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International trade and climate change. A complex relationship

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Martín Fraguío

International trade and climate change: A complex relationship

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I. Introduction

CARI (Argentine Council for International Relations) and GPS (Group of Producing Countries of the Southern Cone)¹ have made important contributions for the adequate understanding and coordination related to climate change and international trade in agroindustrial products. These contributions are reflected in a large agenda of public-private interaction, publication of documents and organization of talks and conferences in different parts of the world

In the first book published by GPS "Food Safety and Natural Resources"², the direction of the organization is set as follows: "Global food security and sustainable production could be substantially improved with the growth of supply in regions and countries that have high potential for sustainable food production.....". However, food trade has been limited by different kinds of regulations and trade barriers. The countries of the region are very concerned by the lack of progress in the trade negotiations of the Doha Round and agree on the urgent need to find a solution within the framework of the WTO. "

The multilateral trading system is one of the great creations of humanity. The current state of affairs is consolidated in the post-war period and has contributed extraordinarily to global development and hunger and poverty eradication with foundations on a foreseeable, transparent international trade and with formally ruled mechanisms for negotiation and dispute resolution.

At first glance it would seem that climate change or the climate agenda that starts at ECO 92 in Rio de Janeiro has little to do with global trade, however, we will try to show in this document the complexity of the relationship between these two issues , in particular to agriculture, its products, technologies and markets.

We will show how the appearance of the climate agenda and its different mechanisms has also generated elements that hinder the improvement in the use of ecosystem services related to the production and conservation of ecosystems and biomes. Particularly in developing countries.

Finally, we will analyze some recent alternatives that show how far the agricultural sector can provide solutions to the problem of global climate change.

II. The multilateral trade system

a) Bretton Woods, Havana Chapter, Tokyo and Uruguay GATT Rounds

From the Bretton Woods Conference, a set of multilateral organizations was founded, among which the "International Trade Organization" should have been included. In its replacement the GATT (General Agreement on Tariffs and Trade) was created temporarily in 1947. This initiative is detailed in the Havana Charter that, without being approved, serves as the foundation stone for the GATT, and later the World Trade Organization (WTO).

This agreement has as main objectives the elimination of unpredictability and arbitrariness in international trade and the transformation into tariffs of trade barriers and other instruments installed since the 1930 crisis.

¹ <https://grupogpps.org/web/>

² Regúnaga, M. et al ed., 2013.

Unfortunately for agricultural trade, in the first years of GATT this topic is excluded from the agenda. In the successive rounds of negotiations, beginning in 1948, progress was made in the transformation of trade barriers into tariffs. Of importance in this regard is the Tokyo Round (1973-1979), in which more than 100 countries participate and the agreements reached still apply today.

GATT commits its members to apply the concept of "MFN" (Most Favored Nation) in order not to discriminate between countries. Start the transformation of arbitrary trade barriers of each product into "Tariffs", eliminate "Quantitative Restrictions" ", guarantee the free transit of merchandise, and the application of safeguards before the harmful importation of goods. All this, in a weak framework for controversies or conflicts resolution.

In 1996, the Uruguay Round of the GATT began in Punta del Este, with a record number of participating countries and with an agenda that aimed at the creation of a new organization and the inclusion of the most controversial topic of world trade, that of agricultural trade, that had been eliminated from the discussions in the 1950s. The countries agreed that the agricultural agenda would include trade and subsidies applied to agricultural products.

Based on the discussions for the improvement of the GATT in 1990 the firm idea of creating a new organization that would reinforce some mechanisms that had been of little use -like the voluntary adherence of members to the approved standards- arises. In the future, these would be binding and would create a formal and efficient system for the resolution of disputes.

The agreements reached during the Uruguay Round of the GATT apply since January 1, 1995 at the same time the first year of the WTO's life begins, as it was described in the Marrakesh Act.

b) Creation of the World Trade Organization (WTO): its foundations and methods.

The WTO inherits the most important elements of the Havana Charter and the GATT. It is important to mention that the most significant are: the concept of the "Most Favored Nation", "National Treatment", reduction of tariffs for each product, free transit of merchandise, etc.

The Agricultural Agreement aims to improve the trade of its products so that the policies that influence it are oriented to the efficient functioning of these markets. Article 4° prohibits the use of: "quantitative restrictions on imports, variable import rates, minimum import prices, arbitrary procedures for the issuance of import licenses, voluntary agreements to restrict exports and non-tariff measures applied through government companies. "

Its rules and commitments are applied to the "Access to Markets" topic so that restrictions faced by importers are replaced by tariffs and these are driven down. "Domestic Support" or agricultural subsidies and other programs are cataloged according to colors: green, blue and amber -as in a traffic light- seeking to eliminate those that harm global trade. Export subsidies are considered very harmful for global agricultural trade and for this reason it was tried for years to agree on their complete elimination. This agreement was finally achieved at the Nairobi Ministerial meeting in Kenya in 2014, as part of the negotiation of the Doha Round.

The structure of the WTO is led by a General Director who chairs the General Council. From this depend a set of Councils, the Council of Commerce of Goods is the one that deals with the main

issues of agricultural trade. Within it there are committees such as: Access to Markets, SPS (Sanitary and Phytosanitary Measures), TBT (Technical Barriers to Trade), Subsidies and Countervailing Measures, Anti-Dumping Practices, Rules of Origin, Import Licenses, Safeguards, Trade Facilitation , etc. One of the most important elements of the structure is the Ministerial meetings that take place every two years in different parts of the world.

A key factor in WTO structure is the Dispute Settlement Body, which is based on the General Council itself and has an Appellate Body external to it. The General Council also functions as the Trade Policy Review Body. In other words, it functions as legislative and judicial power.

A very important aspect of WTO functioning is the existence of country coalitions, the Cairns Group was of great importance during the Uruguay Round and helped in reaching current agreements. At the last Ministerial meeting in Buenos Aires, Ambassador Guillermo Valles summarized the challenges in a document published by GPS in 2017. In this he recommends: *"1. recreate a positive narrative about the importance of international trade for growth and development. Trade is a necessary (though insufficient) condition for inclusive and sustainable development. 2. Regarding trade policy: we must stand firm and denounce protectionism as a tremendously risky setback. 3. Regarding the multilateral trading system: Preserve, at all costs, international institutions and the rule-based system. This system is still very new and fragile in the history of humanity, and its construction has cost too many sacrifices, as if to abandon it in the face of the onslaught of populism or anarchy."*

The tradition of the internal functioning of the GATT and then the WTO has maintained a firm course in improving trade in products and services with increasing volume, value and efficiency.

The Doha Round is launched in that city at the 2001 Ministerial Conference, from an agricultural point of view work begins with the aim of improving trade by deepening Market Access measures, the final elimination of export subsidies and the decrease of domestic support. This round has not yet concluded, however, some consider the Buenos Aires Ministerial Conference MC11 in 2017 as its terminal failure.

In relation to environmental goods, a proposal is included to free their trade, this subject is detailed in the document of Idigoras and Papendieck, published by GPS in August of 2017.³

In summary: the multilateral trading system and its institutions have carried out constant and sustained work since 1947, maintaining the focus on the fact that barriers to trade must be based on tariffs or objective elements.

III. The climate agenda and its impact on global trade

a) ECO 92, Rio de Janeiro World Climate Summit 1992

The global climate problem was only known by some scientists until 1992. In that year, the World Climate Summit (also known as ECO 92) was held in Rio de Janeiro. Presidents, ministers and other public and private authorities from all over the world meet and agree that the world has an

³ The link between agricultural trade, climate change and food security tariff elimination for environmentally agricultural goods.

environmental problem based on greenhouse gas (GHG) emissions caused by the consumption of fossil fuels.

The Intergovernmental Panel on Climate Change (IPCC) is set up with scientists from all over the world, and they go to work to quantify the emissions of anthropogenic greenhouse gases and their impact on climate and people.

Participants sign an extensive foundational document that includes some principles that link the climate agenda with trade: In principles 12 and 16 it is established that environmental issues should not be used as "*a veiled restriction on international trade*".

a) Introduction of the Precautionary Principle and its use as trade barrier

Besides, principle 15 includes, for the first time in an international agreement, the promotion of the use of the "Precautionary Principle" or "Principle of Precaution". This principle begins to appear in governmental norms and regulations with effect on trade in agricultural products since then.

Unfortunately, the precautionary principle is still one of the pillars of the fight against biotechnology, for moratoriums and media campaigns, among other topics. It is important to remember that, in Panel before the WTO the US (accompanied by Argentina and Canada) vs the EU for applying barriers to the trade of biotechnology products, the EU based its defense on this principle. In the final judgement it was defined that the EU in taking these measures violated the principles of the WTO, the Agricultural Agreement and the SPS.

In 2001, the European Commission published an excellent document to define precisely the Precautionary Principle. Explaining that it seeks to: "*find the right balance so that proportionate, non-discriminatory, transparent and coherent measures can be taken ...*". It also emphasizes that this principle should only be used when scientific data is insufficient and there are risks; that could be known if that data existed. The most important point that it establishes is that the application of the precautionary principle must be accompanied by the generation of new scientific information to eliminate as soon as possible the uncertainty due to its absence. The proper use of this principle mitigates the risks of irreversible damage and collaborates with science.

Unfortunately, this principle has been used so that certain productions or their products have no possibility of reaching local or international markets. We see that despite decades GATT and WTO negotiations and in the systematization of a global trading system based on objective and measurable data with great speed, a paragraph in the climate declaration opens a window of opportunities for the application of arbitrariness.

b) IPCC and National GHG Inventories: 1996 y 2006 Guidelines and the overestimation of agriculture's emissions

In 1996 the first Country GHG Inventory Guidelines are published by the Intergovernmental Panel on Climate Change or IPCC, these are known as the IPCC 1996 Guidelines. These guidelines explain in detail how each country can inventory each anthropogenic greenhouse gas from equations and emission factors that had been published in refereed journals.

This titanic task is carried out by scientists from all around the world so that each country can know their emissions in each activity, and also to quantify the challenge that must be done to avoid the climatic catastrophe originated by a temperature rise caused by greenhouse gas (GHGs) concentration increase.

Most countries take these guides and carry out their emissions inventory following their methodology. In the case of Argentina the first inventory was published in 1997, known as the First National Communication. The inventories of Argentina are carried out using this methodology until 2017. In other words, the first three national communications are made with the 1996 IPCC Methodology.

The concern in relation to climate change is spread around the world based on the data from these inventories, which show that for Argentina, the agricultural sector is the first or second emitter, superior to transport or power generation.

In a short period of time, the idea that food products should measure their carbon footprint is installed, initially using the 1996 IPCC Guidelines. This way, it is reported that soybean and beef are among the main emitters in Argentina and that these two activities must be decreased or be limited.

Outreach campaigns are accompanied in the destination countries by showing the impact on climate change of soybeans, their cultivation, their by-products or industrial products, particularly biodiesel. These actions add on the anti-biotechnology activism, anti-agriculture, etc. Something similar happens with the cattle ranching. These actions have a minimal reaction from the Argentine agricultural sector and its organizations. The exporters of grains, meats or by-products face the challenges without many elements in their defense and some initiatives are launched for their certification, in the general belief that the emissions calculated and reported with this methodology reflected the real emissions.

Since the publication of the first IPCC Guidelines, scientific verification of equations and emission factors is done by some countries, trying to verify their reliability in their own productive realities, particularly in agriculture, livestock and other activities related to land use. This allowed countries to choose how complex and precise they want their inventory to be. Countries can choose to be Tier 1 and make a simple inventory based on standard equations, move to Tier 2 for those who have their own emission factors for some activities, but using the equations and accounting proposed by the IPCC or choose Tier 3 for certain activities where IPCC Guidelines do not adequately reflect their reality. The data and equations used in Tier 2 and Tier 3 should come from scientific papers that have been published in peer-reviewed journals.⁴

The IPCC 2006 Guidelines are published that year and consist of 5 volumes of more than 10 chapters each, totaling several thousand pages. In Volume 4 Chapter 11 of this great publication a small note explains that *"the biological fixation of nitrogen has been removed as a source of N₂O because of the lack of evidence that there are significant emissions originated in the process of biological fixation"*.

⁴ Tier 1 has a lower level of detail, while Tier 3 is the most complex.

This minimal reference demonstrated that emissions for agriculture had been overestimated. For this reason, since 2010 a group of institutions begin requesting the Argentine government and other organizations to stop using the IPCC 1996 Guidelines. This was finally achieved in 2017, the first year in which Argentina publishes its inventory based on the IPCC 2006 Guidelines. Agricultural emissions had been overestimated by 100%, and soybean goes from being the main emitter of the national inventory, to a minimum level. In addition, the country goes from emitting 0.7% of the world total to 0.6%.

The Argentine Maize and Sorghum Value Chain Association (MAIZAR) obtains support from the Development Bank of Latin America (CAF) to carry out a first GHG emissions per hectare and per tonne assessment of several products of this value chain using the 1996, 2006 methodologies and the real measurements obtained by Argentine scientists published in refereed journals. From this work it emerges that the greenhouse gas emissions of the corn crop were overestimated by 143% when using the 1996 methodology with respect to 2006 and the average data of a great variety of crops. Real emissions of crops with best agricultural practices were even lower. These works have improved market access for products of the Argentine corn value chain like corn, starch, milling products and ethanol.

It is important to note that the research results of these Argentine researchers gathered in the National Network of Nitrous Oxide is helping understand when and how emissions occur in cultivated soils. Recognizing, in the first place, the fact that nitrous oxide emissions are not generated by the crop, but are losses that occur under certain conditions in the soil. In all cases Nitrous Oxide emissions involve the loss of the main nutrient of the crop, Nitrogen, which must be reincorporated into the system through fertilization and its corresponding cost.

Soil nitrogen dynamic knowledge is leading to a complete rethinking of agriculture. The first thesis is that soils feed on roots and therefore it is essential to have constant occupation. In other words, crop rotation (soy, wheat, barley, corn, sorghum, sunflower, etc.) should be complemented with service crops that limit nitrous oxide emissions and transfer this nitrogen to the next crop. Supplying organic matter in the form of roots to the soil, while controlling weeds and other adverse elements.

Based on this information, the Committee of Environmental Studies of CARI proposed the creation of the National System for the GHG Inventory. The existence of this System would allow inventories to be a continuous activity, to view GHG emissions as part of the production process, especially for agriculture, livestock, and forestry where these emissions could decrease or some ecosystems could be transformed into carbon sinks.

c) ILUC- International (Indirect) Land Use Change and the indirect effects theory.

In February 2008 an article published by Science Magazine (Searchinger et al, 2008) detailed how global models to the years 2050 and 2100 predicted that corn ethanol and soybean biodiesel produced in the United States had higher GHG emissions than the fossil fuels they substituted, because of the production increases it stimulated in other parts of the world.

This theory was initially called International Land Use Change. Today it is known as ILUC or Indirect Land Use Change, its name was changed few months after it was clear that the main objective of

this theory was to create a new mechanism for the application of arbitrary barriers to international trade in agricultural products based on long-term prediction models and alleged emissions that would be generated by changes in land use in developing countries.

The advance of the ILUC theory in the regulatory system of several markets is creating a new method by which trade barriers can be established based on models that predict the future for 50 or 100 years, not considering technological change or the validity of its premises. Predicting environmental damage in contradiction with the basic elements of the scientific method.

In short, we see how, after decades of methodical and scientifically based work to eliminate non-arbitrary barriers to international trade, hiding in the environmental agenda, a set of new theories emerge. With greater or lesser success, they eliminate trade predictability using theoretical instruments of great complexity and doubtful credibility.

The importance and seriousness of this topic is explained by Elverdin in the GPS publication of June 2018 as follows: *"public misinterpretation of this sector's emissions are generating considerable pressure for the establishment of a growing number of new environmental barriers to trade, that are not science based, but with great implications for global food security"*.

The most negative effect of the precautionary principle, the overestimation of GHG emissions and the ILUC theory is to make the majority of the world's citizens think that productive ecosystems and their products are part of the problem and not the solution to climate change. Since its dissemination has been so massive and with high repetition these prejudices or misconceptions turned into vulgar knowledge. Unjustly transforming cattle and some crops, such as soy, into climate public enemies.

IV. Cultivated and grazing ecosystems and biomes as part of the solution and not the problem

The reduction of emissions is one of the ways to solve the problem of climate change. It has been proposed that the solution is the elimination of cattle ranching or the reduction of the area under soybean cultivation.

In an excellent work published by GPS in 2015, Viglizzo and Ricard analyze the effectiveness of the decrease in cattle and agricultural production so that the emissions of these sectors in MERCOSUR countries decrease, after deforestation has been eliminated completely and technology does not generate more mitigation opportunities.⁵ Their conclusion is that a very high cost in global food and water security would be paid from the voluntary decrease in the supply of agricultural products from these countries.

In another document, the hypothesis that mitigation is mandatorily based on the decrease in production in these countries is presented, the authors state that: *"Based on the aforementioned concepts, the position of GPS in the face of climate change and agriculture can be summarized as follows: (1) the participation of agriculture within the economy of MERCOSUR countries could not*

⁵ Greenhouse gases mitigation in the rural sector of Argentina, Brasil, Paraguay and Uruguay and its potential impact on global food and water security. Available on <https://grupogpps.org/documentos/ABPU-GHG-July2015.pdf>

be reduced without severely affecting food security and global water security; (2) The non-voluntary reduction of agricultural production in the region would only produce a negligible reduction in GHG emissions on a global scale; (3) The non-voluntary extraction of ruminants from the production systems would probably cause irreversible damage to commercial food production in MERCOSUR countries and to small rural communities living on marginal lands that are not suitable for growing grain or breeding non-ruminant species; (4) In strategic terms, common sense indicates that the ABPU region should give priority to processes of adaptation to climate change rather than those of GHG mitigation. "

a) Proposal for the improvement of inventories of grazing lands.

Based on an important agriculture background and knowledge by Dr. Ernesto Viglizzo and from the contributions made to the GPS climate agenda, in his last published work he makes a critical evaluation regarding the importance of organic carbon in soils and shows a discrepancy with the data reported in the national inventories of the four countries of the Southern Cone.

In the conclusions of the work explains that, provisionally, three conclusions emerge:

"1) Carbon sequestration approach used in the study is based on applying a novel method to estimating root biomass in the biomes that make up the rural lands of MERCOSUR countries. It is offered as an alternative to the protocols recommended by the IPCC;

2) The results of applying this method suggest that rural lands in the four countries studied (Argentina, Brazil, Paraguay and Uruguay), with marked differences between them, would be neutralizing the sector's own emissions due to livestock ranching, land use change and the annual cultivation of cereals and oilseeds), and;

3) Within the four countries, Argentina would be the one with the highest carbon credit in favor of the rural sector and would have the capacity to subsidize the other sectors of the economy with this surplus. If these results were confirmed, based on the contribution of the rural sector in general, and the livestock sector in particular, Argentina could call itself a "Carbon neutral" country."

b) 4 per Mille Soils for Food Security and Climate

At COP 21 in Paris, the French Minister of Agriculture presented the soils of the world as the storage place (carbon sink) for the emissions of other sectors. Aspiring to increase the organic matter of the soils reason by 0.4% (4 per 1000) per year and thus offset the emissions of greenhouse gases from fossil fuels, among other.

Today this initiative is moving forward, some countries are promoting soil management practices to maximize carbon sequestration. An important research that included twenty countries concluded that, under the proper management practices, it is possible to achieve a 4 per thousand or more carbon sequestration. In soils with low levels of organic carbon up to 10 per thousand can be achieved during the first twenty years of application of best management practices. However, areas that have reached a balance could not continue to sequester carbon beyond a certain threshold.

One of the relevant contributions of these works is that it has been historically considered that carbon sequestration occurs only in the first 30 cm of soil. This proposal works in the first meter of depth, finding large volumes of carbon accumulated there.

Total carbon sequestration estimates achieved with this method, if it were applied in a generalized way in the world, are that farm soils could capture for a 20 year period 20-35% of anthropogenic emissions per year, in a way to allow low carbon technologies to be viable, maintaining anthropogenic emission levels within the ideal climate change margins.

Australia is one of the few countries in the world that has a regime to promote the storage of carbon in soils as part of the 4 per mille initiative. A 2011 law created a system known as "Carbon Farming Initiative - Sequestering Carbon in Soils in Grazing Systems" by which agricultural producers who increase carbon levels in their soils and apply for verification. These increases are certified and audited and then offered in public tenders. From 2014 to 2018, more than 30 million tons of CO₂ equivalent were sold off. The average value in these years is AU \$ 12 per tonne of CO₂ equivalent stored in the soil.⁶

In summary, we see in these last two proposals changes in the vision of the role of farming and ranching. Not as simple GHG emitters, but as main contributors to the solution to the serious problem of atmospheric GHG accumulation. Seeking for the best method or practices to account and increase soil carbon content.

Since soils have two or three times more carbon than the atmosphere, the precise knowledge of this stock and the application of best practices so that it continues to increase can be vital for global climate equilibrium. The use of best practices by farmers will improve income and quality of life in countries of all sizes and levels of development and will provide solutions to a variety of issues, including climate. The Australian Carbon Farming Initiative shows a course in the right direction.

V. Final Conclusions and future work for GPS

GPS has worked since its foundation in the relationship between global food security, protection of natural resources and predictable, transparent and rules based international trade. (GPS 2013, Elverdin 2018).

International trade has allowed the world to reach extraordinary levels of development. Largely thanks to the multilateral trading system that currently faces a serious crisis. In a recent document, eleven prominent personalities from Latin American countries recommend that the G20 leaders protect and improve the multilateral trading system and its main institutions.

These personalities affirm in their declaration that: *"Latin America can not remain on the sidelines of this crucial debate. It is time for our leadership to manifest. The role of Mercosur and the Pacific Alliance here is irreplaceable and has not been manifested so far. The next G20 meeting in Buenos Aires is an opportunity for the region to pronounce itself on this matter."*

⁶ Approximately US \$ 8.7 at the exchange rate in effect as of November 2018.

The final document of G20 Argentina 2018 mentions twice the importance of climate and the multilateral trading system.

We tried to show in this document how decades of science and methodological work applied to international trade negotiations and the construction of institutions and to the construction of institutions based on principles such as non-discrimination, transparency and resolution of disputes on agreed bases have faced attempts to generate new barriers to trade.

Unfortunately, the environmental agenda and its institutions (which play a central role in knowledge, protection and improvement of the environment and life quality) were used to create complex barriers to trade for agricultural goods limiting the potential of this sector to provide solutions to the problem of global climate change.

Fortunately, the scientific method and detailed analysis are creating new opportunities for the sector to demonstrate how in its many facets and complexities lie the solutions to current problems, seeking to move away from prejudices and short-term visions.

Today the central themes are food security, global trade and climate change, topics in which GPS has a leadership role from the region to the world.

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