10 Food security from a food regimes perspective

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Introduction

The most widely accepted definition of food security is the one given by the Food and Agriculture Organisation (FAO) at the World Food Summit in 1996. According to this definition, food security exists 'when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (FAO 1996).

The recent publication *The State of Food Security and Nutrition in the World 2019. Safeguarding against Economic Slowdowns and Downturns* demonstrates that the goal of worldwide food security is far from achieved. In 2018, more than 820 million people in the world suffered from chronic undernutrition. This represents 11% of the world's population (FAO, IFAD, UNICEF, WFP, and WHO 2019).

Concerns about food security are increasing in many geographical areas. This chapter analyses food insecurity in the Arctic from the perspective of food regimes. Food regime analysis has a long tradition in agri-food studies; however, little literature addresses the issue of food security from the food regimes perspective (some exceptions are McMichael 2009b; Holt-Gimenez and Shattuck 2011; Cloke 2013; Otero, Pechlaner, and Gürcan 2013; Sage 2013; and Saab 2018). In addition, few case studies have shown the repercussions of each agri-food regime on the food security of a specific country or geographical area (Woertz and Keulertz 2015 examined the Middle East and North Africa; Soldevila, Rosell, and Viladomiu 2015 considered Mauritania).

This chapter is structured as follows. First, the theoretical framework – the concept of a 'food regime' – is explained. Second, the First and Second Food Regimes are briefly described. The current food regime (the Third) is explained in more detail in Section 4. Finally, some considerations on the implementation of the Third Food Regime in the Arctic and its consequences for food security in the area are discussed.

Food regimes

The term 'food regime' was first used in the 1989 paper by Friedmann and McMichael 'Agriculture and the state system: the rise and fall of national

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agricultures, 1870 to present'. The food regime approach analyses the role of agriculture and food in different stages of the global capitalist economy (Friedmann and McMichael 1989; McMichael 2009a). Thus, it allows us to understand the inherent dynamics of the global agri-food system and to unravel the power relationships among participants in this system (farmers, states, consumers, transnational companies, etc.). It also enables us to consider the effects and consequences of these relationships.

A food regime is a dynamic concept. Contradictory relationships within a food regime generate a crisis that forces the transition to a new food regime (McMichael 2009a). The characteristics of the first two food regimes are well established and generally recognised (Friedmann and McMichael 1989; McMichael 2009a; Bernstein 2016; González-Esteban 2018; Krausmann and Langthaler 2019, among others). The First Food Regime began around 1870 and ended with World War I. The Second Food Regime was formed after World War II and, according to some authors, ended with the profitability crisis of the late 1960s and 1970s (McMichael 2009a; Pritchard 2009; González-Esteban 2018, among others). In fact, there is intense debate about the current food regime. Are we currently experiencing a crisis or contradiction of the Second Food Regime and the consequent transition towards a Third Food Regime? Or are we already immersed in the Third Food Regime? (see Friedmann 2009; McMichael 2009a; and Bernstein 2016 for a review of the main arguments of this debate). However, food regime transitions are not globally homogeneous; there are significant differences in the consolidation and evolution of food regimes in different countries and regions.

A food regime approach holds much potential for the analysis of food security. A food regime analysis locates food in the development of global capitalism and connects agrarian production with food consumption (Sage 2013). This integrated vision allows us to understand the economic structures and political processes that lead to hunger, malnutrition, and/or inadequate food consumption (Sage 2013). Cloke advocates for a food systems analysis of food regimes in order to understand the paradoxes of hunger and food overproduction, of the food insecurity of food producers (small farmers and peasants), of obesity and undernourishment, and of undernourishment and food waste (2013). Cloke also points out that it is impossible to implement effective food security policies without considering the systems of power and control in global food systems (2013).

The First and Second Food Regimes

This section briefly describes the main characteristics of the First and Second Food Regimes. This chapter will argue that the Third Food Regime, which will be described in the next section, is dominant in most parts of the world today. The chapter will also focus on the characteristics of each food regime in Global North (which could be quite different to their manifestations in the Global South) because the Arctic is integral to the capitalist systems of Northern countries.

The First Food Regime

Until the end of the nineteenth century, there was no global food regime. Although international trade of luxury goods such as spices and sugar had taken place for centuries, high transportation costs and difficulties in preserving food made international trade in food staples and agricultural products unprofitable. The Industrial Revolution (which brought new, faster methods of transportation) and the formation of the colonial empires changed this situation, facilitating colonial trade and the configuration of an agri-food system that connected agriculture to the rest of the economic sectors worldwide.

According to Friedmann and McMichael, the first European imports of wheat and meat from their colonies (mainly the United States, Canada, and Australia) marked the beginning of the First Food Regime (1989).

One of the main ways agriculture contributes to capital accumulation in capitalist systems is by reducing wages. Industrial capitalists were interested in obtaining cheap food. In the middle of the nineteenth century, U.K. Corn Laws were abolished. This opened cereal imports and intensified the international trade of staple foods. Food imports made it possible to maintain low wages. Furthermore, domestic farmers could not compete with cheap imports, and many were forced to quit their farms and seek jobs as industrial workers.

The ongoing urbanisation process that accompanied industrialisation in Western Europe meant that large population groups could only obtain food by buying it with their wages, since they no longer produced their own food. This circumstance led to chronic malnutrition, especially in urban areas, which was partly alleviated by imports of food staples and through the migration of large numbers of poor workers to the new colonies (Vernon 2007).

However, a significant percentage of the European population continued to work in agriculture. At that time, farmers produced final goods. They sold their products in the market, and their inputs came from the farm itself. Most farms were diversified; their main objective was to feed the family and sell any surplus in local markets. Under this model, the household was the unit of food production and consumption.

The Second Food Regime

After the Second World War, decolonisation process began, and the United States emerged as a hegemonic power, albeit in opposition to the Soviet Union. International economic relations expanded, and a set of supranational organisations and agreements (United Nations, International Monetary Fund, General Agreement on Tariffs and Trade, World Bank, FAO, etc.) were created.

Previously, between 1914 and 1945, international trade (including food trade) collapsed because of protectionist policies. In the United States, the

Depression of the 1930s led to a dramatic fall in agricultural prices and the bankruptcy of many farmers. After that, major investments were made to promote cheap meat production using livestock housed in intensive specialised farms and fed with compound feed. The high productivity of the new livestock system and the interests of large American companies that produced feed grains extended the intensive livestock model to Europe (Viladomiu 1985).

Crop farm productivity also increased exponentially because of mechanisation and technological advances. Farms, while still family owned, increasingly began to specialise in one or a few crops. They no longer produced food for a family but for the market.

This converted farmers from producers of final goods into suppliers of intermediate goods for the large agribusinesses that were being established at that time. This shifted power relations in the agri-food system. Farmers became just one link (and often the weakest) in long agri-food chains that included large corporations producing agricultural inputs (e.g., feed, chemicals, seeds), farmers, food processors, and food retailers. Controlling inputs, finances, and marketing channels allowed the industrial links to control food production even without owning land.

In the Second Food Regime, agriculture contributed significantly to capital accumulation in manufacturing sectors. Increasing wages and low food prices allowed increased consumption of manufactured goods. Farms themselves became significant customers for the manufacturing (e.g., feed, fertilisers, machinery) and services sectors (financial services).

The agricultural policies implemented after World War II and the intensification of food production generated a huge increase in food production and food surpluses in some Global North countries. At the end of World War II, some European countries struggled with food self-sufficiency and even famine. The need to guarantee the food supply for increasingly urban societies encouraged nations to protect national agriculture through agrarian policies that, especially in the case of the Common Agricultural Policy,[1] included strong tariff barriers to agricultural products from third countries. The new food production model led to substantial increases in farm productivity in the Global North, causing an impressive rise in farm output while decreasing labour requirements in the agricultural sector.

The uncontrolled growth of agricultural production in the Global North completely changed the specialisation patterns of agricultural trade: Global North countries became net exporters of food by displacing local production in the Global South. The latter converted their production of staple foods adapted to local diets to the production of 'exotic' foods for upper-middle-class diets in the Global North or to fodder plants used for feed production. In urban areas in the Global South, it was easier to obtain imported food than locally produced food. This led to the 'Westernisation' of diets in urban and peri-urban areas in the Global South (see Soldevila, Rosell, and Viladomiu 2015 for the case of Mauritania).

The Third Food Regime

As mentioned above, there is debate on whether we now live under a new Third Food Regime. McMichael calls it the 'corporate food regime' (McMichael 2005, 2012); other authors call the 'neoliberal food regime' (Pechlaner and Otero 2010) or the 'imperial regime' (van der Ploeg 2010). In this new food regime, some of the dysfunctions of the Second Food Regime are greatly aggravated by the aegis of neoliberalism (e.g., the industrialisation of agriculture and the concentration of large agri-food firms) and the appearance of new features such as intrinsic instability and biofuels. The main characteristics of the Third Food Regime are described below.

Global market and the breakdown of domestic agri-food systems

Although domestic markets are still the main destination of food products, domestic prices align with prices and trends in the world market. According to van der Ploeg (2010, 101),

> The previous differentiation of interconnected, locally or regionally centred markets, that to a degree reflected the specificity of relative factor prices at the regional or local level, is being restructured into one global market, increasingly characterised by the same set of price levels and price ratios.

Thus, the world market has become 'the ordering principle for agricultural production and marketing' everywhere (van der Ploeg 2010, 99).

Agri-food production can be offshored and segmented internationally. A new feature of the Third Food Regime is the 'complete exchangeability of large agricultural systems' (van der Ploeg 2010, 101). One example is asparagus; its production moved first from some European countries to Peru and then from Peru to China (van der Ploeg 2010).

Moreover, global agri-food chains are becoming quite common worldwide. The different phases of food production are carried out in different countries and regions. Complex marketing channels connect production and processing regions (some of which are located in food insecure countries in the Global South due to the low salaries and low cost of land) to high-profit markets in the Global North.

The weakening of nation-states and the liberalisation of agri-food trade have led to the total breakdown of domestic agri-food systems. The role of national agri-food systems is no longer self-sufficiency; it is international competitiveness. Thus, domestic agri-food production and processing is adapted to the demands of global markets and not to the needs of domestic populations (e.g., exotic fruit is produced for export rather than produce staple food for local populations in some food-insecure areas of the Global South). The breakdown of national agri-food systems has led to food shortages in countries with significant agrarian potential.

With the mass production of food for a global market, food consumption patterns have become homogenised. Diets are unified, creating dietary reductionism and the disappearance of local food cultures. However, the world market is segmented by income level. Standardised foods are mass produced for the lower middle classes while luxury foods are produced worldwide for consumption by the upper middle classes of the Global North and the elites of the Global South.

Food empires: the hegemonic powers in the Third Food Regime

Due to the weakening of the nation-states, large transnational agri-food corporations become the hegemonic powers in the new regime, with the connivance of international organisations (especially the World Trade Organisation).

There has been a huge increase in the concentration and centralisation of all stages of the food value chain (input suppliers, farms, food processing, and food retail). A few large companies control the agricultural inputs, the processing sector, and food retailing. Van der Ploeg calls these large transnational companies 'food empires' (van der Ploeg 2010).

Among these large companies, retailers and input suppliers are increasing their power in the food chain. Large supermarkets impose price and production conditions on agri-food processing companies and farmers (e.g., Gereffi 1994; Burch and Lawrence 2005; Pelupessy and van Kempen 2005). When overproduction occurs, retailers can exert permanent downward pressure on the prices paid to farmers and agri-food processors. On the other side, their oligopolistic power allows them to exert upward pressure on food prices for consumers.

The prevailing farm technocratic model generates dependence on oligopolistic input suppliers. Chemical (e.g., fertilisers) and feed companies were crucial to the development of the intensive livestock and crop production that characterised the Second Food Regime. In the Third Food Regime, another agricultural input supplier is taking a powerful position in agri-food value chains: biotechnology companies (Holt-Gimenez and Shattuck 2011; Otero and Lapegna 2016). The power of these companies has been strongly reinforced by 'patents on life', which are safeguarded by the World Trade Organisation's *Agreement on Intellectual Property Rights Related to Trade*. According to Otero and Lapegna, genetically modified crops represent the 'sharpest technological expression of the neoliberal food regime' (Otero and Lapegna 2016, 671).

New roles for agriculture: biofuels and speculation

According to its profit-making logic, the current stage of capitalism has assigned two new roles to the agriculture sector. On the one hand, agriculture becomes an energy producer with the emergence of agri-fuels, meaning that

many cultivated lands destined for food production are used to cultivate biofuel plants instead. On the other hand, in an economy in which financial goals clearly dominate productive capital, food products become an object of speculation.

'Accumulation by dispossession' and the removal of all non-capitalist forms of food production

Harvey's phrase 'accumulation by dispossession' refers to the 'new' and 'old' forms of primitive accumulation practices implemented in the neoliberal capitalist era. These include the commodification and privatisation of land and, thus, the displacement of peasants, the privatisations of public assets, the use of the credit system, and the suppression of alternative forms of production and consumption. (Harvey 2007). It can be understood as the expansion of capitalism to any opportunity for profit and the removal of all forms of non-capitalist production and consumption.

In agrarian studies, this concept is often referring to land grabbling (Hall 2013) or as depeasantisation due to the modernisation of agriculture (Otero and Lapegna 2016). However, according to McMichael, in the Third Food Regime, price and credit relations are the key mechanism of accumulation by dispossession: Artificially low food prices displace peasant agriculture and the cultures of provision that now represent new opportunities for accumulation (McMichael 2005). In sum, one of the features of the Third Food Regime is the ruthless elimination of all forms of non-capitalist food production, including peasant agriculture, subsistence farming, and any forms of collective production.

Increasing farm intensification and farm bankruptcy

Nevertheless, 'capitalist' farms are also in danger in the Third Food Regime. The modernisation (or industrialisation) of agriculture has been unable to reverse the fall in farmers' income. The productivist model's proposed solution to this is to increase the scale of production through the intensive use of new technologies and inputs; that is, to increase productivity and reduce production costs. However, the subsequent price drops and the greater power of the other agents in the chain still condemn farmers to low profits. They try to compensate (again) by increasing production and their use of technology, and the cycle continues. This is what some authors have called the 'technological treadmill' (Cochrane 1979, cited in Renting, Marsden, and Banks 2003).

Thus, constant increases of scale are intrinsic to this model, and this has increased the dependency of farmers on capital markets (van der Ploeg 2010). However, even some highly intensive, specialised, large-scale farms find it difficult to survive. They require large investments, but they operate in a highly unstable system (see below). Bankruptcy is becoming usual for large, modern farms.

Instability and recurrent agrarian and food crises

Agri-food trade liberalisation and the overturning of agrarian policies have generated remarkable instability, which has been increased still more by food speculation. Even the FAO recognises than the international grain markets were more volatile in the 1990s than in the early 1970s and that agricultural liberalisation could be associated with increased volatility in production and prices (Clay 2003).

Recurrent food crises are clear proof of the huge contradictions in the Third Food Regime. According to van der Ploeg, these food and agrarian crises emerge because of the ongoing industrialisation of agriculture, the emergence of the agri-food global market, and the establishment of food empires (van der Ploeg 2010). These three processes are the foundation of the Third Food Regime; thus, instability and recurrent food crises are intrinsic to this regime.

Environmental and social impacts of the Third Food Regime

'Accumulation by dispossession' and recurrent agrarian crises are resulting in the displacement of farmers and peasants worldwide. This surplus labour faces increasing difficulties in finding employment in industrial sectors (as happened during the Second Food Regime in the Global North). The situation is especially dramatic in the Global South. Most of the time, mass emigration or illegal activities are the only ways to escape from poverty.

The adverse environmental impacts of intensive farming have been richly documented and include land degradation, water and soil pollution, and CO_2 emissions. In addition, biological diversity is decreasing worldwide. This is due in part to the growing use of biotechnology and in part to dietary homogenisation and dietary reductionism.

Alternatives to the Third Food Regime

In response to some of these dysfunctions, new forms of agrarian production are emerging that move away from the dominant model of the Third Regime or at least try to minimise its most negative impacts. Proposals range from the alternative paradigm of Food Sovereignty to far less sweeping measures such as corporate social responsibility or voluntary sustainability standards.

In the Global North, Alternative Food Networks (AFNs) have increased (e.g., Marsden, Banks and Bristow 2000; Renting, Marsden, and Banks 2003; Goodman and Goodman 2009; Maye and Kirwan 2010; Tregear 2011; Galli and Brunori 2013). Broadly defined, AFNs include all forms of production, distribution, and consumption of food other than the dominant productivist, industrialised model. They include organic producers, farmers who sell directly to consumers, handcrafted products, products with

denominations of origin or protected geographical indications, slow food, fair trade products, Community-Supported Agriculture, etc. These new and often shorter chains question some of the paradigms of the dominant model. They aim to increase farmers' incomes by means other than intensification, to re-establish links between producers and consumers (reconnection) and between products and the places they are grown (respatialisation) (Marsden, Banks, and Bristow 2000).

These AFNs coexist with the dominant model in the niche markets that have arisen in response to the excesses of and reactions to the productivist model. However, there is significant debate about whether AFNs can significantly alter or replace the Third Regime foundations.

Another approach is based on Food Sovereignty, something Holt-Gimenez calls 'radical' (Holt-Gimenez and Shattuck 2011). This term was coined by Via Campesina and is defined at the 2007 Forum for Food Sovereignty as 'the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods and their right to define their own food and agriculture systems' (Via Campesina, 2007).

Arctic food security from the perspective of food regimes

Food regimes in the Arctic

The Arctic is a highly diverse territory, containing varied landscapes, vibrant ecosystems, diverse people, heterogeneous Arctic cultures, and a land divided among eight countries with different historical and political backgrounds. It is therefore difficult to make generalisations about this region. However, this section roughly identifies some general characteristics of the three food regimes in the Arctic. It should be remembered that changes in food production and consumption have had very different impacts on the different regions of the Arctic.

During the First Food Regime, some regions of the Arctic were immersed in colonisation. As Kulchyski points out, colonialism processes in the Arctic occurred later than in other regions (although contacts and a trickle of immigrants from the South started many centuries before). Arctic colonisation did not involve a massive influx of agricultural settlers or frequent use of military violence. Colonialism in the Arctic has been characterised by the domination of the capitalist mode of production over hunter-gatherer models (Kulchyski 2017).

In the nineteenth century, the Arctic was involved in the world economy through whale hunting and fur trade. Some regions where agriculture was possible suffered from early colonisation. Although colonisation in the Arctic did not involve a massive influx of agricultural settlers, some new farmers settled in the southern regions more suitable for farming activities, resulting in the coexistence of two models of food production and consumption – Indigenous models and settler models. The Indigenous model was based on

subsistence food activities (hunting, fishing, gathering, and reindeer herding), and the new settler model was based on farming and large-scale fishing activities. As Nilsson points out, the exchanges between these food systems reinforced food security in the region (see Chapter 11 of this book).

This distinction between these two models of food production and consumption became more blurred as the Indigenous population gradually melded with incoming settlers. Some Indigenous People progressively abandoned nomadism and hunting as they became increasingly more involved in farming activities. Agricultural productions such as livestock and grains or potatoes complemented and/or replaced traditional activities. Frequently, these new farming activities (e.g., harvesting hay and fodder and taking care of livestock) fell primarily to women, while Indigenous men continued to engage in traditional activities (herding reindeer, fishing, hunting, etc.). This transition from hunter/gatherer/pastoral systems to ranching and farming started many centuries ago[2] and occurred very slowly, but this process was fostered during the First and Second Food Regimes.

However, few agricultural products can be produced in sufficient quantities for export in the Arctic. The region therefore retained some self-sufficiency and was partially protected from global food trade. It was not fully integrated into the food trade flows of the First Food Regime; this allowed Indigenous Peoples to preserve traditional methods of food production and consumption.

At the beginning of twentieth century, a new phase of colonialism began in the Arctic. This phase involved the exploitation of resources: minerals, oil, and gas (Kulchyski 2017). The militarisation of some Arctic regions increased during the post-war period. The Second Food Regime coincided with this new phase of consolidation of colonial control over the Arctic regions.

This process was paralleled by the goal to concentrate the region's population and economy (Hansen et al. 2013). Many new workers[3] involved in resource development mega-projects and industrialisation processes immigrated to all regions of the circumpolar Arctic, exposing previously isolated Indigenous communities to Western influences. New immigrants also largely ignoring Indigenous communities' land rights (Kulchyski 2017). There were also significant efforts to move the Indigenous population into settlements.[4] Rural areas were progressively abandoned. The gradual move into settlements represented a major transition towards an economy that mixed subsistence activities with market activities in which people used their wages to purchase food in stores (Organ et al. 2014).

Urbanisation and industrialisation also had a marked impact on the traditional activities of the Arctic population. As Anderson points out, in Siberia,[5] the effects of industrial development ranged from the ardent promotion of reindeer breeding over other Aboriginal economic sectors such as hunting and trapping to the complete marginalisation of Aboriginal economic activities in favour of foreign forms of agriculture and industry (Anderson 1991).

In Russia and Northern European countries, the promotion of reindeer breeding implied restructuring it 'into a form that may not match local imperatives' (Anderson 1991). This involved increasing reindeer meat production to feed the growing numbers of imported industrial workers and to support the new industrial economy. Reindeer meat was commodified: it began to be produced not for subsistence but for sale and export and lost its meaning as an economic unit. New technological advances (e.g., the adoption of the snowmobile in herding in the 1960s) completely altered reindeer herding methods (fewer person-hours were required; this favoured the concentration of big herding operations), supporting more market activities even in such a 'traditional' activity (see Harkoma in Chapter 2 of this book). Similarly, other traditional activities were completely commodified.

Governments promoted these changes. In line with the rules of the Second Food Regime, governments favoured national self-sufficiency and financially supported and protected domestic food production from international competition. From the 1950s to the 1970s, policies in Arctic regions encouraged traditional activities to align with modern agriculture and directed the commodification of local foods (Gombay 2005) with discourses of 'national interest' and 'regional development' (Anderson 1991). In some regions of Northern countries, large-scale reindeer herding ('extensive' reindeer herding) was promoted by national policies and supported by the use of snowmobiles and all-terrain vehicles in herding. The growth of the commercial market for reindeer products, public financial support, and high productivity increased the potential profits of reindeer herding, and both Indigenous People and settlers became increasingly involved in the reindeer industry.

Processing and selling local foods seemed to be one way of involving Indigenous People in market activities, but this transition was not easy and is not yet complete because such activities conflict with Indigenous social traditions and cultural beliefs. As Gombay points out, the traditional Inuit obligation to share local foods with others made it difficult to commodify these foods (Gombay 2005).

The most recent phase of economic capitalism (globalisation) augers even more intense exploitation of natural resources and deeper economic colonialism in the Arctic (Kulchyski 2017). The neoliberalist management of the Third Food Regime has led to decreases in state aid to farmers and the liberalisation of food trade. Farming and fishing are becoming marginal, and primary sector employment is below 10% in all Arctic regions (Hansen et al. 2013). Indigenous People are still more involved in food production than the general population, so they are also more affected by these changes.

The current Arctic food system is heterogeneous: fisheries and aquaculture are often large-scale and export-oriented while agriculture is quite marginal, although greenhouse vegetable production is increasing. Meat production tends to be large-scale as well, while some small and medium producers remain. Organic production is important in some regions

(e.g., potatoes in Greenland), and there is potential to increase this (Sustainable Development Working Group 2019).

However, food producers in Arctic face problems similar to those of farmers and fishermen worldwide: Small producers struggle to survive in a competitive market and may need to complement their incomes with other sources (e.g., tourism or handicrafts). On the other hand, large producers (large herding conglomerates or large fisheries) are trapped by increasing price and market instability. Farmers and fishermen frequently clash with governments over environmental and safety regulations, land management, or fishing quotas.

In addition to these changes in food production, the Second and Third Food Regimes fostered nutritional transition toward a Western diet. During these regimes, processed food imports increased significantly in the Arctic, and diets among populations living in Arctic regions changed accordingly. Most non-Indigenous people rely exclusively on imported foods, and Indigenous People are changing their dietary habits as well, including more southern foods in their diets (Rasmussen 1999). This poses a threat to traditional foods. According to Kuhnlein, only 10%–36% of adult dietary energy is derived from traditional food in the Canadian Arctic, and it is particularly worrying that younger people consistently consume significantly less traditional food than older residents (Kuhnlein et al. 2004). The nutritional transition has decreased diet quality and negatively impacted health and wellness (e.g., Bogdanova et al., Chapter 4; Bjerregaard, Chapter 5 of this book). However, traditional food is not only crucial for food security; it is also an essential part of Indigenous cultures (e.g., Nilsson et al. 2013, Harkoma, Chapter 2 of this book; Casi, Chapter 7; Nilsson, Chapter 11; Ouma, Chapter 15).

Food security in the Arctic in the context of the Third Food Regime

The contradictions of the Third Food Regime on food security are evident in the Arctic: The Arctic exports food to global markets while some Arctic regions experience food insecurity.

Colonialism is one of the main causes of food insecurity in the Arctic; it has affected Arctic food security in several ways. Nilsson mentions the significant impact of colonialism on Sami food systems; in the Sápmi, traditional food-related land uses are disadvantaged compared to other types of land use (i.e., large-scale agriculture or resource extraction) (Nilsson, Chapter 11 of this book). According to the Council of Canadian Academics, colonialism has stressed Inuit cultural and social structures, and this fallout has diminished their ability to retain food sovereignty (Council of Canadian Academics, cited in Organ et al. 2014).

According to Loring and Gerlach's literature review about food insecurity in the Arctic, four key factors contribute to food insecurity in the Arctic: over-connectedness to the global system, the impacts of contaminants

on subsistence foods, the impact of climate change on subsistence practices, and management and governance constraints (Loring and Gerlach 2015). Over-connectedness to the global system implies, first, dependence on expensive, fuel-consuming technologies (e.g., snowmobiles and motor boards) to perform traditional subsistence activities (i.e., reindeer herding and hunting). It also refers to the rising costs of store-bought foods (Loring and Gerlach 2015). Food safety risks are increasing due to the impacts of contaminants and pathogens on fish, marine mammals, caribou, reindeer, and edible plants and wild berries – that is, on the main subsistence foods of Indigenous People (Loring and Gerlach 2015; Minagawa, Chapter 3 of this book).

Climate change is affecting food security in the Arctic in different ways; traditional food storage cellars are affected by warming temperatures, and climate change poses various challenges to hunting, fishing, and gathering (Loring and Gerlach 2015). However, global warming could also open up new opportunities for food production in the Arctic, especially vegetable production (Sustainable Development Working Group 2019).

Loring and Gerlach also identify management and governance constraints (e.g., restrictive land tenure regimes) as a key factor in food insecurity in the Arctic. There is an 'apparent disconnect between statutory protection and agency attention, on the one hand, and continuing decline in food security and diet-related health outcomes, on the other' (Loring and Gerlach 2015, 382). Kondrashev et al. provide examples of inadequate regulations and laws that have undermined food security for people in the Russian Arctic (Kondrashev et al. 2016). But governance issues are not easy in the Arctic. Each one of the eight Arctic countries has its own development strategy for the area. Although there are some similarities, it is clear that their interests in the area are different (see Kondrashev et al. 2016). Loring and Gerlach advocate for greater involvement of the local population through participatory processes and for active support of the rights of local people to pursue food security on their own terms and eventually to obtain food sovereignty (Loring and Gerlach 2015).

These factors (over-connectedness, the impact of climate change, problems with the safety and quality of traditional foods, and governance) reinforce the dynamics of the Third Food Regime in the Arctic. Dependence on expensive, fuel-consuming technologies to engage in traditional activities, food safety risks affecting subsistence foods, and the impacts of climate change are undermining the ability of local populations to access food outside the market. This reinforces the trend of the Third Food Regime to eliminate all non-capitalist methods of food production, including self-provisioning. The market then becomes the only way to access food.

However, high dependence on store-bought food is a serious problem in isolated, remote areas such as some Arctic regions. Food may not be reliably available, and food supplies may be inconsistent. Therefore, as mentioned before, the Third Food Regime is intrinsically unstable.

In addition, some Indigenous communities suffer from economic and social marginalisation. Poor communities can face increasing problems of food access if their access to food is mediated by monopolistic/oligopolistic food markets; rising costs may make food unaffordable for some households. In addition, highly processed store-bought food introduces problems of food safety and nutritional issues. Therefore, the Third Food Regime is threatening all dimensions of food security (food availability, food access, food supply stability and food safety, and the nutritional content of food). This threat is even more severe in vulnerable areas such as the Arctic.

Access to traditional food and the preservation of subsistence practices are essential to food security in the Arctic (Hossain et al., Chapter 6 of this book). To reverse the current situation, traditional methods of food provision must be valorised. This book provides several examples of how traditional foods could be preserved and valorised (e.g., Montalvan, food preservation methods, Chapter 1; Harkoma, reindeer herding, Chapter 2). There are also some proposals to improve food security and move towards Food Sovereignty in the Arctic (see Herrmann et al. in Chapter 14 of this book for a description of community-led experiences in the Canadian Arctic). However, some threats to Arctic food security (e.g., climate change) are far beyond the scope of nation-state regulations; they require global commitment and would be difficult to avoid.

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Notes

1 The European Union Common Agricultural Policy (CAP) is an agricultural policy that applies to all EU members. Launched in 1962, it is managed and funded at the European level from the resources of the EU budget.
2 In the eighteenth century, some Arctic populations had already begun to keep goats and cows (e.g., the Forest Sami).
3 Today 1.13 million Indigenous People live in the Northern regions of the Arctic States. The percentage of Indigenous People in the population varies greatly across the Arctic: from 98% in Greenland to less than 7% in North Russia (Young and Bjerregaard 2019).
4 For example, the Inuit were encouraged to move into settlements during the 1960s through large-scale government housing construction projects (Boneesteel and Anderson, 2008).
5 Industrialisation and resource extraction were especially intense and aggressive in the Russian Arctic (mainly under Soviet development policies). At present, approximately two-thirds of industrial activity in the entire circumpolar Arctic region occurs in the Russian Arctic (Glomsrod and Aslaksen 2008).

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