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Health security and pandemic response: a test-case of the pandemic influenza A(H1N1) in Iceland

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Lokaverkefni til MA-gráðu í alþjóðasamskiptum

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HÁSKÓLI ÍSLANDS

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ABSTRACT

Health and security have long been distinct fields, whereby health was only seen as a medical problem and security was a matter of military defence. But when the security debate changed and was redefined and broadened after the Cold War's end - moving from the security of the state to human values - these two matters merged into one. In cases today of infectious disease and other acute health events that spread across international borders, no country is fully protected. Increased international cooperation is required to prevent further outbreaks and decrease transmission both within and between countries. A country with a good health system, risk assessment and response plan is better able to take on security threats like pandemic and is more likely to be less affected than one that lacks these things, but it still cannot expect to master the challenge without external help.

The aim of this thesis is to analyze how the Icelandic authorities responded to the Pandemic Influenza A(H1N1) that circled the globe in 2009 and 2010. It is already known that there was a pandemic response plan available in Iceland before the pandemic occurred, but what has not been revealed is how it was used during the pandemic. Two questions are put forward in examining the test-case: (a) was the pandemic defined and handled as a security issue and were the responses adequate and successful (in line with the pandemic response plan)?; and (b) did the pandemic present a sufficient threat to justify and to test the activation of broader, multi-sectoral emergency measures? Seeking answers to these questions, two types of research methods are used. The greater part of the thesis is based on already existing written materials, e.g. books, articles, reports and minutes of meetings, but part of it is also based on interviews with two experts in the Icelandic health security field.

The main findings are that Icelandic authorities worked mostly according to the response plan and clearly defined and handled the pandemic as more than just a health security issue, as shown by the way they took other aspects of national and societal security into account. Also, it can be concluded that the responses were adequate and successful: the measures taken by the Icelandic authorities prevented more people from getting infected, and avoided further hospitalizations and deaths. Regarding the second question, only part of the response plan was activated and had to be activated to handle the pandemic properly. What was activated was exactly what corresponded to the given need for ensuring the security of the public and the country as a whole; there was no need for broader action as this was not the worst case scenario as put forward in the response plan. Some more detailed lessons can however be drawn from the experience that could help Iceland handle - and learn from - similar crises even better in the future.

ÚTDRÁTTUR

Heilsa og öryggi voru lengi vel tvö aðskild rannsóknarefni þar sem heilsa var skilgreind sem verkefni læknavísinda og öryggi varðaði hernaðarvarnir ríkja. En þegar öryggisumræðan tók að breytast og öryggishugtakið var endurskilgreint og víkkað eftir að kalda stríðinu lauk, sameinuðust þessi hugtök í eitt; frá því að vera öryggi ríkis yfir í öryggi einstaklinga. Þegar farsóttir eða aðrir skyndilegir atburðir sem geta haft áhrif á heilsu fólks dreifast um ríki heims er ekkert ríki að fullu varið og aukinnar alþjóðasamvinnu er krafist til að koma í veg fyrir og draga úr frekari útbreiðslu, bæði innanlands og milli landa. Ríki með gott heilbrigðiskerfi, áhættumat og viðbragðsáætlun getur betur tekið á öryggisógnum eins og farsóttum og eru líklegri til að verða fyrir minni skaða en þau ríki sem skortir slíkt. Samt sem áður getur ríkið ekki tekist á við ógninni án utanaðkomandi aðstoðar.

Markmið þessarar ritgerðar er að skoða hvernig íslensk stjórnvöld brugðust við farsóttinni, hinni svokallaðri svínaflensu, sem breiddist um heiminn 2009 og 2010. Fyrirfram var vitað að á Íslandi væri til staðar viðbragðsáætlun við heimsfaraldri inflúensu en almenningur hefur ekki verið upplýstur um hvernig áætlunin var notuð í faraldrinum. Þess vegna voru tvær spurningar settar fram til að skoða viðbrögðin: (a) var farsóttin skilgreind og meðhöndluð sem öryggisatriði og voru viðbrögðin fullnægjandi og árangursrík (í takt við viðbragðsáætlunina)?; og (b) stafaði það mikil ógn af farsóttinni að hægt sé að réttlæta og láta reyna á virkjun víðtækra og fjölbreytilegra neyðaraðgerða? Til að leita svara við þessum spurningum var stuðst við tvenns konar gagnaöflun. Ritgerðin byggir að stórum hluta á fræðilegum heimildum, svo sem bókum, greinum, skýrslum og fundargerðum en einnig á viðtölum sem tekin voru við tvo sérfræðinga á sviði heilbrigðisvarna fyrir Ísland.

Helstu niðurstöður eru þær að íslensk stjórnvöld unnu að mestu út frá viðbragðsáætluninni og greinilegt er að farsóttin var skilgreind og meðhöndluð sem meira en einungis mál heilbrigðisöryggis, sem sést á því að atriði er varða þjóðaröryggi og samfélagslegt öryggi voru hluti af viðbrögðunum. Einnig má álykta að viðbrögðin hafi verið fullnægjandi og árangursrík: viðbrögð íslenskra yfirvalda komu í veg fyrir að enn fleiri sýktust, fleiri sjúkrahúslegur og dauðsföll. Þegar notkun viðbragðsáætlunarinnar er skoðuð má sjá að einungis hluti henni var virkjaður og þurfti að virkja til að geta tekist á við farsóttina á viðeigandi hátt. Það sem var virkjað var í samræmi við þá þörf að tryggja öryggi almennings sem og landsins; ekki var þörf fyrir víðtækari aðgerðir þar sem þessi farsótt var ekki af verstu gerð, eins og sett er fram í viðbragðsáætluninni. Ljóst er að hægt er að læra margt af þessari farsótt og hvernig var brugðist við henni. Þessi reynsla gerir yfirvöldum kleift að takast enn betur á við svipað hættuástand sem skapast getur í framtíðinni.

PREFACE

This thesis is the final assignment in the MA studies of International Relations at the Faculty of Political Science of the University of Iceland. It accounts for 30 ECTS credits and was written under the supervision of Alyson JK Bailes, Adjunct Lecturer at the University of Iceland.

The idea of writing a thesis where health security would be the main topic came to me when I was attending a course on Non-state Actors and Non-military Security in the fall of 2010. At that time the Pandemic Influenza had recently been declared over, and the Chief Epidemiologist held a lecture on the pandemic and other health security factors regarding Iceland. Also in the year 2009, a Risk Assessment Report had been published by the Foreign Ministry covering security issues for Iceland that I found extremely interesting. These two things, the lecture on health security and the Risk Assessment Report, attracted my attention to health security and made me consider this as a topic for my thesis that I was going to start writing a year later. I approached my supervisor with this topic and got positive responses and together we found the appropriate issues to look at.

During my writings I have benefited from great help and support and for that I would firstly like to give thanks to my supervisor Alyson Bailes, for endless amounts of patience and great encouragement and inspirational guidance during this work. I also would like to express gratitude towards Íris Marelsdóttir at the Civil Protection Department and the Chief Epidemiologist, Haraldur Briem, for valuable information and assistance during my writings. And last but not least I am grateful for all the assistance I got from my family and friends and the faith they had in me while writing this thesis.

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Either the health system infrastructure hold, before, during and after the event, thanks to the efforts made, or they give way in places because the pandemic has medical consequences that are greater than predicted or because its impact on the socioeconomic organisation is more severe, undermining people's confidence.

Flahault and Zylberman, 2010, p. 329.

1 INTRODUCTION

The security debate has changed greatly through time and the idea of security has been much redefined and broadened since the Cold War ended, switching from the security of the state to new values - human values. The traditional concept of security privileges the state and emphasizes military power, but now security is facing new challenges and the focus is not only on this "hard" security, i.e. the protection of a state's sovereignty and territory from external military attacks. Over the last decades, other security issues have made a strengthening claim for attention, given that the daily threat to the lives and well-being of both nations and their citizens is different from what is suggested by the traditional military security concept. Thus in addition to securing borders, people, values and institutions, thinking about security has shifted towards non-state actors, internal conflicts, "softer" security threats and non-violent factors such as the destruction of nature, environmental changes, ecological and climate disasters and infectious diseases (Commission on Human Security, 2003, p. 5; Cottey, 2007).

The broad goal of the "softer" human security concept is to make it possible for people to live without fears for their survival, well-being, health and freedom. Human security thus is about prevention of impoverishment, the elimination of illiteracy, defence of the citizens in times of war and internal conflict and the protection of people in case of infectious disease and other sudden changes that threaten the quality of the daily lives of people. Individuals as well as the state are threatened by these events, which arise from both local and global or transnational causes, largely beyond people's control. Other challenges of human origin, such as economic collapse, political oppression, overpopulation and ethnic rivalry, poverty and scarcity, terrorism and crime have to be taken into account as well (Commission on Human Security, 2003, p. 11).

New targets call for changes in the security definition and *human security* has been developed as a specific concept used in association with risks and threats to individuals. Human security is about the daily lives of ordinary people, i.e. the welfare of all, which needs to be protected by states and also by nongovernmental actors both from chronic threats like diseases or hunger, and from sudden and unexpected disruption caused by emergencies of all kinds. Human security aims for a broadened understanding of security with growing emphasis

on the individual as the central object of security. The list of threats to human security is long, but most can be considered under the seven main categories put forward in the United Nations Human Development Report of 1994 (UNDP, 1994): economic security, food security, health security, environment security, personal security, community security, and political security.

Humans often failed to protect their health in the olden days but in modern days more focus has been placed in public policy on the health and security of the individual. As mentioned previously, focusing on the citizens of the state rather than the state itself is one of the main steps in the move towards broader security concepts, and *health security* is one of the related issues that have risen in prominence over the last decades. Health and security have long been distinct fields, whereby health was only seen as a medical problem and security was a matter of military defence. The relatively recent concept of health security focuses on minimizing vulnerabilities to acute public health events that endanger the collective health of populations, not only national populations but also populations living across geographical regions and international boundaries (WHO, 2011, p. 8).

Health problems can be both local and transnational. As global populations move around more now than ever before, there is no place in the world from which a given country is disconnected, making it more difficult to identify infected individuals and more challenging to control disease. Throughout history many health problems, like outbreaks of infectious diseases, have caused many deaths and also threatened the health and/or welfare of the ones not sick. In case of infectious disease epidemics, pandemics and other acute health events that spread across international borders no country is fully protected. This means international cooperation has to be increased for effective monitoring, good control and possible obliteration of infectious diseases, to restrain greater outbreaks and reduce transmission both within and between countries (Commission on Human Security, 2003, p. 98).

Over the last decades many new diseases have emerged that were unknown before and nowadays infectious diseases spread much more rapidly than ever in history, so an epidemic in one part of the world can spread to another in just a few hours. More speed in the spread of diseases can be traced to movement of people across borders as well as flows of goods, service and finance, reflecting the general process of globalization and the role in it of transnational corporations which makes states more interdepended than ever before but also less able to control the process; plus local factors of vulnerability such as a high poverty rate or rapid urbanization, to name but a few. It is still true that a country or region with a good health system, risk assessment and response plan is likely to be less affected than one that lacks these things, but it is also beyond debate that no single state today has the technical capacity or resources to respond to health crises, major emergency or disease outbreak

without external help. It follows that a common security policy approach and international standards for health and disease response, with participation of both states and institutions, are needed in cases like pandemic that have transnational impact. After World War II the principles and instruments for international institutions and multilateralism were renewed and developed wholesale with the creation of the UN as the supreme authority in cases of security, and still now the UN's World Health Organization (WHO) has a unique status in addressing health security issues worldwide. According to the WHO information gathering and sharing in case of health problems is one of the most feasible routes to global health security (WHO, 2007a, p. xiii) and has the organization emphasized on global respond to pandemic.

Iceland today has few deficiencies in the health field and a high-quality public health system to which every individual has access. There is a natural supply of good food and fresh water, and disease or premature death rates per capita are relatively low. Despite all this Iceland is not safe from infectious disease or pandemics, and Icelanders may even be more sensitive to infection because of previous isolation. Infections and diseases can easily arrive to the country as Iceland participates actively in global trade and human movement. Travelling and working abroad has made it easier for Icelandic people to catch diseases from other countries, even from another continent (Ministry of Foreign Affairs, 2009). Also, for many years now Iceland has been focusing on tourism as one of its leading industries so each year hundreds of thousands of foreign tourists visit the country, increasing the potential on spreading infectious diseases.

The security situation in Iceland has changed drastically over the last two decades or so, with the US military forces first scaling down their protection and then pulling out entirely in 2006, which meant that for the first time since receiving independence Iceland had to make a security policy on its own (Ómarsdóttir, 2008, p. 137). Like any modern state, it needs security plans and defence preparations to deal, among other things, with possible health shocks of both a sudden and longer-term nature arising from global pandemics, emerging diseases, illness from effects of environmental degradation and climate change, major accidents and natural disasters, humanitarian emergencies and biological, chemical, or radio-nuclear incidents and other forms of terrorism.

Despite these important historical changes Iceland has not (as of 2012) yet adopted a new security policy, but a step in the right direction was the *Risk assessment report* presented in the beginning of 2009 (Ministry of Foreign Affairs, 2009). In this document, a commission of thirteen officials, professionals and academics listed fifteen different security categories relevant to Iceland of which one was called *Health safety and pandemics*. The key message of this chapter in the report is that pandemic disease can affect Iceland both directly - by people

getting infected - and indirectly, because of the disruption it can bring to the daily functioning of society; markets can collapse and shops shut, schools and airports may have to be closed, the police and the health system itself may not be able to function because of absence of personnel, and tourism would decline for example (Ministry of Foreign Affairs, 2009, p. 59).

Lack of good health security also affects the stability of the state; just as economic stability and political stability is needed for society to work properly, when people in society are not secure and healthy the state's own functioning and its ability to defend itself are also in danger. Because of these risk factors, both direct and indirect, it is very important to have a good response plan in case of pandemics, and more generally to minimize unnecessary sickness and death from avoidable disease. Protection of this kind also entails developing early warning systems and building standby preparedness capacity.

In the Act no. 19/1997 passed by Iceland's Parliament in 1997 (Act no. 19/1997 on Health Security and Communicable Diseases), legal provisions were made regarding Health Security and Communicable Diseases. They are rather general in style, mentioning no particular diseases or pandemics. Changes were made to the laws in 2007 in line with the International Health Regulations published by the WHO in 2005 to follow up its revised Global Influenza Preparedness Plan of 1999 defining the role of organizations as well as member states in case of pandemic (The Civil Protection Act no. 82/2008). Iceland then adopted *The Pandemic Influenza Preparedness Plan of the Health Services* (Directorate of Health, 2006) in order to conform to international measures aimed at reducing pandemic risks both domestically and in international cooperation with other states and organizations.

Since the late 20th century Iceland has been participating more than ever before in international activity and paying more regard to international interests, not only national ones. For example Iceland has been participating in peacekeeping and development aid for over two decades now, as well as other issues concerning human rights. A major sign of Iceland's growing engagement in global affairs was it bid for a place in the UN Security Council in 2008. There one of the main goals of Iceland's proposed work in the Security Council was said to be to stress the importance of "tackling security threats in its widest context" (Ministry of Foreign Affairs, 2008, p. 14).

Despite these measures, there has been little broader public discussion about possible threats to health security in this country. Further, although the Pandemic Influenza A(H1N1) virus in 2009 - the first case of global pandemic in over 40 years - also affected Iceland and led to a nationwide set of special measures (vaccination, etc), there has also not been much discussion about how this case was handled by authorities: for example whether it was a real danger to Icelandic society and to people in society, and how the relevant authorities such as

the Ministry of Welfare, the Chief Epidemiologist, and the Civil Protection Department of the National Commissioner of the Icelandic Police, worked during the pandemic and prepared for it.

The aim of this thesis is to help fill these gaps by exploring how Iceland defines and implements the term *Health Security.* It will look at the general situation related to health security in Iceland, and more specifically, the adequacy of response plans in case of pandemic disease. This latter question will be answered with the help of a test-case, namely Icelandic responses to the Pandemic Influenza A(H1N1) in 2009. It is already known that there was a pandemic response plan available before the pandemic occurred, but what has not been revealed or debated in public is how it was used during the pandemic. That is why the questions put forward in examining the test-case are: *Was the pandemic defined and handled as a security issue, not only in terms of health security but of other aspects of security in society; taking account of possible problems of food supply, trade, tourism, education and so on? Was the response to the pandemic influenza adequate and successful - in line with the pandemic response plan?* Conversely, it may be interesting to re-examine how much of a threat the pandemic really presented. During and after the pandemic some speculations started regarding the actual need for the counter-measures the Icelandic authorities took, with suggestions for instance that the danger was exaggerated and that the measures involving large-scale use of drugs could have been mainly in the interest of the pharmaceuticals industry. Thus the question should also be asked: *Was the pandemic in 2009 sufficient of a threat to justify activating emergency measures at least within the health sector?*

As it was not possible to carry out independent medical research, the treatment of health matters in the thesis will rest heavily on written material already published. Statistics and figures have been mostly taken from the Icelandic *Directorate of Health* (Landlæknisembættið), the *Civil Protection Department of the National Commissioner of the Icelandic Police* (Almannavarnadeild ríkislögreglustjóra), *Ministry of Welfare* (Velferðarráðuneytið) and other online homepages of institutions and organizations where data were also gathered, like the World Health Organization. However, as regards the broader questions of official security concepts, government policies and decisions, emergency handling arrangements and general performance in the 2009 pandemic, a wider range of sources have been used including personal interviews conducted April 12th and 13th, 2012 with the Chief Epidemiologist Haraldur Briem, as an experts in the fields of epidemic control and Íris Marelsdóttir, a project manager on health within the Civil Protection Department. Also minutes of meetings by the Joint Rescue Coordination Centre were used to try more scrutinizing how the pandemic was.

The next section of the thesis presents the different types of security definitions and theoretical frameworks relevant to the research topic. It covers both the general frameworks used for today's broader security agendas, including the question of who defines a security issue and how (*"securitization" theory*), as well as more specific definitions and concepts of *health security*.

Chapter three will turn to the case of Iceland as a small state in the international system, and will describe the general state of public health, the main challenges and problems coming from both inside and outside the country, and the way the government has so far formulated its general policies and administrative arrangements for dealing with these.

Chapter four then looks at the specific planning for pandemic disease events: risk assessment, preparedness planning, response planning, who are involved and how at local and central level (including any non-state organizations), whether the response plan is based to some extent on international plans, and what provision is made for international cooperation. What does it mean for Iceland as a small state to have its own pandemic response plan? In particular, how widely is the plan drawn and how realistic is the handling of wider impacts that a health crisis may have upon other aspects of the state and society?

Chapter five deals with the test-case of the pandemic in 2009. After defining the nature of the virus and its impact globally, information will be offered on how the disease affected Iceland, its people and society and how the administration (i.e. the Icelandic government, along with all the specific authorities involved) handled the situation. In particular, it will be asked whether the authorities followed their own prepared plan; and if so, did it work? If they didn't follow it, why not? What if anything did they do differently from the plan?

Chapter six will examine the degree of, or lack of, success achieved in applying the pandemic response plan to this case. It will cover the questions of why a pandemic needs to be scrutinized and why it is important to have information on how severe it actually was. Here the question will be answered of how adequately the authorities defined and handled the security issues involved in this case; did they succeed or was it a total or partial failure?

The seventh and final chapter summarizes the conclusions of the thesis, including answers to the questions that have been put forward above. Possible solutions will be considered and evaluated on how to improve the responses to pandemics. The future of health security issues for Iceland will be considered and suggestions will be made on any useful areas for further research in that context, particularly with responses to pandemic in mind.

2 SECURITY DEFINITIONS AND THEORETICAL APPROACH

In this chapter the focus will be on many different aspects of the term *security.* In the first two sections changes in the security spectrum will be analysed, followed by an introduction on the term *human security*. The fourth part takes on societal security and the function of the whole society in case of emergency, and the fifth part on Ole Wæver's term *securitization* and how it is connected to *health security*, which is the final section in this chapter.

2.1 CHANGES IN THE SECURITY SPECTRUM

The security debate has changed dramatically since the 17th century when early modern intellectuals started thinking about state security. The idea was then that "...the state would monopolize the rights and means to protect its citizens. State power and state security would be established and expanded to sustain order and peace" (Commission on Human Security, 2003, p. 2). The idea of security is most often associated with this agenda, i.e. nation states defending their borders to protect their citizens from foreign military threats. But the meaning of the term *security* has been hard to explain in a way that everyone approves of. It is a broad and open-ended concept based among other things on the ethical or ideological approach of those using it, rather than a natural phenomenon that can be demonstrated with empirical data or defined in a way that everybody agrees upon. Many various interpretations of the term are used according to the users' convenience at any given time (Cottey, 2007, p. 6; Ómarsdóttir, 2008, p. 138), and later in this chapter the meta-theory of securitization that tries to explain how this variety arises will be discussed.

The traditional approach on security has its roots in realism, linked to the power of states and alliances and defined mostly in military term based on how well states' interests are defended to ensure survival in a struggle for power. The state is the main actor trying to avoid attacks from other states and react to attacks. Security is regarded as the defence of national security, using military means for protecting the state's borders and fighting wars. Security threats are assumed to come from other states, not individuals or international/transnational entities, so the focus is mainly on protecting the state from external attacks. The issues regarding war and peace are determined by balance of power in the international system, which is anarchic with each state governing by its own way, and which drives security

competition among states (Buzan, 2007, p. 25-26; Cottey, 2007, p. 13). Realists do not believe it is possible to give power to international institutions; the state is the sole and supreme authority that has to count on its own manpower, technological development and strength.

Other security schools criticize the realist approach because the state has not the power to ensure the security of citizens across the full range of people's requirements, and internal and international organizations play some of this role nowadays. The earlier concept is thus not broad enough to cover all the issues that need to be taken into account (Newman, 2001, p. 244). The alternative liberal theory sees security competition as arising from ambitions of states and their leaders, but claims that cooperation, free trade agreements, membership of international organizations, good economic, political and social ties, and democratic values can all help to bring peace and mutual advantages between states (Cottey, 2007, p. 13-14). Neo-liberalism operates largely within the realist framework, but argues that international institutions are much more important in helping to achieve cooperation and stability than realists say (Baylis, 2011, p. 237). Security strategies are set up by states, international organizations, nongovernmental organizations and the private sector to protect people and shield them from terror, internal and external threats. International security institutions make it possible for countries to address common security challenges and help to create a sense of common identity for membership countries (Commission on Human Security, 2003, p. 10; Cottey, 2007, p. 17).

According to the neo-realists' pessimistic view of international cooperation the international system is anarchic as there is no central authority to control the states behaviour. States develop their own offensive military capabilities and threaten each other by the way they use them to defend themselves and extend their own power. There is a lack of trust between states, fear that others will cheat, and they can never be sure of what their neighbours' intention is, which makes them need to always be on guard. Even without a constant state of war between states there is a constant security competition in which war is always a possibility. States also have to be aware of how much they are gaining by cooperation, compared with the states they are cooperating with. Accordingly, neo-realists see little basis for trust in international institutions, which they regard as existing only as a result of states' interests and the constraints imposed by the international system itself (Baylis, 2001, p. 257-259; Baylis, 2011, p. 236).

Counter to neo-realists, liberal institutionalists say international institutions have a distinct and independent value in helping to achieve stability and cooperation. These institutions help tone down the fear of states cheating, thus improving trust and prospect of cooperation

between their member states. Therefore, institutions are important for achieving international security (Baylis, 2001, p. 261-262). The Nordic countries have based their work on security policy on neo-liberal intergovernmentalism theory. According to that theory states - including smaller ones - can gain strength and influence globally by participating in international cooperation and within international organizations. Democracy and human rights are their main goals and furthered by cooperation based on international laws (Ómarsdóttir, 2008, p. 138).

Changing concepts of security are very relevant to the respective credibility of these theories. As already argued, the new challenges of the post-Cold War period have promoted a wider thinking about security, involving broader definitions and new priorities within the security agenda. When the security focus shifts from defending state borders and property to risks from transnational phenomena like terrorism, crime, disease and climate change, or to the need to intervene in other people's conflicts, it is clear that no single state can exclusively defend itself and its citizens against all such dangers. For many of today's international security threats, states need to work together not just through the old forms of diplomacy, but also through global institutions and by creating new international tools.

2.2 "SOFT" SECURITY AND "NEW THREATS" IN THE POST-COLD WAR ERA

The Cold War's end brought a new sense of security dilemma with new challenges to security and its protectors. The focus turned to internal conflicts and localized wars, mass population movements and civil unrest. Globalization also had effects on the security concept, making many important threats transnational and hence also "blurring" national competence through the need for international cooperation in many fields. These forces led not only to the creating of new international and regional organizations and changes in the role of existing ones, but to changes in thinking on security. The concept was broadened to include softer, non-military security challenges and deepened by taking into account the internal and external threats to groups and individuals instead of external threats to states only. The softer side of the security concept implies a new focus on individual citizens and their experience of security. The state still is the main actor but it cannot fulfil its security obligations alone and in some cases can be the main source of the threat to its citizens. Equally, states now share many of their interests and similar values with other states.

The Post-Cold War era created a new kind of environment in the international system with many non-military problems potentially threatening the state and its citizens. These include, for example, economic recession, environmental hazards, pandemic diseases, transnational

organized violence (such as terrorist groups) and uncontrolled mass population movements (Cottey, 2007, p. 6; Paris, 2001, p. 97). Protecting humanity against such threats and risks became the focus and security was re-conceived as a "...all-encompassing condition in which individual citizens live in freedom, peace and safety and participate fully in the process of governance" (Commission on Human Security, 2003, p. 3). Threats to people's safety can come from states themselves, e.g. in the case of tyranny, genocide or the disarray of states in conflict and transition. Reflecting on what is in the interest of the state and what is in the interest of people also shifts attention to the impact of states on people outside their national borders, and it extends to areas outside of military security questions (Fukuda-Parr, 2003, p. 5).

The constructivist theory of security fits these changes in security thinking and has been commonly applied to the discussion of softer security issues. Constructivists say that the individual's behaviour, relationships and interests are socially constructed, rather than fixed and material in nature, and are very likely to change over time. The values of the international system also become socially constructed as individuals have impact on the decision-making by governments (Newman, 2001, p. 247). Unlike neo-realism, this approach does not limit states' rational choices to the building of material capabilities for defence but argues that security is based on shared knowledge in which states trust one another to resolve disputes without war. Material capabilities acquire meaning when they are embedded in shared knowledge and practices. While important in international politics, they do not account for all inter-state behaviour. States are also influenced by other ideas, such as the rule of law and the importance of institutional cooperation and restraints (Baylis, 2001, p. 265-266; Baylis, 2011, p. 238). The way people think about international relations can thus lead to greater international security.

Both constructivists and realists say states have the main role in international security, but other security schools of thought disagree and say states have been given too much prominence. According to critical security theories states are too often part of the problem of insecurity in the international system according and are really different in character. New kinds of wars - internal civil conflicts - have also made it clear that civilians have become more and more vulnerable to violence inside their own state's borders. This is one of the main reasons for policymakers paying more attention to what is happening inside states; the focus should be on the individual, rather than the state as a whole (Baylis, 2001, p. 266).

The many changes in the last decade of the twentieth century are part of the process of globalization, driven by clearly identifiable political, economic and technological changes that have removed barriers to contact across national borders. To the global society school,

globalization with its global communication and economic systems has reduced the role of states and made people the main participants in the international system. Because of globalization states are less able to provide what they did traditionally and are struggling with many kinds of new challenges. It is thus important to think of the security of individuals and groups instead of the state if the right ways are to be found to tackle problems like poverty, inequality and environmental degradation and to work on human rights and democracy values (Baylis, 2001, p. 269-270).

This softer and broader focus on security has been expressed in specific concepts developed by thinkers and applied in official policies since the end of the Cold War, and two of them will be explored and compared in the next sections: human security and societal security.

2.3 HUMAN SECURITY

Human security is a concept that first gained wide international attention through its inclusion in the United Nations Development Programme's *Human Development Report 1994* and then became the focus of many security scholars' works by the end of the 20th century. The term includes all the softer security threats but also deals with human rights, how individuals are protected, good governance, access to basic needs and how individuals should be empowered, ensuring they have opportunities and choices to fulfil their own potential. Human security involves a much broader spectrum of actors and institutions than the traditional security concept. The term puts the individual at the centre of both national and global security concerns, seeking to expand the popular and official understanding of the many threats to the safety of individuals and their well-being (UNDP, 1994).

2.3.1 THE TERM HUMAN SECURITY

The concept of human security was first developed less by theorists and more in the policy world and has his roots in the idea that insecurity is a universal threat, particularly now in this interconnected world. Human security is about protecting people, groups and societies from threats like poverty, diseases, natural disasters, economic deprivation, terrorist attack and external aggression that can affect them in daily life, while also working positively for human rights, freedom, well-being and social rights. Threats come from different quarters - the state, non-state actors, the international community - and the actors working on better security are also of many kinds: the civil society, the state, international organizations and nongovernmental organizations. The aim is to make individuals and societies enlightened

about threats and empower them to work together in conditions of equality, sustainability and cooperation among many different participants. Human security means protecting the basic freedoms that are the essence of life and protecting people from critical and pervasive threats using processes that build on people's strengths and aspirations (Commission on Human Security, 2003, p. 4 and 11).

There are two major factors of freedom in human security. The broader approach is called *"freedom from want"* and stresses the ability of individuals and societies to be free from a broad range of non-military threats and non-traditional security concerns. It starts with freedom from poverty, disease, discrimination and environmental degradation and ensuring basic human needs, removing all these risks and not only violent threats from people's everyday lives by building human capabilities. The narrower approach is called *"freedom from fear"* and defines the right of people to live free from attack and intimidation. It focuses on protecting people from violent conflicts and reducing the human costs of armed conflicts and violence against individuals. This is done through action such as a ban on landmines, measures against the abuse of women and children in armed conflicts, child soldiers and child labour, the formation of an International Criminal Court and human rights and international humanitarian law (UNDP, 1994, p. 24; Krause, 2007, p. 4; Acharya, 2011, p. 483). Ultimately, both sides agree that human security is about security of individuals rather than of states, and that protecting people requires going beyond traditional principles of state sovereignty.

The human security concept differs from other former security perspectives by focusing more sharply on the downside risks that can threaten the well-being and dignity of people rather than on the protection of national borders. Nevertheless it is interwoven with many aspects of both national and international affairs, as the problems of human security go beyond what nations can tackle on their own and thus call for international cooperation from nations, international organizations, nongovernmental organizations and multinational corporations. The concept seeks to link individuals and the state to the global world by forging a global alliance between states on the one hand and institutions on the other. Noteworthy is that the term does not replace the security of the state with the security of people. Rather it improves and broadens state security by seeking to protect people against and to cope with the broad range of threats faced by ordinary people in an increasingly globalizing world. The security of the state and the security of people are thus mutually dependent; without human security state security cannot be attained and vice versa (Chen and Narasimhan, 2003, p. 183; Commission on Human Security, 2003, p. 6).

Keith Krause, a professor in International Relations, says the human security approach is

significant for two reasons: first, "it stands in tension...with the state-centric conception of security" and secondly, "policy-makers have adopted the discourse of human security, and have used it to generate important and interesting foreign and security policy initiatives" (Krause, 2007, p. 1).

Critics have however wondered whether the human security approach widens the boundaries of security studies too much and whether securitizing the individual is the best way to address the challenges facing the international community from the forces of globalization. The concept of human security has, according to Taylor Owen, a Banting Post Doctoral Fellow at the Liu Institute for Global Issues (2004, p. 374) "no clear theoretical grounding, scant political precedent, no consensus-commanding definition, and a highly uncertain future." The biggest flaw of the term human security according to Chen, the President of the China Medical Board of New York, and Narasimhan, a US Country Head for Novartis Vaccines and Diagnostics (2003, p. 185) is how wide and vague it is, making it difficult, even impossible, to prioritize policies and actions. Amaid Acharya, a professor in International Relations (2011, p. 482) and Roland Paris, University Research Chair in International Security and Governance at the University of Ottawa (2001, p. 92) voice a similar opinion; the term is too broad to be useful as a tool of policy-making, making it difficult to find appropriate solutions since not all issues can be treated in practice as equally important for national security.[1] Paris calls the concept "...so vague that it verges on meaninglessness..." (Paris, 2001, p. 102). Further, the supporters of the term have been accused of keeping it expansive and vague on purpose, which "diminishes the concept's usefulness" in policymaking or for academic research (Paris, 2001, p. 88).

Krause (2007, p. 5) criticizes the broad term of human security connected to freedom from want for being "nothing more than a shopping list" of issues that are not necessary to define or connect as security ones, such as education, public health, war on drugs and global war on terror. Also it has been argued the term gives false hopes about security and it neglects the role of the state as a provider of security, for it is not self-evident that any other agency than the state can meet with requirements of individuals (Acharya 2011, p. 482).

Against this background it will now be turned to the details of the seminal *1994 Human Development Report* of the United Nations Development Programme (UNDP), including how it introduced and used the concept of health security.

[1] Others also have criticised the term for being too wide to make it possible to prioritize. See discussion in Taylor Owen, 2004, p. 379

2.3.2 THE 1994 HUMAN DEVELOPMENT REPORT

In this report UNDP began by arguing that the security concept had been interpreted too narrowly by focusing mainly on the state; security should also symbolize protection for people. By introducing the term human security UNDP sought to move from an exclusive stress on territorial security to a much greater stress on people's security, on human life and dignity (UNDP, 1994, p. 22). The UNDP report argued that human security was not only a matter of national security but universal concern. It should include protection from a range of threats to human safety and welfare - threats like poverty, unemployment, hunger, disease, environmental hazards, intra-state conflicts, crimes and political repression.

The UNDP put forward four essential characteristics that human security should focus on. First, it is a universal concern relevant to people everywhere and directed against threats common to all people. Second, threats to human security are no longer isolated in one state or one region of the world: challenges like disease, pollution and terrorism are interdependent. Third, early prevention makes it easier to tackle such problems than if they are caught later. This is truly the case of disease or pandemic. Lastly it is pointed out that human security is people-centred concerning how people live in society; do people have access to market and social opportunities? Do people live in a conflict-free area? Are people able to choose their choices freely? (UNDP, 1994, p. 22-23). Some threats within countries spill beyond national frontiers and become global human security problems. Others become a global matter because of disparities/inequalities between countries. Pollution, poverty and prosperity are all becoming globalized and global matters (UNDP, 1994, p. 34).

According to UNDP the term human security has two main aspects; "a safety from chronic threats" and "protection from sudden and hurtful disruptions in the patterns of daily life" (UNDP, 1994, p. 23). Threats to human security can be manmade, come from nature or be a mixture of both. The biggest threats to human security in this century, according to UNDP, take the form of unchecked population growth; disparities in economic opportunities; excessive international migration; environmental degradation; drug production and trafficking; and international terrorism (UNDP, 1994, p. 34). Recognizing the problem taking on so many threats at once, UNDP sought to make the policy needs clearer and more manageable by dividing the human security concept into seven categories, as shown in table 1 below (UNDP, 1994, p. 24). As Owen puts it; "…the point was not to securitize everything, but to shift attention away from Cold War threats to what was actually killing people" (Owen, 2004, p. 381).

Table 1: The seven categories of human security according to UNDP

Community security	Security from ethnic violence (both between and within ethnic groups) and the loss of traditional language and culture
Economic security	Security of assured basic income and job security to prevent poverty
Environmental security	Security from deterioration of the environment, to natural hazards and natural emergencies - especially for people on marginal territories. These threats can be for example degradation of the ecosystem, deforestation, air pollution, unsafe water, earthquakes and floods
Food security	Security for physical and economic access to basic food and the availability of food, securing good distribution of food
Health security	Security for good nutrition, safe environment, safe water, access to healthcare and protection from disease
Personal security	Security from war, ethnic tension, crime and street violence, suicide, drug use, rape and physical violence, especially women and children
Political security	Security from state repression, disappearance, systematic torture or ill treatment. Security for society that honours citizens basic political rights and no human rights violations

Source: UNDP, 1994, p. 25-33.

While this thesis is based on just one of the seven categories, health security, and that concept will be discussed in detail later in this chapter, it is worth noting here how the health dimension is interlinked both with human security in general and with the other dimensions. These connections were clarified throughout the 1990s when both terms were developing. The first link to mention is violence and conflict and the changing nature of warfare. Many of today's conflicts occur because of collapse of effective governance, so that no authorities are left to control the violence. Usually civilians are part of the conflict, both voluntarily but also as a target of the violence. These kinds of conflicts can pose problems like violations of human rights, massive flows of people and in worst cases genocide (Chen and Narasimhan, 2003, p. 186; Commission on Human Security, 2003, p. 97-98). Aside from death and injury directly caused by violence they can do much wider health damage as a result of disruption of supplies, pollution, forced migration and exposure, fear and stress, and breakdown of health and welfare services - all also making epidemics more likely.

A second link between health security and broader human security is the concern about

global infectious diseases that have risen markedly on the global agenda since the 1990s. These are not only health events but also have economic and political impact with stagnation of exports, reductions in tourism and weakened functioning of governments. The global HIV/AIDS pandemic has been the major driver linking health security and human security seeing that the death toll from it has already exceeded the plague of Black Death in the fifteenth century. Only two decades after its discovery HIV/AIDS has been declared as a threat to national security by the UN Security Council (Chen and Narasimhan, 2003, p. 188-190; Commission on Human Security, 2003, p. 97-98).

The third link between human security and health security is poverty and inequality. Usually security is linked to physical violence but in the 1990s the insecurity of daily life gained visibility and the relationship between poverty, health and human security was ratified in the Human Development Report in 1994. The poor not only fear violence from crime or the loss of jobs, they also fear severe illness and the cost for good healthcare. Disastrous illness among working people puts great pressure on the family's finances to get appropriate health service (Chen and Narasimhan, 2003, p. 190; Commission on Human Security, 2003, p. 97-98).

2.4 SOCIETAL SECURITY

As already mentioned earlier in this chapter, the concept of human security first arose in a development policy context and it has been used mainly to define challenges facing individuals in poorer, fragile, and conflict-ridden states. If a theoretical framework is needed to define the role of health in developed states' security, the term *Societal security* shall be considered. The term was developed by the Copenhagen School of security studies and which offers an alternative "package definition of security" as Alyson Bailes puts it (Bailes, forthcoming, 2013). Barry Buzan's vision of societal security starts not from the state's military security and political sovereignty but from the level of collective identities in society and action taken to defend "we identities" (Buzan, Wæver and de Wilde, 1998, p. 120). It thus highlights society's own understanding of what is needed for its safe and stable workings, and focuses on the range of events and challenges, both from natural and human causes, that can threaten society and/or the society's infrastructure. These include human threats like crime or terrorism and natural forces like disasters and disease, but also pay attention to people's feelings of security including societal, cultural, political, economic, and environmental as well as military aspects. Societal security thus includes the ability of societies to reproduce the traditional patterns of language, culture, association, and religious and national identity which

help society as well as the state to define itself and to preserve cohesion (Buzan, 1991, p. 433; Buzan, 2007, p. 111). If society's identity is lost or endangered it may no longer function properly. Further, since traditional state action along with international cooperation through military alliance relations is not enough to tackle this full range of threats, risks and fears, a societal security approach increases the need for non-state actors to participate; and the concept can also be used to explore the security-building capacity of society itself, its groupings and individuals (Williams, 2003, p. 519).

The concept does resemble the idea of human security in shifting its focus to a wider range of non-military threats. But instead of considering the isolated individual's need for help, it explores issues regarding the function of the whole society in case of emergencies and how to make it possible for it to function despite of disturbance. It discusses how the authorities may work in partnership with civilian departments and agencies other than the armed forces, with non-governmental organizations and agencies, with social groups, and the participation of the general public in preparedness for and in case of emergencies (Bailes and Gylfason, 2008, p. 25-26).

At the same time, the concept of societal security has been sharply criticized, for example for being based on too simple ideas of identity, putting forward the theory of society having one identity and the importance of defending it (Williams, 2003, p. 519). The most common issues that have been viewed as threats to societal security under this perspective are migration, horizontal competition (like Americanization) and vertical competition and depopulation (Buzan, Wæver and de Wilde, 1998, p. 121). Mass population movements threaten communal identity and culture by directly altering the ethnic, cultural religious and linguistic composition of the population and will eventually swamp the existing culture. This threatens the ability of the society to reproduce itself in the old way, which can easily create a political constituency for immigration control (Buzan, 1991, p. 447). In practice however, in an age of globalization and rapid migration in multicultural societies, it is hard to pinpoint one identity that is supposed to rule over others and has the right and ability to unite all the citizens. Many welcome, up to some point, the cultural diversity that migration brings to a society. If an out-of-date concept of societal identity leads the traditional majority to define new groups and the changes they bring as security issue, the chances of peaceful and coherent social life in the country will grow worse instead of better.

A related critique focuses on the fact that more frequently, threats to societal security come from within the states in such spheres as sustainability, ethnic identity and traditional patterns of culture, language and religion (Buzan, 2007, p. 111). So how is it possible for a state to make a security policy if the threats are coming from inside the borders and connected to

other kinds of threats, like military threats or political threats? Also, different societies have different vulnerabilities and different kinds of societal threats depending both upon their objective characteristics and how their sense of identity is constructed. One threat can be more intense for some states than others, making it hard to put forward some kind of universal recipe for states to work towards improved security for society (Buzan, Wæver and de Wilde, 1998, p. 124-125).

However, by definition societal security policy does not have a single form and cannot stand still. Rather it changes over time and depends each time on subjective as well as material factors. What is considered as a threat can differ through time as can be seen with the changes over the last decades. This point is recognized by many modern security theorists and is not a drawback confined to the societal approach alone: "...what constitutes security or a threat to security is subjective - it depends on *perceptions* of which communities, values and institutions matter, and the threats to those communities, values and institutions" (Cottey, 2007, p. 7).

In practical terms, the relevance of societal security for this thesis rests in the fact that the four other Nordic countries now use it (although under a different name in Denmark and Finland) as the basis for their official non-military security policies, including their handling of health emergencies. This naturally raises the question about its application in Iceland: and the Icelandic *Risk assessment report*[2] published in 2009 did use "societal" and a "package" term for one of the three sets of threats and risks that it covers (Ministry of Foreign Affairs, 2009, p. 11).

In a research project carried out by Alyson Bailes and Þröstur Freyr Gylfason, a specialist in International Relations, in 2008 where people from Alþingi (the parliament in Iceland), the public administration, academic institutions, business and service organizations, NGOs and media answered questions about societal security, a clear majority emerged for considering the use of this or a similar term to help Iceland move towards new aspects of security and to shift ownership from the traditional elite towards more cooperation with other actors in society. The research also showed that interviewees felt there were already some elements and foundations for such an approach in Iceland, despite the traditional reliance on others for external security: for instance the role of volunteer rescue services and the skills of specialists in different non-military fields, which underline how the Icelandic state needs society's support. When asked what would be the important issues for an Icelandic societal security policy, the most frequently mentioned areas were natural disasters; crime, law and order;

[2] See section 3.2.1 below

climate/environment; and disease, followed by economy and fish; terrorism; infrastructure; and external "hard" security (Bailes and Gylfason, 2008, p. 37-41). This suggests that a Nordic-style understanding of societal security potentially exists in Iceland and is broad enough and flexible "to accommodate all Icelandic concerns" (Bailes and Gylfason, 2008, p. 40). The popular awareness of such non-military security issues should only have grown with the 2008 economic crash, the pandemic of 2009 and latest volcanic eruptions; but official policies have developed more slowly as will be explained in chapter 3.2.2.

2.5 SECURITIZATION

2.5.1 WHAT IS SECURITIZATION?

A new way to explain and evaluate the different approaches to security theory outlined above - and many others - is provided by the "securitization" theory that has been evolving for the last two decades. It was first developed by Ole Wæver, a professor of International Relations in the Political Science Department of the University of Copenhagen, and others from the constructivist approach through the work of the Copenhagen School in security studies. The Copenhagen School with its origins in international relations places emphasis upon the social aspects of security, and looks at the process by which any given topic is moved from the ordinary realm of politics and defined as a security matter. It calls for "...an increasingly precise understanding of who securitizes, on what issues (threats), for whom (referent objects), why, with what results, and, not least, under what conditions (i.e., what explains when securitization is successful)" (Buzan, Wæver and de Wilde, 1998, p. 32).

In his discussion about security Wæver (1995, p. 47) considers "security as a concept and a word," connected to certain social processes and also "as a *speech act*" where talking about something as a security issue makes it a security issue. Securitization begins when the securitizing actor, usually some authoritative figure, identifies something as a threat to the audience, usually the public. Issues suited for this treatment are, Wæver suggests**,** "developments that threaten the sovereignty or independence of a state in a particularly rapid or dramatic fashion, and deprive it of the capacity to manage by itself" (Wæver, 1995, p. 54). If the audience is convinced this is a threat, the securitization is successful. As security has no permanent material form, by uttering the word "security" the representatives can cover whatever areas they want in securitizing (Wæver, 1995, p. 55).

This open-ended nature of securitization has been the source of many criticisms and warnings. While some welcome the broadening of the security concept to include more items,

others are concerned that the operational effectiveness will be lost. Rita Taureck at the department of Political Science and International Studies at the University of Birmingham (2006, p. 2) says the security issue has no particular meaning anymore when so many things are securitized and can be anything the securitizing actor says is a security issue. Salter points out that scientists and theorists do not always agree with the opinions of authorities or the public, so it can be hard to find a solution for what and how to securitize that everyone agrees upon: "the same securitizing speech-acts may be framed differently within the professional team and in front of an audience" (Salter, 2008, p. 321). Andrew Cottey, a Senior Lecturer and Jean Monnet Chair in European Political Integration at University College Cork, has criticized securitization for its notion of moving the issues from normal politics into being a security matter. "What does or does not constitute a security issue is unclear," he says, "as is the point at which a problem becomes (or should be viewed as) a security threat rather simply a part of normal politics" (Cottey, 2007, p. 193).

Wæver himself has argued that a big problem concerning security of the people is not knowing where to stop in the securitization; the security should not be expanded endlessly, covering all political and social fields (Wæver, 1995, p. 47-48). Part of the problem here is that if the authorities successfully securitize an issue they normally claim the right to deal with it in a special "tough" way and or to assign it greater priority and resources, with results that could be bad for civil rights and liberties as well as for spending on other national needs. In the work of the Copenhagen School securitization is thus often put forward as something to avoid, as a threat; and partly as a way to avoid its excesses, the term *desecuritization* has been brought up. A securitized issue can be desecuritized by returning it from being an ordinary part of issues dealt with through the political system of societies. By this the hope is to move the issue into everyday political discourse instead of linking it to defence and security (Williams, 2003, p. 523).

2.5.2 Who Securitizes and for Whom?

Securitization is largely based on the *power* and the *capability* of the actor to securitize (Taureck, 2006, p. 2). For the securitization to be successful it is not only important for it to be accepted by the one who securitizes, in most cases the authorities or the government, but also to be accepted by the audience or the public. A better relationship between the proposer and audience increases the probabilities that the audience will accept the attempt to securitize. Social conditions influence the intensity with which the threat operates and usually the speech-act of securitization is in the hands of people in power. Wæver initially argued that

only the state, the elite and other "power holders"[3] can say what is a security problem and "can use it for specific, self-serving purposes" claiming necessity for defending the security of the state, civilization, or the nation (Wæver, 1995, p. 54-55; Buzan, Wæver and de Wilde, 1998, p. 40). It has since been recognized however that others within and beyond the state such as academics and nongovernmental organizations, lobbyists and pressure groups can also seek to securitize things that they are concerned about, by persuading the official audience (Bailes, forthcoming, 2013). In either case if the securitization is successful the matter in question can be handled by government as a security issue outside the rules of normal politics (Salter, 2008, p. 321; Taureck, 2006, p. 4; Williams, 2003, p. 523).

A clear example of "bottom-up" securitization is given by the increasing public and official, including institutional, recognition of the claims about the importance of human security (or insecurity) - including health aspects - originally made by aid experts, civil society actors and nongovernmental organizations. Consideration for human rights and the social determinants of health has informed the governance agents in international health at times in the past. The next section will consider how the specific issue of health has been securitized over time, by whom, and with what consequences in terms of shaping the specific international health agenda.

2.5.3 SECURITIZATION OF HEALTH

The securitization of health is actually not a new phenomenon since the spread of infectious diseases has been recognized as a challenge for centuries, especially in war-time. However this was not defined as a threat to security in international relations until the mid or the late 19th century, when health security started to be put forward as a foreign policy issue though not on the same scale as a century later (Maclean, 2008, p. 478). In recent years it has become more common both to regard health security as part of national security, and to view the public health response to that international spread of disease as a part of international relations. Developments in the health securitization have made political leaders better aware of the issues regarding both national and international public health, and that they should be taken care of as a national security issue (Heymann, 2003, p. 208). International health concerns arise primarily from security interests: as infectious disease does not follow borders, so international cooperation is needed to tackle pandemics, despite all the difficulties it involves (Clevestig, 2009, p. 96).

[3] Common players in this role are political leaders, bureaucracies, governments and intergovernmental organizations

The securitization of health has generated considerable debate and the discussion has settled into two related, but distinct, streams. The previous view holds that by identifying health as a security threat, it could help raise global consciousness and bring forth more resources to tackle the disease. The latter view is that securitization of health is likely to turn the attention towards militaries and knowledge-based companies and away from the rights and need of the citizens living with diseases. The biggest worry here is that the securitization of global health will direct the attention toward a few particular infectious diseases and susceptible populations, which means other health problems occurring in other vulnerable groups will not get the same attention, even be ignored. Another analytical debate regarding the securitization of the health security term concerns the suggestions for broadening the security concept beyond the traditionally understanding of the term, similar to what has been explained already with critique on human security (section 2.3.1), societal security (section 2.4) and securitization (section 2.5.1) (Maclean, 2008, p. 476).

The different approaches to security complicate debates on the securitization of health, related to the issue of who securitizes and for whom. Colin J. McInnes, a director of the Centre for Health and International Relations at Aberystwyth University, has mentioned three worries regarding the securitizing of health, all interconnected. First, there is a question about who controls the agenda and the statements on what is priority as health security issue. Diseases killing millions of people, especially in Africa, each year like malaria and diarrhoeal diseases are not included, for they are not a huge threat in Western countries. Then again, bioterrorism is considered a threat to health security because it threatens "the security interests of the West" although it is not as fatal as many diseases not included. Secondly, McInnes mentions the narrow range of health threats defined as security problems. Malaria and Tuberculosis (TB) are not included, despite killing millions of people each year, along with non-communicable diseases such as tobacco-related illnesses. The third problem McInnes puts forward is the question of whose health is at risk and whose security, relating to the different threats in the developed countries and the developing countries (McInnes, 2008, p. 285). These warnings about the importance of definitions, and the special interests and distortions that may become involved when security priorities are defined and pursued through political or institutional processes, should be kept in mind as the focus will be turned to the current definitions of health security as such.

2.6 HEALTH SECURITY

The great progress in health over the last decades is one of the biggest achievements of the 20th century. Many medical developments and progress in science and scientific knowledge, increased education, material advances in the provision of food and more access to clean water, and political and social advances led to more knowledge for human well-being and human rights. Also these changes have increased the life expectancy for about a billion individuals. This is what health security should be about; ensuring access for all to the basic requirements of nutrition, food and clean drinking water, sanitation, and a safer environment, and guaranteeing a minimum protection from diseases and unhealthy lifestyles. The term is connected to a good healthcare system which is a precondition for social stability. It depends on peace and development, is knowledge-based and socially driven. Health is thus much more than just a disease; it refers to physical, mental and social well-being for all (UNDP, 1994, p. 27-28).

2.6.1 A DEFINITION OF HEALTH SECURITY

The increased focus on health as a security issue over the last decades can be traced to two factors. The first is the acceptance for broader security agendas after the Cold War when questions arose about whose security was to be protected. The second factor is the individual's empowerment and how citizens and experts have used their positions to get health security recognized as a policy matter within states, intergovernmental organizations and nongovernmental organizations (McInnes, 2008, p. 277). Health specialists started mentioning their concerns about the damage diseases can do to people's health to governments, especially after many new diseases had emerged and been discovered. Beside this, journalists also participated in informing the public on the crises caused by infectious diseases and the importance of health security for all individuals. The ensuing debate focussed not only on new diseases and the increased potential for their rapid transnational spread, leading to major impacts on international relations, but also on the changes and progress in technology that might be applied to try to tackle these problems (Maclean, 2008, p. 482).

Health is intertwined with the state and in some Western countries health security has been presented as a security issue in foreign and/or security policies. Reducing health threats to individuals requires cooperation where the state and its government are not the only actors; nongovernmental organizations, civil society and the media participate in building safer societies along with the business sector and new institutional arrangements that have been established over the last years (Commission on Human Security, 2003, p. 102). Health is also

intertwined with the international system and global health security has been recognized as a political priority for a long time. Global health aims at keeping people healthy, preventing disease and trying to prevent death. It has connections to many different levels and policy areas: the individual, the state, the global system, health issues and poverty, wars and conflict, the nature and the climate. Thus, a lack of global health security can have an impact on more than just the health of people. It also has effects on the economic or political stability of states, trade and access to goods and services, tourism, and can also effect on demographic stability (WHO, 2007a, p. ix). The United Nations Millennium Development Goals of 2000 aim at tackling poverty and ill-health and improving people's lives in certain specific areas by the year 2015. Three of the eight goals are directly about health[4] (UN, n.d.).

It has been estimated that about one-third of annual deaths worldwide, especially in the developing countries, may be preventable or curable with the knowledge, technologies and resources already available. Global health plays a critical role in preventing and treating the unnecessary health insecurities and unavoidable health crises that are occurring in the world (Chen and Narasimhan, 2003, p. 185). Even in Western industrialized countries where supplies of vaccines and antivirals are inadequate, pandemics such as influenza can destabilize countries for some time, and cause great social disruption temporarily. In developing countries where states are fragile with weak infrastructures and economies, pandemic outbreaks and epidemics have far more direct influence on the viability of state and society. There, endemic diseases like malaria, TB and HIV/AIDS disrupt routine control programs, society building and health services for a longer period than in Western industrialized countries, as the local environment lacks both the resources and logistics required for their control (Heymann, 2003, p. 200-201).

McInnes (2008, p. 278) and Sandra Maclean, an Associate Professor at the Department of Political Science at Simon Fraser University, (2008, p. 475) name three major health issues that have increased the attention given to health issues as security matters in recent years: the ominous threats of bioterrorism; the pandemics caused by rapidly spreading infectious diseases, especially the HIV/AIDS pandemic; and the spread of infectious disease in the increasingly interconnected, globalizing world. Each of these issues will now be explored in more detail.

[4] The eight goals are: Eradicate extreme poverty and hunger; Achieve universal primary education; Promote gender equality and empower women; Reduce child mortality; Improve maternal health; Combat HIV/AIDS, malaria and other diseases; Ensure environmental stability; and Develop a global partnership for development. See http://www.un.org/millenniumgoals/ (UN, n.d.).

2.6.2 In case of Bioterrorism

Biological weapons were first considered by states for use in war and the first risks to civil populations developed unintentionally, by accidental release of anthrax spores from the former Soviet Union military microbiology facility at the end of the 1970s. Over the last 30 years the use of chemicals and chemical production has increased almost tenfold worldwide, particularly in developing countries where poor countries lack often the technical capacity and the infrastructure to ensure safe chemical management (WHO, 2007a, p. 27 and 29). Biological weapons are now banned by international treaty and weaponized stocks are supposed to be destroyed, but accidental and terrorist use remains an issue with increased surveillance and laboratory research on infectious diseases, sadly causing accidental release of infectious agents (WHO, 2007a, p. xi).

On a daily basis, the lives of many nowadays depend much on chemical processing and nuclear power, and major chemical spills and leaks along with release of dangerous chemicals from agencies and in some cases nuclear meltdowns are sadly a fact. This leads to more chances of hurting innocent victims. There are individuals, groups and governments who are ready to use (and some have already been using) biological and chemical weapons as tools of terrorism, to achieve their political objectives, despite international banning of the use of such weapons by states. These groups work globally because of widespread movements of people and materials and because the new wars nowadays include non-state combatants who are more likely to use untraditional equipment in warfare (Maclean, 2008, p. 480; Heymann, 2003, p. 206). Biological agents use biological weapons deliberately to cause harm to innocent people. The potential of bioterrorism is not only to kill people; it can also harm people physically; causing severe skin and respiratory diseases, cancer and birth defects. The purpose is also to generate public fear, cause economic and social disruption and increase a society's sense of vulnerability, thus reducing trust in the government. Since 2001 in particular there has been a sudden forceful flow of public attention to the threats both of terrorism and of wrongful use of mass destruction techniques, which has also raised the profile of bioterrorism as a health security matter and threat to national security (Chen and Narasimhan, 2003, p. 188; Commission on Human Security, 2003, p. 97; WHO, 2007a, p. 27 and 37).

The anthrax bioterrorism attacks in the United States in 2001 showed that even the richest countries in the world are vulnerable in case of using bacteria and viruses as weapons. Five people died and seventeen others were infected because of lethal anthrax spores sent in four letters through the United States Postal Service in September 2001. This had huge impact on the economy, the public health and security consequences, causing massive disruption of

postal services globally (WHO, 2007a, p. 35). The public gained the impression that the government was ill-prepared to take on threats like these and had not given thought to handling bioterrorism as a threat to the nation and the public health infrastructure. In response political leaders began to recognize that public health protection against bioterrorism remains an essential public good in both security and public health sectors and must be provided by the government both at national and international levels (Chen and Narasimhan, 2003, p. 189; Maclean, 2008, p. 481).

This incident heightened the knowledge of the threat of bioterrorism and also the potential use of chemical weapons. The heightened concern for bioterrorism has strengthened the capacity of national governments and international organizations to detect and contain outbreaks to defend people from bioterrorist attacks. Before these attacks the focus on health security and new diseases had mainly been on AIDS, but the bioterrorism immediately drew the attention in other direction and the infectious disease threat was signed as a high-priority security, as well as making outbreaks "an especially ominous threat" as they "have a potential for international spread that transcends the defences of any single country" (Heymann, 2003, p. 195). This brings us to the next major health issue according to McInnes and Maclean – HIV/AIDS.

2.6.3 THE HIV/AIDS DISEASE

HIV/AIDS is a clear threat to health security around the world. The disease has been spreading globally since the 1980s and has had the most impact in developing countries in sub-Saharan Africa. HIV/AIDS is the disease that, according to David L. Heymann, the Assistant Director-General for Health Security and Environment at the WHO, (2003, p. 198) provides "the most dramatic and disturbing example of the capacity of a previously unknown pathogen to spread rapidly throughout the world, establish endemicity, and cause social and economic upheaval on a scale that threatens to destabilize a large geographical area." The disease has provided a strong case to be considered as a security issue since it has high mortality, diminishes the operational efficiency of many armed forces in African countries, multiplies the social cost of ongoing conflicts and increases the need for government expenditure on healthcare and the loss of skilled workers, just to mention a few.

HIV/AIDS is the leading cause of death in Africa, and the fourth leading cause of death worldwide (Acharya, 2011, p. 487). It will soon, if not handled properly, become "the greatest health catastrophe in human history" and be more fatal than the Black Death of the 14th century, the worst influenza epidemic of the 20th century in 1918, and even the death toll of

the two world wars (Commission on Human Security, 2003, p. 96). The impact HIV/AIDS has on societies is great and deaths from the disease have had drastic consequences on human resources as they have eroded the stability of state institutions, led to decline of economic productivity, reduced food security and further deepened poverty.

Fighting the HIV/AIDS epidemic for such a long time in so many countries has made it clear that there is no place in the world isolated and disconnected from other countries. This increasingly globalized world needs increased international cooperation between the developed rich countries and the poor developing countries to get a better control of diseases like HIV/AIDS, to prevent further outbreaks and decrease transmission both within and between countries, hopefully leading to extermination of the disease. An effective global monitoring, control and eradication campaign is needed to tackle this suddenly growing pandemic (Commission on Human Security, 2003, p. 98).

Urgent action is needed to combat HIV/AIDS but no vaccine has been developed to prevent the disease. Until an efficacious vaccine is developed, the only way to diminish the spread of HIV/AIDS is changing human behaviour with safer sex and health education as a priority. This is a matter of health security for all human beings. According to the Commission on Human Security (2003, p. 109-110) every country should have a core public and primary healthcare system that makes it an urgent national priority to tackle HIV/AIDS through health education, peer support and improvement of knowledge on how to accelerate modifications in human behaviour.

2.6.4 Infectious Diseases and Pandemics

The third and last major health issue according to McInnes and Maclean is infectious diseases and pandemics. The emergence of infectious diseases outside their natural endemic areas and "human exploitation of natural environments and animals" with cross-species spread of new diseases are results of growing human population, collapsed healthcare systems in conflict areas, poverty, urban poverty in slums and refugee camps (Clevestig, 2009, p. 85). Peter Clevestig, a Director of the SIPRI Global Health & Security Programme, starts his article *Pandemics and bio-catastrophes* by stating "naturally occurring diseases have always been the greatest threats to humanity" (Clevestig, 2009, p. 85). This statement is not far from the truth for as infectious diseases are more threatening to people than war, terrorism or other violent conflicts. Also, the consequence of globalization lies more in infectious disease than environmental disaster (McInnes, 2008, p. 275-276).

There is a difference between an epidemic and a pandemic. An epidemic is the unexpected

increased occurrence of a disease in a given population or region at a certain time. Causes of epidemics can be natural, environmental, industrial, accidental or deliberate and are in most cases connected to human behaviour. A pandemic, on the other hand, is an unexpected increased occurrence of a disease in large populations and wider geographic areas, across countries and continents, even worldwide. It is a transnational threat that easily crosses borders in ways that defy traditional defences and cannot be deterred by any state acting alone (Heymann, 2003, p. 200; Khanna, Gupta, Gupta and Vijayan, 2009, p. 481; WHO, 2007a, p. 17). This kind of outbreak can cause a crisis for the areas it reaches with drastic consequences.

Pandemics affect populations all over the world but each case differs in how it spreads around the globe, how many are affected in each country, how severe the illness is, the speed of the spread and how many waves of the pandemic there are. Pandemic influenza occurs when animal virus spreads human-to-human on a major scale that leads to a community-wide outbreak, or even a worldwide spread causing a pandemic. Past pandemics have shown the illness affecting approximately 25% of all humans in the world, with effects ranging from mild symptoms to lethal ones (WHO, 2007a, p. 47; WHO, 2011, p. 37 and 102). No country can act alone in preventing the international spread of disease and according to the WHO, the adoption of the whole system of the *International Health Regulation*[5] is "premised on the interdependence of countries when faced with public-health threat" (WHO, 2011, p. 35).

Infectious diseases are not only now spreading geographically much faster than at any time in history, they are also emerging more quickly, with now about 40 diseases that were unknown a generation ago. The spread of new diseases is related to climate changes and population displacements and can be a by-product of increased interaction between people from different geographical areas, resulting from increased travel and rapid movement of people, trades and goods and the increased international cooperation in times of globalization. All this leads to previously contained diseases spreading to areas they have never been found in before (Clevestig, 2009, p. 98; McInnes, 2008, p. 278).

The spread of disease through the world is not new. But greater global interactions exacerbate the problem and make containing the disease more difficult than before. Infectious diseases have rapidly multiplied, mutated and adapted to new hosts and new environments. These new strains of diseases known before have started to resist drugs and antibiotics previously in use, making it more difficult to treat them. These diseases are in many cases obscure and in worst cases lethal. At the same time new diseases are emerging, older ones

[5] See discussion in chapter 4.1.1.

have re-emerged causing epidemics worldwide (Heymann, 2003, p. 196-197; McInnes, 2008, p. 278).

The solution for disease outbreaks was previously just to move the sick ones from the healthy ones and wait until the epidemic was over. With time and more scientific knowledge, outbreaks started to be controlled with sanitation and vaccines, but epidemics were never completely excluded from any society because of the viruses changing and becoming resistant to the vaccines (WHO, 2007a, p. 1). Isolation of patients and quarantine is still used in case of public-health measures, but today the main approach to curing a disease and limiting transmission of a pandemic is pharmaceutical, using antivirals and vaccines (WHO, 2011, p. 103).

When global infectious diseases and pandemics occur public fears are aroused and can cause public panic. As noted previously, the spread of infectious diseases can be a direct threat to people but also as a threat to stability of a state. Thus, to a certain degree pandemics call into question a government's capacity to be a basic provider for protection of the inhabitants. A pandemic can have drastic effects on the economy of a state and the economic costs can be staggering with loss in trade and investment, travel, and tourism. It also affects the state's stability due to the government spending more on healthcare, higher insurance costs for health provision, a loss of skilled people on the labour market which leads to reduced productivity, and a drop in both internal and external investments because of a lack of business confidence. All this also has an impact on the state's ability to provide defence and security for its citizens (Commission on Human Security, 2003, p. 98; Heymann, 2003, p. 201; McInnes, 2008, p. 279). Sudden outbreaks of a contagious disease or other health crisis can thus destabilize an entire society.

According to the WHO the most important defence against the infectious disease threat is twofold. On the one hand it is good intelligence that can be achieved with good global surveillance systems to keep all countries alerted if any changes take place in the pattern of infectious diseases. On the other hand it is a global surveillance system operating in real time that facilitates rapid responses. That kind of system provides a mechanism for sharing expertise and facilities, while the laboratory and epidemiological skills are kept sharp (Heymann, 2003, p. 204).

Responsibility for health security is changing and now the responsibility is not solely on the national level but also in hands of individuals, communities and civil society organizations, also reaching outside state's borders to international institutions and global networks. Global health security reaches areas like epidemic alert and response, global public

health responses to natural occurrence, accidental release or deliberate use of biological and chemical agents or radio nuclear material that affect health, to the need to ensure global public health; any usual or unexpected events that may be of international concern. As the responsibilities shift, a stronger system of global health governance is required, through a support and coordination by local and national initiatives. This is done by modernizing international health rules and regulations and fostering partnerships between public and private sectors. The results: better global health (Commission on Human Security, 2003, p. 108). Also important for states' ability to prepare for and handle an outbreak of infectious diseases is good public health system, as public health resources play the major and front-line role in responding to an epidemic (Heymann, 2003, p. 204)[6].

Now, the goal is to bring the focus towards the situation in Iceland; how the government looks at security and what kind of plans have been made to tackle a security situations.

[6] Closer look will be on international cooperation in chapter 3.3.1

3 ICELAND'S SECURITY AND HEALTH SECURITY

In this chapter it will be presented how security is handled in Iceland, leading to an assessment of how health security fits into the general picture for the country. First, Iceland's position in the international system will be considered, Iceland being a small island state with a population of 319.575 January 1st 2012, of which some two thirds live in the capital and the surrounding areas in the south-western region of the country (Statistics Iceland, 2012). Iceland has to rely on imports, connections to other countries and cooperation for satisfying some basic needs of the population, such as 50% of food and 20% of energy consumed, as well as for general economic viability. So what does it mean to be a small state in the international system among bigger countries, trying to sustain independent capacity to run one's own government and to handle internal and foreign affairs? Next the development and present state of Iceland's security policy will be discussed, including the main features of international cooperation. Finally the general picture of health security and the policies and administrative arrangements for dealing with it will be described, ending with a sketch of the main challenges regarding health security in Iceland.

3.1 ICELAND AS A SMALL STATE

According to Robert L. Rothstein, a former assistant professor of Political Science at The John Hopkins University, a small state is a state which recognizes that it cannot use its own capabilities primarily to obtain security, so it has to rely in essence on assistance from other states and institutions. The small state's belief in its lack of ability to rely on its own capabilities must also be recognized by other states that are involved in international politics (Rothstein, 1968, p. 29).

At first most theoretical studies of small states and their functioning in the international system focussed on military capacity and political strength. Later economic strength was added to the formula, looking at the size of the economic market and the state's territorial size. Four variables are often used to define the size of a state: population; geographical area; military capacity; and gross domestic product (GDP) (Handel, 2006, p. 157). However, merely using these four variables is not sufficient in explaining small states' relevance in the international system: a state may be strong in one area but weak in another, thus making it

more difficult to evaluate whether a state is a small power or a great power.

Robert O. Keohane (2006, p. 56), a professor of International Affairs at Princeton University, argues that the difference between small states with little power and bigger states with great power is threefold: small states need help from the outside; small states have a narrow margin of safety, therefore they have little time for correcting mistakes they make; and leaders in small states see the state's weakness as utterly incommutable. But this approach if applied strictly would mean that very few states can be seen as great powers and almost all states in the world would be classified as small powers, so another kind of definition is needed. David Vital (2006, p.78) sees a need to include other factors, such as the level of development, the effects of geographical proximity to areas of great power interest, the nature of a state's environment, or the cohesion and support of its population, since these contribute to the states' ability to withstand stress and to be an active member in the international system. Vital focuses on whether the small state in question must in the end rely on its own political and material resources in the pursuit of an external policy of its own devising, or not.

Vital (2006) examined the political implications of the material inequality of large and small states where differences of size have political effects. He argued that a small state is more vulnerable to pressure than a big state; is more likely to give way under stress; is more limited in terms of its political options; and is subject to a tighter connection between domestic and external affairs. In order to survive, small states frequently seek alliances with greater powers. By doing so, the small state can lose some control over its natural resources and becomes politically dependent. This does not however, according to Vital, give the correct picture on the capacity of the state. It is only when a state stands alone that its limitations and possibilities are best seen. To him the capacity of the state to withstand stress and the ability to pursue a policy of its own devising is a state's most fundamental objective; it is this that determines how well a state can protect itself and its citizens from being attacked by other states and pressured by international actors (Vital, 2006, p. 78). The chances of economic growth and social stability also improve greatly if a state succeeds in this.

These earlier analyses need updating for the new, broader definitions of security introduced earlier in this thesis. Even small states that are free from military exposure and the traditional dangers of the power-play are not safe from new forms of violence and from the security threats and risks now known as "soft". While small states can never be free-standing in military security, they can and must take matters in to their own hands and make their own policy in some of these fields. Some security threats can be handled by the small state alone, or with minimum external help, and in some cases the traditional sources of external help are unable or unlikely to solve the problems anyway (an external military protector cannot stop a

pandemic for example) (Bailes, 2011, p. 2). Many of the security problems states are dealing with today do not distinguish between small states and big states. Pandemics, for example, are not more likely to strike harder in a small state than a larger one. The difference is that small states have fewer human reserves and may therefore lose critical capacities more quickly, unless special precautions are taken. "A lack of redundancy … and of specialized response assets and expertise are probably the most widespread features of small-state vulnerability" in these non-military fields (Bailes, 2011, p. 8).

Taking this full security spectrum into account, most current theories regarding small states in the international system postulate a need for small states to seek shelter within international organizations as well as with bigger states when they are not able to protect themselves economically or militarily, and are aware of unforeseen risks that they cannot face up to alone. By "bandwagoning" with the bigger states and relying on international organizations that provide them with a shelter, they may hope to prosper better and gain security[7] (Bailes, 2009, p. 13). This also means, however, that when developing national security strategies small states are more likely to base themselves on the strategy of a bigger state and/or on policies from an international organization, importing ideas, norms and obligations from these sources (Bailes, 2009, p. 39). International laws and regulations have also been increasing over the past decades, making it harder – even impossible – for countries to make their own policies without taking these international laws into account.

Given the wide range of their possible security vulnerabilities, small states tend to focus on a wide range of issues from different fields of public affairs and also to recognize the roles of non-state actors when working on security strategy. They must consider how best to influence the international system on matters that make it easier for them to survive (Bailes, 2009, p. 4 and 12). They can have a considerable impact on the international arena through international organizations, using them as platforms to influence matters that are of importance to them. According to Michael Handel, a former member of the Olin Institute for Strategic Studies at the Center for International Affairs at Harvard, a small state's ability to appeal to other states for help and support is the most important condition for the security of the state: "this they can do only if they are free to manoeuvre in the international system, to choose their allies, to take advantage of the conflicts and tensions between the powers" (Handel, 2006, p. 190).

[7] As the European Union has been doing for small European countries; offering both political shelter and economic shelter. See for example *The Size of States in the European Union: Theoretical and Conceptual Perspectives* by Thorhallson and Wivel. Online version available at http://rafhladan.is/bitstream/handle/10802/530/baldur_%20small_states.pdf?sequence=1 (Thorhallsson and Wivel, 2006).

3.2 What is Security for Iceland?

As has been noted above, small states have limited expert and professional resources, and find themselves compelled to seek a shelter elsewhere. That is the case for Iceland, which has never had a standing army but following its full independence in 1944, chose to rely upon the US army and NATO for a military shelter. Most states have an army that provides extra manpower to take part in case of threats and civil emergencies, as well as owning the equipment needed. This is not the case for Iceland, which relies instead on its coastguard, a small police force, and groups of volunteers who are mostly responsible for the equipment and responses in case of emergency. There are also number of official and private-sector experts offering advice and services in different fields of security. For anything going beyond these capacities, the government has relied on multilateral cooperation, both through international organizations and through cooperation with other countries.

The Icelandic government decided to turn from its initial neutral stance and to be part of NATO when it was founded in 1949. Also, a defence agreement was made with the US Army in 1951 that allowed the army to have a base in Iceland and protect the country. The US force withdrew at the end of September 2006 and for the first time in a long time Iceland had to take care of its own security situation. This created strong pressure for the Icelandic authorities to make a national security policy from the ground up (Ómarsdóttir, 2008, p. 136-137). However, as showed in section 2.5.1 when discussing Ole Wæver's idea about securitization, handling security in a national political setting is not just a logical and mechanical matter. An issue has to be recognized as a security issue and get good attention so that it can be given a high priority; and this in turn demands a consensus within the country on what security is and awareness of whose responsibility it is to deal with the security issues. What attitudes have existed in Iceland on these matters since independence, and what have been the consequences for security policy and action?

3.2.1 Security Policy and Discourse in Iceland

There have been divided opinions in Iceland about security and different judgements on how the government handles it, according to researches on that matter over the last few years. It is however generally agreed by analysts that Iceland's post-independence, Right-dominated governments established a quite narrow military focus; and that their adopted solutions were rejected by parts of the Left wing, who in turn challenged the very notion of and need for security. Issues like natural disasters, human disease epidemic, food security, infrastructure breakdowns, economic vulnerability, immigration and crime were of course present for Icelanders as for the other countries, but were not generally discussed in "security" terms, nor

brought into a wider overall concept. Bailes and Gylfason (2008, p. 33) also argue that Icelanders are rather "easy going" and are known for lack of planning and preparedness. Partly because of that, risks like natural disasters and supply problems have not been generally "securitized" in the minds of the Icelandic public - but in case of emergency, somehow they know how to react.

Jakob Þór Kristjánsson, a Ph.D. student at the University of Iceland, has written about how Icelandic security priorities changed from 1971-1995. Iceland's security decisions were at first mostly based on military concerns mixed with nationalism and sovereignty, thus focusing on the state and the protection of national resources such as the fishing stock on which Icelanders' survival rested heavily. In the 80s, when new security issues emerged and perspectives became more global than before, new angles such as freedom and democracy were taken into account and a few years later peace, environment, human rights, public health and liberty were added as important issues regarding the independence of Iceland (Kristjánsson, 2010, p. 52-54). Kristjánsson's conclusion is that Icelandic security policy has changed through time from hard military security concerns related to NATO membership and the protective presence of the US army, towards a broader definition of security needs for Iceland after the Cold War finished, similar to what was happening in other countries (Kristjánsson, 2010, p. 57).

Different conclusions can be found in a paper by Silja Bára Ómarsdóttir, adjunct lecturer at the University of Iceland. In 2008 she made a discourse analysis of discussions on the Icelandic parliament, Alþingi, in the spring of 2008 where both the Defence Law and Civil Emergency Law were discussed. Her analysis suggested that despite the clear need for new policies after the US force withdrawal, no such new and comprehensive security policy was emerging. The government of the time, a Right-Left coalition, still addressed security from the realism perspective (i.e. focusing on military security). Ómarsdóttir concluded that the handling of the Defence and Civil Emergency Laws showed Iceland still lacking a security identity that would be realistic in a modern society, even if the Civil Emergency Laws were more in line with modern security definitions that embrace societal security and environmental as well as military and political security (Ómarsdóttir, 2008, p. 152-153).

An important opportunity for change came, however, with the economic crash of autumn 2008 which eventually brought in a new Left-Left government coalition (taking office on a caretaker basis from February 2009 and then elected with a majority on April 25th the same year). In their government programme, the left wing politicians stressed the need for economic stability; social stability; and national solidarity for restoration of the society after the economic crash (Government Offices of Iceland, 2009, p. 1). They sought to fulfil these

goals by building on the Nordic Welfare system and other "modern" ideas on non-military threats like food security, healthcare, the environment and fiscal policy. In the field of security the new Social Democrat leaders seemed willing to take on the internal and non-military security concepts, focusing on the strategic importance of natural resources, the environment, the economy and society and shifting away from the harder security issues previously stressed by the right wing (Bailes, 2009, p. 22). This trend was underlined by the findings of an independent risk assessment commission set up by the Ministry of Foreign Affairs already in 2007, which saw Iceland's security as being more broadly based on factors like sovereignty, the security of citizens, threats to the infrastructure of the society, and bilateral and multilateral cooperation both including states and institutions and membership of international governmental organizations (Ministry of Foreign Affairs, 2009, p. 11). Together with the recognition that Iceland does not face a direct military threat in the foreseeable future, this approach at least created an opening for building a modern comprehensive security doctrine centred upon non-military concerns about individuals and society (Bailes, 2009, p. 25 and 27).

The initiative for the new risk assessment was taken by Ingibjörg Sólrún Gísladóttir, former Icelandic Minister of Foreign Affairs, when on October 29th, 2007 she appointed a commission of thirteen academics, professionals and officials to evaluate the risks and threats to the security for Iceland (Ministry of Foreign Affairs, 2009, p. 5). One could say that the Icelandic authorities had finally realized the need for their own security policy, after decades when the notion of security had been "distinctly under-conceptualized and its multilateral or transnational dimensions were poorly grasped" (Bailes and Gylfason, 2008, p. 29). In its *Risk assessment report* that was eventually presented in the beginning of 2009 (Ministry of Foreign Affairs, 2009), the commission listed fifteen different security categories relevant to Iceland and divided all threats and risks into three analytical categories; national security; societal/civil security; and globally-induced risks to individual and society. Each security dimension was evaluated from the probability of increased or diminished risk, and Iceland's strengths and weaknesses to meet specific risks and the security situation in Iceland was assessed in relation to that of neighbouring countries (Ministry of Foreign Affairs, 2009, p. 127). The *Risk assessment report* was also heavily influenced by the shock of the economic crash, and saw this as having an extensive impact on Iceland's security.

Among the lessons learned, the commission recommended several factors to bear in mind for future security policy formulation. For example, a national security policy should take into account changes in the security conception, combining global and societal risks and the risks of warfare along with integration and internal security relations; the need for emergency

management to respond to disparate threats; and the need to strengthen Iceland's international cooperation, especially cooperation with the other Nordic countries and the EU in the sphere of security. Specific recommendations included the need for preparedness planning, also in the field of health where the need was mentioned to increase nursing supplies and to guarantee safe stocks of medicine and vaccines with good accessibility, thus making them easy to distribute when needed. Also stressed was the need for the government to ensure a good flow of information to the public in times of any danger whereas ignorance and lack of understanding could be a threat; and the arguments for making national preparedness plans more consistent with the neighbouring countries and with arrangements in global society[8] (Ministry of Foreign Affairs, 2009, p. 24-28).

The impact of this new analysis has been seen also in official statements since 2009. Even if the "harder" aspects of security and defences for Iceland remain mostly based on the Defence Agreement with the United States and Iceland's membership in NATO, the Minister of Foreign Affairs, Össur Skarphéðinsson, said in his annual report of 2010 on *Foreign Affairs and International Affairs* that "a wider definition on security and defence interests for Iceland is needed" (Skarphéðinsson, 2010, p. 41). For some time now the authorities have been working on broadening the security and defence work of Iceland, to catch up with the changes that have been occurring on security and security matters, making it possible to be able to respond properly to new security threats, for instance pollution, cyber-attacks, international organized crimes and terrorism. These new threats can occur in no time at all without any antecedent or any warning (Tillaga til þingsályktunar, 2011).

The latest important step towards a new security policy that would recognize all these points is the foreign minister's proposal in 2011, now accepted by the Alþingi, to form a committee of ten members of the parliament to prepare a national security policy for Iceland. The aim of this work is to evaluate the current and evolving threats and risks for Iceland and to examine how Iceland is prepared to handle security situations and equipped to react to them. National security policy has to take on traditional and untraditional threats, both internal and external. The Parliamentary resolution setting up the special committee (Tillaga til þingsályktunar, 2011) stresses the connection between the overall national security policy and Civil Defence policy, asking the committee also to consider what links there might be between any national security council that might be established and the Civil Defence and

[8] In the report it is stressed that some response plans have already been made, for instance on response to pandemics, volcanic eruption in Katla, earthquakes and avalanche. Also, plans have been made in case of major fire or explosions and other factors that can harm the environment, people's lives and belongings (Ministry of Foreign Affairs, 2009, p. 28). But it is important to upgrade every response plan at regular intervals, to keep in step with changes such as the emergence of different threats at different times.

Security Council established by the Civil Protection Act of 2008. Also, the committee is supposed to come up with ideas on how to ensure adequate information and expertise amongst institutions connected to national security matters. The committee now plans to issue its conclusion around November 2012, so nothing can yet be said about the results, but it will be exciting to see where the emphasis will be according to the committee. Will it be similar what was put forward in the Risk assessment report or something different?

3.2.2 Implementation of Security Policy in Iceland

Making a national security policy is something that the whole government should participate in, along with other agencies, because it touches many different areas that call for broad group approach to tackling the problems. Many ministries work closely together on security issues for Iceland, including crimes, immigration, environment, and food – all of them linked also to health security. For instance, the Ministry of Foreign Affairs handles national security and defence issues including the relevant foreign and institutional relationships, the Ministry for the Environment and Natural Resources handles toxins, pollutions and climate change, the Ministry of Welfare covers issues affecting disease prevention, healthcare, patients and medicine and the Ministry of the Interior takes charge of law enforcement and border control, search and rescue, civil defence and the coastguard (Government Offices of Iceland, n.d.).

Under the present Icelandic constitution the separate control of each Minister over his/her department is stressed and the coordinating role of the Prime Minister, also in security, has remained rather weak. The PM's office does not have its own "situation centre" or operations room and in the absence of armed forces headquarters, the equivalent facilities belong within the Ministry of Interior structure. The *Civil Protection Department*, (Almannavarnir), is co-located with the coastguard headquarters and has executive responsibility for responding in any type of physical attack, accident or natural catastrophe affecting the country. It also now looks after the day-to-day working of the air defence radars and traffic controls that Iceland operates on behalf of NATO (Civil Protection in Iceland, n.d.).

In democratic countries, including small states whose official assets are small, non-governmental organizations and volunteers can play a big role in emergency responses and other aspects of safety and security building. This makes it important to have cooperation between the government with its top-down role and non-state actors like the private sector, the civil society, nongovernmental organizations and ordinary people - who can also play important bottom-up roles with a sense of security responsibility, ready to help in case of an emergency (Bailes, 2011, p. 19).

Finding appropriate governance solutions for this complex burden-sharing and cooperation is "the key to good management of multi-functional security challenges" according to Bailes and "...is, indeed, perhaps the only factor that one can safely generalize about, given the very great variety of individual small states' challenges" have to handle (Bailes, 2011, p. 19). In Iceland this kind of cooperation has so far not been much recognized and systematized, except in the case of the volunteer rescue organization, the *Icelandic Association for Search & Rescue* (ICE-SAR). It is however coming more into the spotlight with the rising concern about cyber-threats.

Another important aspect of security management is providing adequate funding. When looking at the general government total expenditure in 2009 it can be seen that nothing was spent on defence as such, or has been in the years before, because of the absence of a military factor. The agencies engaged in security would be covered largely by the category of spending on public order and safety, which in 2009 was 1,6% of total GDP. By comparison health was 8,3% and what is called social protection was 11,3% of total GDP (Statistics Iceland, 2011b). The present climate is not positive for extra security spending, because of the severe economies imposed after the 2008 crash but also given the Left-leaning nature of the coalition, which has also heavily cut funds for foreign policy.

3.2.3 International Cooperation in Icelandic Security Policy

New threats and risks to the safety of states and individuals have been redefined over the last decade and states and international organizations are working on contingency plans to make it possible to tackle the problems properly if they occur (Skarphéðinsson, 2010, p. 51). Given the shared, trans-national or global nature of many current problems, Iceland's national security is interwoven with cooperation with other countries. Even while stressing its independent policy making, the Icelandic Government defines Nordic cooperation as "one of the cornerstones" of its policy and wants the international system to reshape the framework of common security (Government Offices of Iceland, 2009, p. 10). Again, while the Icelandic government is more ready to take matters in its own hand regarding "softer" security issues, like the environment and health security, these also demand a different kind of cooperation amongst neighbouring countries and international organizations. In this section more detail is given of the international dimensions relevant to a broad Icelandic security policy (the international aspects belonging to health security specifically will be treated later).

Since gaining independence in 1944 Iceland has come from being one of the poorest countries in the western world up to being one of the wealthiest and most developed nations

in 2008 (before the economic crisis). Iceland became part of the European Economic Area (EEA) in 1994 but has still not become a member of the European Union (EU). However, after the entire banking system failing in 2008 and changes in the political government with a Left-left coalition leading, the parliament voted in favour of applying for EU membership and the official application was made in mid-July 2009. Until then EU membership had not been a priority for the Icelandic government, at least not regarding security. Up to that point the defence alliance with the US had been sufficient, along with the NATO membership. But when the army left and the economic crisis hit, the government needed to look to Europe for economic and soft-security shelter, which led to the application for EU membership. The goals of EU's defence and security policy are similar to the emphasis of the Icelandic government, like peacekeeping, human rights and development aid. This has already led to increased cooperation on security matters between Iceland and the EU (Tillaga til þingsályktunar, 2011), in the framework of the EU's Common Security and Defence Policy (CSDP) which focuses on international disarmament operations; rescue tasks; peacekeeping and conflict prevention; and crisis management among others (Skarphéðinsson, 2010, p. 34 and 60).

Iceland maintains diplomatic and commercial relations all around the world, but has the strongest ties to the other Nordic countries. This Nordic cooperation regards both political and economic connections, the cooperation being especially good on matters in the healthcare and social system. The cooperation is based upon the so called *Nordic Model of welfare,* focusing on good social services, public health matters and equal rights, and women prominent in the politics. Another feature of the Nordic welfare system is good cooperation between labour unions; the division of labour; and other forms of cooperation with non-governmental organizations. The Nordic governments also focus on working through joint Nordic regulations, for example to foster good public health and improve the standard of living (Norden.org, n.d.).

Nordic cooperation on defence and security matters has been growing over the last years and Iceland has been an active participant. The countries have been focusing on Nordic cooperation in terms of peacekeeping, development aid and humanitarian issues. In February 2009 the former Norwegian minister of Foreign Affairs, Thorvald Stoltenberg, published a report with recommendations on Nordic security and defence cooperation for the next 10-15 years. These recommendations touch on issues like peace building; air surveillance; coast guard; security in the Arctic; cyber security cooperation; running embassies together; and cooperation on defence matters. In November 2009 a new agreement was signed under the name of *Nordic Defence Cooperation* (NORDEFCO), aiming to strengthen the participating

nations' national defence, get synergy effects, strengthen the cooperation, strengthen long-term policy formulation and facilitate efficient common solutions on defence matters (Skarphéðinsson, 2010, p. 55).

Since the US withdrawal Iceland has also signed bilateral Memorandum of Understanding with six neighbouring states for cooperation in defence and security matters, in all cases working with a wide definition of security. Such wider aspects include search and rescue; responses in case of natural disasters; law enforcement; coast guard and so forth, as well as traditional defence matters such as ship visits (Skarphéðinsson, 2010, p. 54). In 2007 Iceland and Norway signed a bilateral framework agreement on cooperation regarding defence, security, preparedness, and search and rescue. The same day Iceland and Denmark signed a statement on cooperation on security- and defence matters along with civil defences (Ministry of Foreign Affairs, n.d.).

But Iceland cannot and does not solely look to the closest states for shelter and cooperation. As already mentioned, the United States has played a key role in securing Iceland in the past, as well as helping with certain civil defence functions. Though the US forces left in 2006 the defence agreement is still valid, and new annexes were added at that time on emergency aid. The US has since participated in exercises and air surveillance missions, and carried out regular security consultations. Mutual interests are the cornerstone of this long lasting bilateral cooperation Iceland has with the US. In the Cold War the interests were different but both sides profited from the presence of the US base in Keflavík. Now the interests have changed, seeing economic and environmental matters for example as being similar and/or joint threats for both states (Tillaga til þingsályktunar, 2011). There will also be a strong mutual interest for the foreseeable future in dealing with the changes taking place in the Arctic region (Ministry of Foreign Affairs, n.d.).

As argued above, modern security cooperation works not only between countries, but through organizations as well. Iceland looked for shelter within international organizations right at the beginning of its independence, both with the UN and NATO. The security-environment in Europe has transformed greatly with new threats and risks but still the goal of NATO is the same; to insure security and peace in Europe. Also NATO itself has changed drastically and there is a need to explain to citizens of member states how the institution functions and its role. In 2009 NATO adopted a new comprehensive Strategic Concept and Iceland has also emphasized a few of the new topics highlighted there, such as the need for using a wider definition of the term security, the importance of the Arctic in the foreseeable future, common defence of the organization, and common approaches by NATO nations on

matters regarding disarmament and UN Security Council Resolution no. 1325 on women, peace and security (Skarphéðinsson, 2010, p. 55-56).

3.3 Iceland and Public Health

Security for any state is partly dependent on health security. Although Iceland still does not have a national security policy many policies, laws and regulations deal with security matters, especially regarding "soft" security areas like social welfare and health. Health security matters can be found in different laws and regulations, but also depends on how the healthcare system functions. When looking at welfare tasks, the government focuses on strong and reliable healthcare system for everybody, a strong national insurance system and a safe place for everybody to live. The goals regarding improving the healthcare system are equality, good access, quality, security and efficiency (Government Offices of Iceland, 2009, p. 6). A public health policy has been made for Iceland, focusing on good access to health service and, a good healthcare system for the improvement of public health. The main goals of the policy are:

> ...to improve public knowledge of the determinants of health - social and environmental determinants, and lifestyle factors - and to seek to ensure that such knowledge be reflected in the attitudes and work of government, employers and other parties which influence the standard of living, health and wellbeing of the people of Iceland.
>
> Public Health Institution of Iceland, 2006, p. 10.

The Ministry of Welfare is the main authority handling public health, with many subsidiary organizations working on different aspects of health and health related issues. The main goals of the Directorate of Health, one of the largest subsidiary agency of the Ministry of Welfare, are supervising and guaranteeing the quality of the healthcare system; work on quality development; gathering information about the state of health and healthcare; and taking care of complaints about the health service (Ministry of Welfare, n.d.a).

The *Public Health Institution of Iceland* (Lýðheilsustöð), now part of the Directorate of Health, was established in 2003 to take care of issues regarding public health. Public health aims are defined as maintaining and enhancing the health, well-being and conditions of people. This is done through general healthcare and health services, health promotion, research and social responsibility. Public health works well if everybody works together. It is a shared responsibility of all citizens, although the authorities play the biggest part in strengthening public health by extensive collaboration and multi-disciplinary approaches. Good public health is also linked to other issues, like social, environmental and economic

issues (Public Health Institution of Iceland, 2006, p. 4). Good public health requests an inter-disciplinary cooperation amongst many members, for example social science, political science, health science, epidemiology, and gender studies. Improved health services, technical advances, increased prosperity and an equalising social system are the major factors promoting better public health (Public Health Institution of Iceland, 2006, p. 5). Health indicators have been defined with the purpose of guiding this process. These indicators include lifestyle; healthcare services; social, environmental and educational factors; employment; and statistics on health, well-being and life expectancy (Public Health Institution of Iceland, 2006, p. 27).

Below the central level, the country is divided into seven healthcare regions, serving 76 municipalities. Each healthcare region has at least one hospital, also health institutions and healthcare clinics, in total counting almost 100 institutions. The healthcare clinics are to be found in almost all municipalities, as they provide the first place to seek for healthcare and are supposed to serve inhabitants in their own locality by providing general medical and nursing services, infant and maternity service, healthcare for the elderly, vaccinations for adults, school nursing etc. (Ministry of Welfare, n.d.a).

As for the results: Iceland's Nordic welfare system has shown itself able to produce good healthcare and social support, and has resulted in one of the world's highest life expectancies at birth, according to *Health at a Glance 2011: OECD Indicators* (OECD, 2011) which provides comparisons of data on key indicators of health and health systems across the 34 OECD member countries along with six non-OECD countries.[9] In 2009 Iceland was in seventh place of the highest life expectance at birth of all the OECD countries, with 81,5 years - highest of the Nordic countries (OECD, 2011, p. 7). Infant mortality rates have declined as well as mortality rates at all other ages. This is connected to improved lifestyles, better education and greater access to health services along with better nutrition, sanitation and housing (OECD, 2011, p. 24). However, many non-medical determinants of health nowadays are linked to lifestyles like the use of tobacco (being responsible for about one-in-ten adult deaths worldwide) and alcohol (particularly binge drinking), unhealthy eating habits and not enough physical activity (OECD, 2011, p. 8). In 2009 15,8% of the Icelandic population aged 15 years and over reported smoking daily (decline from 25% in 1999), compared to 22,1% of OECD average (OECD, 2011, p. 50-51).

[9] The six non-OECD countries are Brazil, China, India, Indonesia, the Russian Federation, and South Africa, all countries with a major economy.

According to the 2012 *Euro Health Consumer Index – ECHI*, the Icelandic healthcare system is in third place among 34 healthcare systems in Europe in terms of quality: the Netherlands being at the top and Denmark receiving the silver.[10] The Netherlands received 872 points out of a total 1000 points possible, Denmark got 822 and Iceland 799. The things considered in the index are: Patient rights and their access to information; Accessibility (waiting times for treatment); Outcomes after treatment; Prevention/Range and reach of services provided; and Pharmaceuticals (Björnberg, 2012, p. 14-15).

In the ECHI 2012 report it is stated that the Icelandic healthcare has the capability to serve a couple of million people, although it only has to serve 300.000 Icelanders. Another interesting point in the report is that if Iceland was not outside the EU and if there where fewer data "unavailable" for the index (especially drug sales data) Iceland would be likely to beat Denmark as the second best performing nation in Europe (Björnberg, 2012, p. 5-6).

In September 2011, the Minister of Welfare, Guðbjartur Hannesson, formed a committee to address the Icelandic healthcare system, to consider whether changes have to be made to fulfil the objectives of security and equality, and to review the distribution of assets in the healthcare system. The committee worked closely with *Boston Consulting Group*, and the recommendations put forward by the committee were partly based on the recommendations given by that group. A "value based healthcare maturity assessment" made by *Boston Consulting Group* showed that Iceland's healthcare infrastructure was good, but it saw a need for the government to form a policy on gathering health information and to improve quality control (Ministry of Welfare, 2011).

The committee formed in 2011 stated that the quality of the Icelandic healthcare system is good, though a few blemishes can be found that need to be fixed: such as the need for gate-keeping between different kind of healthcare institutions, the need to restructure the general healthcare clinics in the Reykjavík capital area and the discrepancy in healthcare registration. Also the committee suggests that the healthcare regions should be less numerous, the same applying to other kind of healthcare institutions. The committee recommends the use of a common electronic medical record base for all healthcare institutions, changes to the ambulance service throughout the country, and a reassessment of the need for surgical and maternity services (Ministry of Welfare, 2011).

Also important is to come up with a contingency plan because of increased obesity, which has increased drastically over the last years. Iceland is ranked in eighth place on obesity rates

[10] It should be mentioned that these three countries also rated the highest in the last Euro Health Consumer Index in 2009.

among the adult population in OECD countries, with 20% of the population being obese. This is linked to not good enough nutrition and lack of physical activity (OECD, 2011, p. 9). Overweight and obesity causes much higher risks of chronic illness, which reflects in high healthcare costs. When looking at Icelandic children aged 5-17 years, 25,5% of girls are overweight or obese and the proportion is 22,0% amongst boys (OECD, 2011, p. 57). Further points about the relevance of the major global health threats to Iceland are covered below.

One of the things considered by the committee was healthcare expenditure. Total healthcare expenditure per capita in Iceland in 2009 was 3538 USD, being a little bit more than the average OECD (3233 USD) (OECD, 2011, p. 149). The healthcare spending share of GDP tends to rise during economic recessions, then stabilizes or declines (OECD, 2011, p. 10). This is exactly what has happened in Iceland over the past years. When the healthcare expenditure is put in relation to GDP the expenditure in Iceland according to *Statistical Series* (Hagtíðindi) was 6,4% of GDP around 1980, became 10,4% of GDP in 1998, than decreased in 2010 to 9,3% of GDP[11] which is similar to the level in other European countries. The general government expenditure was 80,5% of the total health expenditure. At the same time the share of public expenditure has increased from 12,8% in 1980 up to 19,5% in 2010 (Statistics Iceland, 2011a, p. 2).

For public health to be efficient and for it to be possible to overcome the deficiencies, "government policy is probably the crucial factor with respect to the health of the population" according to the *Public Health Institution of Iceland* (Lýðheilsustöð) (2006, p. 6). It is therefore necessary for the government to manufacture a good policy in healthcare and build up a sophisticated healthcare system.

3.3.1 External Cooperation in Health Security

As in other fields, a small state like Iceland that is highly exposed to globalization needs external relationships to help it tackle its health challenges. Each national health system bears the burden on protecting its population in emergencies but in connection to the WHO, *the International Health Regulations* (IHR) can help countries managing public-health issues by countries reporting all significant public-health events to WHO, cooperating with WHO and other countries and exchanging information (WHO, 2011, p. 45). The Chief Epidemiologist in Iceland maintains contact with the WHO in case of an event that could endanger the international community. In cooperation with the WHO Iceland follows the International

[11] Amounted to 143,5 billion ISK. This means the share of the healthcare expenditure is around 15,0% of the general government total expenditure.

Health Regulations (IHR), intended to hinder the spread of dangerous infectious diseases and diseases from toxins and radioactive materials between countries. These are important international rules for preparing against and responding to pandemics spreading around the world, like influenza, SARS and others (Directorate of Health, 2010a).

The Nordic states have collaborated on health security matters for a long time. This collaboration covers areas like responses to major disasters and incidents involving toxins and chemicals, with discussion on joint medicine purchase and supplies; development in medicine and equipment; education of the healthcare employees; and joint publication of manuals on healthcare preparation. It also touches on areas of public healthcare like alcohol; drugs; cooperation on handicaps; health reports; dentistry; and civil defence (Ministry of Welfare, n.d.b). By making a joint Nordic Public Health response plan to deal with challenges like pandemic influenza, education of the health workforce and the quality of care, the Nordic governments hope to improve the public health in all the five countries (Norden.org, n.d.).

Although not a member of the EU, Iceland takes part in the EU Network Committee on Communicable Diseases where the European Commission consults with authorities in each member state over how to maintain readiness and react in case of infectious disease. Iceland also is a member of the EU Health Security Committee that works as a consultative organ for European states in case of infections from germs, toxins and radioactive materials (Directorate of Health, 2010a). European cooperation on health security matters takes place in association with the Council of Europe, European Network of Health Promoting Schools, through the EEA agreement and the EU (Ministry of Welfare, n.d.b).

3.3.2 The Main Challenges Regarding Health Security in Iceland

According to the Chief Epidemiologist in Iceland, Haraldur Briem, the greatest health security risk for Iceland comes from Mother Nature, be it in the form of epidemics or other natural disasters (H. Briem oral source, April 13th, 2009). But the problem goes wider than this - not only because of Mother Nature. A proper health security policy must face up to acute public health threats of many kinds, ranging through the effects of environmental degradation or climate change, pandemic influenza and other emerging diseases, threats of biological, chemical, radio-nuclear incidents and humanitarian emergencies.

The recommendations included in the Risk assessment report regarding health security and health security threats were: the need for reserves of nursing supplies, medicine and other

equipment for at least 12 months[12] and how to stock them; the need to ensure that supplies are kept in a secure centralized area that makes access and distribution easy in case of health threat; the need to establish a surveillance system for epidemics and other notifiable diseases; to further increase the response plan for pandemics to cover all institutions that are involved, so as to define their role and responsibility in case of emergency and the modalities of cooperation between them (Ministry of Foreign Affairs, 2009, p. 63-64).

Looking at the topics put forward in chapter 2.6 above as the main generic issues arising under the term of health security, the Icelandic government has put different degrees of effort into these matters. According to the UNDP (see table 1 in section 2.3.2) health security concerns start with good nutrition, safe environment, safe water, access to healthcare and protection from disease. All these matters are to be found in the government's policy in Iceland. They are largely divided between two ministries - Ministry of Welfare and Ministry for the Environment and Natural Resources - but are all cited among the main tasks of the ministries (Ministry for the Environment and Natural Resources, n.d.; Ministry of Welfare, n.d.c.). Some ministries are further behind than others in forming a policy on these matters.

As noted above in sections 2.6.2 – 2.6.4 McInnes (2008) and Maclean (2008) identify three major health issues that have increased the need for securitizing health. If these three matters are looked at as a challenge for Iceland they all need to be taken into account when forming a proper health security policy. Official evaluations have already been made on the risks of biological- and chemical weapons for public health and the ability of the healthcare system to deal with patients that become infected by disease because of biological, chemical or radio-nuclear agents (Directorate of Health, 2002). According to that evaluation the healthcare system is not sufficient to take on a major incident of this kind despite being relatively best qualified to discover and react to bioterrorism (Directorate of Health, 2002, p. 6). According to the Risk assessment report there is little chance of bio-attack in Iceland (Ministry of Foreign Affairs, 2009, p. 16) but that does not mean such an attack is not possible. There *is* a security risk due to intentional or accidental releases of biological, chemical or radio-nuclear agents and Iceland has to be able to tackle these kinds of threats.

Looking at HIV/AIDS, the next security challenge according to McInnes and Maclean, the disease has always been a big threat and treated as such. Since the first diagnosis in Iceland in 1983 and until December 31st, 2010 a total of 257 cases of HIV infection had been reported in Iceland (184 men and 73 women). Of these, 62 patients (53 men and 9 women) had been diagnosed with AIDS and 38 (33 men and 5 women) had died of the disease (Directorate of

[12] Now the supplies are only adequate for a pandemic that lasts three months

Health, 2011). AIDS is mentioned once in the Risk assessment report, saying that the AIDS pandemic is still raging (Ministry of Foreign Affairs, 2009, p. 61), but is not considered as a security threat for Iceland.

Instead, the Risk assessment report put the primary focus on infectious disease and pandemics; the last serious threat identified by McInnes and Maclean. Pandemics can have a massive effect on the healthcare system and the health of the people. Iceland is in contact with other countries around the world daily so diseases can transmit to the country in no time - in worst cases it would take only a few days for a pandemic to reach Iceland from abroad. The advantage of the isolation of Iceland in case of pandemic and global infectious disease is how easy it is to close the borders. The main hub for international transport is Keflavík International Airport, so in case of emergency not so many ways in to the country need to be closed.

On the other hand the Icelandic economy and daily lives rest heavily on foreign trade, tourism and imports of many kinds, including high technology, nursing supplies and medicine directly relevant to battling a pandemic, which can be a problem if borders are closed (Ministry of Foreign Affairs, 2009, p. 59). Icelanders can be more sensitive to new diseases and can get infected more easily than others because of the isolation of the country that leads to more casualties than elsewhere. Also, the population is limited so a pandemic with a significant rate of mortality can have enormous effects on Iceland, for instance by more rapidly knocking out important categories of experts and destroying the viability of small communities (Ministry of Foreign Affairs, 2009, p. 16).

A response plan has already been made in Iceland on how to react in case of a pandemic, and the next three chapters will focus solely on pandemics and responses. Having a security policy and ideas on how to respond to an emergency does not necessarily mean that in case of a disaster the strategy that has been put forward is followed. The state can draft a good strategy on how it should react in case of a disaster, but finding the practical and psychological means to respond in a real emergency can be hard for some states.

In the following chapter the response plan and the devices used in case of a health security situation occurring, both globally and in Iceland will be covered.

4 RESPONSES TO INFECTIOUS DISEASES AND PANDEMICS

As already mentioned, nowadays there is a growing recognition that an outbreak in one place of the world can potentially cause an emergency in another within no time and have an effect on the international global health. Because of this there is great need for global cooperation and coordination in trying to reduce the speed of a pandemic like influenza. Preventing global spread is not the only concern of international organizations and regulations, as some of them are also designed to handle other problems and "side effects" of a pandemic, for example ensuring minimum impact on travel and trade (Heymann, 2003, p. 203). Most important is the capacity to keep society functioning despite the lack of work force. Central to health security, systems have been developed to collect simultaneously issue information about detecting disease threats, monitoring changes and taking control measures.

This chapter will be presented in three parts. First it will review how the international system and states work together on global response to infectious diseases and pandemics. The second part explains the motives both for the international system and for countries like Iceland to make a pandemic response plan. The last part of this chapter then describes the main actors and their roles in case of a pandemic, according to the Pandemic response plan.

4.1 GLOBAL RESPONSES IN CASE OF INFECTIOUS DISEASES AND PANDEMICS

There has been increased political attention on response planning and how to respond to pandemics of infectious disease. Cooperation is required in case of pandemics, both nationally and internationally, to reduce the risks to health security for the state and individuals. The WHO has argued that "...the surest way to detect a deliberately caused outbreak is to strengthen the systems used for detecting natural outbreaks, as the epidemiological and laboratory principles are fundamentally the same" (WHO, 2007a, p. 37). Here it shall be reviewed how the international system has tackled health security matters, especially infectious disease and pandemics, by means of common policy making, international cooperation and a common global surveillance system.

4.1.1 International Cooperation on Health

Formal cooperation in international health began in 1851, when the first international health conference, the International Sanitary Conference in Paris, sought to contain infectious disease without impeding international trade (Maclean, 2008, p. 478). Then, in 1896, Global health surveillance began when the International Sanitary Conference agreed on the need for international health surveillance (Commission on Human Security, 2003, p. 106).

The International Health Regulations (IHR) were adopted in 1969 to provide a legal framework ensuring maximum protection with minimum disruption in trade and travel in case of the international spread of diseases, focusing on few diseases at that time: cholera, plague, relapsing fever, smallpox typhus and yellow fever. They provide a basis for strengthening international cooperation in cases of infectious disease, and drew upon a series of agreements over the last one and a half century (Commission on Human Security, 2003, p. 108; Clevestig, 2009, p. 89).

In 2005 the IHR was revised to address extraordinary emergency events that could spread internationally and demand an international cooperative response. The new IHR was not only limited to these diseases mentioned before but addressed any illness or medical condition that does or can harm humans in significant ways. Its role was broadened to cover public health emergencies of international concern, strengthening collaboration on a global scale by seeking to improve the capacity to tackle global health issues and reach out to countries that until then had not take part in the IHR. The IHR 2005 lays down rules for countries to follow in order to identify a disease outbreak. The aim is to "prevent and respond to acute public-health risks that have the potential to cross borders and threaten people worldwide" in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade (WHO, 2011, p. 8).

In 2007 the IHR was revised again to oblige countries to build up or strengthen their own capacity to "prevent, protect against and control disease outbreak" (WHO, 2007b, p. 11). Besides infectious diseases it covers cases of release of pathogens or chemical or radio-nuclear materials. Under the revised IHR, states are required to report all events that can result in public health emergencies of international concern, including those caused by chemical agents, radioactive materials and contaminated food (WHO, 2007b, p. 11-13).They are also required to increase their preparedness for pandemic influenza. This inspired the Icelandic government to look more closely at how they intend to respond to pandemics, with results covered in section 4.2.

The first global preparedness plan was published by the WHO in 1999 in connection with avian influenza (H5N1).This plan incorporates a "whole-of-society" approach, taking into

account other factors of society than just the healthcare system. Each country then adapts the preparedness plan according to its own needs (WHO, 2011, p. 38). This plan was then revised in 2005 after the second avian influenza outbreak, addressing the possibility of the prolonged persistence of an influenza virus. In the plan suggestions are listed for six phases of nation's response to pandemics, alongside the WHO's own actions. The main changes made in the second plan are: redefining the phases of increasing public health risk related to the emergence of a new influenza virus subtype (see table 2 below); more attention given to early phases; more specific objectives and activities at each phase, both for the WHO and national authorities; and harmonizing recommended measures with the IHR. The plan allows for the possibility that, even when pandemic breaks out in many countries at the same time, different threat levels can be used in different countries (WHO, 2005, p. 5).

Table 2: Phases of an Influenza Pandemic

New Phases	Overarching Public Health Goals
Interpandemic period:	
Phase 1. No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.	Strengthen influenza pandemic preparedness at the global, regional, national and subnational levels.
Phase 2. No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk[a] of human disease.	Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.
Pandemic alert period:	
Phase 3. Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact[b]	Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.
Phase 4. Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans[b]	Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.
Phase 5. Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).	Maximize efforts to contain or delay spread to possibly avert a pandemic, and to gain time to implement pandemic response measures.
Pandemic period:	
Phase 6. Pandemic: increased and sustained transmission in general population[b]	Minimize the impact of the pandemic.

[a] The distinction between ***phase 1*** and ***phase 2*** is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

[b] The distinction between ***phase 3***, ***phase 4*** and ***phase 5*** is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

Source: The WHO, 2005, p. 2.

Responses to a pandemic do not end when the pandemic is over. During a so-called *Postpandemic period* usually lasting one to two years after the WHO has announced the

pandemic is over, researches are needed to monitor and compare the expected seasonal levels of disease, to maintain surveillance and regularly update planning (WHO, 2005, p. 9; WHO, 2011, p. 11).

As has been noted above, pandemics are an existential threat that can cause social collapse if not handled in appropriate way. They can affect food security, economic security and transports, for example, because in very serious cases global responses to pandemic can mean closing airports, recession in tourism and changes in international businesses patterns that can lead to economic crash for some time (Ministry of Foreign Affairs, 2009, p. 16). But all this is temporary, and offset by the fact that strict measures should help to stop the pandemic sooner.

States have to be able to identify infectious outbreaks and respond to pandemic rapidly. This is not possible without international support and global surveillance systems offer the best chance for reducing such threats (Commission on Human Security, 2003, p. 106). A coordinated global response has already brought success - with global disease prevention teamwork it was possible to stop the spread of the Severe Acute Respiratory Syndrome (SARS), a respiratory disease of unknown etiology characterized by fever and coughing or difficulty breathing or hypoxia that originated in China in 2003 and spread over the world (Ministry of Foreign Affairs, 2009, p. 61). This would not have been possible without a coordinated response spearheaded by the WHO.

4.1.2 Global Surveillance Systems Tackling Infectious Disease and Pandemics

The transnational spread of infectious disease calls for global cooperation on sharing information on how to tackle the disease and securing the safety of states and their citizens. In earlier times governments were unwilling to report cases of outbreaks as they could harm the economic system by discouraging trade, travel and tourism (WHO, 2007a, p. xiii). But now regulations have created an obligation for states to notify cases of infectious disease through international surveillance systems. The surveillance systems in use in tackling infectious disease and global pandemics depend on people and local communities, but national and international systems are needed to activate and empower people and communities. The surveillance systems are based on participation of many actors, like nongovernmental organizations, the media and of course the national authorities who, along with the intergovernmental system, play a key role (Commission on Human Security, 2003, p. 104-105). Good relations between state authorities and the private sector are also important

because of the latter's role in providing and distributing crucial resources, like water and food, and critical infrastructure.

The WHO *Global Influenza Surveillance Network* (GISN) dating from 1952 is one of the early warning systems on the emergence of influenza variants and new species. It has played an important role in gathering information on influenza viruses and infections, tracking and analysing influenza viruses, now with 106 countries as partners, Iceland included (WHO, 2011, p. 43-44).

In order to cover gaps in the capacity of many national systems, an effective global system of epidemic alert and response and risk assessment was initiated by the WHO in 1996, involving cooperation with other international agencies and institutions to gather epidemic intelligence and verify the risk in case of outbreaks. A single mechanism was established for collating information about outbreaks and epidemic intelligence, making joint risk assessments and response plans and acting as an information provider for the general public and institutions. This system also takes on problems like distribution of drugs and vaccines, stockpiling and protection equipment in case of influenza and other health problems that can spread rapidly (WHO, 2007a, p. 8).

One of the most successful recent initiatives for global surveillance has been the cooperative development of a global infectious disease surveillance and response network, *The Global Outbreak Alert and Response Network* (GOARN), initiated by the WHO in 2000. GOARN's primary aims are to help, on technical levels, institutions and networks already handling international outbreaks; to improve the coordination of international outbreak responses; and to keep the international community alerted at all times to the threats of an outbreak and how to be ready to respond. It works with governments, ministries of health, centres of national laboratories and institutes, university centres, health professionals and other public health specialists and other resources in the health system of member states, and with other UN agencies, who all are willing to share information about a given health situation. Information gathered from all these sources is assessed and verified on a daily basis (Commission on Human Security, 2003, p. 106; WHO, 2007a, p. 8). The network has established standardized procedures for verifying infectious disease outbreaks with the help of international experts. This was the case when the avian influenza re-emerged in 2003 and 2004. International team from GOARN arrived in countries - for instance Cambodia - where the disease had reached in order to reduce opportunities for human infection by transmission from birds to humans and to support health authorities in the epidemiological investigation and containment of human cases (WHO, 2004).

All these newly established agreements and regulations "...give health a higher place on the global development agenda and underscore its fundamental importance to human health security" (Heymann, 2003, p. 208-209). Now, more than ever, the international community is willing to cooperate in the fight against infectious diseases globally. This has resulted in more risk awareness in case of diseases, more knowledge, information sharing and a stronger capacity to respond properly so that an epidemic outbreak need not to turn into a pandemic.

Iceland, like other countries, has had to revise its response plans in order to fulfil the requirements of international regulations on preparedness planning and to adjust them to Icelandic circumstances. This has been done by developing Iceland's own pandemic response plan in line with the WHO standards and taking account of the changes in the world over the past decade or so. The aim of the next part of this chapter is to look at the story behind the pandemic response plan making in Iceland.

4.2 Background to Pandemic Response Planning in Iceland

After the avian influenza virus in 2005 there was growing concern about potential recombination with viruses found in birds, pigs and humans, leading to human-to-human spread that could result in high morbidity and mortality. Memories were aroused of the first pandemic influenza that occurred in the last century, a global pandemic that killed between 50 and 100 million people all across the world.

The first of three global pandemics of the 20th century, and the most severe of them all, reached Iceland in October 1918; a pandemic called the Spanish flu. It was very forceful, with around 60% of the Icelandic public getting sick and about 500 dying – half of them in the Reykjavík area. This was not the first time a pandemic occurred – they have been happening two or three times a century since the sixteenth century - but what was so special about this one was how fast the pandemic spread and that mostly people in the age of 20-40 years old died, not elderly people as usual. Travelling limitations were set up: Holtavörðuheiði in the north-western part of the country and the road by Mýrdalssandur in the south-east area were closed. The other two pandemics in the last century were the Asian flu in 1957 and the Hong Kong flu in 1968 but they did not have nearly as much impact in Iceland as the Spanish flu in 1918 (The National Commissioner of the Icelandic Police [NCIP] and the Chief Epidemiologist, 2008, p. 5).

After the Hong Kong flu in 1967 no new influenza pandemic occurred for a long time and with 2-3 pandemics normally crossing the globe each century, concerns grew about the possible timing of a new outbreak. So when the avian influenza started to circulate in 1999

and again few years later there were fears of it starting to spread human-to-human and causing a pandemic outbreak and states and organizations started looking at security strategies in case of a pandemic.

According to Bailes (2011, p. 10), a small state needs a security strategy, perhaps even more than other states. But it can be hard for small states to pick up an already-made policy, made by other states or international organizations, as each state has its individual security concerns, needs and values. Not so many states (if any) have to prioritize their security policy the same way as Iceland, for example, so the only way to cover all security issues is for Iceland to make a security policy of its own. As has been noted above, the WHO's revised preparedness plan of 2005 eventually triggered the Icelandic government to start working on a preparedness plan of its own, in line with Icelandic needs and security considerations.

On October 7th, 2005 the Government Offices of Iceland gave approval for an examination of how to respond in case of pandemic influenza. This would be done by taking a closer look on the development of response plans in the neighbouring countries and within the *European Centre for Disease Prevention and Control* (ECDC)[13] and the WHO, then making a response plan for Iceland that would be in harmony with these plans and international regulations (The NCIP and the Chief Epidemiologist, 2008, p. 5).

A practice exercise on pandemic influenza was first carried out with the EEA in November 2005 and another in December 2007. Various flaws were discovered including the need to improve the interaction between ministries and the *Joint Rescue Coordination Centre* (Samhæfingarstöðin - hereinafter The JRCC). Important definitions were missing; no special attention had been given to gathering key information about the pandemic. Other issues included how many supplies were supposed to be in stock, and where; and the need for preparedness for companies and institutions (Marelsdóttir, 2009b, p. 8).

In the beginning of 2006 the Communicable Disease Control at the Directorate of Health and the Civil Protection Department of the National Commissioner of the Icelandic Police (herein after the CPD) started working on a Pandemic influenza response plan. This work took two years and the results can be seen in the 96-page response plan that was signed on March 28th, 2008. The plan was immediately adopted by everyone concerned as all the relevant parties had also been a part of making the plan (Marelsdóttir, 2009b, p. 8). Its contents will be sketched in the following section.

[13] The ECDC is an EU agency created in 2005 with the aim of identifying, assessing and communicating both current and emerging threats to human health posed by strengthening the EU/EEA defences against infectious diseases.

4.3 Iceland's Response Plan for Infectious Diseases and Pandemics

The pandemic in 1918 was used as a frame of reference when making the Pandemic influenza response plan and around 100 people were involved in making it, coming from different fields, businesses and different institutions, and working in sub-groups to cover as many different aspects of pandemic security as possible (Marelsdóttir, 2009b, p. 2). The aims of the plan were to minimize the impact of a pandemic by hindering, if possible, its transmission throughout the country; minimize the danger of contagion; protect important activities and institutions in the society with coordinated responses and ensure good information for everyone that has to keep on working; inform and educate the public; cure and care for the sick; and maintain a surveillance system (The NCIP and the Chief Epidemiologist, 2008, p. 6).

In accordance with the new plan the WHO made in 2005 (see table 2 above) three stages of danger have been defined in the response plan, linked to pandemic influenza. The first one, *Uncertain phase,* corresponds to phase 3 according to the WHO. This involves mainly observations, measures and evaluations when a new influenza virus is found in humans but infection between humans is not known or in very few cases. The second stage, *Danger phase,* is a combination of phase 4 and 5 according to the WHO. This is where preparation for an influenza pandemic starts seriously after the virus has been diagnosed in a few areas but is still localized. The third and last stage is *Emergency phase* and is activated when the influenza virus has been found in one or more humans in Iceland or the WHO has declared a pandemic outbreak (The NCIP and the Chief Epidemiologist, 2008, p. 9-10).

The first evaluation of the pandemic response plan was made by representatives from the ECDC in October 2007, and revealed both good and bad points. The ECDC pointed out the plan was in line with what the WHO had requested member states to do, and gave a good overview of the whole country, but needed better organization at the regional level. The strengths of the response plan according to the ECDC representatives were its inter-disciplinary approach; an excellent plan on distribution of vaccines and protection equipment; good plans on common disease prevention; distribution of logistics; unbroken management in important institutions; the special attention given to certain social groups like prisoners; Iceland's strong net of volunteers; and the rapidity of communications. The shortcomings found included lack of manpower; the process for discussing measures; the need for training for those gathering information about pandemic influenza; epidemiologist's training needs;

the need for better relations between animal and human laboratories, and between the Icelandic government and the regional governments (Marelsdóttir, 2009b, p. 9).

4.3.1 The Civil Protection Act and the Act on Health Security and Communicable Diseases

The pandemic response plan is also linked with two laws regarding health and health security.[14] The *Civil Protection Act* no. 94/1962 (Lög um almannavarnir), was one of the main supports used when formulating the response plan. These laws have now been repealed and new laws were enacted June 1st, 2008. According to Article 1 in the new *Civil Protection Act* no. 82/2008 the aim is to

> prepare, organise and implement measures aimed at preventing and, to the extent possible, limiting physical injury or damage to the health of the public and damage to the environment and property, whether this results from natural catastrophes or from human actions, epidemics, military action or other causes, and to provide emergency relief and assistance due to any injury or damage that may occur or has occurred.
>
> *The Civil Protection Act.*

The Act explains the role of the *Civil Protection and Security Council*[15] and the JRCC; the structure of Civil Protection, both at the national and regional level; preparation of response plans; civic duties in times of peril; and articles 28-31 discuss *the very important* role of the *Civil Protection Investigation Committee* (Rannsóknarnefnd almannavarna) (The Civil Protection Act).

According to the 28th article of the Civil Protection Act a Civil Protection Investigation Committee shall, when a hazardous situation has ended, examine the response plans that were used and the measures taken by the responsible bodies. The Alþingi elects three persons and three alternates to serve on the Committee for terms of five years. This Committee operates independently, without any influence by the Government, state prosecutors, the courts or other investigation bodies. When the examination of the hazard is complete the Committee shall then compile a report presenting its conclusions, proposals and other matters of significance (see articles 28 - 30 in the Civil Protection Act).

Act no. 19/1997 on Health Security and Communicable Diseases (Sóttvarnarlög) was enacted on January 1st, 1998. In section 1, definitions are listed of measures to be taken

[14] Many other laws are connected to health and health security in Iceland, for instance *Medical Director of Health Act, Patients' Right Act,* and *Act on Radiation Protection.* But these are not further discussed in this thesis.

[15] A closer look will be on the CPSC in section 4.3.3

against infection and dangerous communicable diseases. These measures shall be applied when a risk exists of pandemics reaching Iceland, or being spread from Iceland; when a risk exists of an epidemic spreading within the country; and/or when an infected individual creates a risk of the spread of infection by his/her conduct (Act on Health Security and Communicable Diseases). The Act covers the same broad range of issues as mentioned in chapter 2.6 on health security and dangers resulting from pandemic and epidemics, both domestic and external. It is not only about diseases, but all unexpected health threats like infections, toxins and chemicals "…caused by infectious material, microbes, and their toxins, or parasites and also serious health consequences caused by toxic chemicals and radio nuclear materials" that can cause epidemics and pose a threat. Also, this act applies to "unusual and unexpected events" that can cause severe health consequences (Act on Health Security and Communicable Diseases).

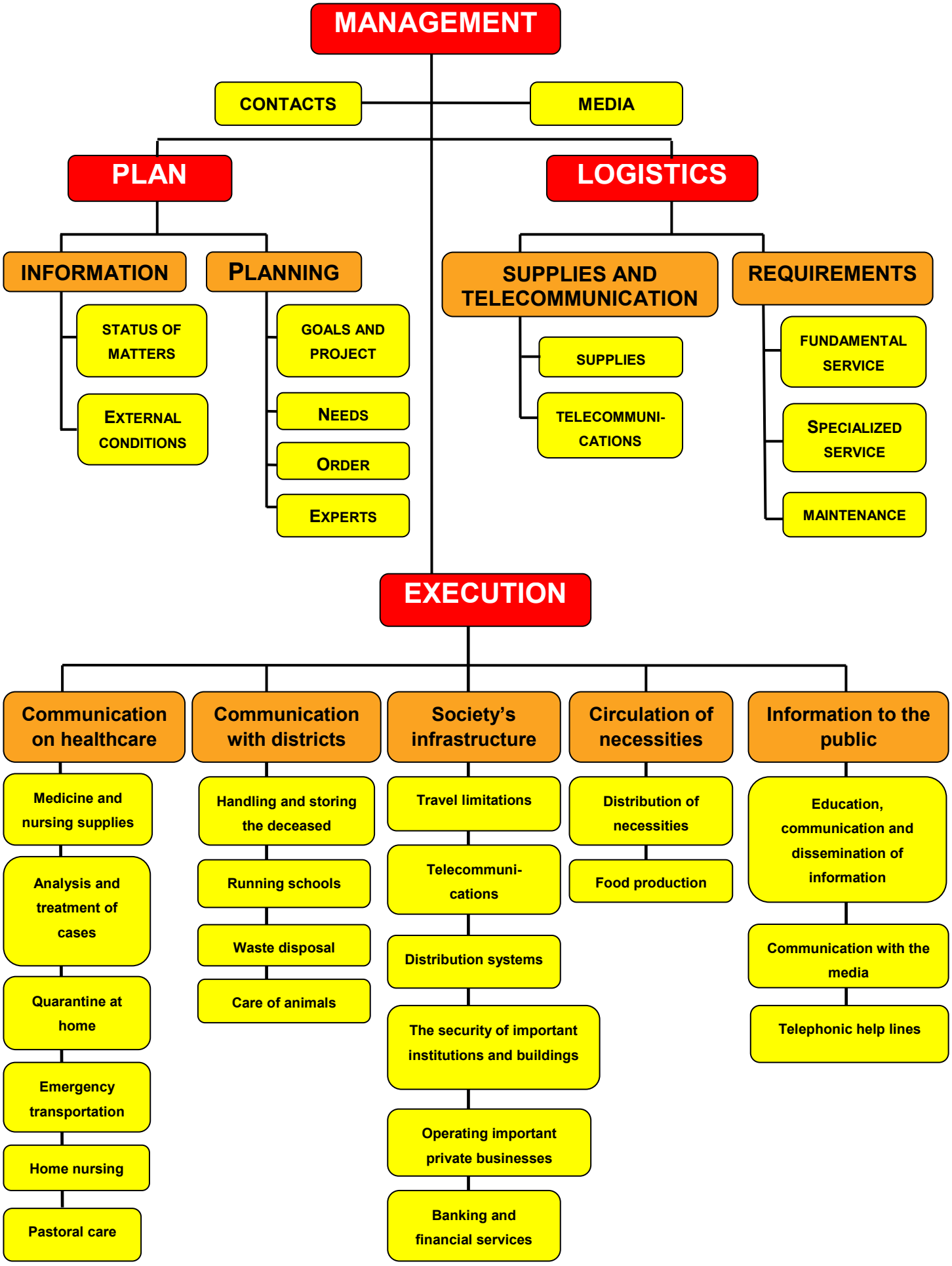
In the Act the principal responsibilities of the Chief Epidemiologist are listed as the overall management of health security and communicable disease control and prevention, the Directorate of Health being responsible for carrying out the communicable disease control and prevention under the supervision of the Minister of Welfare. The Chief Epidemiologist can appoint a collaborative committee if he identifies any risk from animals, food, water, sewers, ventilation or other things in the environment that can distribute infectious sources of disease, toxic chemicals or radio-nuclear agents that can harm individuals. The committee consists of a range of participants from different ministries and agencies: the Chief Epidemiologist, the Icelandic Food and Veterinary Authority, the Icelandic Radiation Safety Authority and the Environment Agency of Iceland. This committee is supposed to gather necessary information and supervise measures for assessment and eradication of any threat (Act on Health Security and Communicable Diseases).

Section IV lists the public measures against communicable diseases with regard to risk of epidemics in Iceland, measures regarding spread of epidemic to or from Iceland and risk of infection from individuals are listed, and describes how the cooperation works between the Chief Epidemiologist and the Minister of Welfare in case of a pandemic (Act on Health Security and Communicable Diseases). Theses aspects will not be further pursued here but the respective roles will be analysed in section 4.3.3 in connection with the Pandemic influenza response plan.

4.3.2 WHICH ISSUES DOES THE PLAN COVER?

As has been mentioned before, pandemics disrupt broad aspects of society and need many actors, individuals and institutions to help in preventing social collapse. Many members from all circles of society participate together with the state authorities, including private business, media and nongovernmental organizations. The scenario put forward in the response plan was a pandemic lasting 12 weeks, with up to 50% of the labour force absent from work (The NCIP and the Chief Epidemiologist, 2008, p. 12). We should bear in mind that the tasks put forward in the plan are addressed to this worst case scenario – taking into account the maximum number of things that could go wrong.

In case of emergency the JRCC is fully activated and has the largest role when a pandemic occurs, being responsible for overall coordination and linking the communicable disease districts with each other and with all main response agencies and institutions. It also obtains and distributes supplies if needed (The NCIP and the Chief Epidemiologist, 2008, p. 15). In the response plan there is an organization chart showing whom to contact, what can be activated, what to pay attention to, and so forth in the case of a pandemic. The chart defines four main parts of the work process and each of them has different subdivisions with further details. These four parts are Management – including contacts with the media and all responsible authorities; Plan – on providing information about the situation and any further planning; Logistics – on supplies, telecommunications and service requirements; and Execution – on what are the most important features to keep the society's infrastructure functioning, the healthcare system, communication with districts, necessities and logistics, and how to inform the public about the pandemic. The organization as contained in the response plan can be seen fully on the next page (The NCIP and the Chief Epidemiologist, 2008, p. 18).


MANAGEMENT
CONTACTS
MEDIA
PLAN
LOGISTICS
INFORMATION
PLANNING
SUPPLIES AND TELECOMMUNICATION
REQUIREMENTS
STATUS OF MATTERS
EXTERNAL CONDITIONS
GOALS AND PROJECT
NEEDS
ORDER
EXPERTS
SUPPLIES
TELECOMMUNI-CATIONS
FUNDAMENTAL SERVICE
SPECIALIZED SERVICE
MAINTENANCE
EXECUTION
Communication on healthcare
Communication with districts
Society's infrastructure
Circulation of necessities
Information to the public
Medicine and nursing supplies
Analysis and treatment of cases
Quarantine at home
Emergency transportation
Home nursing
Pastoral care
Handling and storing the deceased
Running schools
Waste disposal
Care of animals
Travel limitations
Telecommuni-cations
Distribution systems
The security of important institutions and buildings
Operating important private businesses
Banking and financial services
Distribution of necessities
Food production
Education, communication and dissemination of information
Communication with the media
Telephonic help lines

Corresponding to the sectors in the chart, tasks are defined for various people and institutions to take care of in case of a pandemic. Nineteen tasks are listed and the named responsible authorities are supposed to make a plan for how to handle each factor. Here, not all of these tasks and persons involved will be explained in detail.[16] But to give an example of how widely they range and affect society, three of the nineteen tasks will be given a closer look.

Banks and financial services: The main task is to maintain the functioning of primary services in the financial system so that the public and corporations can pay bills, settle accounts and have access to their bank accounts – especially through online banking - and money distribution can take place if needed. Those responsible for this aspect are the Central Bank of Iceland, Reiknistofa bankanna – the IT service provider for Icelandic financial institutions, the Icelandic Financial Service Association, the Icelandic Securities Depository, banks and saving banks (The NCIP and the Chief Epidemiologist, 2008, p. 26).

Breakdown in supplies, telecommunications, and media: The public has to have access to electricity, district heating, drinking water, and important information, and usual communication routes[17] have to function so that the necessary service in these fields can be provided. This is in the hands of Samorka – the Icelandic Energy and Utilities, distribution systems, phone companies, radio stations, television channels, the Post and Telecom Administration in Iceland, telecommunication systems, and newspapers (The NCIP and the Chief Epidemiologist, 2008, p. 26-27).

Vaccination, nursing supplies and medicine: Here the main tasks are to ensure safe supplies, distribution, and registration of medicine and nursing supplies, provision of information to healthcare institutions, distribution and allocation of medicine and nursing supplies between districts for handling communicable diseases and healthcare institutions, and publishing instructions on the use of pandemic vaccine. These tasks are fulfilled by epidemiologists, purchase managers of medicine, the Civil Protection, medicine distributers, postal service, the pharmacy at Landspítali, chiefs of police, healthcare institutions and healthcare workers (The NCIP and the Chief Epidemiologist, 2008, p. 27).

The other sixteen tasks in the response plan are Home nursing, the Prisons, Schools, Food production, Postal service, Moving patients, Garbage collection, Service for animals, Distribution of logistics, Education, relations and information provider, Psychological help, Handling and care of the dead, Security of hospitals and other important institutions,

[16] Unfortunately the response plan has not yet been available in English version, but an Icelandic version is available online at http://www.almannavarnir.is/upload/files/31032008_influensa_%C3%A1%C3%A6tlun_utgafa_1.pdf. (The NCIP and the Chief Epidemiologist, 2008).

[17] Meaning telecommunications, radio broadcasting, internet service and television

Analysing and treatment of influenza, Travel limitations, and the Supreme government (The NCIP and the Chief Epidemiologist, 2008, p. 25).

4.3.3 WHO IS INVOLVED IN ICELAND?

The main core of the response plan is how to maintain the necessary minimum of activity in society despite loss of workers and ensure an organized and coordinated response by all important actors (The NCIP and the Chief Epidemiologist, 2008, p. 4). To be able to do so everyone has to be involved and follow the instructions given according to the response plan. The management system in case of a pandemic is mostly in the hands of four institutions that supervise subsidiary bodies. The four main institutions and their roles will now be explained.

The role of the Icelandic government: The Icelandic government's role is to guarantee security and good public health and in case of a pandemic its role is to ensure that the whole society works properly, with all the main departments and agencies functioning even without their usual manpower. For this to be possible, all ministries and offices are supposed to make a response plan of their own and prioritize work that must be continued at all times, even at the expense of dropping other duties. Special care has to be taken on the healthcare system and emergency services (The NCIP and the Chief Epidemiologist, 2008, p. 12).

One of the tasks of the Prime Minister is to activate an *Economic Defence Committee* (Hagvarnarráð) with permanent secretaries from all ministries, to assist the government in terms of health security, administration and preparation in time of a pandemic. The committee also assesses what logistics are needed for the nation to survive in dangerous times and ensures that proper steps have been taken in making a response plan in each ministry (The NCIP and the Chief Epidemiologist, 2008, p. 13).

The role of the Chief Epidemiologist: The Chief Epidemiologist works under the supervision of the Directorate of Health. In article 5 in the Act on Health Security and Communicable Diseases the principal responsibilities of the Chief Epidemiologist are defined as: to organize and coordinate communicable disease control and prevention by publishing guidelines on how epidemics should be handled; to maintain a register of communicable disease, monitor the spread and gather detailed data on diagnosis; to keep a register of the use of antimicrobial drugs; to publish information on the spread of communicable diseases; to provide advice to physicians; and to supervise communicable disease prevention (Act on Health Security and Communicable Diseases).

When a pandemic occurs the Chief Epidemiologist is responsible for appropriate preventive measures and organizes and coordinates responses, for example by publishing

instructions and brochures on how to react. He is also the intermediary with international organizations that cooperate in times of a pandemic, and usually is the first man to hear about a new pandemic occurring.[18] The Chief Epidemiologist convenes the *National Committee on Communicable Diseases* (Sóttvarnaráð), a committee of seven with the task of advising health authorities on how to prevent further spread of the disease. In time of a pandemic the Minister of Welfare can also form a cooperation committee to gather important information on how to evaluate and eradicate the danger of infection (The NCIP and the Epidemiologist, 2008, p. 13-14).

The country is divided into eight districts for the purpose of handling communicable diseases (see Figure 1). Each region has an epidemiologist responsible for disease prevention there. The epidemiologist works closely with the chief of police in each police district (The NCIP and the Chief Epidemiologist, 2008, p. 14). There are 15 districts of police so there is mismatch between the numbers of epidemiologists and chiefs of police. After the response plan came into force changes were made in *Regulation on nomination of head physician at public care centres to deal with disease prevention* no. 834/2007, which now states that more than one epidemiologist can work in each district, to work in better connection with the chief of police (Regulation on nomination of head physician at public care centres to deal with disease prevention no. 834/2007).

[18] This was not the case in the pandemic influenza A(H1N1) 2009. Then, the Chief Epidemiologist got a phone call from a worried Icelandic mother after receiving an email from her daughter in Mexico, saying she was all right despite all the fuss "because of undefined serious condition in the country." No information was to be found on international websites informing the world about new serious influenza illness found in humans, until about an hour later, (Briem, 2009b, p. 1).

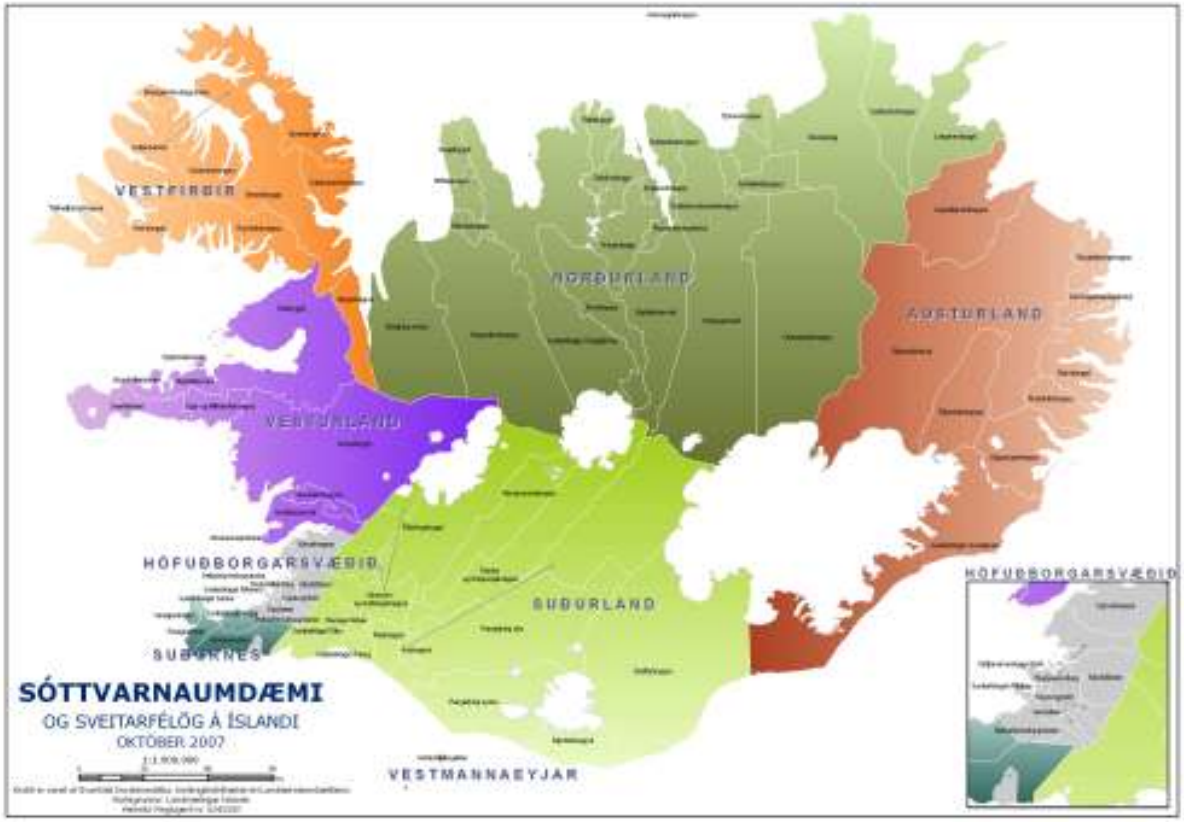


Figure 1. The eight districts for handling communicable diseases.

Source: Directorate of Health, n.d.a.

The role of the National Commissioner of the Icelandic Police: The National Commissioner of the Icelandic Police (NCIP) is in charge of overall co-ordination of civil defence issues, acting as the head office of Civil Protection in Iceland and of the 15 police districts. The role of the NCIP during a pandemic is to procure and deliver all outside assistance (either national or international) for an area stricken with disease, while monitoring and supporting research and studies related to risk factors. The chief of police in each police district works closely with the Civil Protection but also with international partners. In case of a pandemic the police operate according to the Act on Health security and communicable diseases and the decisions of the Chief Epidemiologist (The NCIP and the Chief Epidemiologist, 2008, p. 15).

The Civil Protection Department (the CPD) organizes and implements measures for the safety of the public and prevents them from further harm in case of pandemics. The office also renders relief and assistance during a pandemic, helps coordinate operations to minimize damage and coordinates implementation of the response plan on the national level, regional level and within institutions. In times of a pandemic described being on a Danger phase, the JRCC is partly or fully activated, depending on how severe the pandemic is, and the CPD is

supposed to move its office to the JRCC partly or wholly (The NCIP and the Chief Epidemiologist, 2008, p. 46).

In each regional community there is a *Civil Protection Committee* (Almannavarnanefnd) that consists of the chief of police, epidemiologist and other key persons responsible for ensuring public safety in times of a pandemic. This committee follows the decisions taken by the Chief Epidemiologist and its main task is providing information for the JRCC. The Committee is also responsible for managing operations within the region (The NCIP and the Chief Epidemiologist, 2008, p. 15-16).

The role of the Civil Protection and Security Council: The Prime Minister signed on April 30th, 2009 a regulation defining tasks of the *Civil Protection and Security Council* (the CPSC) (Almannavarna- og öryggismálaráð) with reference to articles 3 and 4 in the Civil Protection Act (Prime Minister's Office, 2009). The CPSC is supposed to draw up a government policy on civil protection and security for periods of three years at a time. The policy should cover the current situation and prospects in civil protection and security in Iceland together with the structure of civil protection and security matters. The act also states that the CPSC should emphasize preventive action; provide necessary coordination of the response plan and the relevant functioning of public bodies; address stock levels; provide for reconstruction following catastrophes; and other measures related to the act (Civil Protection Act). As these duties do not include direct emergency response, the role of the CPSC in case of a pandemic according to the response plan is mainly consultative (The NCIP and the Chief Epidemiologist, 2008, p. 16).

The six following ministers have seats on the CPSC: The Prime Minister (who is also the chairman of the council), the Minister of Interior, the Minister for the Environment and Natural Resources, the Minister of Welfare, the Minister for Foreign Affairs, and the Minister of Industries and Innovation. Also many others have seats on the Civil Protection and Security Council, for example the Permanent Secretary at all the ministries listed above; the National Commissioner of Police; the Director of the Icelandic Coast Guard; the Director of the Post and Telecommunications Administration; the Director-General of Public Health; the Epidemiological Officer; the Director of the National Radiological Protection Authority; the Director of Landsnet (the Icelandic Power Transmission Company); a representative of the Icelandic Red Cross; and a representative of the coordinated emergency telephone answering system. In addition, the Prime Minister may co-opt up to two further ministers to the council at any time in connection with specific matters. He also appoints two representatives to the council in accordance with nominations by the Union of Local Authorities in Iceland (Civil Protection Act).

Even though these four institutions listed above have the biggest roles in protecting health security in Iceland and ensuring the safety of the public, other important actors have major roles in times of a pandemic. In such a case, the media - whether the internet, radio, television or newspapers - have great influence on how people understand risks and real threats. Thus, the media need to discuss health issues with care, report information from the authorities and explain government policies regarding health issues; but at the same time they have a role in reflecting the worries of the general public.

The response plan provides details of how many different actors - some with more than one role - are supposed to react at different stages of a pandemic, extending to 51 pages in all. A few examples of such actors may be given here: the NCIP, the Chief Epidemiologist, the Farmers Association of Iceland, The Icelandic National Prison Office, Isavia, Iceland Post, the Coastguard, the Icelandic Food and Veterinary Authority, the Icelandic Red Cross, ICE-SAR, the Icelandic Road Administration, and the Evangelical Lutheran Church of Iceland (The NCIP and the Chief Epidemiologist, 2008, p. 40). In the next chapter, when talking about the test-case of the pandemic influenza A(H1N1) more detailed attention will be paid to the role of each participants in the pandemic of 2009.

The Icelandic government does not rely solely on Icelandic institutions and agencies in times of a pandemic. As noted, pandemics always require global cooperation and the Icelandic response plan was made in consultation with the WHO. But the response plan as such does not go into details of such international cooperation, focussing instead on the responses of the Icelandic government and Icelandic institutions.

5 THE PANDEMIC INFLUENZA A(H1N1) 2009 VIRUS

The first case of the pandemic influenza A(H1N1) 2009 virus (often referred to as the swine flu in Iceland) was found in February in Mexico. It was first thought to be part of the seasonal winter flu from the previous year, and then linked to environmental pollution, and it was not until April that the virus was identified as possible pandemic virus (WHO, 2011, p. 51). The first cases of the H1N1 virus were diagnosed in the United States on April 17th, 2009. Shortly after, on April 25th, the WHO informed the world of an outbreak of a new type of influenza virus that was spreading fast globally, and recommended countries to intensify their surveillance for unusual outbreaks of influenza-like illness and severe pneumonia (CDC, 2010).

On April 27th the WHO raised the level of influenza pandemic alert to phase 4[19] because of evidence of human-to-human transmission and the virus's ability to cause community-level outbreaks. Only two days later the WHO moved to phase 5, requesting all countries to active their pandemic preparedness plan immediately and be on high alert for unusual cases of influenza-like illness. By the end of April the virus had spread to five continents and on June 11th the WHO raised the pandemic alert to phase 6. Going on phase 6 did not reflect the severity of the disease but rather the way it had spread to at least two regions of the world, implying that the pandemic was uncontainable and unstoppable (Amato Gauci et. al, 2010, p. 6). By then the A(H1N1) virus had spread to over 70 countries in multiple parts of the world, reaching over 100 countries in the beginning of July (Chan, 2009).

About a month after the WHO declaring an outbreak the first case of the pandemic was diagnosed in Iceland, but the pandemic was at its worst here in October and November of 2009 (Directorate of Health, 2009b). The WHO declared an end to the pandemic influenza A(H1N1) virus of 2009 on August 10th, 2010, almost 16 months after declaring an outbreak (WHO, 2011, p.75).

This chapter deals with the test-case of the pandemic influenza A(H1N1) of 2009, first defining the nature of the virus, then how it was handled globally, and ending with an account of how the virus affected Iceland, its people and society and how the Icelandic government, along with all the specific authorities involved, handled the situation.

[19] For further explanation on each phase, see table 2 above

5.1 THE VIRUS AND THE VACCINE

Influenza is a harmful virus infection that spreads from person to person, infecting around four million individuals each year seriously, and is responsible for about 250.000 - 500.000 deaths a year. It can cause severe problems in the public health field as well as in the economy, through its impact on productivity and absence from work (WHO, 2011, p. 36). The pandemic influenza A(H1N1) virus 2009[20] - as it has been called - was different from the usual yearly influenza virus. It is a type A virus with genes from pigs, birds and human viruses and this kind of virus combination has never been seen before, neither in pigs or human influenza (Directorate of Health, 2009a; Khanna, et. al, 2009, p. 483). This virus was a H1N1 subtype, the same subtype of H and N as the pandemic in 1918 mentioned above which was the first swine flu virus to act as a human pathogen. This caused global concern in 2009 due to memories of the damage done by the 1918 pandemic which killed tens of millions of people (Flahault and Zylberman, 2010, p. 319; Khanna, et. al, 2009, p. 481).

The spread of the A(H1N1) virus took place usually via droplets or aerosols released when speaking, sneezing or coughing. It had similar symptoms to seasonal influenza - fever, cough, sore throat, headache, running nose and limpness - but also caused nausea, vomiting, and diarrhoea (Khanna, et. al., 2009, p. 484; WHO, 2011, p. 49). The main cause of severe illness was viral pneumonia associated with severe lung damage (WHO, 2011, p. 49). In worse cases symptoms could include pneumonia, kidney failure and impact on liver activity or the digestive system (Directorate of Health, 2009a).

Whereas seasonal influenza hits mainly the elderly and very young children, older children and young adults caught the A(H1N1) virus more frequently than other age groups - without any complete explanation why. One possible explanation for this is that older adults had developed antibodies against the virus because of exposure to the pandemic influenza of 1918 and other outbreaks in the first 60 years of the 20th century (WHO, 2011, p. 49).

Already by May 11th, 2009 it looked as if the new outbreak would be relatively mild overall (WHO, 2011, p. 57) but some groups appeared to be at increased risk for getting really sick, even dying from infection. Individuals with underlying diseases like lung diseases and asthma, kidney and heart problems, pathological overweight, or diabetes were more likely to catch the virus than healthy ones. Also, pregnant women were in danger of getting seriously ill and so were those with immune systems compromised by drugs or neurological disorders (Directorate of Health, 2009a; WHO, 2009; WHO, 2011, p. 50).

[20] In this thesis shorter version will also be used, like *the pandemic influenza* and *the A(H1N1) virus.*

Recommendations both from the WHO and the ECDC on how to avoid spreading the influenza virus included washing hands with soap and water, the use of alcohol-based hand sanitizers and social distancing - by staying at home when infected, avoiding large gatherings and staying away from people who were or might be infected (Khanna, et. al, 2009, p. 485). The WHO however considered vaccines the "most effective way" of preventing influenza illness (WHO, 2011, p. 37) and that is what was emphasized by the Icelandic authorities. This time, the yearly vaccination for influenza could do little to nothing against the A(H1N1) virus but two other antiviral drugs, Relenza (zanamivir) and Tamiflu (oseltamivir) could be used if flu victims were treated in the first 48 hours after infection (Directorate of Health, 2009a).

A specific vaccine for the new virus could be considered only after the subtype was known. On July 7th, 2009 the *Strategic Advisory Group of Experts* (SAGE) on Immunization held a meeting to discuss a vaccine for this new pandemic influenza. While a vaccine made from the H1N1 subtype had not yet been produced, the experts already started recommending vaccination and identified three objectives countries should adopt as part of their vaccination strategy. They should aim to "protect the integrity of the health-care system and the country's critical infrastructure; reduce morbidity and mortality; and reduce transmission of the pandemic virus within communities" (WHO, 2009). This reflected recommendations given by the SAGE on how to prioritize vaccination to protect the all important health infrastructure and certain population groups in most danger of getting the virus (WHO, 2009). Iceland used that prioritization when the first doses of the vaccine arrived to Iceland in October. A closer look will be on the Icelandic case later in this chapter.

Even with modern technology it took around six months to create *Pandemrix,* the vaccine from the new virus and it has been estimated that around 50 million people got vaccinated worldwide. National governments pre-ordered supplies of the vaccine during development, although it would not be available until 5-6 months later. At first it was expected that each person would need two doses but the vaccine showed good immunological response so only a single dose was needed (Amato Gauci et. al, 2010, p. 2). This meant that some countries, Iceland included, had ordered too many doses and were left with many unused, while other countries (mostly developing countries in the south) had no access to vaccine at any stage in the pandemic (WHO, 2011, p. 57).

5.2 THE PANDEMIC TACKLED GLOBALLY

The pandemic influenza A(H1N1) virus 2009 was the first, and so far, the only pandemic to occur since the IHR was revised in 2007 and entered into force; the first pandemic to occur

after years of global pandemic preparedness; the first pandemic with high media demand to know the latest numbers of cases of infection; and the first pandemic with instant global communication, not only through the mass media but also with the use of blogosphere and other "new" types of media (Amato Gauci et. al, 2010, p. 38).

The WHO's Strategic Health Operations Centre in Geneva was activated in April, 2009 as a coordinated global response to the outbreak (WHO, 2011, p. 53). The WHO began to post global surveillance data on its website on April 24th, 2009 whereby countries were required to report to the WHO predetermined disease outbreaks and all cases of this new influenza. Between 60 and 80 countries sent data weekly to the WHO as the pandemic progressed (WHO, 2011, p. 95). The IHR was a key asset in tackling the pandemic globally and the WHO used its coordinating role as defined in the IHR to lead the global pandemic phase, recommending when to switch from seasonal vaccine production to pandemic vaccine production, promoting rapid containment of the initial emergence of pandemic influenza and providing as soon as possible an assessment of the severity of the pandemic on human health (WHO, 2011, p. 87).

Enhancing global surveillance was crucial because an early warning can hinder thousands of people getting sick. Margaret Chan, the WHO's Director-General, thanked the authorities in Mexico for giving the world an early warning, rapid and transparent reporting and generous sharing of data and samples, despite the risk of economic losses as some countries might decide to recommend people not to travel to Mexico. Such action would however not protect the public, not contain the outbreak and not prevent further international spread of the virus (Chan, 2009). By contrast, the ECDC found the information sharing from the countries first affected less successful, and concluded that in the future the countries where a pandemic influenza hits first should share analysis earlier and should be better committed to do so (Amato Gauci et. al, 2010, p. 2 and 39). The Chief Epidemiologist in Iceland agrees with the ECDC that the Mexican authorities did not inform the world soon enough about what was happening there. But when they started informing on the pandemic, the information given were very good (H. Briem oral source, April 13th, 2012).

The pandemic influenza reached Europe in week 16 of 2009, Spain being the first European country to report a laboratory-confirmed case of the pandemic influenza on April 27th (Amato Gauci et. al, 2010, p. 14). In response to the increased threat, the ECDC raised its level of general alert and started daily updates on cases of the pandemic influenza (Amato Gauci et. al, 2010, p. 7). This pandemic was the first true test for the ECDC, as for the IHR, and was managed through a *Public Health Event* (PHE) - an operational plan on how to deal with pandemic diseases (Greco, Stern and Marks, 2011, p. 4). The main trends and

information used by the ECDC came from data and analysis provided to the ECDC *European Surveillance System (TESSy)* through the *European Influenza Surveillance Network* (EISN) (Amato Gauci et. al, 2010, p. 1). The main activity of the ECDC during the pandemic influenza was providing scientific advice (e.g. on risk assessments and coordinating scientific studies) (Greco, Stern and Marks, 2011, p. 30) but it also provided technical support, response activities, scientific guidance and developed common case definitions useful for the member states (Amato Gauci et. al, 2010, p. 31). An ad hoc case-based reporting system was set up to ensure close compatibility in the data from the EU/EEA countries with daily update on all cases of the virus. But when the pandemic influenza got more severe most countries only reported numbers of patients with confirmed pandemic influenza that were hospitalized on a weekly basis and later on only reported influenza deaths by age group, following the adoption of a common case definition (Amato Gauci et. al, 2010, p. 7-11).

The most severe period of the pandemic influenza for European countries occurred around week 43 of 2009 when the greatest geographic spread, intensity and hospitalization levels were reported, and in weeks 48 and 51 when most cases of mortality were reported (Amato Gauci et. al, 2010, p. 36). Over the 68 weeks of the official pandemic, 925.861 cases of influenza-like illness cases and 7.202.014 cases of acute respiratory infection were reported by the EISN (Amato Gauci et. al, 2010, p. 14).

The ECDC subsequently summed up the factors that made this pandemic not too severe for Europe. What is mentioned is that the pandemic strain emerged first in the more populous Americas; there was immediate virus sharing, meaning vaccine development started early, and good data and information at least from North-America; [21] the pandemic was not excessively pathogenic and most people infected had mild cases; some older people were still immune since the pandemics in the last century; there was sustained susceptibility to the most commonly used antivirals - tamiflu and relenza; it was a highly immunogenic virus, with only a single dose of vaccine needed; and the EU/EEA countries were well prepared for pandemic influenza (Amato Gauci et. al, 2010, p. 37). In short: this pandemic influenza was "the most benign pandemic for which Europe could have hoped" (Amato Gauci et. al, 2010, p. 1).

One of the greatest challenges when a pandemic of moderate severity occurs is to help people understand that the pandemic can, in spite of not being severe, cause severe cases and people may have to seek intensive care. As Chan said: "between the extremes of panic and complacency lies the solid ground of vigilance" (Chan, 2009). The A(H1N1) virus did not

[21] Not mentioning Mexico because of the opinion of the ECDC of the authorities' lack of information sharing as has already been noted.

require much hospitalization of those infected so public questions arose about the severity of the pandemic (WHO, 2011, p. 11). Globally, hospitalization rates were the highest among children 5 years and younger, who - along with pregnant women and women who had recently given birth - were at most risk of severe infection (WHO, 2011, p. 50). It has been estimated that the pandemic influenza A (H1N1) virus produced something from tens of millions up to 200 millions of cases, though only with around 18.500 laboratory-confirmed deaths. The exact total of deaths is hard to tell, for many people died without being tested (WHO, 2011, p. 49).

5.2.1 Issues Concerning the Pandemic

Thanks to IHR commitments and cooperation with the WHO, countries nowadays have advance information on how to respond and work with an influenza pandemic at global level. In the 2009 pandemic, global cooperation between the WHO and national governments focussed on preparing to address the worst case scenarios with the possibility of millions of peoples getting very sick and high mortality rate (Flahault and Zylberman, 2010, p. 333). But organizing responses so that the national economy and infrastructure will hold is something each country has to manage through its own response plan. In the 2009 case, fear were raised that the pandemic could have serious economic consequences globally, by damaging tourism, external trade and even air travel (Flahault and Zylberman, 2010, p. 321). The WHO's Director-General emphasized, however, that border closures and restrictions on international travel would be ineffective; and if schools had to close this would only bring added demands on children's parents and their employers, leading to more social disruption (Chan, 2009). EU policy makers also considered the pandemic not severe enough to justify applying disruptive public health measures, such as ordering EU/EEA countries to close schools or cancel social gatherings; but if the pandemic had been "slightly more severe" that kind of measures would have been used (Amato Gauci et. al, 2010, p. 25).

Speculations arose later about how serious the pandemic really was. Doubts were raised because of vagueness and differences in the information provided on confirmed cases of the pandemic influenza between two of the most authoritative institutions on global epidemics, the WHO and *Centres for Disease Control and Prevention* (CDC) (Flahault and Zylberman, 2010, p. 322). There were also social issues including widespread fear of adverse effects of the vaccine. In their article *Influenza pandemics: past, present and future challenges* Antoine Flahault, Dean of the EHESP School of Public Health ,and Patrick Zylberman, a professor in the History of Health at the EHESP (2010) compared information on the responses to the last

four global pandemics (the one in 2009 included) and the "non-pandemic"[22] in 1976 . Only around 25% of the US population got vaccinated in the 2009 pandemic influenza (Flahault and Zylberman, 2010, p. 332), compared to 50% of the Icelandic population (H. Briem oral source, April 13th, 2012). This low rate in immunization of the US population have been connected to the 1976 "non-pandemic" and lack of "credibility of the public health community and governmental action in epidemic control" according to Flahault and Zylberman (2010, p. 333). It did not improve the situation when it came to light that the WHO's Director-General did not get vaccinated until December 30th, 2009, a few months after herself declaring the importance of vaccination (WHO, 2009).

As mentioned in chapter 4.3.3 above, the media can play a big role in case of a pandemic. Not even a month had passed since the virus was caught in Mexico before the international media had published quantities of articles on the pandemic, giving both good and bad accounts of how states and international organizations had been reacting to the spread of the influenza (Flahault and Zylberman, 2010, p. 320). The public in Iceland got the first notification on the pandemic through the media and the Icelandic authorities were quick to react to this new pandemic.

5.3 THE PANDEMIC INFLUENZA A(H1N1) VIRUS IN ICELAND

The first response to the new pandemic by the Icelandic authorities was a meeting held on April 22nd, 2009 by the National Committee on Communicable Disease, discussing information from the US on two separate cases of influenza. It was not until two days later that information was received through the international surveillance system on severe cases of influenza in Mexico (Marelsdóttir, 2009a, p. 1).

As noted above the WHO raised the level of influenza pandemic alert to phase 4 on April 27th. Even though the pandemic had not reached Iceland at that time, the response plan was activated the next day, and a press conference was held by the Chief Epidemiologist and the NCIP informing the public about the activation and that steps would be taken according to the Danger phase. The same day information on this new virus and how to react to it was put on the three websites that the NCIP and the Chief Epidemiologist are responsible for:

[22] In 1976, an A(H1N1) subtype virus was identified at an US Army base in New Jersey where thirteen were admitted to the hospital and one of them died. Experts became increasingly concerned about the risk of a pandemic similar to the pandemic in 1918. Vaccination started but was suddenly stopped after 532 cases of Guillain-Barré nerve syndrome. No further infections were found, leaving the public and scientists blaming the US government for an epidemic that did not take place and the government was criticized harshly for overreacting (Flahault and Zylberman, 2010, p. 327-329).

- The homepage of the Directorate of Health - www.landlaeknir.is
- The homepage of the Civil Protection Bureau - www.almannavarnir.is
- A webpage that was launched in December 2007 simultaneously with the making of the pandemic response plan - www.influensa.is

The role of this new website, last mentioned above, was to disseminate information to the public in case of a pandemic (Briem, 2009b, p. 1; Marelsdóttir, 2009a, p. 1). Another early reaction to this new virus was that influenza, of any subtype, was made a notifiable disease, meaning that all cases of influenza-like symptoms, as well as those where influenza was confirmed, should be notified to the Chief Epidemiologist (Sigmundsdóttir and Briem, 2009, p. 2).

The first case of the pandemic influenza A(H1N1) virus was diagnosed in Iceland on May 23rd, 2009 and the second one on June 9th, and both of the cases were traced to the US. The fact that cases had been diagnosed locally did not of itself change the preparation phase according to the response plan, i.e. work continued according to the Danger phase, not Emergency phase (Sigmundsdóttir and Briem, 2009, p. 1). Over the summer, more and more cases were diagnosed and at mid-October the influenza was as it highest peak in Iceland, with 163 new cases one week and 106 the next week (Directorate of Health, 2012). At the same time, 57% of received respiratory organs specimens were positive for A(H1N1) virus (Sigmundsdóttir, 2009, p. 2).

Following the WHO, the Chief Epidemiologist announced on August 11th, 2010 a phasing-down from the Danger phase to the Uncertain phase, while continuing to monitor the pandemic and possible infections both domestically and on international levels (Directorate of Health, 2010d).

Another wave of the A(H1N1) virus, but a much milder one, circulated in Iceland at the end of 2010 and beginning of 2011 when 23 individuals were diagnosed with the influenza virus; these were the last cases to have been diagnosed to date (Directorate of Health, 2012). The A(H1N1) virus can circulate for years to come as a yearly influenza but should not cause as much harm as in 2009, thanks to good responses of the Icelandic public to the vaccination campaign (Directorate of Health, 2010d). But how exactly did the responses to the pandemic take shape in the acute phase? The following analysis reverts to the Icelandic response plan for pandemic influenza and infectious diseases and how it was used in the pandemic of 2009.

5.3.1 THE ACTIVATION OF THE RESPONSE PLAN

The purpose of the pandemic response plan is to protect people who are at higher risk of getting infected; reduce human-to-human transmission; and maintain business operations. This plan stands and falls with the quality of cooperation between the CPD and the Chief Epidemiologist, the two major actors in responding to a pandemic (The NCIP and the Chief Epidemiologist, 2008, p. 6).

The JRCC was activated as one of the roles of the NCIP according to the response plan (The NCIP and the Chief Epidemiologist, 2008, p. 41). Within the JRCC a teleconference with the NCIP, the Chief Epidemiologist, a representative from the Landspítali, the CPD and the chiefs of police at the regional level was held once a week while the pandemic influenza was at its highest peak. At these meetings the members went through the tasks that had been laid down in the response plan and reviewed the situation in each district (Í. Marelsdóttir oral source, April 12th, 2012). A closer look at the teleconferences will be taken in the next parts of the thesis to see how far they were in agreement with the response plan.

The response plan was released to the media and to persons in authority in different places, which led authorities at the regional level, schools, the police, and the JRCC to make their own disease prevention plans. After this some corporations contacted the CPD asking for advice on making their own response plans, similar to what the CPD had made (Í. Marelsdóttir oral source, April 12th, 2012). Response plans in case of communicable diseases were made in coordination with the Ministry of Education, Science and Culture for all the schools in the country. All ministries made their own plans together with the Prime Minister's Office and the NCIP, each of the eight districts defined for handling communicable diseases made its own response plan, and some corporations and institutions made a response plan for themselves (Marelsdóttir, 2010a, p. 2).

The CPSC held its first meeting on June 10th, discussing preparations for the influenza in Iceland, and confirmed its agreement on coordination between districts, the Chief Epidemiologist and the NCIP (Marelsdóttir, 2009a, p. 4).

Three status reports were made during the pandemic, providing information on steps taken to prevent the pandemic, how many had contracted the A(H1N1) virus – both domestically and globally, information given to the public, and the responses made by authorities and subsidiary institutions (Marelsdóttir, 2009a; Marelsdóttir, 2010a; Marelsdóttir, 2010b). Further details from these status reports will be presented in the next parts of this chapter.

When the WHO declared an outbreak on June 11th and moved up to phase 6, the Icelandic response plan should in principle also have been moved up to the highest phase, the

Emergency phase. Given how mild the pandemic influenza had been, however, and how few had been infected, it was decided by the NCIP and the Chief Epidemiologist (in consultation with the WHO) not to move up to the next phase (Sigmundsdóttir and Briem, 2009, p. 1-2). Nevertheless, some issues that would have arisen at the Emergency phase were examined on a contingency basis, though it turned out that activation was not needed. More details of activation are in the next sections, and should be seen in conjunction with the organizational chart in chapter 4.3.2.

5.3.1.1 COMMUNICATION ON HEALTHCARE

According to the organizational chart, this part of the response plan regards six matters; medicine and nursing supplies; analysis and treatment of cases; quarantine at home; emergency transportation; home nursing; and pastoral care (The NCIP and the Chief Epidemiologist, 2008, p. 18). Only the first two steps were activated in the pandemic of 2009, as the CPD considered the others not necessary (Í. Marelsdóttir, oral source, April 12th, 2012).

The logistics at Landspítali - the National University Hospital of Iceland - were crosschecked, resulting in good supplies of nursing products and medicine supplies. Small, but very important additions were made to hospital equipment to improve the care of patients with the A(H1N1) virus (Landspítali, 2009). One really important tool used to tackle the pandemic were respiration machines and more machines were needed to keep the patients with the worst cases alive. Two new respiration machines were bought to be able to tackle those cases better (Marelsdóttir, 2010a, p. 3). The patients who needed this kind of care were connected to these machines for 2-3 weeks (H. Briem oral source, April 13th, 2012). Also, new cold-storages were required at some healthcare centres to be able to store the vaccine properly (Marelsdóttir, 2010a, p.4). Overall, the estimates made by the Chief Epidemiologist showed that sufficient nursing supplies and antivirals were available in the country. Very few concerns arose in this field, and the issues addressed were mainly about obtaining the specific vaccine for this influenza, rather than questions over the supply of food, water, electricity or the heating system (Í. Marelsdóttir, oral source, April 12th, 2012).

As listed in the response plan, distribution of antivirals to the districts started right after the WHO declared a pandemic. Also protection equipment was distributed for the event of the pandemic becoming more severe over time (Briem, 2009b, p. 2). The only thing missing was the vaccine for this new influenza virus which, as noted above, can take up to six months in the making. In this case the drug companies constantly changed their estimates of when the vaccine would arrive and how many doses each time, which caused problems when the

authorities had promised a supply but then no vaccine was available (Minutes of a meeting, 2009, November 6th; Minutes of a meeting, 2009, December 4th). The delay was traced to slow cultivation of the virus and changes in European Regulations (Minutes of a meeting, 2009, October 2nd).

Prioritization of who should get the first doses of vaccine is one of the roles of the Chief Epidemiologist under the response plan (The NCIP and the Chief Epidemiologist, 2008, p. 44). Individuals were arranged in groups, according to priorities mainly based on proposals from the WHO and ECDC - taking into account the risk of getting infected on the one hand, and the importance of making it possible for the healthcare to function properly and maintaining national security, on the other. The first group to get the vaccine were people working within the healthcare system; young people; response services like firemen, the police, rescue teams, and ambulance services; and individuals with underlying diseases as mentioned before (Directorate of Health, 2009b). It was estimated that the first target group was about 70.000 people, or around 20% of the population (Minutes of a meeting, 2009, October 2nd). Even though people were urged to get vaccinated, the number of those with underlying diseases getting the vaccine was less than expected. Others in this first target group did however respond well and almost all of them got the vaccine (Minutes of a meeting, 2009, November 6th). The authorities had at first feared that the public might respond badly to prioritization - some people being considered more important than others - but that did not happen (Í. Marelsdóttir oral source, April 12th, 2012). It seems as if the public realized the importance of prioritizing, although some voices were raised among some of the response actors about not being further ahead in receiving the vaccine (H. Briem oral source, April 13th, 2012).

The Chief Epidemiologist had pre-ordered 300.000 doses of the vaccine, expecting the need to vaccinate each person twice, but later it appeared that only one dose of the vaccine was needed. This changed the schedules of the vaccination radically; meaning it was sooner possible to finish the target groups and start vaccinating the public (Minutes of a meeting, 2009, September 18th). The first dose of the vaccine arrived on October 15th, about three weeks later than first predicted, and right away healthcare workers started to be vaccinated (Minutes of a meeting, 2009, October 16th). The Communicable Disease Control office within the Directorate of Health was responsible for distributing protective equipment to hospitals and healthcare centres and when the vaccine was ready, also needles and injections were distributed to 53 places. The Communicable Disease Control got assistance from the rescue teams while distributing the supplies (Marelsdóttir, 2010a, p. 4).

The supplies of vaccine were limited to begin with (not all doses were received at the same time), so the Civil Protection Committees in all districts on handling communicable diseases were supposed to estimate the amount needed to vaccine the pre-defined groups. The exact number of doses would then be sent to them so that no vaccine would go a waste and so all districts could finish the pre-defined groups by a similar time (Minutes of a meeting, 2009, August 28th). The districts reported at a teleconference of November 6th on how the vaccination had been going, how many were left in the pre-defined groups, if there was any vaccine left and how many doses they needed in the next delivery (Minutes of a meeting, 2009, November 6th). All people could get the vaccine for free (Marelsdóttir, 2010b, p. 2). Few side-effects were known of the vaccine and these were not severe, only soreness in the hands and indisposition (Minutes of a meeting, 2009, October 23rd).

The peak of the influenza came in the same week as the vaccine arrived to Iceland. At the same time patients also started to experience more severe symptoms and far more healthcare workers and people in the security group was asking for vaccination. At this stage, it had not yet come to vaccinating the public (Minutes of a meeting, 2009, October 23rd). On November 2nd, vaccination of the people with underlying diseases started, and the general public got the first vaccinations on November 23rd (Marelsdóttir, 2010a, p. 4).

According to the CPD the start of vaccination was "a turning point" and the public was urged to get the vaccine even in the year 2010, after the pandemic had reached its peak (Í. Marelsdóttir oral source, April 12th, 2012). It was recommended that all individuals aged six months or older who had not been vaccinated and had not contracted the virus should get the vaccine, even once the WHO had declared the pandemic over (Directorate of Health, 2010c). Enough vaccine was still available at this time and the Chief Epidemiologist continued to press for vaccination until the "use-by" date of the vaccine expired in the autumn of 2011 (H. Briem oral source, April 13th, 2012).

Also mentioned in the healthcare section of the response plan is analysis and treatment of infected cases. Here in Iceland the hospitals play the key role and how the information is put forward is important. Landspítali had its own response plan covering pandemics, toxins, radio-nuclear emergencies, mass accidents and vacation. This plan was activated and implemented at the second highest level (out of four) on October 29th. This was the first time ever that the response plan reached this phase and reflected the burden on the hospital, especially the Intensive Care Unit (ICU) taking care of the pandemic influenza A(H1N1) virus cases. However, only the parts of the plan were activated that corresponded to what the hospital had to deal with in this specific pandemic and how it affected the activity of the hospital. Limitations on visiting patients were activated while the pandemic influenza lasted

and relatives were urged to use phones and internet to contact the patients or the hospital staff (Landspítali, 2009). Vaccination and the ICU facilities were used to the utmost and without these good techniques and equipment at the ICU, the patients with the most severe cases of the influenza virus would certainly not have survived (H. Briem oral source, April 13th, 2012). Most of the hospital staff, almost 4500 people, were vaccinated for the A(H1N1) virus (Landspítali, 2010, p.6).

Over the next days after activating the response plan over 45 people were hospitalized because of the pandemic influenza, with eleven of them in the ICU (Landspítali, 2010, p.6). When diagnosing those needing hospitalization, research showed that 70-80% of them had various underlying diseases (Directorate of Health, 2009b).

All healthcare institutions, hospitals and healthcare centres were supposed to register all influenza cases in an electronic common data base, Saga, which simplified all the work for doctors, using a pre-made template to register all patients (Sigmundsdóttir and Briem, 2009, p. 2). A new information-gathering system was designed so that all information on influenza when registered in a patient's file was received automatically within 24 hours after it was registered from healthcare centres, healthcare institutions and hospitals (Marelsdóttir, 2010a, p. 3).

The Landspítali sent a daily update to the CPD on the situation, something it was not obliged to do by the response plan which only mentioned more consultation between the hospitals and the CPD. The CPD found this information a "godsend" as it could be seen exactly how many were hospitalized at each time, how many were at the ICU and how many needed respiratory assistance via machines - thus giving key indications of the pandemic's severity. This information was "crucial for the CPD" according to the project manager on health within the Civil Protection Department (Í. Marelsdóttir oral source, April 12th, 2012). The role of the Landspítali *per se* (and other hospitals and healthcare institutions) at the Danger phase of the response plan would have been only to crosscheck the plan and prepare for its activation, but in fact the Landspítali activated nearly all its roles belonging to the Emergency phase (Minutes of a meeting, 2009, December 4th). These included activating the response plan; receiving the vaccine; registering and notifying new influenza cases; educating the hospital staff; and vaccinating patients. The only things mentioned in the Emergency phase that were not activated related to marking, registering and storing the deceased; and direct admittance and security at the hospitals (The NCIP and the Chief Epidemiologist, 2008, p. 59). Other special assignments for the Landspítali such as a need for special distribution through the Icelandic Post were not relevant in this pandemic (The NCIP and the Chief Epidemiologist, 2008, p. 60).

In some cases in the regions, healthcare workers did a little home nursing instead of putting patients in hospitals (Minutes of a meeting, 2009, October 16th) even though home nursing was not part of the response plan at the Danger phase – only the Emergency phase (The NCIP and the Chief Epidemiologist, 2008, p. 45).

5.3.1.2 COMMUNICATION WITH DISTRICTS

The organizational chart in the response plan lays out what the districts have to bear in mind in case of a pandemic. There, four roles are listed: handling and storing the deceased; running schools; waste disposal; and care of animals. In the pandemic of 2009 these steps were not activated, because of how mild the influenza was; but communication with districts *per se* was thoroughly tested by the CPD and other authorities. Response plans in all the districts were made and coordinated with the NCIP's and Chief Epidemiologist's response plan for the country as a whole (Sigmundsdóttir and Briem, 2009, p. 1).

Weekly meetings were held where the Chief Epidemiologist, the managers of the healthcare centres in the Reykjavík area and the directors of the Landspítali came together to consult on the pandemic. Also there was a daily contact between the Chief Epidemiologist and the epidemiologists in the districts via e-mail (Marelsdóttir, 2010a, p. 3).

In the autumn of 2009 when the pandemic was at its highest peak in Iceland, weekly teleconferences (altogether 13 meetings) were held in the JRCC controlled by its administration, the Chief Epidemiologist and the CPD. In these meetings the administration reviewed responses to the pandemic with the epidemiologists and the chiefs of police in all districts (Marelsdóttir, 2010a, p. 1). The main things discussed was firstly the vaccine, vaccination and how to prioritize the vaccination; secondly the number of influenza cases and how severe; thirdly the capacity of the districts for handling communicable diseases and the healthcare service to treat patients and vaccinate people; and fourthly dissemination of information to the public, the importance of education and how to educate, along with discussion on the role of the media (Minutes of a meeting, 2009, September 4th; Minutes of a meeting, 2009, September 18th; Minutes of a meeting, 2009, October 16th; Minutes of a meeting, 2009, November 6th).

5.3.1.3 SOCIETY'S INFRASTRUCTURE

Societally important infrastructure takes up a lot of room in the response plan and covers many different areas. The six subdivisions of the society's infrastructure in the organizational chart are: travel limitations; telecommunications; distribution systems; the security of

important institutions and buildings; operating important private businesses; and banking and financial services (The NCIP and the Chief Epidemiologist, 2008, p. 18). All of these categories are linked with the economy and the labour market in some way and reflect the importance of keeping society functioning despite a pandemic with minimum impact on the economy. Together they constitute one of the nineteen main tasks listed in the response plan (mentioned in chapter 4.3.2 above) (The NCIP and the Chief Epidemiologist, 2008, p. 25).

A few years before the pandemic in 2009, a committee working for the Prime Minister's Office had made an evaluation on how to reduce economic effect of a pandemic influenza. According to its report, the main object of economic defence is to ensure minimum permanent effects on the economy and guarantee minimum sustenance when a pandemic takes place. This is done by supporting companies and institutions in keeping their business uninterrupted and functioning in times of a pandemic (Prime Minister's Office, 2006, p. 10).

The report envisaged three different case scenarios depending on how severe the pandemic would be (Prime Minister's Office, 2006, p. 6). The aspects covered in the evaluation were the effects pandemic influenza could have on the workforce and GDP; private consumption and investment; and how the government should handle increased expenses arising for the authorities (Prime Minister's Office, 2006, p. 7-9). The key institutions and offices identified in the evaluation report are power companies and heating utilities; all telecommunications; the radio and television; grocery stores and petrol stations; banks and saving banks; the Central bank of Iceland and the Ministry of Finance and Economic Affairs (Prime Minister's Office, 2006, p. 11-12). Many of these are the same as the bodies mentioned in the response plan when looking at the task of maintaining a necessary minimum of activity in society.

At the time the report came out (in September 2006) the committee found that overall, companies were not ready to take on a pandemic influenza. They noted that evaluating possible losses because of a pandemic is hard, and would depend on its severity. But the committee urged the need for proper response to such a contingency and emphasized the need for big companies and key offices to make plans for ensuring public safety (Prime Minister's Office, 2006, p. 15-16). Of course, at the time this was written the pandemic response plan had not yet been made, and the latter led many companies and offices to update their responses and become better prepared to tackle a pandemic.

Even though the society's infrastructures part of the organizational chart plays a big role in the response plan, these aspects were not a severe problem when the A(H1N1) virus was circulating. No worries arose about societal infrastructures; these were all good and functioning well (H. Briem oral source, April 13th, 2012).

Equally, no need was seen to establish any travel limitations at Iceland's borders or to close certain areas or districts. The only travel advice given was when, for a period of three weeks in the spring of 2009, the Chief Epidemiologist advised people not to travel to Mexico because of the pandemic, but no one was forbidden to go there (Briem, 2009b, p. 2). According to the Chief Epidemiologist not much was heard from people travelling to Mexico; the questions came from people trying to get back home (H. Briem oral source, April 13th, 2012). One measure the Chief Epidemiologist can take under the response plan is to establish healthcare stations at the state's entry points when a pandemic occurs (The NCIP and the Chief Epidemiologist, 2008, p. 44). This was partly done, with a temporary healthcare centre set up at Keflavík airport on April 29th, when the pandemic virus was newly discovered. But very few people used it and it was closed again on May 15th (Briem, 2009b, p. 3). According to the Chief Epidemiologist, the probable reason for that is people just wanted to hurry home and ignored any symptoms they might have (H. Briem oral source, April 13th, 2012).

Telecommunications functioned properly, so activating the *Telecommunication Centre* (Fjarskiptamiðstöð), as put forward in the pandemic response plan, was not necessary and only monitoring of this aspect was required (Í. Marelsdóttir oral source, April 12th, 2012). All distribution systems also functioned and no extra security measures were needed at important institutions or buildings, even though minor preparations were discussed in case of such need. Important corporations were in no danger of not being able to operate properly. Despite this, within each ministry a response committee was activated to make a response plan on how to keep minimum functions going so that even a severe pandemic should not disturb critical work (Briem, 2009b, p. 2).

5.3.1.4 CIRCULATION OF NECESSITIES

This part of the response plan has only two subdivisions: distribution of necessities, and food production, neither of which had to be activated in the 2009 pandemic. There was never a question of activating them (Í. Marelsdóttir oral source, April 12th, 2012), although certain actions were taken and preparation started when the pandemic was discovered. The Public Health Institution of Iceland did estimation on how much food would be needed for at least a month, and food companies were asked to count their supplies. It was obvious from the beginning that enough food was available in the country if imports should stop for some time. The authorities checked all key issues in the response plan and looked especially at the supplies of food, oil, important medicine and other important supplies that would be needed in case of a very lengthy and severe pandemic, but no action had to be taken (Briem, 2009b, p. 2).

5.3.1.5 Information to the Public

This last part of the organizational chart of the response plan was one of the most used and most important during the pandemic influenza in 2009. All three of its subdivisions - education, communication and dissemination of information; communication with the media; and telephonic help lines - were activated and all played a huge role (Í. Marelsdóttir oral source, April 12th, 2012).

Here, one of the most important roles was to educate and inform the public and increase dissemination of information to all important participants mentioned in the response plan (Í. Marelsdóttir oral source, April 12th, 2012). The Chief Epidemiologist and the CPD emphasized good and rapid information to the public. The first news on the pandemic was sent out on April 27th and the first press conference was held the day after. In a one-month period 19 further news bulletins were sent out (Marelsdóttir, 2009a, p. 2). All press conferences were held jointly by the Chief Epidemiologist and the CPD (Í. Marelsdóttir, oral source, April 12th, 2012). Not only was it important to inform the public, but the response team had also to provide education and information on how to work with the pandemic. Many information/educating meetings were held for healthcare workers, the staff at Keflavík airport, schools, personnel at the telephonic help lines, and those who were supposed to inform and help the public such as rescue teams (Marelsdóttir, 2010a, p. 2).

In June, a brochure was published by the Chief Epidemiologist and the NCIP with travel advice regarding the pandemic influenza. There the public got information on what the international responses to the pandemic had been, as well as here in Iceland; on how people could get infected and how to protect against infection. This brochure was distributed to travel agencies, healthcare centres, airports and other places travellers would pass through before travelling abroad (Briem, 2009a, p. 3).

From the beginning it was stressed that the news and information to the public should be clear and of good quality and easy to access via internet, the radio and television (Briem, 2009b, p. 1). A sidebar was put up on the official website www.influensa.is making it easier for schools, the public, healthcare workers and for companies to gather information on how to respond to the pandemic influenza. One of the materials provided for companies was a template for making a disease prevention plan and it was used by many companies, all the ministries, the Civil Protection and the JRCC for example (Í. Marelsdóttir oral source, April 12th, 2012). From July 10th – December 31st,2009 57 news items were published on www.influensa.is, some of them also in other languages than Icelandic (Marelsdóttir, 2010a, p. 2). It was very important for the CPD to reach the public and keep it on their side: if the public did not trust the authorities it would not react as it was asked to do. To reach the

public, good arguments had to be put forward on why this or that was being done and not any other way (Í. Marelsdóttir, oral source, April 12th, 2012).

At the end of August, in consultation with the WHO and the ECDC, posters were made with simple explanations for the public on how to stop the spread of the influenza (see Figure 2 below) and how people could protect themselves and others from getting infected by the virus.

Figure 2. Poster made for the public on how to stop the spread of flu.

Source: The Directorate of Health, n.d.b.

These posters were put up at schools, healthcare centres, sport centres and in larger workplaces (Minutes of a meeting, 2009, September 4th). Instructions were also given about

washing hands, avoiding public meetings and staying home in case of experiencing any influenza symptoms. Also it was stressed that there was no need was for wearing a mask in public (Briem, 2009b, p. 2). Many parts of society contributed to trying to avoid further infections. The use of alcohol-based sanitizer in banks and other service companies, for example, and simple things like sanitizing the hands regularly and the phone after using it, were good ways of reducing infection (Í. Marelsdóttir oral source, April 12th, 2012).

Special meetings were held with the mass media, telling them they were indispensable and asking them to make a response plan of their own. The mass media were a great help in giving information to the public. They published all the latest updates from the websites of the Civil Protection and the Directorate of Health. According to the CPD, the key role that they played cannot be underestimated. If the mass media had not been as cooperative as it was, the public would not have reacted so positively to the instructions given by the CPD: "If you want to see the nation dance in tempo, first you have to get the mass media on board" (Í. Marelsdóttir oral source, April 12th, 2012).

Over 2-3 weeks period when the pandemic was at its highest peak, the Red Cross's 24-hour helpline (1717) and the number from the *Doctors' on-duty service* (Læknavaktin) (1770) was used in cooperation with the JRCC to answer enquiries from the public on the influenza (Í. Marelsdóttir oral source, April 12th, 2012). Through these lines, four nurses answered the phone instead of one as usual; two people from the JRCC took part in this and also Red Cross volunteers helped, after receiving minimum education on how to advice the public (Marelsdóttir, 2010a, p. 4). This help from the Red Cross was activated despite not being one of its many roles specified in the response plan.

This chapter has shown what aspects of the response plan were activated and how it was applied by the JRCC and other authorities during the pandemic in 2009 and 2010. But it is also important to look at how well it was working – was it successful, or can it be said that the pandemic response plan was a failure overall or in part? This is the topic discussed in the next chapter.

6 THE SUCCESS AND/OR THE FAILURE OF THE PANDEMIC RESPONSE PLAN

As noted above, all players were contacted and asked to check if they were able to fulfil their role according to the response plan in case of a full emergency, but not all tasks and roles of these players were activated. According to the response team's status reports and the minutes of a meeting, players such as the Farmers Association of Iceland, the Prison and Probation Administration, the Icelandic Maritime Administration, the Association of Local Authorities, the Evangelical Lutheran Church of Iceland, and some institutions in the financial services and health service field were not required to activate and follow their roles according to the response plan. This "deficit" in activation does not seem to have threatened the safety of the public. What was activated was exactly what corresponded to the given need for ensuring the security of the public and the health security for the country as a whole. In short, the response plan was not fully activated because there was no need for it; the pandemic was not severe enough to demand every action involved and there was no reason to scare the public. The response plan had envisaged a worst-case scenario where many individuals would be severely ill, and despite a large number of influenza cases the 2009 pandemic was not so intense (Í. Marelsdóttir oral source, April 12th, 2012).

As mentioned in the Introduction, detailed information for this thesis on the responses by the Icelandic authorities and on how the activation of the response plan occurred was obtained by interviewing the Chief Epidemiologist and a project manager on health within the Civil Protection Department. The overall finding is that only two of the six boxes for "Execution" in the pandemic response plan were activated this time - Communication on healthcare (and only the first two boxes there) and Information to the public (as a whole).

When asked whether it was really necessary to activate the parts of the response plan that were used and to make such extensive preparations for further measures, the CPD's answer was a convinced Yes, especially after seeing what was happening inside the hospital walls. The Landspítali was the giant in the responses to the pandemic, even though not so identified in the plans. The CPD had the capacity to go even further in the activation of the response plan, but there was no need for it, and it could have scared the public for no reason (Í. Marelsdóttir, oral source, April 12th, 2012).

When asked about how the response plan worked and if there were any gaps or shortcomings, the CPD felt that the only thing that could have gone better were the telecommunications used in the weekly teleconferences, where it seemed the telecommunication company could not keep up with the technical demands. In future, it will be better to use the official TETRA fallback communication system[23] (Í. Marelsdóttir oral source, April 12th, 2012). Also mentioned was the difficulty that the CPD and other authorities had in monitoring all information that was published in the mass media on the pandemic influenza. A remedy has already been found and a cooperation agreement was signed in 2012 between the Civil Protection Bureau, the Red Cross and ICE-SAR on observing how pandemics or other events regarding infectious diseases are mentioned in the mass media and non-traditional media like the blogosphere. The use of Facebook or Twitter would for example have been a good way to reach more people and giving information on the pandemic (Í. Marelsdóttir oral source, April 12th, 2012).

When the Chief Epidemiologist was asked if anything could have been done differently in the pandemic of 2009 his answer was No, but shortly after he added that maybe the response plan was too broad, too detailed. If a pandemic as severe as mentioned in the pandemic response plan should break out, it is unlikely that the authorities could respond in exactly the way laid down. Nevertheless it is very important to be prepared for the worst case scenario so the response plan has to go into detail. This time, according to the Chief Epidemiologist, the implementation was never out of control. It had to be up to the level of the nation's needs even if it was not equally important for all areas of the country (H. Briem oral source, April 13th, 2012).

The success achieved was not, in fact, only thanks to the response plan. The virus spread "under a close and careful watch. No previous pandemic has been detected so early or watched so closely, in real-time, right at the very beginning" (WHO, 2011, p. 59). Coordination between global institutions and countries helped maintain a better control over the pandemic and according to the ECDC the European countries responded to the pandemic influenza "reasonably well" and no country "over-responded" (Amato Gauci et. al, 2010, p. 2.)

Even though not featured in the response plan, both the Chief Epidemiologist and the CPD underscored how important international cooperation was at the time of the pandemic, both the work with the WHO and especially the collaboration with the ECDC (H. Briem, oral

[23] TETRA is a telecommunication system that offers many different manners of communications, like Group Mode, Emergency Mode, Gateway Mode and Announcement calls.

source, April 13th, 2012; Í. Marelsdóttir, oral source, April 12th, 2012). The first thing done in the mornings was to go online and see the information that had been put on the ECDC homepage www.ecdc.eu, where data on deaths, new cases and the spreading of the virus throughout Europe could be found (Í. Marelsdóttir, oral source, April 12th, 2012). This kind of support is also important at the level of Iceland's national security. As noted above in chapter 3.1 small states often lack the ability to react to risks and threats alone, particularly in cases that are global problems, like pandemics. International cooperation and the relations Iceland has to the other Nordic countries are very important in this context and constitute, according to the Chief Epidemiologist, an "absolute key factor for our security concerns. We cannot do anything on our own." International collaboration on pandemic matters is so massive and detailed today that "a man cannot sneeze on the other side of the world without me knowing" said the Chief Epidemiologist (H. Briem oral source, April 13th, 2012). However, even while Iceland must rely on help from other countries and international organizations, authorities also have to face the possibility of having to stand alone in case of emergency. This confirms the need for a comprehensive response plan covering actions by the Icelandic authorities and agencies themselves.

A key measure of pandemic severity is the case-mortality rate, which is actually very hard to establish precisely. In Iceland two individuals died from the A(H1N1) virus. The first case was an 18-year-old girl with severe underlying diseases. The second case was an 81-year-old man, also with severe underlying diseases (Directorate of Health, 2009b). There was a suspicion of influenza causation in the third case, but it was never confirmed (Minutes of a meeting, 2009, December 4th).

It had been estimated at the start of the pandemic that 1% of those that would get infected would need to be hospitalized and 0,1% would die from the virus infection (Directorate of Health, 2009b). According to the Directorate of Health (2010b) it can be estimated that between 50.000-60.000 people got infected with the pandemic influenza A(H1N1) virus and a little fewer than 200 patients were hospitalized as a result of infection by the virus. Most patients were hospitalized in Landspítali in Reykjavík, 133 persons, and around 20 in the hospital in Akureyri. Other hospitalizations were in other regions of Iceland. Of all patients hospitalized, only a small proportion had to go to the ICU and not all of them were in need of the respiration machines that were bought (Sigmundsdóttir, 2009, p. 2). In the Chief Epidemiologist's estimate, the measure taken in Iceland prevented a further of 30.000 people from getting infected, together with a further 100 hospitalizations, 10 hospitalization in the ICU and at least one death (Directorate of Health, 2010b). The original estimate placing 1% of the infected in need of hospitalization would have meant 500-600 being hospitalized and a

0,1% death rate implied 50-60 fatal cases. As noted above, in reality only two people died from the virus and hospitalization was around 200 cases.

The Chief Epidemiologist gave credit to the nation for good and successful responses to the health authorities' messages when the pandemic was hovering around the country. "The Icelandic nation is at the front of other nations when looking at how many got vaccinated. The public was also very ready to take into account the advice given by the authorities for keeping a tight rein on the pandemic, and we may even compare it to a national awakening how fast people were willing to adopt frequent hand washing, using alcohol-based sanitizers on their hands, the use of paper towels and more important steps for communication and health protection in general" (Directorate of Health, 2010b). So it can be concluded that the parts of the response plan focussing on the dissemination of information and medicine worked quite well. The Chief Epidemiologist estimates that around 150.000 people received the vaccine (H. Briem oral source, April 13th, 2012), which is one of the highest proportions in the world during this pandemic (Marelsdóttir, 2010b, p. 2). This was also a success for the new pandemic response plan, where vaccine was highlighted as one of the major responses to a pandemic virus. Having a response plan means being better prepared to response to a pandemic and "the fact that the response plan used in the 2009 pandemic was freshly made was our saviour" according to the project manager on health within the Civil Protection Department (Í. Marelsdóttir oral source, April 12th, 2012).

6.1 The Importance of Scrutinizing the Pandemic

Both the major response leaders interviewed, the CPD and the Chief Epidemiologist, agreed on the importance of scrutinizing the pandemic responses together with an external person – someone who had not been part of the response plan or its implementation. As options for this, they mentioned for example the Civil Protection Investigation Committee set up by article 28 in the Civil Protection Act, the Directorate of Health, and a possible coordinated scrutiny with the Nordic countries. The need was also recognized to define the weaknesses and the strengths of the response plan; what went well and what could have been done better (Minutes of a meeting, 2009, December 4th).

In December 2009 the Chief Epidemiologist already called for a review of the pandemic and how the authorities and administration had worked during it. The outcomes should then be ready to examine by spring 2010 (Minutes of a meeting, 2009, December 18th). Some evaluation started within the Directorate of Health on how the institution had functioned, while in January 2010 an examination started in the Civil Protection Bureau on actions taken

at the Uncertain phase and Danger phase according to the response plan. A questionnaire was also sent to all epidemiologists and chiefs of police in the districts and was supposed to be sent to the main ministries, the Icelandic Food and Veterinary Authority and the Icelandic Medicines Agency later on (Marelsdóttir, 2010b, p. 2). But a few months after the pandemic peaked in Iceland, a volcano eruption started that caused heavy damage and forced the CPD to concentrate on coping with it, so the evaluation was never finished (H. Briem oral source, April 13th, 2012).

The ECDC did make a special report on its own response to the pandemic influenza – for example on whether the process and procedures were appropriate; the training and exercises for pandemic influenza; stress management; and the timeliness and adequacy of ECDC responses. There it was concluded that by identifying the threat early, setting up a coordinated European surveillance system, and providing situation updates as well as rapid reviews and evaluations of information from the EU/EEA countries, the response to the 2009 pandemic had handled the situation properly (Greco, Stern and Marks, 2011, p. 1).

At the 64th World Health Assembly held in early May 2011, the WHO transmitted a report of the Review Committee on the work of the IHR in relation to Pandemic influenza A(H1N1) 2009. The report concluded that the IHR could efficiently support global early-detection and risk-assessment by helping countries in preparing better and coping with health emergencies (WHO, 2011, p. 72). The committee found no evidence of malfeasance by the IHR when working on the pandemic influenza A(H1N1) 2009 virus. Despite the good work done on global preparedness for health emergencies, however, the WHO still considers the world to be ill-prepared to respond to global health emergencies such as severe influenza pandemic (WHO, 2011, p. 11-12).

So long as a similar complete review is lacking in Iceland it is not possible to fully evaluate what went well and what did not. Scrutinizing is one of the best ways to be able to do better next, and as was said in one of the minutes of meetings during the crisis (2009, 4 December): “The history of this task has to be written and it will be useful reading for those that have to manage similar task in the future.”

Scrutinizing also makes it possible for the public to get the right information on how severe the pandemic was. At first people criticized the authorities for not doing enough to hinder the influenza from spreading. When the pandemic had been circulating for some time the authorities started being criticized for doing too much (H. Briem oral source, April 13th, 2012). Publishing a full evaluation of the pandemic would give the people correct and comprehensive information on how the authorities responded. This cannot happen with the present level and distribution of information. It is not enough that only those involved in

responding should know, for example, how important were the new respiration machines bought and used at Landspítali. In short, it is not enough for the authorities to make it one of the key parts of the response plan to give information to the public while the pandemic is circulating. The importance must be recognized of giving information in the post-pandemic phase as well on how the pandemic was handled and how the Icelandic authorities responded to the pandemic influenza A(H1N1) virus.

7 CONCLUSION

As stated in the beginning of this thesis, the aim here was to explore how Iceland defines and implements the term *Health Security*, particularly regarding pandemic. The Pandemic Influenza A(H1N1) in 2009 was used as a case-study to take a closer look at the responses of the Icelandic government and other authorities involved in case of a health security emergency.

As explained in the second chapter of this thesis, the idea of security in earlier times was most often associated – in Iceland and elsewhere - with hard, military external security threats. Especially since the 1990s, the concept has become "softer" and was broadened and deepened to include non-military security threats and internal and external threats to individuals as well. The potentially serious impact of major health events, and the importance of a healthy population for other dimensions of security, has given health a clear place as a security issue within this perspective.

After presenting the broad theoretical framework, this thesis explored the links between public health and security in Iceland's case, taking especially into account the chief threats to health security and how Iceland cooperates with other countries and international organizations. The discussion then focussed more particularly on global responses to pandemics, and on Iceland's own response plan for pandemics. A detailed account was provided of how Iceland responded, making use of this plan, to the Pandemic Influenza A(H1N1) that circled the globe in 2009.

The two questions put forward in the introduction now need to be answered: namely, (a) was the pandemic defined and handled as a security issue and were the responses adequate and successful (in line with the pandemic response plan)?; and (b) was the pandemic sufficient of a threat to justify and to test the activation of broader, multi-sectoral emergency measures? To be able to answer these questions properly, the account provided above of this pandemic and the responses by the Icelandic government and relevant authorities must be evaluated and brought to a conclusion.

The answer to the first question is that Icelandic authorities clearly defined and handled the pandemic as more than just a health security issue. Other aspects of national and societal security were taken into account, for example the importance of maintaining the proper

functioning of society in spite of the pandemic, reviewing the adequacy of supplies, and asking the full range of actors mentioned in the response plan to be ready to take their part if needed. Even if this pandemic did not have an impact on trade or travel, did not threaten the state's stability nor have much economic impact, everyone was ready to tackle problems that could occur. Having so many people from many different fields involved in creating the response plan made it possible to take into account quite different factors, and also made the response plan suitable to use in other cases than a pandemic. In fact this has already been done in the volcano eruptions of 2010 and 2011.

As it happened, the pandemic was not as harmful as was feared at the beginning: the virus did not mutate during the outbreak and the vaccine made matched the virus circulating; fewer died than predicted at first, and the international community responded quickly to the pandemic. Also, in Iceland many people received the vaccine and most cases of the pandemic were mild, often resolved without any form of hospital treatment. Only two deaths have been traced to the pandemic and much fewer people became infected than first expected, resulting in fewer patients that needed hospitalization. Therefore it can be concluded that the responses to this pandemic were adequate and successful. The measures taken by the Icelandic authorities prevented more people from getting infected, and avoided further hospitalizations and at least one death. The authorities worked mostly according to the response plan but also partly worked "outside" the response plan. For instance more cooperation was developed with the media than had been foreseen in the response plan; also, the Landspítali was in much closer collaboration with the CPD and gave much more information than determined in the response plan.

To answer the latter question, whether the pandemic was sufficient of a threat to justify activating broader emergency measures, there is a need to look at what was activated. This pandemic was of such a nature as never to reach the point of activating all possible emergency responses, because so many were vaccinated and a high proportion of adults did not get sick. What was activated was exactly what corresponded to the given need for ensuring the security of the public and the country as a whole; the pandemic was not severe enough to demand activating every sectoral measure and there was no reason to scare the public by activating the response plan as a whole. The overall finding is that only part of the response plan was activated and had to be activated to handle the pandemic properly; there was no need for broader action as this was not the worst case scenario as put forward in the response plan.

It should be noted, however, that even though this pandemic was not enormous and not so many people became infected, compared with other pandemics that have been circulating, the Icelandic healthcare system was stretched to its capacity – and especially the ICU. The

pandemic was a huge burden for the healthcare service but it coped well, reacted quickly, and the information flow and instructions to the public and the media were sufficient. The question remains whether, if another pandemic strikes harder in future, the healthcare system will be able to handle the pressure as adequately as it did in the pandemic of 2009.

A further point revealed in this thesis it that the Icelandic authorities failed partly on informing the public and the international system post-pandemic. It can thus be argued that one of the biggest failures in responding to the pandemic was something that was not part of the response plan, but is part of the new Civil Protection Act no. 82/2008. The Civil Protection Investigation Committee should have been put together when the pandemic had been declared ended, so as to compile a report presenting its conclusions, proposals and other matters of significance on the pandemic and the responses. The new Act concerned did not come into force until June 2008, but by the time the pandemic influenza hit Iceland it was valid, so there should be no excuse for why the committee was not set up. It should have been the duty of the PM's office and Alþingi to set up the Committee, so they are the ones responsible for the lack of a proper Icelandic report on the Pandemic Influenza A(H1N1).

One of the most important tasks in the response plan was to inform the public on the pandemic, the nature of it, and how severe it was. However inside the hospitals, where the pandemic was most visible, the public was partly "banned" so it was hard for the general public to get the right vision of the pandemic. This restricted vision risks leaving the public with a false impression of the emergency and of how dangerous it really was, or could have been. This also opens the way to globally-circulating myths about the "non-pandemic" being artificially hyped for commercial or other dishonest interests. Making a full and considered report would have been important here too, to give the public correct and comprehensive information on the pandemic itself, and the responses. The ECDC and the WHO have already made their reports, which give a good picture on the pandemic both in Europe and globally. To reach a good judgement on whether Iceland's own response plan worked or not, it would be important to get a third person to handle the evaluation – a person not responsible either for drafting the plan or for the responses when it was used. The history of this task still remains to be written and it will be useful reading material for those that have to manage similar tasks in the future. Data and documents are available - the only thing that has to be done is start the work.

Another point for the government to consider is that it is very important to update response plan regularly because of the rapid changes in the security environment, security conceptions, and risk factors in a 21st century world. The response plan used in the pandemic in 2009 was brand new, and – as expressed in one official's comment which provides the title of this thesis

- that is what became the saviour of the Icelandic people and society in this crisis. After such an experience, it is already time to review the plan and see if any changes are needed to handle changes in the security spectrum. Thought is also needed on whether there is anything not in the original plan that was used in the pandemic and needs to be borne in mind, not if, but when a pandemic strikes again. Given the way that the data and documents gathered for this study have emphasized the importance of the Landspítali and the media during the pandemic, this author would see a need for increasing their prominence, role, and capacities in a revised response plan.

Even though the measures taken by the Icelandic authorities prevented more people from getting infected and managed to keep society functioning properly while this pandemic circulated, it is uncertain whether this would have been enough if the pandemic would have been more harmful – meaning, among other things, that a wider range of participants would have had to join in the emergency measures. If the plan had been implemented fully it is possible that people would have been more alarmed and not interacted as well with the authorities as in 2009, while the flow of information to the public (on a larger and more varied set of measures) might not have been so adequate. Activating the response plan fully would also have demanded great coordination and solidarity among the main leaders of the responses. Solidarity, coordination, and a strong, united leadership have not been among typical features of Icelandic government in the past – including since the economic crisis – and there has not been great confidence felt in the Icelandic government by the public either. Further, one of the main tools still lacking for such a "whole government" response is a proper national security policy where health security is included as one of the main security issues for Iceland. Hopefully, the committee now working on this policy-making will make a proper report providing a good framework, both at policy and administrative levels, for responding to future pandemics and other health security crises in an adequate way.

While this thesis has thus provided clear answers to its research questions, it has also raised many issues along the way that would need to be pursued through further and separate research. One is the need to look even closer and more comprehensively into the term "health security." As stated in chapter 2.6 health security relates to much more than just a pandemic, so other parts of health security would be interesting to explore with the question whether the Icelandic government has any suitable policy or response plan on how to tackle them. Such cases could include, for example, how to tackle HIV/AIDS and other new diseases (including ones linked to global warming), or bio-attacks. According to the 2009 Risk assessment report, bio-terrorism is not considered a threat to Iceland, but nevertheless it is possible and the

Icelandic government should be prepared to have to respond to such a potentially very serious contingency.

The economic crisis has taken its toll on the Icelandic healthcare system and the government has had to cut down funds to hospitals and other healthcare institutions, which can have negative effects on health security for the country. The Icelandic healthcare system is one of the best, compared to other European healthcare systems, but the welfare tasks the government focuses on can be harder to fulfil if there are not enough finances. One interesting thing to look at in the near future is whether this has had any effects on the ability of Icelandic institutions to respond to any health security challenge that has occurred or can occur, or whether the capabilities are no longer fully adequate to fulfil the tasks put forward by the government.

Another interesting issue to consider in the context of this pandemic is the experience of our neighbouring countries. The Icelandic healthcare system is based on a Nordic welfare system, similar to what exists in the other Nordic countries. The capabilities and performance of the latter are of increasing interest to Iceland now that a political "solidarity" agreement exists (adopted by the Nordic Ministers in 2011) for all Nordic states to come to the aid of any one of them facing a severe non-military disaster. It would be possible and interesting to do a comparative study to see if the four other states responded to the 2009 crisis in a similar way as was done in Iceland – how did vaccination go and were there different levels of deaths? Did they already have a response plan when the pandemic struck, and are they now planning any improvements that might be a useful model?

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