



Food and Agriculture
Organization of the
United Nations

Transforming the Agrofood System in Medellín and the Aburrá Valley: Enhancing Efficiency and Equity for Sustainable Development



The city region agrofood system in Medellín and the Aburrá valley (SAMCR) is perceived as a «rural territory divided into isolated and poorly connected agricultural production units, with evident deficiencies in the food supply systems, particularly regarding the degree of integration between supply and demand.» This situation generates increased transportation costs, loss of quantity and quality of products, increased waste and energy inefficiency, which ultimately results in higher prices for consumers (high inflation), affecting their access to food, especially the most vulnerable.

In the current agrifood system the relationship between producers and consumers is limited (Food and Agriculture Organization of the United Nations [FAO] 2015-2017-2018), a condition that contributes to reduced economic benefits for producers, who receive around 10 percent of the total margin, unlike intermediaries and commercial actors who manage to receive around 30 to 50 percent of the value paid by the final consumer. Chains of intermediaries may comprise three to five actors, which contributes to deepening the conditions of inequity and vulnerability in the system as a whole.

The role played by the municipality of Medellín and the Valle de Aburrá in the central region of the agrifood system is fundamental, since they host commercial and sectorial interaction activities, thanks to the concentration of commercial and transformation processes and relationships throughout the territory. A proof of this condition is reflected in the proliferation of small non-associated transformation companies. In 2018, it was reported that there were 1 479 companies located in 87 percent of Valle de Aburrá,

of which 1 357 are considered microenterprises (FAO, 2018). This implies that, as in the primary agricultural production sector, the food transformation sector is also divided into small non-associated companies.

This dispersed system has generated dependency on the central markets of the Antioquia Department, especially the *Central Mayorista de Antioquia*, which contributes to the disconnection between the department's subregions. Food items travel from the regions to the central market and then return to them, having gone through packaging and labelling processes, consolidating economic inefficiencies that have contributed to the increase in intermediaries and cost of logistics that have negatively impacted the weakest nodes in the chain, such as family agriculture producers and the final consumer with less purchasing power.

The above demonstrates the sensitivity and vulnerability of the system, which, depending on its fragility, may be more susceptible to the effects of shocks and stresses at the national and local levels that limit the functioning and relationships between actors and initiatives in SAMCR.

Impacts, stress, and shocks

Since 2000, SAMCR has faced a series of shocks and stresses that have significantly impacted the country, especially in the Department of Antioquia and its central axis. Social, economic, and environmental conditions have negatively affected the microsystems in each department, as presented in Table 1. In addition, it is important to highlight how these impacts have occurred over time and how the prolonged impact of

Figure 1 Timeline of shocks and stresses in the Aburrá valley city-region

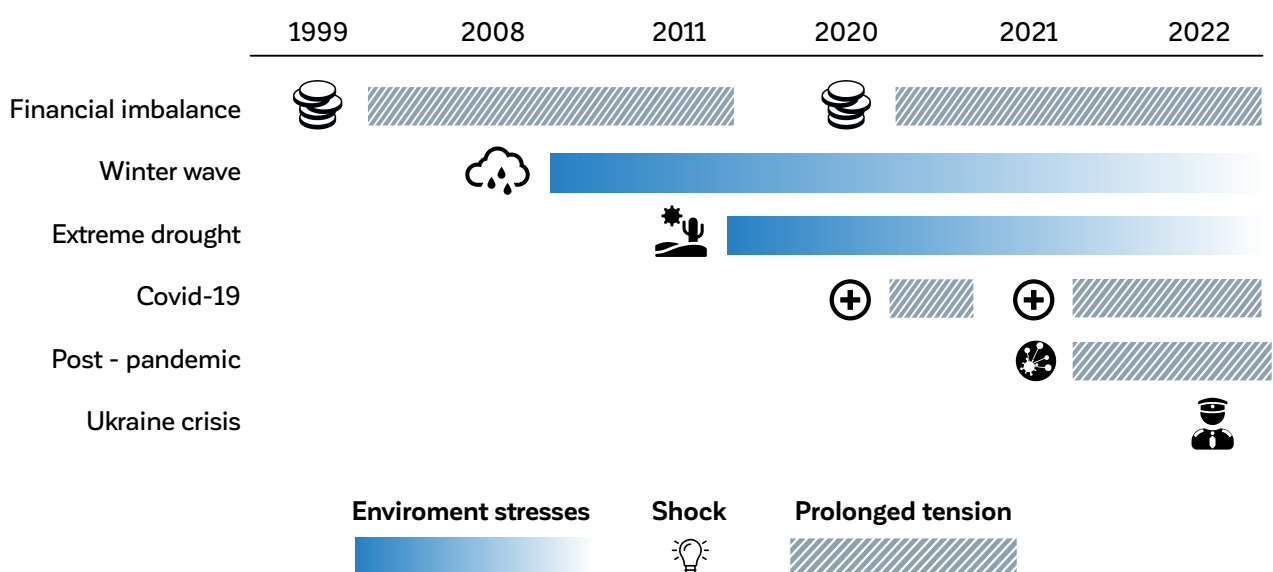


Table 3 The main impacts of shocks

	Shock	Impact	Actors affected
COVID - 19	Restriction on the mobility of people, goods, and services.	<ul style="list-style-type: none"> • Closure of various public establishments (restaurants, vegetable shops, and large retailers). • Loss of purchasing power due to massive layoffs (unemployment). Reduced salaries. • Limited availability of products because of distribution issues. • Increase in stocks of agricultural producers. • High cost of a few products and raw materials because of logistical constraints. 	<ul style="list-style-type: none"> • Vegetable producers from peri-urban areas and other municipalities. • Livestock farmers from rural areas in the Department of Antioquia. • Consumers from urban area who go to commercial sites to purchase their products. • Owners of neighbourhood stores, supermarkets, and restaurants. • Local government, Agriculture Secretariat of the Government of Antioquia, and Economic Development Secretariat of the Mayor's Office of Medellin. • National Government, Ministry of Agriculture, and the Roundtable for management of the Covid-19 crisis. • Local manufacturing and processing companies, both urban and peri-urban, in the city region (food processing factories).
	Sanitary restrictions	<ul style="list-style-type: none"> • Job losses related to restricted mobility. • Collapse of rural and urban health centres. • Fear of going to shops. • Generation of panic in the population. 	<ul style="list-style-type: none"> • Families. • Grocery stores, supermarkets, and markets. • Producers of vegetables and livestock in the rural area of the city region. • Local government, Department of Agriculture, and the Management of Food Security and Nutrition (MANA) programme. • National government, Ministry of Agriculture and Ministry of Health.
	Logistical blockades at the national and international level.	<ul style="list-style-type: none"> • Increase in product prices because of shortages or logistical constraints. • Limitations on access to strategic markets for small- and medium-sized producers. • Scarcity of products in some areas. • Shortage of agricultural inputs because of the container crisis and restrictions on international trade. 	<ul style="list-style-type: none"> • Vegetable and livestock producers from rural areas and other municipalities in the city region. • Urban consumers who had difficulty acquiring food and faced significantly increased prices. • Owners of restaurants, supermarkets, and grocery stores because of shortages and the high cost of agricultural products. • Local government, Department of Agriculture, and MANA Unit. • National government, Ministry of Agriculture. • Manufacturing companies in the food sector that had problems with their agricultural inputs. • Import and export companies of agricultural products and shortage of inputs such as corn or sorghum because of the global container crisis.
Social and financial crisis	Price speculation to consumers.	<ul style="list-style-type: none"> • Increase in the price of basic goods. • Weak purchasing power for acquiring goods and services. • Reduced household spending on basic consumer goods. 	<ul style="list-style-type: none"> • Urban consumers had difficulties acquiring food and experienced a significant increase in prices. • Vegetable and livestock producers from rural areas and other municipalities in relation to the city region. • Local government, Ministry of Agriculture. • National government, Ministry of Agriculture, and Ministry of Finance.
	Devaluation of the peso against the dollar.	<ul style="list-style-type: none"> • Low income for producers and sellers of basic consumer goods. • Rise in the price of inputs for agricultural production. 	<ul style="list-style-type: none"> • Companies that imported agricultural products and important inputs as a result of the devaluation of the COP against the USD. • Vegetable and livestock producers from rural areas and other municipalities in relation to the city region. • Urban consumers who saw prices of products increase because of devaluation of the COP. • Financial agents, such as banks and financial cooperatives, who suffered defaults and, in some cases, increased interest rates because of devaluation.
	High inflation affecting consumption.	<ul style="list-style-type: none"> • Higher consumer prices for imported goods. • Higher consumer prices. • Increased distribution costs for various products that directly affect producers and consumers. 	<ul style="list-style-type: none"> • Urban consumers who saw prices increase because of the devaluation of the COP. • Food distribution companies that experienced an increase in fuel prices resulting from devaluation of the COP against the USD. • Food selling sites because of the increase in product prices. • Vegetable and livestock producers from rural areas and other municipalities in relation to the city region.

	Shock	Impact	Actors affected
Climate Change	Floods and intense rainfall	<ul style="list-style-type: none"> Water scarcity limited production. Animal deaths (cattle, pork, and poultry). Increased prices for consumers resulting from product scarcity. 	<ul style="list-style-type: none"> Vegetable and livestock producers from rural areas and other municipalities in relation to the city region, because of crop losses. Urban consumers who experienced price hikes and scarcity because of crop losses. National government, Ministry of Agriculture and the Ministry of Environment.
	Prolonged droughts throughout the national territory	<ul style="list-style-type: none"> Water scarcity limited production. Animal deaths (cattle, pork, and poultry). Increased prices for consumers resulting from product scarcity. 	<ul style="list-style-type: none"> Vegetable and livestock producers from rural areas and other municipalities in relation to the city region, because of crop losses. Urban consumers who experienced price hikes and scarcity because of crop losses. National government, Ministry of Agriculture and Ministry of Environment.
War in Ukraine	Shortage of agricultural inputs	<ul style="list-style-type: none"> Crop losses. Increase in crop production. Increased prices for consumers because of scarce inputs. 	<ul style="list-style-type: none"> Rural producers from peri-urban areas of the city region because of lack of agricultural inputs and high production costs. Importing companies of agricultural inputs. Urban consumers who had experienced price hikes in the sale of products. Grocery stores, supermarkets, and marketplaces because of increased food prices.
	International political and economic stress	<ul style="list-style-type: none"> Increase in the value of a barrel of oil resulting from devaluation of the COP. Significant increase in the price of imported goods. 	<ul style="list-style-type: none"> Urban consumers because of increased imported products and inputs for food production. Local government, MANA programme, and Ministry of Agriculture. National government, Ministry of Agriculture.

these shocks has affected the agrifood system as a whole, placing pressure on the relationships between actors and reducing equity and efficiency. In summary, the combined effects of shocks and prolonged stress have negatively impacted the agrifood system in the Medellin city region.

The timeline illustrates how financial imbalance has been a constant shock for SAMCR, especially in the last two decades, generating continuous stress on the agrifood system. In particular, at the end of the 1990s and the beginning of the 2000s, the country experienced economic difficulties, with a fall in the gross domestic product (GDP) of more than 4 percent, which increased the consumer price index and generated economic tension in the following years. This constant fluctuation of inflation has become worse with the addition of events, such as the COVID-19 pandemic, which has forced SAMCR to transform.

The COVID-19 pandemic forced the Colombian Government to declare a national health emergency in 2020, borders were closed and mobility was restricted. The emergency was declared again by the national government in 2021 as a result of the second wave of infection, which generated significant logistical blockages both nationally and internationally. This emergency triggered shortages in some areas and price speculation on the price of basic household goods; jobs were lost, which reduced access to and

availability of food for SAMCR consumers. The pandemic caused problems with stock for peasant producers, as their products could not be transported to the commercialization centres. On the other hand, the problem of international logistics in that year considerably increased the price of agricultural inputs, thus increasing production costs for units that were unable to generate output.

Another defining time was the post-pandemic period, in 2021, when health measures were relaxed throughout the national territory. Although this was intended to recover some economic normality, the social crisis generated by the overlap of the financial crisis and COVID-19 never receded, as the lack of employment and the national administrative acts, such as tax reform, continued to stress the mobility of goods and increased the inflationary effect, which continued to condition dynamics in SAMCR.

Stress in production units has been recorded for some time, stemming from two particular shocks that occurred in 2008 and 2011, which were related to climate change. In 2008, the worst winter occurred, where floods affected most crops in the national territory and extreme frosts worsened the poverty of peasant producers, caused price hikes for food, and increased the cost of imports due to production losses. In 2011, there was an extreme drought, which affected all links in the agrifood chain, as there were

forest fires and a water sources were reduced, causing total crop losses and death of animals that had been the country's food supply. The stress generated on SAMCR has persisted over time, although both waves were temporary, today the effects are still felt as there is still production is limited caused by climate instability, which has reduced farmers' capacity to supply demands from the system.

Finally, in the global and current context, the war in Ukraine has been an unprecedented shock, which has increased the price of agricultural inputs and caused strong devaluation of the Colombian peso (COP) against the United States dollar (USD). Once again, this financial imbalance, has increased prices for consumers, and limited the flow of capital in SAMCR, further highlighting the region's fragility and inequity.

Collective initiatives and public policies

Many actions materialized, as recognized by actors involved in the system, which have generated a transformation that has helped generate new actions based on the existing, so that the system has evolved to become more efficient, effective, adaptive and equitable. At the same time, there is a willingness on the part of the actors to understand their role and their importance within the system, the information derived from the system, and the value of the food approach, as a basis for relations within SAMCR, which has a dense urban population, but its value is mostly in the rural area. Actions in the territory have arisen from the leadership of local governments and from collective citizen initiatives:

- **Antioquia Food and Nutrition Improvement Programme (MANA) (Antioquia Government) «Food Packages».** It is important to note that the COVID-19 pandemic exposed existing inequalities in society and highlighted the importance of providing support and social protection systems for the most vulnerable. While the delivery of food and economic aid was a necessary measure to alleviate poverty during the health emergency, it is important to develop long-term policies and programmes that address the underlying causes of food insecurity and poverty. This could include measures to improve access to stable and well-paying jobs, education and training programmes to improve skills and job opportunities, and agricultural and food policies that promote the production of and access to healthy and nutritious food for the entire population. In addition, the implementation of universal social protection systems that guarantee a minimum level of income and access to basic services for all people, regardless of their socioeconomic status, could be explored.
- **Delivery of agricultural inputs and infrastructure to producers.** It is very positive that local governments are implementing actions

to support the rural population and improve productive units in the city-region territory. The stress on productive units generated by the climate crisis and the pandemic has increased the need for support to maintain production and guarantee food security in the region. The SABA project, led by the Antioquia Government, is an excellent initiative to improve the marketing capabilities of peasant producers, marketers, and transformers in the region. The project promotes direct commercial relations and short marketing circuits that can positively impact both the local economy and the rural populations' quality of life. It is important to continue working on collaborative and efficient projects that can promote sustainable development and improve the quality of life in rural areas, promote the production and consumption of local products and encourage access to new markets.

- **Subsidies for essential exports and imports.** It is interesting to observe how the crisis generated by COVID-19 affected not only public health but also the global economy, including the dynamics of agriculture and the supply chain of agricultural inputs. The scarcity and increase of the price of agricultural inputs, as a result of the crisis in international logistics generated by COVID-19, significantly affected peasant producers and the economy in the city-region. It is important to note that the national and local government took measures to mitigate these negative effects and support producers, by assuming international logistics and export costs, and activating aid for imports. Thus optimizing the purchase of inputs from closer countries and those with a surplus,. This contributed to keeping productive units active and improving the capacity of producers in the market, which maintained the dynamics of the food chain in the city-region. It is important to note that government subsidies and aid can positively impact agricultural producers, by alleviating some of the costs of production, but are not always a sustainable long-term solution. Furthermore, it is important to consider how subsidies affect competition and local production and whether they really benefit small producers and not just large agro-industrial conglomerates. It is understandable that the crisis in Ukraine and Russia has impacted access to agricultural inputs, and the government is taking measures to address the situation. However, it is important to monitor how these measures affect the agrifood system as a whole and, whether a fair and equitable environment is being created for all actors involved, including small-scale producers. In addition, inflation is a factor that can complicate the effectiveness of these measures, and it is important to consider how these long-term challenges can be addressed.
- **Community actions associated with existing municipal policies.** It is interesting to see how

communities that have been affected by food stock shortages have organized to find solutions and how local government initiatives, such as the «Farmers' Markets» programme, helped consolidate these solutions. By promoting the transport and recognition of food production from rural areas to the end consumer, local consumption was encouraged and the value of locally produced goods was emphasized. This, in turn, strengthened relationships between citizens and urban businesses, and consolidated direct purchases between supermarkets, restaurants and public food purchases. This demonstrates how collaboration and joint work can lead to innovative solutions in crisis situations.

- **Price monitoring.** The creation of this online digital tool by the Department of Agriculture of the Government of Antioquia was an important response to price speculation that occurred during the COVID-19 pandemic. Thanks to this platform, producers and consumers were informed of market prices and product availability in real-time, which helped regulate the marketing of fruits and vegetables in the marketplaces of the city-region during the most critical period of the pandemic. However, actors in the food supply system have reduced use of this tool, which shows there are still challenges to be faced in terms of promoting and using technologies that facilitate access to information and communication among different actors in the supply chain. It is important that authorities and sector organizations continue to work to improve the transparency and efficiency of food markets, especially in crisis situations such as the one experienced during the pandemic.
- **Direct purchases from farmer associations.** It is interesting to see how the COVID-19 crisis has accelerated the process of direct connection between producers and consumers in the Medellín city-region. Additionally, it is important to highlight that this process has been facilitated by public initiatives such as the *Mercados Campesinos* programme launched by Medellín City Hall and the public procurement strategy in the school feeding programme, which shows how local government can play a key role in strengthening local food systems. The direct connection between producers and consumers not only allows for more competitive prices for buyers, but can also generate greater economic benefit for producers by eliminating intermediaries and giving them greater control over prices and marketing of their products. It is encouraging to see that actors in the food supply system have embraced this type of commercial transaction relationship, indicating greater sustainability and autonomy in the agricultural sector. Improving the conditions of logistics for producers and strengthening this direct relationship between them and consumers will be key factors in ensuring the continuity and growth of this commercial transaction model.

- **Local consumption promotion strategies through marketing.** It is interesting to see how these public and private initiatives have been feeding back and mutually reinforcing each other to create a culture of buying and supporting local products and rural producers in the region. Social and environmental awareness, along with product quality, have become key factors for consumers, which has driven the growth of demand for locations that allow for direct relationships between producers and consumers. Moreover, this type of initiative has a positive impact on the local economy, by reducing dependence on intermediaries and improving prices and conditions for rural producers. In short, these actions can be a great example of how collaboration among different actors can generate social, economic, and environmental benefits for a region.

Recommendations and conclusions

Analysis of interviews and focus group discussions showed that opportunities for change have been identified for each of the actions examined in the study, with the aim of promoting long-term ownership by all actors involved in the system, whether directly or indirectly.

It is recommended that food aid and nutritional improvement programmes broaden their scope beyond the delivery of food packages to mitigate the risk of short-term food insecurity. In this regard it is suggested that training be provided on nutrition and that efforts be made not only to deliver food but also to create urban and rural gardens for the most vulnerable beneficiaries, so they can achieve self-sufficiency.

Similarly, cooking workshops are proposed to promote entrepreneurship in urban and peri-urban areas of the city-region so as to reduce dependence on food packages.

Regarding the delivery of inputs and agricultural infrastructure to producers, it is necessary to improve the quality of the productive units in SAMCR through education, use of technology, and creation of projects that add value for food producers. It is essential to listen and understand the needs of producers and their viewpoints so as to improve the focus of education, technology, and value generation efforts through local meetings in the municipalities of SAMCR and surrounding areas. Furthermore, flexible land and crop insurance and financing programmes are being contemplated so as to improve productive units significantly.

Greater participation of marketers in decision-making and the implementation of State commercial policies is proposed, greater investment in the development of local industry would reduce dependence on

imported inputs and products, and the valorization of community programmes such as *Mercados Campesinos* would promote greater connection between rural and urban areas. The implementation of a «Virtual Campesino Market» would go towards strengthening these relationships and diversify the supply of and demand for products. It is also suggested that state entities facilitate producers' access to the institutional market through demand adjustment measures. These proposals seek to improve the economic situation of marketers and agricultural producers in general, as well as promote the country's greater autonomy and economic sustainability.

In summary, several actions are proposed to improve the agrofood system in Medellín and the Aburrá Valley. First, it seeks to improve price monitoring through

education and the awareness of system actors, information standardization, and the inclusion of variables such as seasonality and trends in price and imported products. Second, the generation of public policies is proposed that promote direct commercial relationships with farmers as well as collaboration between rural communities. These public policies should be supported by a marketing strategy that promotes the value of local products and the creation of a local brand: *Marca Antioquia*. Finally, the implementation of social vegetable stores are proposed and the creation of locations where system actors can participate in and come to understand the value of their role within SAMCR. Together, these actions seek to improve the efficiency and equity of the agrofood system in the Medellín and the Aburrá Valley.