

# Food Security in Iceland

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## I. Introduction

The worldwide food insecurity problem is a complex issue that has been aggravated in recent years by factors such as the surge in global food prices and the international financial crisis. Iceland is far from immune to these developments. Many of the problems facing the world today also hold true in Iceland. As a small import oriented island state, Iceland is especially susceptible to changes in supply and demand on the world market. Since the start of the financial uncertainty in 2008, Icelanders have had to face up to the reality that they can no longer rely on financial superiority to safeguard their food security. A combination of high global food prices and the devaluation of the Icelandic Króna weakened food security in the country and the affordability of diverse food. This development has opened the eyes of many to the importance of sustainability and self-sufficiency when it comes to food. People are beginning to see that there are many challenges to food security looming in the near future and that the secure supply of food in Iceland is not a foregone conclusion. The question is whether Iceland has what it takes to ward off these threats to the country's food security and if it is realistic for Iceland to be sustainable and self-sufficient in terms of food.

Being a small island state with rich fishing grounds, plenty of renewable energy sources, but at the same time possessing limited agricultural resources, Iceland is in an interesting situation regarding food production. Changing consumer patterns in recent years also add to the forces for change and development in food production. This paper examines the dialogue surrounding food security and tries to answer the questions that arise about Iceland's strengths and weaknesses. The paper also tries to map the threats that can potentially damage food security in the country and tries to suggest ways to alleviate these threats or to neutralize them. Attempt is also made to assess Iceland's plans – if there are any – concerning food security, safe supply, and production. Finally, the paper looks at the administration to attempt to judge its preparedness level and to draw conclusions and offering suggestions as to what Iceland can do to improve on various points and thus to make the country more food secure.

## II. Iceland's Situation

Food consumption in Iceland has changed considerably in the last fifty years: moving gradually towards greater diversity and reliance on imported foods, or food with imported base ingredients, while the role of domestically produced food has proportionally diminished (PHII, 2009; Statistics Iceland, 2009). This development is in large part due to Iceland's steadily relaxing import limitations over the last few decades, the greater purchasing power of individuals, and – not least – a change in lifestyle and dietary habits.

But despite this increased dependence on imported food, the food production industry is an important part of the Icelandic economy. In 2010 food and beverage production was 303.1 billion Króna or 45.5 percent of the total value of manufactured products sold in Iceland. In comparison, the fast growing basic metal manufacture industry counted for 37.1 percent. Unsurprisingly, the fishing industry is by far the largest sector, creating 71.2 percent of the total value produced by the food industry (Statistics Iceland, 2011a). These numbers reflect on monotonous yet highly important industry for the Icelandic economy.

In this context, it is interesting to attempt to calculate the proportion of domestically produced food. Of the 303.1 billion Króna produced, foods to the value of 215.5 billion Króna were exported to other countries (Statistics Iceland, 2011b). That leaves food and beverages valued at 87.6 billion Króna for the domestic market. In addition to this, imported foods and beverages totalled 47.4 billion Króna (Statistics Iceland, 2011c). Therefore, both imported and domestically produced foods and beverages were worth 135 billion Króna in 2010 (when exported foods are taken out of the equation). Using these figures it can be claimed that Icelanders produced 64.9 percent of their own food and beverages in 2010.

However, this is oversimplified economics. The fault with this outcome is that it does not disclose how large a part imports play in the domestic production. For example, Icelanders produced fresh bread to the value of 5.3 billion Króna and coffee worth 1.1 billion in 2010 (Statistics Iceland, 2011a). Yet wheat production for consumption is near non-existent in Iceland<sup>1</sup> and it is obvious that Icelandic coffee is not made from home-grown coffee beans. Ingredients for both – and many other Icelandic food products – have to be imported. In addition to this, Icelandic food industry is heavily dependent on imported material for fodder and energy.

Similarly, experts have long tried to estimate the share of domestically produced food in the diet of Icelanders. Even though the experts appear to be somewhat divided on the matter, and are using different methods to arrive at their conclusion, the common consensus seems to be that Icelanders produce roughly half of their food (see for example, Halldórsson, Snæbjörnsson et al, 2010; Þórisson, 2011; Jóhannsson, 2011). However, this is – as has been argued above – hard to determine because it is difficult to assess how large a share of imports are used to enable the domestic production. It is, however, safe to infer that Icelanders are heavily dependent on constant and guaranteed access to foreign goods when it comes to food and food production.

This reliance on imports means that if importation would stop for some reason both the supply of food and the domestic food production would be in jeopardy. Therefore it is important to have a fall-back position to prevent food shortages. This is the argument for creating stocks and reserves. The first entity one looks to when thinking about food supplies is the state. People feel that the state has a responsibility when it comes to this subject. However, the Icelandic state does not currently have any food stocks for such purposes and unlike in other Nordic countries, there is no tradition of state-run food reserves. Further, there is no present indication that Icelandic authorities have any plans for building up such reserves (Jóhannsson, 2011).

Individual households are not likely to be of any help either in this regard. In a questionnaire carried out in early 2011 a large proportion of the participants, or 78 percent, claimed to store only enough food at their homes to last for one week or less (Jóhannsson, 2011). The results show that when making contingency plans for food security the authorities should not count on lasting supplies of food in individual households.

The largest supplies of food are in the private food sector. But even there companies like to keep small inventories to keep the goods fresh and to minimise operational costs. Food stocks are therefore small and would only last for few weeks in case of an emergency<sup>2</sup>. With such limited food stocks there is a real possibility that general food shortage will occur if rationing does not start right away. For this reason, it is imperative that private companies in the food sector have some sort of contingency plan regarding stocks and reserves and rationing of food.

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<sup>1</sup> Icelandic grain farming consists nearly exclusively of the growing of barley used for fodder (Intellecta, 2009).

<sup>2</sup> In general dry foods last for few weeks (4-8) but fresh food lasts for considerably shorter time, in some cases only a week (Þórisson, 2011; Prime Minister's Office, 2006; Thomas, 2008).

In 2006 the Prime Minister's Office published a report where the economic effects, and possible food security solutions, were considered in case of a potential worldwide influenza pandemic. In connection with this work authorities explored the possibility of cooperation with private companies in working on an emergency plan that included, *inter alia*, plans for increased reserves of certain foods and the organisation of an emergency setup within the companies (Prime Minister's Office, 2006). The private companies were willing to participate on the project and discussed the matter extensively with the authorities but nothing came out of it in the end. According to information from within one of the participating companies the authorities became indecisive when it came to discussing the costs connected with increasing food stocks (Gunnarsson, 2011).

Despite this unfruitful conclusion, the idea of the state cooperating with large companies in this respect is an interesting one and has some merit. The companies already have inventories up and running, there is no danger of food going bad as it would constantly be moving in and out, and it would be a financially sound solution for the state since the cost of running a public emergency storage facility could be considerable.

However, there are not only concerns over the level of food stocks but also the reserves of grains and imported fodder and raw materials for fodder production. Experts in the field have claimed that the customary level of fodder in the country at any given time is only about 30 days. Moreover, the country's fodder storage sites can only hold supplies for approximately one and a half month (Sigurdórssón, 2008). From this it is clear that not only are supplies low, but the capacity to store large quantities is restricted. In this context, farmers have demanded that at least a three-month supply should be available at any given time; the experience of the financial crisis in autumn 2008 showed that stocks had been too modest for comfort (Búnaðarþing, 2008; Búnaðarþing, 2009).

### **III. The On-Going Food Security Dialogue**

Dialogue on food security has been at a minimum in Iceland in recent times. However, this has been rapidly changing in the last few years as four relatively recent events have encouraged discourse on the subject. First there is the publication of the Icelandic Risk Assessment Report (hereafter referred to as IRAR) in March 2009. The report itself is a significant and much-needed contribution to the food security dialogue as it is the first Icelandic government-sanctioned report that deals with the issue of food security on broad basis. The report offers a relatively extensive synopsis of the food security status in Iceland, the position of the country as an importer of food, and suggestions for improvements concerning stocks and reserves, strategies, contingency plans, and general preparedness, along with the suggestion of an overall review of food security status in Iceland (Ministry for Foreign Affairs, 2009).

Another event that contributed to the increase in dialogue on the subject was the financial crisis that hit Iceland in 2008. The collapse of the country's main banks in October that year led to sudden and unexpected currency shortage, and during a brief period that autumn, it looked as though all food importation would cease as companies could not pay foreign suppliers and credit facilities were cut ("Hagar fengu", 2008; Björnsson, 2008; Ómarsdóttir, 2008). This situation was a spark that ignited dialogue on the possibility of food insecurity in a country that had not had to deal with food shortages in recent memory.

The third major event that stirred awareness of the food security issue was the volcanic eruption in Eyjafjallajökull glacier in 2010. After the first days of the eruption it became clear that ash had caused lot of problems for farmers in the area, and some of them considered taking a break from farming, or quitting altogether ("Neyðist til að bregða búi", 2010; "Gerir

hlé á ræktun”, 2010). Given that the endangered area is one of the finest agricultural regions in the country, there was a flurry of discussion about the meaning of the eruption for the danger area, as well as for the food security of the nation.

The fourth, and probably the most contested event that has increased the dialogue on food security is Iceland’s application to join the European Union. Opinions are much divided on what will happen to food production if Iceland joins the EU. Interested parties in the sector such as the Farmers Association of Iceland (hereafter referred to as FAI) have voiced their concerns that the food security of the nation would be in peril if Iceland were to join (FAI, 2011). The Federation of Icelandic Fishing Vessel Owners (LIU) has also voiced its concerns on behalf of the fishing industry (LIU, n.d.). With or against ascension to the EU, the debate will encourage dialogue on the issue.

The leading driver in the dialogue on food security has been the FAI as most dialogue has either been prompted by the FAI or discussed at events under its auspices. It can be argued that the first considerable dialogue on food security begun in March 2008 at the FAI’s yearly *Búnaðarþing* convention. On the whole, the on-goings at the convention did perhaps not garner nationwide attention but it did stimulate discussion between and within the ranks of food producers and authorities. This dialogue continued at the *Búnaðarþing* convention in 2009, where food security was one of the key issues on the official agenda. Since then the issue has been kept alive by the FAI through the media and with its own publications<sup>3</sup>.

The FAI has been arguing at every opportunity that factors such as possible fodder shortages, higher prices of imports, and higher operational costs should be labelled as security threats, rather than just agricultural or economic issues, and should be taken more seriously. All of this shows that the FAI is clearly courting the government and hoping for its input to make some sort of sectoral compact guaranteeing food security. At the least, the FAI is hoping for recognition of the importance of the issue. By underlining the importance of food security and agriculture, the FAI is clearly trying to ‘securitise’ the issue and raise it to the next level of strategic governance<sup>4</sup>.

Yet, despite all the efforts devoted to it by the FAI it is safe to say that until very recently both Icelandic authorities and the public have shown little interest in the issue. The food security dialogue that started in earnest in 2008 has mostly been within the farming industry and among interested parties. Any attempt to raise the issue among the public has failed so far and serious dialogue on food security has not been great among politicians either. This is evident in the outcome of a questionnaire done on the subject in early 2011. Total 54 percent of the participants had never heard of food security, 88 percent admitted they had seldom, very seldom, or never thought about the concept, and only 55 percent could describe the meaning of the term in one sentence. In addition, 61 percent thought the nation food secure and 61 percent believed the nation could cope if the country would be closed off (Jóhannsson, 2011). These figures do not portray a picture of highly concerned populace.

The issue has not been prominent during parliamentary discussions either, although most political parties had food security, or at least the importance of agriculture, on their manifestos before the general elections in 2009. The only instance of the topic of food security being discussed in its own right in the parliament since the election was in March 2010. Even then, only four parliamentarians out of sixty-three deemed the issue important enough to enter the debate (Þingskjal 682, 2009-2010).

Still, one gets the sense that this is changing fast and that the EU application process is a wake-up call that has potential to invigorate the dialogue considerably. And as food security is

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<sup>3</sup> An example of the latter is a brochure published by the FAI in 2009 called *Landbúnaður skiptir máli* (Agriculture Matters). In it, the security role of agriculture is underlined and politicians are urged to put food security high on their agenda (Bjarnason, 2009).

<sup>4</sup> see further discussion on this in Jóhannsson, 2011

one of the issues that is quite frequently bandied about in the 'EU debate' the term could soon become familiar to most Icelanders: something that was clearly not the case in early 2011.

#### **IV. Threats to Food Security**

There are various types of risks and threats to food security in Iceland. Most of the threats reflect the reality that capabilities for diverse and balanced food production are very limited. As discussed before, Iceland is very dependent on imports, be it oil for fishing vessels, fertilisers for agriculture, or raw materials for food and fodder production. Consequently, the threats primarily addressed in this paper are threats that could possibly jeopardise crucial imports: oil shortages, worldwide pandemics, wars or conflicts, financial crisis, devaluation of the currency, and so forth.

One of the most potent threats to food security in Iceland are *natural disasters*. Volcanic eruptions, earthquakes, avalanches, violent storms, mudslides, floods from the sea, rivers and lakes, tidal waves, and glacier bursts are considered the largest threats posed by the Icelandic nature (CPD, 2005). Extreme cold can also be added to this list as it has frequently caused human, agricultural, and financial catastrophes in Iceland. Natural disasters have different consequences for food production: some, like extreme cold, volcanic eruptions and earthquakes, can have a far-reaching impact on large areas, but others, like mudslides and avalanches, will only have repercussions for small areas and will hardly threaten the overall food security of the nation. Of all these disasters, volcanic eruptions are probably the most threatening for food security. Volcanic ash, lava flows, glacier bursts and flash flooding, along with toxic fumes and other fatal compounds, are some of the diverse hazards that follow in the wake of volcanic activity. The recent Eyjafjallajökull eruption provides a perfect lesson in the dangers volcanic eruptions can pose for food security, even though the eruption was a small one on a geological scale and had limited long-term effect on food production.

A serious *energy shortage* would also have severe consequences for all functions of Icelandic society, including food security. Any internal energy threat such as a large-scale failure or malfunction of basic facilities in the electric power system would create big problems in food production and refrigeration. In addition, financial transactions and coordination of food distribution would be difficult as telecommunication equipment would not work (Prime Minister's Office, 2006). Natural disasters and harsh winter weather are considered the principal threats to the energy system. Long-term geographical changes and possible acts of terrorism or sabotage are also considered a threat. The situation is not helped by the inherent weak points of the electric system. As the country is thinly populated and the market is small, electric lines are few and very long. Safety surveillance is infrequent and only carried out in few areas, making it easy to sabotage transmission lines. Other outdoor equipment is also easy to access and could be vulnerable (Ministry for Foreign Affairs, 2009; CPD, 2005).

Likewise, shortages of external energy, most notably oil, would be very bad for food security. Without oil, it would not be possible to power fishing vessels, various machines in agriculture, or vehicles used in food distribution. Presently, import routes are clear and fast but damages to oil refineries in Northern Europe could cause upheaval in this trade connection and interfere with oil imports (CPD, 2005). Various other factors such as world market prices, global supplies, the status of the Króna, and credit facilities influence the access to oil.

As it is, the stock of oil and petroleum in Iceland is estimated to be thirty to forty-five days (National Energy Authority, 2011). This means that Iceland boasts of considerably smaller stocks than the ninety-day supply the EU countries and members of the International Energy

Agency (IEA) are obligated to store (CPD, 2005; National Energy Authority, 2011). Currently there are no obligations on the oil companies, or the state, to keep minimum stocks of oil and there is no contingency plan concerning application and rationing of fossil fuels in time of crisis. However, this could change soon as a draft of an Icelandic energy policy (the first of its kind) is proposing improvement in this field (National Energy Authority, 2011).

Any *failure in distribution* is a clear threat to food security. Nearly all domestic distribution in Iceland goes through the country's simple and vulnerable road system. Recent volcanic activities in Southern Iceland and ensuing road damages due to flooding are a reminder of how easily important road connections can be severed and how fast shortages are felt in villages in the countryside ("Brauðskortur orðinn", 2010). Although shortages have not been long or serious it shows that stores in the countryside do not have large stocks and food runs out fast if distribution channels close. In addition, long-term road closures can lead to higher food prices as food would be distributed through other – and longer – channels.

As Iceland imports a large part of its food and raw material for food production, any obstacle to regular and safe transportation into the country can be dangerous to food security as well. Air transport is the largest channel for food imports, mainly because food needs the flexibility and speed of delivery that air transport offers. Despite all its conveniences, air transport is sensitive to disruptions like strikes, weather, or natural disasters. A good example of the latter is the massive impact the ash from the Eyjafjallajökull eruption had on air traffic in Europe and how short time it took for shortages of certain goods to be felt in Europe ("Ash cloud", 2010; Hanlon, 2010). There is no question that any prolonged paralysis of air traffic could do damage to supply of certain imported food categories and ingredients for production.

On an island that is heavily dependent on imports *financial crises* and *increasing food prices on the international market* have considerable effect on food security. The recent financial difficulties underline this threat: at the same time as prices of imported food increased sharply because of international market trends<sup>5</sup>, purchasing power lessened due to the devaluation of the Króna. In addition, the international financial crisis closed down the credit market, which made import financing difficult. The collapse of the Icelandic banks in 2008 paralysed all banking contacts with financial establishments abroad for a while, resulting in a shortage of currency and disruption in trade. These events showed how hazardous a currency shortage combined with over-reliance on (expensive) imports could be for food security.

*Pollution* is another potential threat that can have wide-ranging effects on food security. Proliferation of heavy industry in Iceland, together with an anticipated increase in shipping and tourism (cruise ships) in the North Atlantic, will without doubt lead to increase in pollution in the coming years (Ministry for Foreign Affairs, 2009). Radioactive chemicals are also a possible danger, especially from the considerable traffic of nuclear submarines and carriers around the country, together with international flights and naval exercises (Pálsson and Holm, 2010). The consequences of any nuclear accident near the country would be catastrophic for the fishing grounds, and even the slightest suspicion of radioactive emission into the sea would have devastating economic effects for a nation that is known for its pure and clean fish. According to a report on the shock endurance of Icelandic society from the Civil Protection Department of the National Commissioner of the Icelandic Police (hereafter referred to as CPD), Iceland is ill equipped to handle pollution accidents and the shock endurance of society is insufficient if huge accidents were to happen. The report states that there is urgent need for (improved) contingency plans when it comes to treating toxic substances and pollution accidents (CPD, 2005).

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<sup>5</sup> According to the *FAO Food Price Index*, international food prices have risen 157 percent between the start of 2002 and January 2011 ("Food Price Indices", 2010).

The spread of a dangerous *animal disease* in livestock or fish could have devastating effect on food security as well. Luckily, the status of animal health in Iceland is very good compared other countries. This is mainly due to Iceland's geographic isolation combined with extremely strict and long-standing import controls on live animals and animal products (MAST, n.d.a). Despite these advantages, the danger is always present and animal diseases have affected Icelandic food production badly in the past, and could well do so in the future.

Furthermore, the Icelandic food sector has all the characteristics of typical *oligopoly* (a monopoly market): the market is small by default and there are few major wholesale purchasers sharing the market. As a result, these buyers can greatly influence price and other market factors. This undermines both healthy competition and food security. As all importation of food is in the hands of private companies, it is in the interest of food security to have as diverse an ownership pattern in the food sector as possible. Any kind of business failure, operating error, negligence or accident involving a predominant actor in retail, distribution, importation, or transportation could understandably cause problems for food security.

In an ever increasingly interdependent world, the threat of *pandemics* is real. Influenza pandemics are especially dangerous to food security as the age of the victims is usually lower than in regular epidemics, hitting young working people. This endangers productivity and distribution in the food sector, as well as in other sectors of society (Prime Minister's Office, 2006). Advances in medicine and the ability to come up with a vaccine relatively fast after an outbreak, as seen in the swine 'flu pandemic in 2009, diminishes the chances of a pandemic with a catastrophic death toll. Nevertheless, pandemics remain a threat to food security as well as the wellness of nations.

*Terrorism and sabotage* are likewise potential threats to food security, especially if they are targeted at food itself (deliberate contamination) or at infrastructure important for food production, distribution, or storage. Iceland's participation in NATO operations, high profile visits of Western leaders, or participation in a range of international conferences, could spark unwanted interest from dissidents or terrorists. Even so, the danger of terrorists' actions against certain targets or events in Iceland is considered low by police authorities (NCIP, 2010). But as the danger of terrorism is both global and permanent, the possibility is always there – and is practically made inviting in Iceland with the country's lack of the most basic security measures (Jóhannsson, 2011).

*External pressure* from other countries could also be a threat to food security. If conditions for food production in larger nations deteriorate for some reason, there is a possibility of these nations pressuring Icelandic food producers to sell their products to them for inflated prices, overbidding the domestic market. There is also the possibility of farmers entering into long-term contracts with foreign parties for Icelandic products, which could lead to a situation where the Icelandic public would get second-rate food, or in a worst-case scenario, nothing. This is a real threat as imports of meat are for instance highly restricted while farmers are able to export as they like. This creates imbalance when prices on the international market is high and meat stocks in Iceland are exported without imports to supplement the exported meat.

*Climate Change* is another factor that has potential to have massive impact on Icelandic food security. Whether it will have a good impact, a bad impact, or both, is complicated and far from clear. A Scientific Committee on Climate Change produced a comprehensive report on climate change and its influence on Iceland in 2008. Among the issues that the report draws attention to is the likely rise in sea level and its influence on low-lying agricultural areas, increase in rain and higher temperatures during winter, glacier retreat and increased flooding and its potential detrimental impact on farmlands, increase in tempests and its damaging influence on agriculture, especially on the wind sensitive grain farming. However, in general the Committee reports that climate change will reinforce agriculture in Iceland.

Harvests will increase, cultivation of herbs and plants that have barely prospered in the country will be more robust, and plants and herbs that have not been cultivated previously in Iceland will have a much greater chance of surviving. Animal husbandry should also benefit because of better fodder and a shorter period of artificial feeding as the livestock would stay longer outside (Björnsson, et al., 2008).

It is generally believed as well that climate change and increase in sea temperatures will have positive influence on productivity of the fishing grounds around Iceland. But there are also negative signs as changes in acidity of the ocean caused by increased carbon dioxide in the atmosphere could affect diatoms and other organisms in the ocean and decrease the productivity of the biosphere (Björnsson, et al., 2008; Ministry for Foreign Affairs, 2009). Other more obvious factors can also pose a threat to the biosphere of the ocean. A warmer climate will open waterways that were closed before. More frequent accidents that inevitably follow increase in shipping could have a deleterious influence on the fishing grounds.

Inevitably, *war and conflicts* have to be counted in this synopsis of threats to food security. The chance of an outbreak of open warfare that jeopardises food security in Iceland is probably not great. As things stand, Iceland's largest trading partners are in Europe, and with the ever-closer integration of that continent war is unlikely. A smaller skirmish or intrastate conflict is a more realistic scenario, but such conflicts would not have any measurable effect on food security unless they were to take place in key trading countries and even then it would in all probability be possible to change trading partners.

## **V. The Administration and Food Security**

There is no administrative contingency plan for food security in Iceland (Friðriksson, 2011). It is hard to give a single answer as to why this is. Some of the reason no doubt lies in complacency regarding food security, stemming from the fact that Icelanders have lived in a relatively food-secure environment for a long time. Another possible reason for the lack of a contingency plan could be the smallness of the Icelandic administration. Its small size, limited manpower, and lack of financial resources mean that projects have to be prioritised: and food security is not exactly a top priority among policy makers when there is no immediate visible threat to the food supply.

The third reason could be that Icelandic politicians and policy makers have simply not been accustomed to a proper security discourse and to the practice of making security policy. This is because for more than fifty years, it was the United States that assessed possible threats to Icelandic security and made appropriate arrangements for Icelanders. In an article on economic security, Silja Bára Ómarsdóttir (2009) claims for example that when the US forces finally withdrew in 2006, Icelandic policy makers did not seize the opportunity to re-shape their security policy from scratch, and to focus on softer security issues like the environment, society, and economy. Instead, the Icelandic authorities decided to focus on what they knew and had learned from the presence of the US navy: seeking to re-provide external security by measures such as airspace policing and other militaristic security functions. Therefore, little heed has been paid to softer security issues and many fields such as food and economic security have consequently been overlooked by Icelandic policy makers.

However, some work has been done in this field in relation to a contingency plan for a possible influenza pandemic that was adopted in 2008. The contingency plan touches on various factors that need addressing to secure proper function of society during an influenza pandemic – food production, supply, and distribution included (CPD, 2008). And even though the focus is mainly on antisepsis it gives a good indication on how a food security contingency plan could be constructed and where the dangers lie and what areas should be



improved. The plan is therefore a good starting point that offers useful insight into the workings of emergency planning. The experience gained by making such plan has been invaluable and could stand in good stead in the future and provide a good basis for other contingency plans, be it either a general food security plan or further specialised plans where food issues are incorporated.

Historically, protection of necessary supplies such as food and fuel has been put under the hat of civil defence and called *hagvarnir*, or ‘economic defence’. In a 1985 revision of the Civil Defence Law from 1962 an Economic Defence Council, or *Hagvarnarráð* (hereafter referred to as EDC), was established to advise and give support to the government in matters concerning economic defence (*Lög um almannavarnir* nr. 94/1962). The council had considerable authority by law to take security measures and enforce planning among public institutions. However, the council was never active and did not use its authority to have contingency plans drawn up. In fact, the council only ever convened once (“Birgðastaðan góð”, 1991).

In 2008 the civil defence structure was reviewed and the EDC was replaced by another much larger inter-departmental council with revamped functions and composed of individuals higher up in the administration. The new council, called Civil Defence and Security Affairs Council, or *Almannavarna- og öryggismálaráð* (hereafter referred to as CDSAC), is supposed – unlike its predecessor – to set policy on the whole range of civil defence and security affairs of the country<sup>6</sup> (*Lög um almannavarnir* nr. 82/2008). The question is whether the new council is going to be active in practice or if it is going to be as inactive as the EDC. The CDSAC was for instance not mobilised for action when the Icelandic financial system collapsed in the autumn of 2008 but did convene in June 2010 to review preparedness for the H1N1 influenza pandemic (NCIP, 2009). The council’s inactivity during the financial crisis does not need to be indicative of the council’s future inactivity but it might point to a certain state of mind among the Icelandic authorities that economic instability (and by extension food insecurity) should not automatically be treated as part of the civil defence system. All in all, only time will tell if the CDSAC will fulfil its full role as prescribed by law.

Overall the new Civil Defence Law from 2008 is very general and focuses essentially on preparing, organising, and implementing measures that have the purpose of hindering or limiting damage caused by natural disasters, human actions, pandemics, military action, or other similar reasons. The law thus offers no comprehensive plan to tackle food insecurity *per se*, but rather outlines responses to other dangers that can influence food security directly or indirectly. Additionally, the law offers scope to develop the subject further; it addresses the issue of cooperation with the private sector, defines a duty to construct contingency plans for various security requirements, and allows actions regarding supply control during crisis and so on (*Lög um almannavarnir* nr. 82/2008). This is a good basis to start with: but more needs to be done to tackle food insecurity in the round.

Within the administration the Ministry of Fisheries and Agriculture is the institution that is responsible for the proper functioning of the food sector. Despite this, there is no office within the ministry that has the role of directly handling food security even though several of them touch on various issues such as development, consumer and food safety, natural resources, or land supervision (Jóhannsson, 2011). In fact, there is no official policy or activity for food security as such within the Icelandic administration (Friðriksson, 2011). Similarly, several public institutions touch on food safety and food production but none of them has a direct mandate or overall responsibility for food security. Their approach to food security is partial and indirect and their role does not seem to be determined with food security in mind.

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<sup>6</sup> This does not however apply to so-called ‘hard’ security like airspace policing and military protection, which is covered in the 2008 Defence Law (and in the 1951 Defence Agreement). See: *Varnarmálalög* nr. 34/2008.

One of the positives within the administration in regard to food security are the ad hoc working groups and task forces that have been appointed with the aim of examining and finding ways to strengthen specific production sectors within agriculture. Such work is an important contribution to food security as it points out faults in the relevant production sector and proposes suggestions to remedy these imperfections. This development suggests that there is some movement within the administration in the direction of defining food production and potential risks to it.

Examples of such groups is a group to examine and propose ways to strengthen pig farming (Halldórsson, Steinbjörnsson et al, 2010), a group to strengthen poultry farming (Ministry for Fisheries and Agriculture, n.d.b), committee to revise laws on land use (Halldórsson, Snæbjörnsson et al, 2010), and a group to work on a plan for advancing grain farming (Ministry for Fisheries and Agriculture, n.d.a). These ad hoc groups and task forces show that even if there is no single process seeking wide-ranging solutions for food insecurity as a whole, there is some useful work going on to analyse the major food production sectors with special regard for food security and other Icelandic circumstances.

## **VI. Suggestions to Improve Food Security**

There are three main steps that Icelanders need to take to improve food security. First, it is necessary to build some sort of consensus on the way forward for the Icelandic food industry so that policy can be made in harmony with both food producers and consumers. There are several issues that need to be addressed in this context. One of them is the balance between imports and domestic production. Should Icelanders put more emphasis on domestic production and increase support and funding for the production industry or should they facilitate easier importation? Another issue concerns the subject of free market versus state intervention. Should the food industry live by the rules of the free market or should the state intervene and protect the industry where possible? How far a policy of protection and intervention can be pushed is dependent on financial resources and also on how well the interested parties fare in convincing politicians and the public about the importance of the domestic industry and food security. However, it is clear that currency rates and prices will continue to fluctuate and financial difficulties will come and go. Subsequently, it is crucial to mark a clear path for the future on more general principles; to design a policy that addresses food security in an explicit and comprehensive way and defines how large a part the state should and can play in strengthening domestic food production.

The second step that needs to be taken is to analyse the strengths and weaknesses of the food sector and potential threats to it. One of the most important factors in this is to evaluate food production, how it stands now and its potential for future growth. It is also necessary to evaluate and prioritise possible threats to food security. No attempt has been made in this paper to evaluate threats and risks according to the probability of their happening or the degree of potential - direct and consequential – damage they would cause. This is something that the authorities need to do. In addition to this, when mapping the status of the food sector and potential threats to it, it is necessary for the authorities to analyse the resilience and robustness or ‘shock absorption’ capacity of the nation when it comes to setbacks in food supply. This was done to an extent in 2005 in the CPD report on crisis resilience in Icelandic society. In the report there is a small chapter on food shortages but further research needs to be done (CPD, 2005).

The third step that Icelanders need to take to improve food security is to use the information gained by the analysis of the food sector to devise ways to prevent, limit, and

insure against future food shortages. Below are various suggestions, both for general measures and for dealing with the specific threats aforementioned in this paper.

First, there is a need to form both long-term and short-term responses to food insecurity. For example, the reaction to oil shortage ought to be both short-term (buy more, ration, requisition) and long-term (increase permanent storage capacity, develop alternative fuels). The two approaches must be kept separate, clearly defined and unambiguous as it is vital that contingency plans are made that help the nation survive both temporary problems and long-lasting food crises that could even persist for years.

When making contingency plans it is also important for Icelanders to compare their own preparedness with the experience gained by neighbouring countries, especially the Nordic countries. However, Icelanders have to keep in mind that the food situation in other Nordic countries is somewhat different from Iceland and in many ways superior (Ministry for Foreign Affairs, 2009). On top of this, there are several other notable differences in capabilities to handle food crisis. Despite these differences, there are commonalities as well and it is advisable to base Icelandic contingency plans on experience gained in neighbouring countries, while adjusting them where possible to Icelandic reality.

As mentioned before, it is essential to make a proper assessment of the stocks and reserves of food in Iceland. In this context, it is a major concern that there is no strategy to maintain production and distribution of food during crisis. There is a need to address this with a comprehensive contingency plan. In addition to building a strategy to maintain production and distribution in crisis, it is necessary to assess the need for increasing stocks of essential food types before an emergency strikes. The aim of at least six month supply of food defined by the IRAR is a good point of reference (Ministry for Foreign Affairs, 2009). As the Icelandic state does not keep any food stocks the best solution to increase food reserves would be to find a middle way between the responsibilities of the state and the capabilities of the private sector: namely, private companies in the food sector should prepare contingency plans and increase stocks in cooperation with the authorities (see further in Jóhannsson, 2011).

Given that there is not a great deal of food stored either at private households or by private businesses, the authorities should also make plans to organise rationing of food in case of an emergency. Possible hoarding of supplies immediately after a crisis starts could cause shortages. To this end, there is a need to put a strategy in place and iron out the legal framework so that rationing can start immediately after a crisis starts and before stores are emptied.

Another potential stock problem that needs to be addressed is the reserves of fodder and raw materials for fodder production. As it is, levels of fodder are too low for comfort and the capacity to store more stocks is restricted. This is something that is important to look into, as it is imperative to have enough fodder for the food production industry. Similarly, it is important to secure sufficient supplies of fertilisers. Increasing prices of imported fertilisers means that there is a need to look into resurrecting the domestic fertiliser production, preferably with Icelandic substances as ingredients. Another solution would be to try to decrease the food industry's reliance on synthetic fertilisers altogether. This can for instance be attempted by increasing sustainable and organic cultivation.

Another significant point for future food security is to find a way to make sure that land usable for agriculture will not be used for other purposes (such as golf courses or summerhouses). Rules should be set on how such land is used and they should include giving the authorities power to determine how large a quantity of land should be specifically reserved for agriculture and how much land should be free for recreational activities and other occupation. This should go hand in hand with a vision for the future development of certain production sectors like grain farming or rapeseed growing.

There is also a need to tackle the specific threats to food security mentioned before in this paper. Regarding *pandemics* it is important to strengthen emergency planning further. Despite the improvements made in this field in 2008 with the publishing of an influenza contingency plan, the IRAR asserted in 2009 that the division of responsibilities and cooperation between institutions needs to be improved, inspection and monitoring systems need to be strengthened, storage of vaccine and other drugs must be better organised in a central, safe, and accessible place, and there is a need to increase stocks of pharmaceuticals so there is always a twelve-month supply available (Ministry for Foreign Affairs, 2009). In addition to this, it is very important that the authorities support and help companies and industries important for food supply to make contingency plans so that pandemics have as little impact as possible on their operation.

And although Iceland's resilience in face of various *natural disasters* is well-proven and significant and emergency services are well organised it is important to be vigilant in this area and continuously map potential dangers and make contingency plans where reactions to them are outlined. This is particularly important for natural threats that are influenced by *climate change* and have grown, or are liable to grow, in the next years. The IRAR further suggests that the emergency system needs to be strengthened and made more independent from volunteer work and unreliable public donations (Ministry for Foreign Affairs, 2009).

There is a clear need to improve the capabilities of Icelandic authorities to handle various kinds of *pollution* accidents around the country. Effective contingency plans concerning toxic substances and polluting spills need to be put in place so that environmental, economic, and food security can be safeguarded. Radioactive pollution from traffic of nuclear vessels, military exercises, and flights through the Icelandic airspace is particularly dangerous in this context, especially to the fishing grounds. The IRAR suggests strengthening *Vaktstöð siglinga* (Vessel Reporting Centre) so it can better maintain surveillance over ship traffic and pollution in the sea around Iceland. The report also recommends that cooperation with the other Nordic countries be strengthened (Ministry for Foreign Affairs, 2009). This need has been met to some extent with the framework agreement reached among Arctic Council members in December 2010 on search, rescue, and monitoring of pollution in the Arctic region ("Samningur um", 2010).

The weak point of the *domestic distribution* system – the road system – needs to be addressed as well if food security is to be safeguarded. The road system requires not only substantial investment but also better organisation and Icelanders need to start allowing for environmental and security factors when planning the road system. It is also necessary to make contingency plans on how to react to threats that endanger the security of the roads and the transport system (Ministry for Foreign Affairs, 2009). It would also be sensible to take steps to lessen the strain on the already weak road system. One such step would be to look into the possibility of resurrecting coastline shipping.

The risk of a serious *energy shortage* has to be combated both at the internal and external level. At the internal level, it is most important to protect the electrical system. It is necessary to strengthen the structure and security features of the system and try to protect buildings, stations, and transmission lines from possible sabotage or other factors such as adverse weather conditions or other natural disasters. The authorities should also stress the need for proper work procedures, emergency exercises, and operative contingency plans in case of energy shortage.

At the external level, it is necessary to guard against shortages of imported energy, most importantly oil. Therefore, it is essential to build up strategic reserves of oil that would never fall below a certain level in normal times. To this end, the Icelandic authorities need to assess what scale of reserves are required to keep essential operations going if external supplies are interrupted. It is also important that a legal framework be established to authorise the state to

intervene and ration energy supplies in case of an emergency. There is an expectation that this will soon be tackled with the new Icelandic energy policy that is in preparation.

Furthermore, it is of significance for food imports to keep the *national currency* strong and steady and *credit facilities* open. Failing this, it may become impossible to do proper business with foreign parties and imports of various goods, including food, could become difficult. Therefore, there is a definite need for clearer rules on the financial system and more surveillance and assurance of standards by supervisory bodies.

The best way to counteract the development of the Icelandic food market into an *oligopoly* where few dominating actors control the market is to strengthen the Competition Authority and increase its power to break up, or prevent, unhealthy monopolies. It is doubtful that the present practice of fining offending companies is of much use as the money used to pay the fines comes most likely out of the pockets of customers. This increases the price even more and jeopardises people's chance of getting food for affordable prices.

The authorities also need to pay more attention to risks of *sabotage and terrorism* and take measures to redress the lack of the most simple security measures at important installations. Icelanders should look to the Nordic countries and the EU for advice on preparedness against sabotage and terrorism. The IRAR recommends that the police authorities be granted the same powers as neighbouring countries in fighting terrorism (Ministry for Foreign Affairs, 2009). This has however been a highly controversial issue and if increased powers would be granted it is clear that proper and effective surveillance of the way they are exercised would have to be established also.

Last, but not least, other events such as *increasing international food prices*, along with *market trends*, *armed conflicts*, and *external pressures* are variables that Icelandic authorities have limited control over. The only possible action is to prepare properly and react as well as possible to potential threats. This means good preparedness based on good surveillance of international developments and operational contingency plans that can be executed fast and securely.

The above suggestions on improving food security are inevitably cast in broad terms as in many instances little research has been done on the relevant issues. The issues discussed above are also very varied and it is not easy to estimate their real significance and relative priority as risks/threats for food security and to Icelandic society. On top of this, the resilience or shock-bearing capacity of the nation has in very few instances been measured to any extent. Without such evaluation and definition of what is acceptable damage from each threat, it is difficult to organise concrete remedies or make contingency plans. Therefore, the work should start at home by analysing the asset at risk (the food sector) and estimating how much in the way of shock or setbacks the nation can handle in this field. When this is done, the real work on securing food security can start.

## **VII. In Conclusion**

The bottom line and the positive Icelanders can draw from this analysis, even though preparedness in the administration is lacking, is that there is a lot that needs to happen for there to be total shortages of food. If there is a major failure in the fishing industry agriculture would probably come to the rescue and vice versa. The worst possible setback for Icelandic food security is perhaps a total shut-down of imports, not only of food but also of various materials and energy supplies for food production. The likelihood that all possible threats to food security would arise simultaneously is not great and in reality there has to be some sort of total catastrophe for Icelanders to starve. This does not however mean that such a case is impossible: Icelandic history has shown that Icelanders can well end up in a situation where

the population has no option to procure or gather food. However slight the danger of a recurrence nobody knows what the future holds. Therefore, it is so important to make solid contingency plans just in case.

It is also important to recognise that the scenarios and issues discussed in this paper are the extreme cases. It must be remembered in this context that food insecurity is not only about starving or not starving: it is also about basic human security factors such as being given the position to be able to procure food for the family or having the means of income to buy food; living in an environment free of violence; or in settings where one is able to acquire food that is healthy and nourishing. It is of no use to produce or import food if nobody can get it. Therefore, the future task for Icelanders is not only to secure imports and production – as important as that is – but also to provide an environment where everyone is in a position to secure food for themselves and their families.

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