WEBINAR 3

“Geopolitical and Socioeconomic Drivers”

- SISTEMATIZATION REPORT –

Turrialba, Costa Rica
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1. General Information

**Webinar Title:** Geopolitical and Socioeconomic Drivers.

**Date and Time:** September 11th, 2023, 2:00 UTC +2 (Rome Time)

**Moderator/Facilitator:** Mariel Merayo, LLM / Danilo Pezo, Ph.D.

**Coordination:** Felipe Peguero, Ph.D. / Ileana Avalos, Ph.D.

**Panelists/Speakers:**

*Welcome Address*
- Shirley Tarawali, Chair GASL (Global Agenda for Sustainable Livestock).
- Muhammad Ibrahim, Director General. CATIE.

*Introduction*
Henning Steinfeld, Consultant GASL.

**Panelists**
- David Anderson, Professor and Livestock Economist at Texas A&M University
- Alejandro Acosta, Livestock Economist, FAO
- Francisco Abello y Yuri Calil, Professors, and extension economists at Texas A&M University.
- Carlos Pomareda; C.E.O. of SIDESA, consultant, and ex-director of IICA Policy Program.
- Jean-François Hocquette, Director Research, INRAE.
- Felipe Peguero; Specialist in Ag-Economics and Climate Finance, CATIE

**Number of Participants:** XX people connected.
2. Event Summary

The webinar was focused on Geopolitical and Socioeconomic Drivers shaping Livestock Systems. The speakers covered a range of drivers such as population growth, income expansion, urbanization, consumer perception, productivity factors, consumption patterns, trade policies, incentives such as climate finance, geopolitical tensions, armed conflicts, among others that affect supply and demand of livestock systems products.

3. Geopolitical and Socioeconomical Drivers

As follows we define the relevant drivers affecting demand and supply in livestock systems.

1) **Population.** It includes population growth, demographic composition, and migration.

2) **Per capita income growth.** It can be at the country level or at the individual level.

3) **Economic growth of large economies.** Refer to countries such as China with declining economic growth rates, which are big importers of livestock products.

4) **Consumer preferences for livestock products.** It includes taste, quality, nutrition, appearance, cultural values, organic/conventional, environmentally sustainable, etc.

5) **Availability of livestock products.** It refers to the amount, quality, variety, and type of product (organic, inorganic, sustainable with labels, among others).

6) **Price.** It implies the cost of livestock products at the consumer level or farm gate and how it changes given chocks in supply and demand.

7) **Productivity improvements** or total factor productivity refers to how much output is produced given a set amount of input.

8) **Trade.** It refers to trade policy, the volume of goods exchanged between countries, trade tension, among others.

9) **Market Incentives – Profit.** It refers to the level of profitability of farms given market conditions.

10) **Rules, regulations, and certification** regarding sustainability or environment.

11) **Production risk,** especially climate change risk. But also include market and technical risk.

12) **Macroeconomic policies** targeted to the livestock sector or broadly.

13) **Market efficiencies.** It refers to price transmission in the sector.

14) **Government Investment:** Government support through investment.
15) **Carbon markets**: Compliance and voluntary carbon markets availability and accessibility.

16) **Government policy – export**, for example, Argentina’s policy resolutions to control inflation on livestock products.

17) **Foreign Direct Investment** from developed nations to the livestock sector of developing countries.

18) **War Russia-Ukraine**. The effect of the war on inflation, supply and demand.

19) **Access to finance**. It refers to traditional and climate finance at the farm level or value chain.

20) **Consumer perception of meat production** produced traditionally or sustainably.

4. **How do drivers work?**

1) **Population**: Population growth has always pushed up demand for livestock products in absolute terms. Likewise, changes in demographic composition in some regions. For instance, by 2050, the population of Africa, Oceania, South America, and Asia is expected to increase by 79, 30, 14, and 13%, respectively. Population growth is even greater in urban areas, far away from production areas, meaning higher demand infrastructure, value chain logistics, roads, and cold chains.

2) **Per capita income growth**: The rising income worldwide has been a trend for many years, increasing per capita demand for livestock products. As income grows, the livestock products demand increases because people upgrade their diets. Evidence suggests the higher the per capita income, the higher the meat consumption. However, most countries with per capita income lower than US$10,000 eat less than the recommended 55 kg of meat per capita per year.

3) **Economic growth of large economies**: The largest economies are large importers of livestock products, as their economy decelerates demand is reduced.

4) **Consumer preferences**: Demand for livestock products changes as consumer preferences change, which in turn is affected by income growth, urbanization, cultural values, among others. A greater preference for sustainable livestock products may shift demand, but it might be constrained to wealthy countries since they are willing to pay more for products with "sustainability labels." Preferences for taste, nutritional attributes, quality, and sustainable products vary across people, countries, and regions.

5) **Availability**: On the demand side, more variety of products available induces more consumption. For instance, the availability of sustainable livestock products at competitive prices may increase demand over time.

6) **Price**: Prices of livestock products are a significant driver of demand. However, prices are the result of supply and demand factors. Over time, prices of livestock products have decreased in relative terms, pushing up the demand. Shocks in supply and demand can affect prices
significantly, consequently affecting food security or farm profitability. Although the livestock price elasticities of demand are mostly inelastic, the shock effect on prices varies across regions and products. The less inelastic livestock products are poultry, followed by pork, beef, and lamb.

7) **Productivity improvements**: Through time, farmers have achieved significant yield gains, although uneven across regions. This means reduced resource use per pound of meat/milk produced. These gains in productivity have come from adopting technologies and practices (technological change drivers) such as better nutrition, genetics, management, etc. Consequently, these gains in productivity could increase profit and motivate the expansion of livestock production systems.

8) **Trade**: Trade exchanges among countries have increased over time, which has led to economic growth, rising income, and lower meat prices in importing countries, thus boosting demand in importing countries and supply in exporting countries. However, small countries with inefficient livestock systems are facing pressure from current free trade agreements. The push for continued reduction in trade barriers has waned in some markets, translating into fewer free trade agreements, export bans, and retaliatory tariffs. Current trade tensions are threatening livestock and meat production growth, exacerbated by recent wars and civil wars.

9) **Market Incentives – Profit**: The profit opportunities in the livestock sector are driving the increase in the production of livestock products, which translates into more offspring and GHG emissions. In that search for profit, farmers expand production or improve their production systems to meet local or export opportunities.

10) **Rules, regulations, and certification regarding sustainability or environment**: As the sustainability agenda has moved forward, countries and food value chains are encouraged to establish regulations or certification schemes. These policy drivers may shift traditional production systems toward sustainability but also create differential costs, which could discourage farmers if they do not cope with incentives to keep or improve profitability.

11) **Production risk**: Climate change has increased the production risk, leading to higher costs to mitigate climate risk, and in some cases, the production risk has become so big that some regions are no longer profitable.

12) **Macroeconomic policies**: Macroeconomic policies affect livestock systems by affecting demand and supply.

13) **Market efficiencies**: Price transmission of shocks such as import are relevant for farmers and merchants of livestock products since they affect price expectation and, therefore, decision making. Consequently, supply is affected.

14) **Government Investment**: Government support through investment in livestock systems impacts production efficiencies. These impacts are short or long-term, depending on the quality of the investment and the duration.

15) **Carbon markets**: Compliance and voluntary carbon markets are a way to incentivize farmers to reduce emissions and sink carbon. Mandatory and voluntary markets have different prices per
ton, changing across regions and industries. Prices need to increase to encourage emission reduction over time.

16) **Government policy – tax on export**: Some countries like Argentina impose policy resolutions to control inflation on livestock products (i.e., meat) by imposing tariffs on exports. Such policies aim at protecting consumers but significantly impact export, production, and evolution of production systems.

17) **Foreign Direct Investment**: The livestock sector in some developing countries (i.e., Brazil) has evolved due to foreign direct investments deployed in livestock farms, factories, and the value chain. These financial flows have been motivated by the export market. Such investments have also been allocated to the grain sector supplying animal feed.

18) **War Russia-Ukraine**: The effect of the war has translated into inflation in the livestock systems. Fertilizer prices increased significantly as a consequence of the war, affecting the production cost of grain to feed the animals.

19) **Access to finance**: The expansion of livestock and technological changes usually come from own funding, private or public loans, or government programs. Traditional finance funding livestock systems will continue fostering the business-as-usual scenario contributing to climate change. Climate finance could support the sector's transformation if made available to end-users.

20) **Consumer perception of meat production**: Consumers’ long-standing, well-perceived perception of livestock has shifted in the last two decades due to environmental concerns, increasing the triggers to substitute animal protein with cultured meat and vegetable protein. These perceptions change across regions, economic status, and people's age.

5. **Potential solutions**

Some recommendations for reducing the negative impact of some geopolitical and socio-economic drivers that emerged from the webinar are as follows:

1. Recognizing the differences between countries regarding drivers’ impacts and potential interventions for tackling the constraints. This implies countries and livestock systems taking advantage of the opportunities sprung from location, income growth, population growth, population structure, trade, and others. For example, how the increased demand for beef or milk has affected the expansion of pastureland at the expense of forest and how the Brazilian Forest Code and price incentives for free deforested beef helped reduce deforestation in the Amazon region.

2. Updating and communicating data on the price elasticity of demand for livestock products for different countries considering the potential effects of shocks in supply and demand in response to different drivers.
3. Understanding the most important criteria during livestock food purchase, i.e., sensory quality, price, safety, origen/traceability, ethics, nutrition, environment, appearance, label, energy intake, and production. Since they change across countries and populations, targeted intervention should be differentiated.

4. Understanding the gaps in productivity growth across countries and the factors affecting productivity could lead to better intervention programs across regions.

5. Training and supporting farmers to access mandatory and voluntary carbon markets to incentivize them to reduce emissions and enhance carbon sequestration in livestock farms; however, carbon prices need to increase to compensate for abatement costs. Small farmers could access such mechanisms as a group to reduce the transaction cost.

6. Projects to transform the livestock sector should consider the success of some foreign direct investment initiatives to supply the export market with deforestation-free livestock products and their tracking and monitoring mechanism employed (i.e., Brazil).

7. Efforts to forecast and share information on potential impacts of climate change, changes in market prices and conditions at local and global levels, as well as political decisions, are essential for all stakeholders to make proper decisions.

8. Projects to transform livestock systems should work with financial institutions to help them understand their carbon footprint per each US$ in loan. Furthermore, operationalizing climate finance should focus on establishing financial mechanisms and building capacity so the banks may internalize mitigation and adaptation metrics. Thus, traditional financing portfolios can be transformed toward more sustainable pathways.

9. Cultivated meat products may become a significant substitution source of animal protein. As production cost gets reduced and sensory parameters improve over time, it may become a major driver in the decline of animal protein demand. Thus, more research is required to understand its socioeconomic potential impact, especially in developing nations, and how to cope with it.

10. Projects should carry out case studies in those countries that have pledged for C-neutral livestock systems to generate data on the feasibility of those strategies at the national level, which eventually could serve as models to other countries.

11. Support farmers with more capacity building to implement sustainable practices and at the same time try to incentivize younger generations into the livestock systems. Also, we need to clean the negative image of the livestock sector because it also discourages farmers and new generations to continue in the sector.
6. The Role of the Multi-Stakeholder Approach

The solutions in response to the drivers affecting negatively or positively livestock systems should be tailored to the reality of each country and sector. Thus, this global discussion should continue at the country level where F.A.O. has offices. Then, in coordination with local authorities from the government, private sector, academia, the banking system, and N.G.O.s, the industry should enrich the global findings and customize solutions for the local reality.

7. Q&A

- **What is your view about the small livestock producers in the developing world?**
  - Over time, the number of farmers has decreased in developed countries (i.e., USA and Europe) and in middle-income countries in Asia (e.g., China, Thailand, Vietnam, Indonesia) and Latin America (i.e., Brazil, México). However, this is not the case for low-income countries where landless and small farmers are the majority. Also, the age of farmers has increased, and young people are not interested in farming. That situation makes us have a pessimistic view of the future in developing countries.
  - In the U.S.A. farmers are becoming even bigger, and a few numbers of young people are coming into farming.
  - Small farmers also have growth opportunities, but it is challenging because of economies of scale. We need to put policies in place so they can stay in business or thrive. It could be genetic improvement, cooperatives that help with marketing, and promoting those, not scale-neutral technologies. The big problem is that many current technologies are not scale-neutral, and how do we identify the appropriate one for small farmers?

- **How do you build domestic consumer demand?**
  - Let's think about pork, beef, and chicken. There is a lot of dynamic between these three and between cuts. However, the per capita consumption has not grown in the U.S.A. in the last decade; most of the growth has gone to export. For instance, genetic improvements have created leaner pork that dries too much and has poor flavor. Therefore, we could create a program to boost domestic demand by improving genetics and selecting for flavor and moisture.

- **How the war Russia-Ukrainia has affected the livestock sector in America.**
  - Ukraine is a big supplier of wheat and corn. Wheat is a grain for human consumption, and corn for animal feed. Overall, it created corn scarcity, raising the cost for livestock production. Since we participate in a world market, it has affected everybody. At the same time, the price signal makes U.S. farmers to respond by planting and exporting more corn. Consequently, corn prices are declining again, which reduces the livestock cost. Therefore, the effect of the U.S. livestock systems is more indirect through price signal and feed cost.

- **The last two decades have transitioned from traditional to more sustainable livestock systems. What is the most relevant driver of such changes, and what can we do to increase the transition?**
  - Profit is the main driver. For instance, if we decrease the age of first calving and the age of slaughter, then profit increases and emissions decrease.
Profitability for the long run. Farmers have become more conscious of keeping the farm profitable in the long run for the next generation. Thus, they take action to protect the soil and the land use.

Political frameworks in Brazil. For instance, each farmer needs to provide a G.P.S. reference to the government; that way, it can check if the farmer is deforesting. Also, the law says you should have at least 30% of the land intact.

Access to premium market: To access these premium markets, farmers need to be sustainable. In that case, being sustainable can bring profitability.

Decreasing margin in the livestock sector forces livestock farmers to become more efficient to stay in business. Consequently, some efficiency is linked to lower emissions per unit of product.

• Does cultivated meat generate emissions, which will be emission levels once cultivated meat substitutes a big portion of animal protein?
  o Some studies suggest that cultivated meat generates much less emissions than conventional meat, while others don’t find conclusive evidence after accounting for direct and indirect emissions. It needs more research.

• How do you maintain the cultivation of lab meat clean? How would people’s perceptions change if they knew meat came from a lab?
  o Companies argue that lab meat is clean; some recognize they use antibiotics. About 50 questions regarding food safety have not been answered yet, according to F.A.O. So, it is unclear if cultivated meat is clean.

• Carbon credit – can small farmers access it easily?
  o No, because of the carbon sink measurement difficulty for small farmers and the transaction cost.
  o Also, remuneration for carbon sunk or reduced is very small.
  o So, economy of scale matters here because these are long-time contracts and sometimes involve lawyers. For example, if you have 50-100 thousand hectares, the income may be small, but it may be enough to cover the transaction cost.

• Enforcement in Brazil for things such as deforestation:
  o It isn’t easy because Brazil is too big.
  o There is also a problem with traceability.
  o But at least there is a monitoring system to check if farmers are deforesting.
  o Also, there is a lot of effort to protect the forest and produce sustainably.

8. Conclusion and final reflections

Socioeconomic and geopolitical drivers can be organized into factors affecting supply and demand or both. Population growth increases demand, while changes in demographic composition change preferences. Likewise, migration to urban areas forces changes in logistics and infrastructure to meet demand. Per capita income growth directly increases demand since people upgrade their diets. As large economies like China reduce their economic growth, so do imports of livestock products from exporting countries. Consumer preferences tend to affect demand and willingness to pay for livestock products. Consumer preferences are expected to change over time and livestock
companies need to adapt to such changes. The availability of more variety of products, including sustainable products could induce an increase in consumption. Price is a major driver resulting from supply and demand, which is mostly inelastic for livestock products. Productivity improvements through time, driven by technological changes are a major driver of supply, led by the driver of excess profit, which consequently brings in more supply. Trade policies allow great economic progress. However, the push for continued reduction in trade barriers has waned in some markets, translating into fewer free trade agreements, export bans, and retaliatory tariffs. Rules, regulations, and certifications regarding sustainability or the environment may shift traditional production systems toward sustainability but also create differential costs, which could discourage farmers from adopting them. Production risk has been exacerbated by climate change, leading to higher costs to mitigate climate risk. Macroeconomic policies affect livestock systems by affecting demand and supply, while Market efficiencies through price transmission affect farmers' price expectations, consequently affecting supply. Government short-term investment (support) generates short efficacies that eventually decay; thus, countries should focus on the quality of the investment for the long term. Carbon markets are a way to incentivize mitigation in livestock farms, but carbon prices need to increase. Some government policies – such as a tax on export - not only affect export but production systems as well. Foreign Direct Investment have boosted export in some countries in South America, as well as some sustainable market mechanism, making farmers willing to commit to sustainability. The war Russia-Ukraine translated into inflation in livestock production systems due to early scarcity of corn and fertilizer, but prices are stabilizing. Finance will continue fostering the business-as-usual scenario contributing to climate change unless climate finance instruments become mainstream for livestock systems. Consumer perception of meat production has become negative due to environmental concerns, increasing the triggers to substitute animal protein with cultivated meat and vegetable protein. These perceptions change across regions, economic status, and people's age.

9. Attachments

You can access the attachments by accessing the following online folder: Attachment Folder – Webinar 3