Chapter 1

Environmental realities and sustainable consumption

Julio Cesar Pascale Palhares
Rachel Bardy Prado
Gustavo Porpino Araújo

Introduction

In the history of mankind, economic activities have never withstood so much environmental, social, and economic pressure as in present days. This pressure has demanded changes in the structures of natural and human resources management, technology standards, business approaches, and social values in light of economic and environmental aspects. According to scientists, we are living in the Anthropocene era, in which humans become the most important geological power to influence the planet. Through economic activities, humans have moved more sediments than all the rivers in the world, the planet has warmed, the sea level has risen, the ozone layer has been degraded, and the oceans have been acidified (Monastersky, 2015). Birkmann (2000) points out that one must acknowledge that the economy is a subsystem of society, as society is a subsystem of the ecosystem. The subsystems cannot outgrow the general system without damaging it.

Environment and sustainable consumption

A reality to be considered is the one presented on the United Nations report *2017 Panorama of Food and Nutrition Security* (Panorama..., 2017). The publication shows that, after a constant decline for over a decade, hunger around the world is on the rise again, fueled by conflicts and climate changes. In 2016, hunger affected 815 million people, or 11% of the global population. Specifically in Latin American countries, there was a 2.8% reduction in the number of people facing hunger, and in Brazil there was a 2.0% reduction. The United Nations (UN) concludes that, in order to reach the Sustainable Development Goals (SDG), approaching the full complexity of food security is mandatory, which demands a holistic approach of all forms of malnutrition, one that takes into account the productivity and

revenues of the farmers, the resilience of production systems and the sustainable use of biodiversity (Panorama..., 2017).

According to the UN, by 2030, the world population will be of 8.6 billion, which represents a 1.3 billion people increase from 2017 to 2030. Given that population growth is mainly concentrated in developing countries such as India, Nigeria, Ethiopia, Indonesia and Pakistan, the challenge of ensuring global food security is even greater due to regions with higher birth rates not being self-sufficient in food production. Therefore, the demand for fibers, energy, food, and water should increase, mainly in countries that are still food importers.

These realities and prospects indicate likely scenarios of natural resources shortage in quantity and quality; human migrations due to environmental reasons and wars; shortage of skilled workforce to operate technological tools in use and those that will be developed, especially in developing countries; poverty reduction, but an increase in the social gap between the poor and the rich. The countries and/or their regions with greater rural poverty, malnutrition, and food insecurity are also often those with the highest levels of environmental degradation. This situation demands approaches and integrated management of production systems that simultaneously preserve ecosystem services and encourage greater investment in strategies to improve land use and water resources (Vries et al., 2002).

Impacts of these realities and scenarios on the agricultural sectors are stronger and possibly more intensive than on industrial and service sectors because they are more open and primary economy systems; therefore, they are more susceptible to climate change, quantitative and qualitative shortage of renewable and non-renewable natural resources, and social impacts of the growing urbanization of societies, which leads to lack and/or high cost of workforce. What makes agriculture unique as an economic activity is the fact that it can affect directly all of the assets on which it depends. These assets are: the nature, the social, the human, the physical and the financial capital. The lower the inventory of these assets is, the greater the environmental, social, and economic fragility of agricultural activities, and the lower the resilience of production systems will be.

Agrifood system sustainability is not limited to internalizing the concept in production systems; promoting and practicing sustainable consumption is also necessary.

Given this scenario, the most viable alternative to reconcile global demands and supply capacity for natural resources is sustainable consumption and production, which is summed up in Sustainable Development Goal 12 (SDG 12).

According to the United Nations Environment Programme (Programa das Nações Unidas para o Meio Ambiente, 2015, p. 21, our translation), sustainable consumption is defined as:

> [...] the use of goods and services that serve the basic needs, providing a better quality of life while minimizing the use of natural resources and toxic materials, waste production, and pollutant emission throughout the life cycle of the product or service, so as not to jeopardize the needs of future generations.

Sustainable production is defined as: "the incorporation, throughout the life cycle of goods and services, of the best alternatives possible to minimize environmental and social costs" (Programa das Nações Unidas para o Meio Ambiente, 2015, p. 21, our translation).

In 2012, during *Rio+20*, the program on sustainable consumption and production was approved. This is effective until 2022, and one of its aims is to promote fundamental changes in the way societies produce and consume so that global sustainable development can be achieved. To this end, all countries must foster sustainable consumption and production standards.

The United Nations Environment Programme (Programa das Nações Unidas para o Meio Ambiente, 2015) highlights that sustainable production and consumption are holistic approaches to minimize the negative environmental impacts of production and consumption systems and presents three main objectives:

- Disentangling environmental degradation and economic growth – doing more and better with less, thus increasing welfare gains from economic activities, reducing the use of natural resources and degradation and pollution throughout the life cycle of the product, i.e., a greater delivery of goods and services with less impact.
- Fostering the life-cycle approach – improving sustainable management and achieving resource use efficiency throughout the production and consumption phases of the product, including resource extraction, production of intermediate supplies, distribution, marketing, use, waste disposal and reuse of products and services.

- Creating opportunities adapted to the realities of developing countries – providing proper conditions for the creation of new markets and decent jobs and enabling technological leaps, bypassing inefficient, polluting and ultimately costly development phases followed by most developed countries in the past.

Final considerations

In developed countries, many government and private policies and actions are in force for sustainable consumption and production, with well-defined goals for reducing waste production, recycling and reusing them, enhancing the production and consumption of organic and sustainable food, among others. However, in developing countries, the challenges are enormous because of the population's low levels of education and awareness, overexploitation and waste of natural resources at different levels of production chains, insufficient investments in policies, programs and research, corruption and disconnected public policies whose implementation and inspection are seriously difficult.

Brazil has the Action Plan for Sustainable Production and Consumption (Brasil, 2011). This plan proposes actions for the government, the productive sector, and the society that lead the country to more sustainable production and consumption standards. The objective of the plan is to promote policies, programs, and actions for sustainable production and consumption in the country, aimed at improving solutions to social and environmental problems, in accordance with national policies for poverty eradication and sustainable development, along with international commitments made by Brazil. Promoting sustainable agriculture and livestock is among its 15 priorities. For the 2016-2020 implementation cycle, the following stand out: sustainable consumption, sustainable agriculture, sustainable public procurement, solid waste management and sustainability reporting.

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