele SPS <sup>1)</sup>						
Animal health/Zdrowie zwierząt	0	72	3	1428	569	2004
Food safety/Bezpieczna żywność	0	66	5	1388	508	3095
Plant protection/Ochrona roślin	0	5	2	29	498	666
Protection of humans from animal/plant pest or disease/Ochrona ludzi przed chorobami i szkodnikami pochodzenia zwierzęcego/roślinnego	0	0	7	41	565	1415
Protection of territory from other damage from pests/Ochrona terenu przed szkodnikami	0	0	2	12	233	237
TBT objectives/Cele TBT <sup>2)</sup>						
Prevention of deceptive practices and consumer protection/ Zapobieganie oszukańczym praktykom i ochrona konsumenta	0	0	0	0	85	733
Protection of human health or safety/Ochrona zdrowia i bezpieczeństwa konsumenta	0	0	1	0	190	1239
Protection of animal or plant life or health/Ochrona zdrowia i życia zwierząt i roślin	0	0	0	0	43	71
Protection of the environment/Ochrona środowiska	0	0	0	0	7	20
Quality requirements/Wymogi jakościowe	0	0	0	0	53	453

<sup>1)</sup> Table does not include SPS and TBT applied in bilateral relations/W tabeli nie ujęto środków SPS i TBT nakładanych w układach bilateralnych; <sup>2)</sup> the table does not include such objectives as the introduction of TBT: National security requirements, Harmonization, Adoption of domestic law, Lowering or removal of trade barriers, Trade facilitation, Cost saving and increasing productivity, Other/w tabeli nie uwzględniono takich celów wprowadzania TBT jak: Krajowe wymagania bezpieczeństwa, Harmonizacja, Przyjęcie prawa krajowego, Obniżenie lub usunięcie barier w handlu, Ułatwianie handlu, Oszczędność kosztów i zwiększanie produktywności, Inne

Source: own elaboration based on [WTO 2016]

Źródło: opracowanie własne na podstawie danych [WTO 2016]

The result is that the rules of world agri-food trade are becoming more and more complicated.

Reasons for the imposing the SPS and TBT measures are justified by the protection of the health and life of humans, animals and plants and the environment. Having already applied SPS instruments in agri-food trade, it is worth emphasizing that their introduction was motivated mainly by animal health and protection of humans from animal / plant pest or disease (Tab. 2). In the case of TBT that was mainly protection of human health or safety. The growing importance of analyzed NTMs in agri-food trade shows the rising numbers of procedures initiated the imposing of SPS and TBT measures during 1996-2016. In 2016 the most common objective of planned implementing of SPS measures was food safety (animal health in 1996 and 2006) and for TBT it was protection of human health or safety<sup>6</sup>.

Available data confirm that the reasons for the imposing of SPS and TBT measures in agri-food trade are fit in the concept of sustainable agriculture and are socially justified. However, there is a risk that the measures will aim to reduce trade in the form of hidden protectionism. Even if there is no directly declared goal to protect domestic market, such instruments can be additional impediment to trade, because of the need to incur the adaptation cost by affected countries. This is particularly important in trade relations of countries with different levels of economic and the agricultural sector development.<sup>7</sup> Taking into account the expectations of food consumers it can be stated that the imposing SPS and TBT measures in relation with the concept of sustainable agriculture will be developed and strengthened.

### Conclusions

1. Based on the conducted literature it can be stated that relations of agri-food trade with environment and food security are both positive and negative. However, in conditions of intensifying trade and relatively low average tariff protection, the scale of emerging risks in the environment and food quality will determine the imposing of non-tariff barriers.
2. In the analyzed period, an increase of imposing the non-tariff measures in agri-food trade was observed. It was illustrated by steadily growing number of imposed SPS and TBT measures in the years 1996-2016. This means that the reduction of customs tariffs, the countries were obliged under final agreements of GATT/WTO rounds, were accompanied by an increase of imposed non-tariff instruments.
3. Conducted research allowed to confirm hypothesis that imposing the SPS and TBT measures is determined by characteristics of sustainable agriculture and can be treated as premises for non-tariff protectionism. Declared objectives of imposing SPS and TBT are an expression of the right of every state to ensure its citizens to have an access to safe food and the environment of adequate quality. That is why, the number of applied SPS and TBT measures will be still increasing. And because they generate adjustment costs for affected countries, these NTMs can be judged as, at least indirect, the sign of non-tariff agricultural protectionism.

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<sup>6</sup> Imposing of one SPS or TBT measures can be motivated more than one objective.

<sup>7</sup> Empirical studies confirm that the requirements used by developed countries are more restrictive than those recommended by international standards. It means a loss for developing countries [Otsuki et al. 2001].



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### Streszczenie

Celem badań było zidentyfikowanie przyczyn stosowania w handlu rolno-żywnościowym środków pozataryfowych typu SPS i TBT, związanych z koncepcją rolnictwa zrównoważonego. Określono relacje handlu rolno-żywnościowego ze środowiskiem naturalnym oraz bezpieczną żywnością. W analizie ilościowej posłużono się danymi pochodzącymi z bazy WTO I-TIP Goods dla lat 1996, 2006 i 2016. Przeprowadzone badania potwierdziły, że wprowadzanie środków SPS i TBT determinowane jest cechami rolnictwa zrównoważonego i stanowi przesłankę dla pozataryfowego protekcjonizmu.

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