

Detachment from conventional agriculture in rural Japan:

*An analysis of embedded antifragility in satoyama
communities*

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Table of Contents:

Acknowledgments	5
Introduction	9
Motivations	9
Research question and rationale	10
Itinerary	11
1. Background	13
1.1 Livelihoods on a volatile archipelago	13
1.2 Satoyama – living with nature on the volatile landmass	14
1.2.1 Satoyama areas and practices	15
1.2.2 Nature and satoyama	16
1.2.3 Satoyama as a bridge between humans and nature in Japan	17
1.2.4 Current issues regarding satoyama areas	18
1.3 The sun rises – Japan’s metamorphosis into a westernised, industrial nation	19
1.3.1 Industrialisation, economic growth and the farmer	20
1.3.2 The sky is the limit – agriculture in the post-war years	21
1.3.3 The limit is the sky – the downfall of the traditional countryside	22
1.3.4 Nōkyō – Japan’s agricultural cooperative/finance multinational	23
1.4 The Hida region	25
1.4.1 Tanekura village	27
2. Theoretical Framework	31
2.1 Neo-classical economics – rational incentives through scarcity	32
2.1.1 The foundations for neoclassical thinking	33
2.1.2 Scarce resources and the need for centralised planning	34
2.1.3 Incentives driven by scarcity – the economic man and his actions	35
2.1.4 Neo-classical understandings of geography	37
2.1.5 Nature in neoclassical economics – unregulated scarcity	38
2.2 Critiques of neoclassical theories	40
2.2.1 Institutional economics	40
2.2.2 Social capital	45
2.2.3 Political ecology – challenging the apolitical	46
2.2.4 Antifragility – embracing natural disorder and benefitting from it	50
3. Methods	54

3.1 Qualitative research	54
3.2 Direction of the research	56
3.3 A case study	57
3.4 Fieldwork and collection of data	58
3.4.1 Fieldwork in Hida-Furukawa and the village of Tanekura	60
3.4.2 Kanazawa and Komatsu – Satoyama international training programme	63
3.4.3 Other aspects of my fieldwork	64
3.5 Validity of my generalisations.....	66
4. Analysis	68
4.1 Existence of satoyama – real or symbolic, organic or subsidised?	69
4.1.1 Satoyama as an ecological myth, a symbol of the <i>real</i> Japan.....	69
4.1.2 The “real” and marketable satoyama	70
4.1.3 Satoyama in practice – insights from the ground	72
4.2 Actors and institutions in a satoyama	74
4.2.1 Fencing out nature	75
4.2.2 Aging, depopulation and the consequences for satoyama	76
4.2.3 Less need for money (i.e. debt) in a satoyama	79
4.2.4 Past and present in Tanekura – the villagers’ perspective	80
4.2.5 The future of satoyama – through the eyes of the community in Tanekura	87
4.2.6 Insights from Takigahara – using the local knowledge	89
4.3 The outlook for satoyama.....	90
4.3.1 Increasing fragility in satoyama areas	90
4.3.2 More focus on the countryside and satoyama in Japan.....	93
4.4 Protecting satoyama – insights from economic geography.....	96
5. Conclusion	99
5.1 Sources of fragility in a satoyama and their effects	99
5.2 Critical reflections	102
5.3 Significance and future challenges	103
References.....	104
Appendix – interview guides	109
1. Interview guide for the villagers.....	109
2. Interview guide for the department of economic affairs.....	110
3. Interview guide for the agricultural department	111

Introduction

Motivations

Finding solutions for a robust future are among the most important undertakings mankind has faced, and there are many proposed solutions ranging from conserving nature while building dense cities to building human settlements underwater. Many measures have been superimposed on a global scale and have often had limited effects, as the issues are complex and usually affect places differently. A local focus is therefore taken in this thesis to see the bottom-up measures in action.

The idea for this thesis came to me while watching the documentary *Satoyama: Japan's Secret Forest*¹ about certain areas in Japan where people have lived in accord with nature for generations through adhering to specific land use practices. Having spent a semester at a Japanese university a few years back, and being quite used to the image of Japan as a technotopia with neon lights and skyscrapers, I was surprised to see a different side of Japan that seemed to thrive in this highly industrialised country. It is also a country with a materially wealthy and well-educated population, it has a low unemployment rate, but it is also a country where the urban areas have had a growing population and economic significance, at the expense of the rural regions and smaller, robust communities. This development has considerable consequences for the rural satoyama communities where the population is aging and generations of knowledge are at risk of disappearing.

I firmly believe that important insights can be learned from the smallest places, in this age of the global. Studying how the communities and their members handle the changing social and economic environment are all reasons to undertake a qualitative study focusing on the actors in these satoyama communities and how they are affected by the changes in Japan.

The analytical concept of antifragility is borrowed from Nassim Nicholas Taleb's (2012) book *Antifragile: How to Live in a World We Don't Understand*. He is a professor at the Polytechnic Institute of New York University in risk engineering and a former Wall Street trader. In the book he explains that something with

¹ The documentary is available here: <http://tv.nrk.no/program/koid20008810/japans-hemmelige-skog>.

antifragile properties improves and gets better through constant exposure to shocks that force it to adapt, and antifragility is what makes complex systems resilient – much like evolutionary process in nature (Taleb 2012:6-9). Antifragility is also highly nonlinear, as causalities and precise effects are hard to measure. Something fragile does not fare well when exposed to outside shocks, whereas the antifragile in further strengthened. It is also in need of outside inputs and upkeep to function properly without the inputs contributing to making it antifragile. They only contribute to making it more fragile (Taleb 2012:11-3). In this thesis, antifragility is mostly ascribed to traditional agriculture and its significance in satoyama communities. It characterises the interactions with nature and resource use that have been institutionalised over many generations that allow the community to live robustly with nature. Taleb’s ideas might seem new, but share many of those found in institutional economics and in economic geography in that local institutions and knowledge play a vital part in for instance resource management, robust land use practices, innovation practices and more (Fløysand and Jakobsen 2010; Ostrom 1999; Taleb 2012). I will clarify these ideas and concepts further in chapter 2.

Research question and rationale

This thesis is about the robust satoyama communities in modern day Japan, more specifically their local institutional context regarding their agricultural practices and how that is affected by the changes that have happened in Japan over the past century. I started out with a relatively wide reaching theme concerning satoyama communities and how they have been affected by the many socio-economic changes that have taken place. This has allowed a more explorative study where the many discoveries made during the analysis have reshaped and rephrased my theme and refined it into a problem statement. I seek to analyze traditional agricultural practices and their modern equivalents, in what degree they are detached or attached to the input structures in conventional agriculture, and the effects of this attachment/detachment. My main research question is as follows:

What are the sources of fragility in satoyama, and how do they affect the embedded antifragility in such areas and communities?

In order to come up with a meaningful analysis to answer this main question, I will also look into in what degree these satoyama exist as the geographies of satoyama are varied. It is also important to identify who the actors in a satoyama are since they are the basis for the institutions that make up the supposed antifragility. The institutional composition of such areas also plays an important part, as they are central in the development of knowledge and habits in these communities that enable the antifragility to endure. Furthermore, the cultural significance of satoyama is also important, as there are different perspectives on their symbolic and real-world existence.

By answering the question above through the issues that will be discussed in the analysis, my thesis will hopefully be a contribution to the growing body of research in economic geography asserting that the economy is *not* a thick-walled sphere containing cost-benefit functions, exotic mathematics and axiomatic assumptions of neutral spaces in which economic activity goes on. It is vital to show that locally embedded knowledge and practices play an important role in peoples' lives and that understanding them can contribute to more respect for these dynamic processes by policy-makers and regulators – as well as by the general public.

Itinerary

The first chapter will start with a brief description of the physical geography of Japan, then explain the concept of satoyama, its history and guiding principles, and how it is connected to a broader understanding of nature in Japan. I will also outline many of the changes that have happened in the rural areas of during the last century, to provide a suitable context for the theme of the paper. The last section of the chapter will present the region where I did my fieldwork. In the next chapter, I will build the theoretical framework. There, central principles from neoclassical economics regarding production, optimisation and the economy's relationship to nature will be contrasted with challenging views from institutional economics, political ecology and Taleb's (2012) ideas about antifragility. Among the issues that will be contrasted are the diverging views on scarcity, how institutions work and their significance when it comes to localised knowledge and its development. The third chapter will present and

discuss the methods that were applied during the study, and the fieldwork I conducted in Japan. Chapter 4 is the analysis, which builds on the previous three chapters, and brings together the theories discussed in chapter two with the data that I collected during the fieldwork. Finally, chapter five will present the conclusions.

1. Background

As economic geographers and as social scientists, we are concerned with anchoring economic action to places and spaces to unravel the mechanisms that they are built on (Hernes 1998:78; Ragin et al 2011). This chapter will serve to outline the societal, geographical and institutional context – a necessary backdrop for the people and phenomena that I encountered during the fieldwork for my thesis. I will argue that it is easier to get into some of the reasons why rural communities are facing hardships today, and why robust land-use is threatened, by looking at some of the central events that took place in the past, contributing to the development towards the present day.

It is important to keep in mind that this brief account cannot claim to explain the idiosyncrasies that can be attributed to the institutions of a certain place, economic or others. and to be wary of narrative fallacies misleading us to assume causations where they might be unclear (Taleb 2010:63).

1.1 Livelihoods on a volatile archipelago

The cultivation of anything on the face of the Earth is made possible by the geographical and climatic conditions in any given area. Petrochemicals will not help you if the weather and soil conditions are against you. In Japan these conditions are based on volcanic activity, as the country is comprised of a group of relatively young and active volcanic islands at the western edge of the “ring of fire” in the Pacific.

Japan consists of the four main islands Honshū², Kyushū, Shikoku, and Hokkaidō, with Honshū being the biggest in size and is the most populated. In addition, some 6000 smaller islands dot the oceanic expanses around Japan. The country sits on top of one of the most geologically volatile areas in the world, with many active volcanoes and daily earthquakes, although seldom as destructive as the Sendai earthquake in 2011. The geological heritage of volcanic activities and changes in sea-level, due to the warming and cooling of the Earth, have left behind river valleys filled with silt and loam (Totman 2005:15). As a result, the topsoil is rich in nutrients, which has made it possible to cultivate in many areas throughout Japan.

² Macrons are used to indicate long vowel sounds in Japanese words that are written in Roman script.

Still, most of landmass is mountainous, and around two thirds of the country is also covered in forests (Kalland 2005:14; Takeuchi 2003). These dense forests and steep mountains naturally limit the area available to agriculture and forestry can take place, and the total area of arable land in Japan is around 15 per cent of its total landmass of 377 837 km² (Totman 2005:16). Terraced rice paddies expands the arable areas and also create good growth conditions in places where there is less nutrients in the ground through certain chemical reactions aided and spread by the water in the field (Netting 1993:41-7). A train trip across the lowland plains on the main island of Honshū will reveal such large stretches of smaller rice paddies, dotted with the occasional vegetable field, and interrupted by the large metropolitan regions towards the Pacific coast. These areas are also the most populated in the country, with the Tōkyō-Yokohama region being one of the most populated areas on the planet.

In the more mountainous regions crops are usually found in the valleys and in the hillsides where the poor ground conditions for crops, both when it comes to the difficult terrain and nutrient content in the soil, are often corrected by terraced farming. Usually, it is difficult for farming to get a foothold without the construction of massive concrete walls to hold back erosion of the mountainside. Erosion in general, is a constant concern and concrete walls have been used to contain the country's many rivers and streams to prevent flash floods. Numerous large and small river dams have been constructed with this in mind as well. Large stretches of the Japanese shoreline are behind breakwaters made of concrete in an attempt to break the ocean currents and reduce coastal erosion. Some areas have taken advantage of the forests as a means of containing the topsoil and its nutrients, and have well-established systems in place (Duraiappah et al 2012).

1.2 Satoyama – living with nature on the volatile landmass

The concept of satoyama dates back to the 17th century, when it was a classification of land describing areas with settlements and mountains (Duraiappah et al 2012:17). An English translation of the word satoyama (里山) means “settlement pattern of living in upland valleys and cultivating lower slope or an undeveloped woodland near

populated area”³, so it is pretty much a practical definition. Separately, the for kanji *sato* (里) can mean village, home or countryside, and the kanji for *yama* (山) refers to a mountain or something wild. Approximately 40% of the Japanese countryside is considered as satoyama areas according to Duraiappah et al (2012:3). Most of the practices that have been applied in agriculture, forestry and fishing when looking back in time have been in accordance with satoyama principles (Duraiappah et al 2012:10-12). Still, ‘then and now’ rarely implies a standstill in the meanings ascribed to a concept – and much has changed on the countryside; therefore it is important to look at the state of satoyama today. How satoyama areas and practices fare today, have implications for the upcoming analysis-chapter, as a hollowed out concept will not provide a base for a fruitful discussion. Furthermore, tracing some of the developments in a concept can give us interesting information about the drivers behind the changes and how these changes matter in the bigger picture.

1.2.1 Satoyama areas and practices

Takeuchi et al (2003) make some distinctions between the several meanings ascribed to the term. In a practical sense, satoyama means areas where humans have interacted with their surroundings in such a way that both nature and humans were better off. The community got food, fuel and several other ecosystem services from their surroundings, while the surroundings were used in such a way that more species thrived as a result. A typical and short definition in addition to the one from the dictionary is an area with managed and coppiced woodlands, in some cases rice paddies, and grassy fields (Takeuchi, et al 2003:9-12). However, since there are no combinations of human and natural interactions that can be considered identical, it is difficult to give concrete textbook ideal types of a satoyama, for the simple reason that the practices vary with the specific places one looks at.

Some characteristics are shared, though, and among them we can point out varied land use, local resource use and human intervention – but not destruction, of the local biosphere⁴. For example, coppicing the trees allows more sunlight to hit the forest floor and paves the way for more species with the access to more energy from the sun. The timber that the locals acquire can be used to make coal for fuel and for

³ Translation from a Japanese-English electronic dictionary

⁴ Please see Duraiappah et al (2012) p. 21-24 for more details on the different types of satoyama.

growing mushrooms on (Takeuchi et al 2003; Duraiappah et al 2012:38). Other examples include more subtle management practices like ensuring that the wild animals in the area do not come in conflict with the humans by not overusing what the animals also regard as sustenance. Satoyama landscapes have shown to have high degrees of biodiversity, with many species (Duraiappah et al 2012:37). The ethical frame around the concept is recognising that the land equally belongs to humans as well to other species and that the connection between these spheres make it viable in the long term. This brings us to the more symbolic aspects of satoyama.

1.2.2 Nature and satoyama

Nature and what is natural might invoke images of pristine forests, pure mountain streams – primeval areas without human intervention. The constructed dichotomy between natural and human worlds is central in geography and in the post-enlightenment (Cartesian) era of science (Castree 2005:9). Nature is seen as a realm outside the human, and because of this perceived gap over the course of modern history, our civilisation has removed us from what we in truth are a part of. We are dependant on resources from our surrounding environments to survive, and at the same time our understanding of the environment around us to exploit the available resources to meet our needs (Sutton & Anderson 2004:59-61). Nature can indeed be viewed as one part physical environment, and one part human representations and meanings ascribed to that environment. In fact, although not always referred to as satoyama, places that have the same qualities with regard to the bond between humans and nature have a central place in Japanese folklore and even in popular culture. This is perhaps best represented in the films of the famous anime (animation) director Hayao Miyazaki. In his beloved films such as *My Neighbour Totoro* and *Princess Mononoke*, he is a master of subtly juxtaposing the relationship with nature's position in present-day Japan, with images and representations from the past⁵. I contend that our recognising our place in nature – not above its forces, as sappy as it may sound, is vital for understanding and figuring out how we can craft more robust communities. In this matter, the ethical and more symbolic landscape of satoyama can be a case in point.

⁵ <http://www.usask.ca/relst/jrpc/art10-miyazaki-print.html> last accessed 18 January 2013.

1.2.3 Satoyama as a bridge between humans and nature in Japan

The more symbolic meaning of satoyama captures how it compares to the view of nature in Japan, where there is an element of taming involved to overcome nature's "rawness" so humans can live alongside it (Kalland & Asquith 1997:13). Think of Japanese gardens with their impeccable landscape design or the art of bonsai, both of which are ways of emphasising the aesthetically pleasing aspects of nature, and in many ways 'improving' nature through controlling it. In many ways, the concept of satoyama encapsulates creating practices for managing the 'raw' nature, recognizing that such practices benefit both humans and nature, that humans indeed are a part of nature and intimately connected to and dependent upon it (Takeuchi et al 2003:19-23; Duraiappah et al 2012).

These important acknowledgments are the roots of the robust practices explained in the literature about satoyama (Takeuchi et al 2003; Duraiappah et al 2012). The practices are far more pragmatically oriented than creating idealised and aesthetically pleasing areas, and the protection of satoyama areas and practices are usually based on more substantial matters than beauty. In this sense, the practices are not typical in the way Kalland and Asquith (1997) describe the Japanese view of nature. There is a sense of taming involved in satoyama as well, but it is perhaps more a way of using nature's systems as an aid in maintaining human livelihoods. This may sound prosaic and when one thinks about how we lived of the land a century ago it makes sense. Industrial agriculture has removed the close relationship to natural systems in exchange for efficiency and high yields based on certain assumptions about production to which I will return to in chapter 2.

For this thesis, it is important to keep the focus on the human practices that give way to this form of utilitarian conservation – that we conserve productive areas or create robust systems for resource use. In this respect, satoyama not only represents the physical landscape and the ecosystems in such areas, but the institutions below the surface that have been constructed by humans in for the sake of robust communities within them.

1.2.4 Current issues regarding satoyama areas

When talking about change in satoyama areas, Duraiappah et al (2012:60-118) almost exclusively list up negative changes taking place today. Among the many plights is the depopulation trend that was outlined above, which removes the potential for knowledge transfer to the younger generation, and a further twisting of the blade comes from the aging of the countryside and those involved in the primary industries. The older locals do not have the capacity to handle the upkeep of the culture landscapes and what follows is underuse of the available resources in satoyama areas. This leads more wild animals into the farmlands, as there is less food to find on the floor of the dense forests. Fences are being constructed, sometimes even electrified ones – something that goes against the core ideas behind satoyama – to prevent the crops from being ruined by wild boars, deer and the like.

The depopulation trend in rural areas also enables for further expansion of the ever-expanding urban boundaries, as overgrown forests are considered less valuable than populated areas providing a tax revenues to the local municipalities. More people in cities and less people out in the countryside make people less attached to nature and its systems, less people will see the value of satoyama areas and local practices. Urban parks become (constructed) nature for urbanites, but people in densely populated areas are vulnerable to environmental disasters – the Kobe earthquake in 1997 is just one of many examples (Duraiappah et al 2012:131, 138-140). The list of negatives continues and is, as mentioned, extensive and varied. The different local communities share some of the changes, and there are local variations that compound the difficulty of measuring the strength of the apparent causes and effects. The current focus aimed at the ecosystem services that disappear when the landscape and its consequences for human settlements and for the biodiversity in those areas (Duraiappah et al 2012:37-39, 45-6). The Ministry of the Environment launched a campaign in 2010, called the “Satoyama Initiative” at the COP 10 in Nagoya. It aims to both spread the ideas of satoyama internationally, and to strengthen conservation of satoyama nationally. I will get back to the Satoyama Initiative in section 4.1.

1.3 The sun rises – Japan’s metamorphosis into a westernised, industrial nation

Condensing several millennia of history and development into a few pages is not possible, as no historic account (how long it may be) can give us a perfect representation of the threads leading to present day without becoming a narrative fallacy. I therefore place an emphasis on a period in Japanese history that changed the social and economic conditions of the country and spawned many of the features we recognise in Japan today.

Japan is known as a country with a materially wealthy and well educated population, it has a low unemployment rate, but it is also a country where the urban areas are growing and thriving, while most statistical figures point towards that the countryside getting ‘older’ and left behind by the rest of Japan. It is also a country known for its high-tech industries and products, but all this in contrast to rural regions often regarded as backwards and out-dated. Most people are familiar with the view of Japan as a highly advanced society, where hard work and ingenuity have contributed to a post-WW2 economic development that propelled the nation up to the upper echelon of developed nations today. As Henshall (2004) writes:

From a quaint and obscure land of paddy fields and feudal despots [sic] just a hundred and fifty years ago, [Japan] became a major contender among the imperialist powers, a military threat to the world order, and then, its crisis passed, an economic superpower.

(Henshall 2004:4)

The predominant economic activity throughout its history, the backbone of the society and source of power, had been agriculture (Francks 1999; Hane 1982; Kalland 2005; Totman 2005). This is a trait Japan shares with the rest of the world (van der Ploeg 2008). What made Japan stand out from Europe and North America was its late development into an industrial nation and making manufacturing and service industries the main parts of its economy. I use the word late, because that was the sentiment held by the industrialised powers, chief among them the U.S. – that is was high time Japan followed them and started trading with the rest of the world. They proved their point by sailing four steam-powered warships into Tōkyō Bay,

demanding that the Japanese open their harbours for foreign activity and coal for through faring American trade vessels (Kalland 2005:254; Totman 2005:289).

Before this watershed in Japanese history, the country had a policy of cautious isolation, especially in an economic sense – apart from a Dutch and Portuguese trade mission in Nagasaki and some trade with its neighbours Korea and China (Kalland 2005:251-2). Though isolated and chiefly relying on resource industries, there were already small changes taking place in the Japanese economy before the Meiji-restoration, with economic reforms aimed at industrial expansion, enacted by the ruling elite of the Tokugawa shogunate who had the power before 1868 (Totman 2005:259-261). The fall of the shogunate gradually shifted the power balance from the decentralised system with feudal elites to a centralised system with politicians and bureaucrats, and changed the political and economic composition of the nation (Francks 1999; Totman 2005). Japan brought in foreign expertise from the U.S., Germany, France and other influential nations to aid them in the process of becoming a ‘modern’ nation and become an influential player themselves (Kalland 2005: 266).

1.3.1 Industrialisation, economic growth and the farmer

During these turbulent times, the ones responsible for providing food, lumber and such for the country saw their taxes increase and use of forest commons restricted by the state. In the Tokugawa-era, the taxes were paid in a fixed amount of rice, but the Meiji government decided that the tax had to be in yen, so the farmers ability to pay taxes came under the mercy of fluctuating rice prices (Hane 1982:16-17; Totman 2005). Moreover, the government needed currency to be able to pay for the industrialisation that was up-and-coming at the time. It was mainly the farmers who paid for the following modernisation towards the end of the 19th and the beginning of the 20th century, through the land tax collected by the government (Hane 1982:17; Kalland 2005:304-305). To make matters worse, the start of rice imports to the large cities carved out a space in the domestic market for cheap foreign rice, which naturally affected the domestic prices in a negative way (Kalland 2005:298). The development that followed was essentially the same as in the rest of the industrialised world, namely that people started moving to the cities to look for ways to make a living, as farming made them work more and letting them keep less (Fukutake 1980:13-14). A development that was very much driven and organised by the central

state through the construction of infrastructure, housing, expansion of debt for smaller businesses and so forth (Kalland 2005:288-291). This is also tied to the need for industrialising agriculture and other resource based economic activities, as there are less hands involved in them when most people move to urban regions, and the economic pendulum swings toward manufacturing and service industries (van der Ploeg 2008:5-6).

As farm life was already a strenuous affair, the demands from the central government that kept on piling up led many people to abandon their life on the countryside. The farmers that stayed behind had to invest in heavy farm machinery, and after 1920, chemical fertilisers and pesticides to increase their yields – the building blocks of the Green revolution (Fukutake 1980:9; Kalland 2005:300; Priess 2006:23-5). Soil for cultivation was not abundant, especially after livestock farming was introduced, and provided another challenge for those that stayed behind.

1.3.2 The sky is the limit – agriculture in the post-war years

In spite of the development outlined above, the number of farmers was fairly constant from the Meiji-period and throughout the 1940's (Hane 1982:29). Japan had lost its colonies in Asia from where it received 15 per cent of the foodstuffs consumed and therefore became increasingly dependant on imports to cover domestic demands (Totman 2005:387-8). Further foreign competition was yet another blow for the countryside, which had seen a drop in income due to government support for lower rice prices, and favouring the interests of urban consumers.

The American post-war occupation forces led by general Douglas McArthur, took it as their mission to get Japan back on its feet and bringing American economic doctrines, like free trade and anti-trust laws to the table (Kalland 2005:337-8). The silver lining on the horizon for the countryside was the land reform that distributed large tracts of land, which changed the situation of many who had previously tilled on rented soil. In many cases, the previous landowners had been life-long neighbours with the new owners, and felt this as a huge blow to their family and livelihoods (Hane 1982:249). Nevertheless, these changes levelled the field for those involved, and the huge gap between those owning and those working the land was essentially closed (Fukutake 1980:134). What could have been a source for countrywide conflict was instead solved locally as most considered the endurance of the strong ties within

the community more important than quarrelling over local croplands (Hane 1982:251). The immediate few years after the war were therefore a relatively more prosperous period for those at the countryside, than those that worked elsewhere. They were better off because they had access to their own produce and could sell what they did not consume for higher prices to urban dwellers due to the food shortages in many cities (Kalland 2005:340).

1.3.3 The limit is the sky – the downfall of the traditional countryside

The flame quickly weakened when the national economy picked up the pace towards the enormous growth during the post-war era, and both productivity and the labour force in the agricultural sector was in sharp decline when other job markets declared their need for labour (Totman 2005:483). Focus on free trade and integration into international commodity and finance markets meant that cheap foreign products were allowed to compete with domestic. The developments that started in the Meiji-era culminated in a downward spiral after Japan got headlong into the global economy. Farming was increasingly becoming a part-time activity, facilitated by chemical fertilisers and specialised machinery (Hane 1982:251). In 2005, the primary industries employed only 4.8% of the Japanese workforce, whereas the secondary and tertiary industries employed 26.1% and 67.2%, respectively. The numbers also suggest that the primary industry on average contribute less to the GDP than the industries. Moreover, the farmers are growing older – now over 60% of the active farmers are over 65 years old, a number that has almost doubled between 1990 and 2010⁶. In fact almost 47% are aged 70 or over (Yamashita 2008). Lower demand for Japanese produce and cereals, in the favour of imported meats and other foodstuffs⁷ continue to dim the opportunities of making a living as a farmer – especially outside the proximity of the urban regions where part-time jobs can help making ends meet (Totman 2005:554). This has also affected the self-sufficiency rate of Japan, which has been steadily decreasing since the 1950's – today Japan produces about 39% of the calories it consumes (see figure 1 below).

⁶ Statistical Handbook of Japan: <http://www.stat.go.jp/english/data/handbook/index.htm> accessed 21 March 2012.

⁷ Ministry of agriculture, forestry and fisheries statistical yearbook from 2011
http://www.maff.go.jp/e/tokei/kikaku/nenji_e/86nenji/index.html#nse015 accessed 01 January 2013.

**Food self-sufficiency ratio in Japan and other countries
(on a calorie basis)**

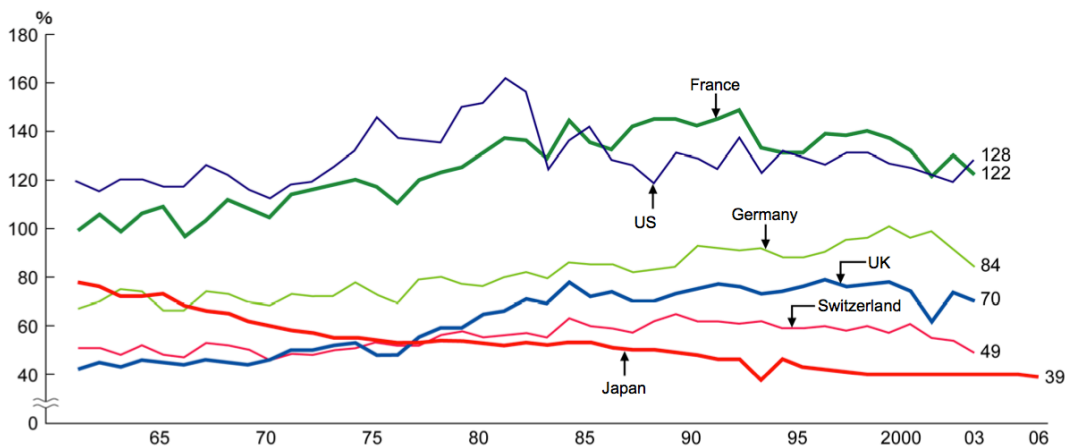


Figure 1: Food self-sufficiency ratio in Japan compared to other countries. (Source: Ministry of Agriculture, Forestry and Fisheries⁸)

There is little doubt behind why many from the younger generations leave the rural regions for the more alluring opportunities in the metropolitan regions of Japan.

Still, it is not fair, nor is it at all accurate; to portray the Japanese farmer as an ever-exploited and passive grey mass that stood idly by as their livelihoods along with their communities were disrupted by the altered foci of the governments overseeing the transformations that took place. In fact, the development that took place could not have happened without the labour from the rural communities that provided a food surplus to the urban areas (Francks 1999:120). Farmers and peasants were and still are important for securing a political mandate in Japan, as well as the fact that they still produce enough to meet half of the total demand in the country.

1.3.4 Nōkyō – Japan’s agricultural cooperative/finance multinational

When talking about political (and economic) power in commodities and agribusiness, one cannot escape *the* mighty player in Japan’s agricultural domain, Nōkyō⁹ the largest agricultural cooperative in the country. It has a large presence in national economics and politics, and acts as a pressure group representing the farmers’ interests (Fukutake 1980:191). They are involved in many facets of rural life, from farm management services, debt, supplying agrichemicals, marketing, insurance,

⁸ Annual report of 2007 MAFF http://www.maff.go.jp/e/annual_report/2007/pdf/e_2-1.pdf accessed 4 April 2013.

⁹ Nōkyō is a shortening of *Zenkoku Nōgyō-kyōdō-kumiai Chuōkai*, which loosely translated means central union of national agricultural cooperatives.

health services and more¹⁰. It also has tight bonds with the conservative party in Japan, the LDP. The cooperative is present on almost every geographical level with local grain silos, stores with farming equipment, national distribution channels for rice and produce and their own representatives on the village level. Being a true *keiretsu*¹¹ Nōkyō owns its own savings and investment bank, which is among the largest in the world and are involved in securities and bond trading. Its hegemony as a supplier of agrichemicals is unchallenged in the domestic market and it sets the prices for rice, and is subsidised by the state (Bullock 1997). Nōkyō have also been using the high rice prices as a way of making farmers pay more for the chemicals they had to buy from them, and other devious methods are pitting the part-time farmers against the full-timers inside the organisation to secure support for its activities:

Higher produce prices also make it possible for farmers to pay more for the supplies they buy from their local Nōkyō cooperatives, such as chemical fertilizer, pesticides, and machinery. The idea behind supply cooperatives is to increase farmers' collective bargaining power on the market, vis-à-vis merchant capital; cooperatives can purchase supplies at lower cost and sell them to members cheaply. Instead, Nōkyō made bigger profits by selling to members at inflated prices.

(Yamashita, 2009a)

In spite of Nōkyō's political bargaining power, economic muscles, and its view of itself as a protector of agricultural Japan by resisting demands from WTO¹², its cheap and easily accessible chemicals financed by loans in the local Nōkyō-bank does not prove as way to protect the robust nature use practices developed over long time by communities. This will be addressed in the analysis. Nōkyō has also had strong ties to the Ministry of Agriculture, Forestry and Fisheries and the Liberal Democratic Party of Japan, and has used this position to secure its marked power further (Yamashita 2009b). The countryside is constantly being drained of important, local knowledge due to the demographic issues and areas previously used for more traditional, robust production, are disappearing along with its inhabitants (Duraiappah 2012:5). In fact, it can be argued that Nōkyō makes a profit off the chemicals and services it sells, and therefore actively contributes to the breakdown of these practices. Continuing

¹⁰ <http://www.zenchu-ja.or.jp/eng/multipurpose> last accessed 10 May 2013.

¹¹ Large industrial conglomerates, often owning their own banks, insurance companies, input suppliers and more (Francks 1999: 183).

¹² http://www.zenchu-ja.or.jp/eng/urge_trade_rules/index.html last accessed 12 December 2012.

demands for lower prices and increased production due to the market structure does not bode well for the survival of such communities. Increasing yields often leads to pursuits of economies of scale through monoculture that can leave farmers exposed for unpredictable weather, diseases and more (Sutton & Anderson 2010:188).

Nōkyō might seem as a protector of rural interests, at least when looking at the shorter term, as it upholds many of the important duties that used to belong to families and communities before the restructuring that took place during these years of change. But when looking at the long run, the focus on cultivation based on agrichemicals and tools/machinery financed by debt, and a near monopoly and monopsony on these goods and services, contours of a more fragile countryside reveal themselves. The fragility, to use Taleb's concept a bit prematurely, is then at least two-sided, one side is the decreased connection and reliance on natural systems, and the other is the increased exposure to fluctuations in the markets they get their inputs from and sell their outputs to.

1.4 The Hida region¹³

The area I chose for my fieldwork is located two and a half hours north of Nagoya¹⁴ by train, just west of the Northern Alps of Japan in the Gifu prefecture. The area is mostly mountainous, and with dense forests covering almost all but the highest peaks. About 93% of the land-area in the region consists of forested mountains, with 70% of those forests being old, natural forests. Encircled by these forested mountains lies the city of Hida-Furukawa, a rural town where the rice and vegetable fields cover almost all the flat, arable land divided by the Miyagawa River. Snowy winters provide ample amounts of melt water for the many mountain streams that feed the river. These streams, along with most of the river itself, are flanked by concrete walls to prevent seasonal flash floods and erosion that might threaten the populated areas. This seems an uneasy balance in a longer perspective, as it is because of the streams ability of carrying of nutritious sediments from the mountains that there is any arable land at all, when considering similar landforms and areas in Japan (Totman 2005:15). A few kilometres north along the river there are a few hydroelectric dams using the fast

¹³ Please see Figure 2 and 3 for maps over the region and its geographical placement in Japan.

¹⁴ Nagoya is the fourth most populated urban region in Japan, located by the Pacific coast in central Honshu.

currents in the river to provide power for the nearby and remote villages, and allow for flood control. Further attempts of managing erosion can be seen when traveling the winding roads perched to the forested mountainside to remote villages. There, the forests that cover the mountains are fenced off and the forest floor closest to the road are covered with geomats to prevent soil runoff during heavy rainfall and snow melting. A traditional way of coping with mountain erosion is by constructing terraced fields that are arguably more productive and considered more effective (Duraiappah et al 2012:103). These are still a productive, and thus vital, part of many of the more remote villages in the area that are dependent on their own crops for sustenance.

Agriculture is the main line of activity in the area, with many employed in forestry in the past. According to statistics from the municipality, the region is mostly self-sustained when it comes to agricultural products, as most farmers grow crops for their own consumption (correspondence with city officials 15 November 2012). There are quite a few small niche and artisan shops selling locally made tofu, miso and the like, and a couple of grocery stores selling local produce and products. Just on the outskirts lies a large shopping centre with supermarkets, beauty shops and apparel stores. These supermarkets do sell local some of the local products, but they look like any other supermarket in Japan with a focus on cheap products. Even McDonald's have found its way to Hida-Furukawa with its teriyaki and scampi burgers. Two of the most prominent buildings in town are sake breweries that use local rice and water from the mountains in making its spirits. Forestry used to be an important part of the economy in the past, but collapsed when fossil fuels took over for the charcoal produced by the locals and when concrete became the main building material for houses. Many people lost their livelihoods and had to move elsewhere in search for work, a fate shared with many farmers who have lost large part of their income due to the fall in the prices of their produce. A part from a few idealists, there are not many younger people who see a future in committing to farm life and rather search for work and education in the urban regions¹⁵, with few returning. In line with the several decades of structural changes that have taken place in the rest of Japan, the population have been on its way down ever since the 1950's, a development shared with large

¹⁵ There are no institutions of higher education in the region. Those wanting to go to a university have to move to nearby cities like Kanazawa to the west, Toyama to the north, Nagano to the east or Nagoya to the south, to mention a few.

parts of the countryside in the country (data from the municipality). Some of the younger generation, though, are employed in the service industry in the supermarkets and in the many convenience stores in the area.

Nōkyō has a prominent presence in the area, not unlike in other rural towns, with outlets selling agrochemicals, fuels, animal fodder, seeds, produce and more¹⁶. Financial services are also provided at the local offices of the Zenkoku (nationwide) Nōkyō Bank. There are also silos that act as a collector for the locally grown rice, which is distributed to the rest of the region. Many farmers sell what they do not consume themselves to the local Nōkyō centres. Those without machinery can either rent or buy what they need, and get the necessary financing through bank loans. The role of Nōkyō in the region, and indeed in the whole of Japan is difficult to ignore and will be further addressed in chapter 4.

1.4.1 Tanekura village

This was the village where I collected most of my primary data, and therefore deserves a section in this chapter. It is located 45 minutes north along the road following the Miyagawa river on a steep hillside with a forested mountain immediately to the east of the village, and a view over the river and the farming community of Sangawara to the west. There are 12 households in the village, with their own rice and vegetable fields and own storehouses. These storehouses have some historical significance, as they were important life buoys in times of food shortages, where the locals stored about a year's supply of food – today they are mostly used for storing farm equipment like cultivators and other tools.

The small fields cover most of the space in village and are used for soybeans for tofu making, rice, buckwheat, Japanese ginger, red turnips, cabbages, perilla¹⁷ seeds and more. Because the village lies in a hillside there are quite a few terraced fields and some sloped fields. The latter are mostly used for growing Japanese ginger, whereas the terrace fields are mostly for rice and soybeans – but the varieties of crops vary from season to season on the different fields. Looking down on the village from the east is an area with stone walled rice fields built during the Pacific war by the

¹⁶ Other activities consist of running petrol stations, selling insurance, running a funeral parlour (!), and the town of Takayama just south of Hida-Furukawa even has a Nōkyō hospital.

¹⁷ An oilseed plant often referred to as “wild sesame” or *Perilla frutescens* in Latin, a distant cousin to the well-known nettle (*Urtica*).

elderly, women and children who stayed behind while the men were sent off to fight in the war. The dark stone used in the walls keep the temperature optimal for the rice and buckwheat usually grown in those fields, which is crucial in mountainous area with sudden weather shifts during the growing season. The hillsides make it impossible to operate large farming equipment, so the use of machines is limited to compact petrol-powered cultivators for ploughing and to plant rice. Irrigation of the fields are done by diverting a mountain stream down to the village by narrow channels that along its way to a cistern down in the village, provide water for the fields higher up. The fields located above the level of the cistern on the other side of the village are irrigated through the water pressure developed by the flow of the mountain stream into the cistern, which sends the water to the other fields through pipes underground.

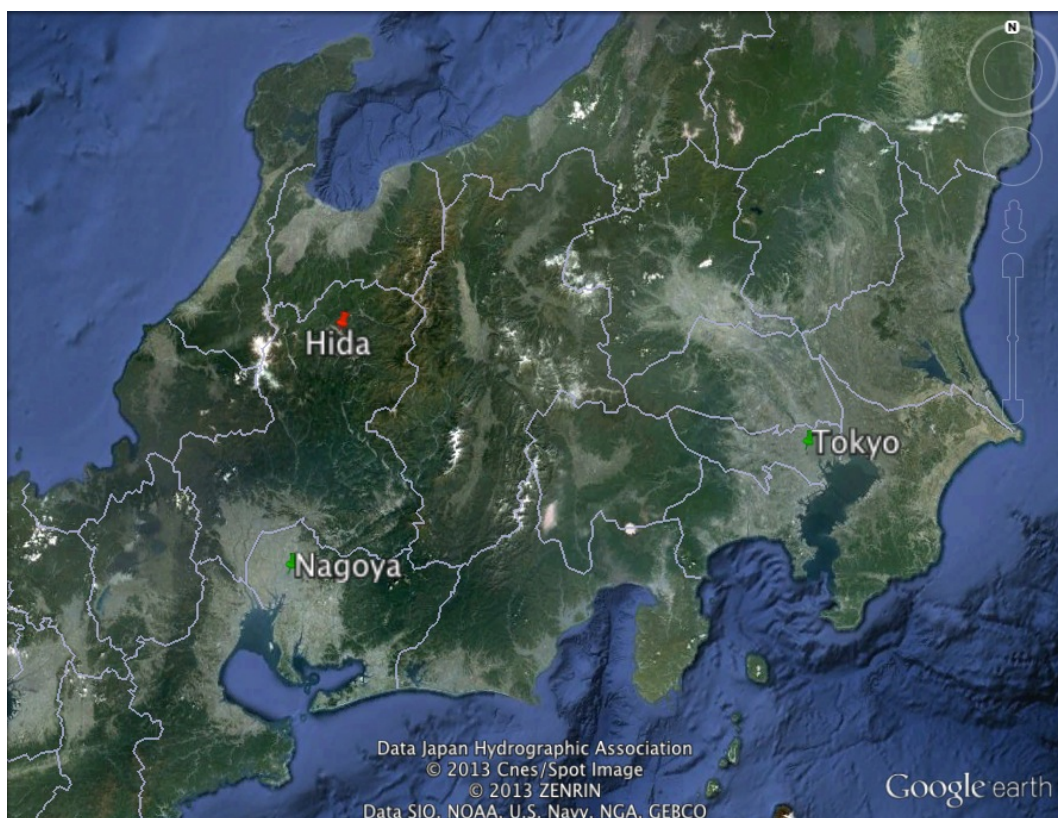


Figure 2: The location of Hida and two large metropolitan areas on the main island of Honshū. (Source: Google Earth)



Figure 3: The Hida region and Tanekura (Source: Google Earth)



Figure 4: Tanekura village, November 2012 (Image by the author).



Figure 5: Sloped fields and terraced fields in Tanekura. (Image by the author)

2. Theoretical Framework

Theories and ideas about social phenomena constitute the frame through which we see the world and the place our observations in it (Ragin and Amoroso 2011: 59-60). ‘Standing on the shoulders of giants’ is a well-known and quite illustrative metaphor used by many great thinkers as a nod to their predecessors’ work and knowledge, which they used as a foundation for their own work. Though almost considered a trope, the phrase reminds us that the search for truths and knowledge cannot function isolated from previously those previously established. We might come up with new ideas or theories, and these might even contest the previous ones – but the dialectic process that ties our perspectives to existing knowledge is essential for expanding disciplines that do not necessarily evolve by toppling existing paradigms.

This thesis places itself in the tradition of economic geography, and its theme is about how robust and antifragile production systems and communities maintained by humans are affected by outside changes. Because the focus is mostly on the local, micro level, there are a number of theories and assumptions that are applicable from the different approaches in the field. However, even though I would argue that having this multitude of approaches is the beauty and the strength of the discipline, I still hold that any rigorous academic discipline needs to have a common base to escape the slippery slope of relativism. And to hold the ground against more widely recognised and prestigious social science disciplines with a solid core – like academic economics and political science. There is a difference between accepting that there are a number of ways of explaining something and that all explanations are true. Some views work better than others in explaining what we study.

Economic geography is interesting in this respect, as it incorporates different assumptions than those of neoclassical economics to explain economic actions and life (MacKinnon et al 2009). In another field that focuses on the importance of alternative explanations and a large toolbox for making frames is the aforementioned discipline of political ecology. It is truly a multidisciplinary approach both when regarding its assumptions and theories, and when looking at its methodological base. One of the core views in the field is to not take a phenomenon for granted as apolitical or as removed from a certain context at first glance (Benjaminsen and Svarstad 2010; Robbins 2012). This aversion to taking things for granted is also true in the tradition

of institutional economics, where assumptions that deem the expansion of economic institutions such as colonial trade and the concept of money as natural developments in an economy are challenged (Hodgson 2006; North 1991; Polany 1979). Several of the ideas present in the field about rationality, how our habits and biological traits influence our decisions and how certain concepts or narratives are institutionalised challenge mainstream economic theories that are nested on more static assumptions. (Reinert & Viano 2012; Reisman 2012; Veblen 2009). The institutional focus also relates to that of *social capital* and its importance in small, rural localities where cooperation and mutual dependence are vital and more important than more formalised transactions (Ostrom 1999).

The following paragraphs in this chapter will discuss concepts about human economic life and actions, the relationships to nature and local resources that might add to the understandings already held by the discipline of economic geography. Consequently, we need to discuss some of the central theories when analysing economic life and the interaction between the economy and nature to get the broader picture. The presence of theories from several academic traditions will hopefully yield a more fruitful discussion and give us a nicely crafted frame when moving on to the analysis of the data collected.

2.1 Neo-classical economics¹⁸ – rational incentives through scarcity

At the end of the 19th century, the discipline of economics went through a change when much of the assumptions and theories for how economic life and our actions as participants in an economic society, were formalised and put into mathematical axioms (Reisman 1986:3). It is often referred to as the marginalist revolution within the discipline economics, and heralded a more formalised epistemology than the one held by earlier practitioners (Sandmo 2011). The world, at that time...

...learned that the allocation problem is central to economics for the simple reason that economics is about economising behaviour in conditions of perceived scarcity of means.

(Reisman 1986:3)

¹⁸I will also refer to neoclassical economics as "academic economics" and "mainstream economics" as it is the most widely taught and practiced economic tradition in the academic community.

The analogies and theories from the classical economists would now be accompanied by simplified models based on complex assumptions. Neo-classical ideas and theories have had a significant influence on economic geography, particularly when it comes to the methodological toolbox it provides with models featuring linear equilibria and the use of calculus when analysing the spatial factors that affect the economy (Marshall 1946; Martin 1999). During the last few decades there has also been a ‘new geographical’ turn in the economic discipline, with renowned economists such as Paul Krugman and Michael Porter heralding a stronger focus on the spatial aspects of economic growth (Krugman 1991; Porter 2000).

2.1.1 The foundations for neoclassical thinking

The classical economists of the (late) Enlightenment Era and after the industrial revolution, among them Thomas Malthus and David Ricardo, shared the view that man was considered as outside the natural world and a special entity with the ability to make rational decisions due to our mental and spiritual capacities (Sandmo 2011). They focused mostly on how the value of goods and labour is formed and the mercantilist distribution of them in society – of which the state controlled market was the best allocator. This was mainly enforced by having a centralised banking system based on a national currency, which at that time was anchored to gold. Other than that, it was believed that society needed but a reinforcement of taxes by the state for defensive purposes and to provide a safety net for those in need. Still, according to Smith this arrangement was the moat between a civilised and just state, and barbarism as Dougwald¹⁹ quotes Adam Smith: "Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice". This idea was later echoed in Alfred Marshall's (1946:86) seminal work: *The Principles of Economics*. Smith based his economic actors on the atomistic models of Locke and Hobbes, but at the same time held that pursuing their own interests made society better off as a whole. As Ingebrigtsen and Jakobsen (2009:3) put it: "The logic of the market implies that private vices can be turned into public virtues". As the moral philosopher he is, Smith holds that the morality of an action is sound as long as it is freely decided upon, either for the short

¹⁹ <http://www.adamsmith.org/sites/default/files/resources/dugald-stewart-bio.pdf> accessed on 2 February 2013.

or the long term (Smith 2003[1776]). Ideas from other ‘gentleman scientists’ from the classical era have also been a significant contribution and still serve as a prominent part of the discipline.

In Thomas Hobbes’ *Leviathan* (Hobbes 1985[1651]), the idea of a state of nature before society, is well established throughout the book, and a similar view of a pre-societal (albeit mostly theoretical) idea of humans also form the basis of John Locke’s *Second Treatise of Government* (Locke 2008[1689]). In both books it is a state where humans have absolute freedom, but at the same time enjoy very little freedom due to the competition over the *scarce resources* in this pre-societal world, which in turn leads to (violent) conflicts between people (Christiansen 2006:22; Hobbes 1985[1651]:184; Locke 2008[1689]:9-16). Proponents of this view often state scarcity as a reason for wars and conflict. To avoid the competition over scarce resources, and the insecurities that follow, the individuals agree upon forming a modern society with property rights enforced by the state (through its monopoly on the use of violence) where the competition becomes more civilised and based on *rational* contractual agreements, rather than living with prospects of bloodshed and hunger. Fear of the state’s power would keep such an arrangement at bay (Hobbes 1985[1651]; Locke 1980[1689]).

2.1.2 Scarce resources and the need for centralised planning

When it comes to the “perceived scarcity” in Reisman’s quote, Thomas Malthus is arguably the one who cemented scarcity as a concept in economics, through his assumptions about how the innate scarcity in nature, and how it gives rise to famine as a result of a disparity between population growth and food production (Malthus 1992[1798]; Sandmo 2011:63-70). It is perhaps *the* most fundamental concept in both classical and neoclassical economic thinking, as it lays the groundwork for economic constructs such as debt and money – and their management through the centralised banking system. He also established that the relationships between the natural and the human world could be described by natural laws, and that we need to devise ways to circumvent these limitations of nature to individuals with infinite wants (Harvey 1974). In the neoclassical paradigm, the allocation of a scarce resources to fulfil our ‘unlimited wants’ in a market by the price-mechanism saves us from potential conflicts that could arouse from unchecked competition like in the pre-societal world

described by Locke and Hobbes (Yapa 1996). Smith on the other hand is well known for his views on how specialised production, and the resulting benefits reaped by society, keeps us civilised and away from harming the common good. He is also well known for being in favour of a laissez-faire state, where the state is involved in little more than securing the peace and peoples' right to land, but this deserves a more nuanced look. He was in favour of a state responsible for necessities such as defending the nation against invaders, protecting society's members from injustice, free education for all and non-profit institutions that benefit²⁰ society (Smith 2003[1776]:879-927). He was also in favour of taxes on for instance wasteful behaviour, luxury goods and on goods that might affect one's abilities to contribute to your family or to society to pay for the institutions created by the state to create a favourable environment for economic action for its citizens (Smith 2003[1776]:1105). What is evident throughout his works are the lack of complex methods for calculating such taxation or the trade balance – it is implicit that one had to crunch numbers when looking at the national budget, but not in the same scale and complexity it is portrayed in today's macroeconomic textbooks (Blanchard 2006).

2.1.3 Incentives driven by scarcity – the economic man and his actions

While the face of the economic discipline changed at the beginning of the 20th century, the core assumptions made by the discipline to explain economic action and behaviour remained unchanged. To be able to express choices and the rationale behind incentives in mathematical terms, it is vital to have precise causalities. These are further based on man as a utility maximising individual to avoid immeasurable factors that can become noise in a formal model. We seek to gain as much as we can with the limited factors available to our satisfaction. With this in mind we can turn to Weintraub²¹, who formulates the core assumptions of the discipline as follows:

1. People have rational preferences among outcomes.
2. Individuals maximize utility and firms maximize profits.
3. People act independently on the basis of full and relevant information.

²⁰ Here, Smith is referring to the creation of public goods, a type of good that rarely can be created for the sake of profit.

²¹ <http://www.econlib.org/library/Enc1/NeoclassicalEconomics.html> accessed 1 February 2013.

(1.) Deals with our ability to know what we want, (2.) deals with why we want it, and (3.) how to act about it. In sum, these assumptions form the basis of our incentives and consequently our actions. The central mechanism here is the concept of *opportunity costs*, which in short are “the cost of an alternative that must be forgone in order to pursue a certain action”²², and what saves us from walking around in circles is our rationality.

Through the eyes of the ‘economic man’, we can see that everything from leisure time to mundane chores comes under the scrutiny of his or hers cost/benefit-function (Harvey 1974:262). An example of this is from a lecture in microeconomic theory I attended, where the lecturer told us an anecdote about one time when he was planning to repaint his basement. Either he could paint it himself, and lose income and/or leisure-time, or he could hire someone to do the painting for him – costing less per hour of painting than he makes working. His loss of income if he painted the basement himself, would therefore be bigger than if he hired a professional painter. He ended up hiring a professional. The rational choice of the professor is based in the three core assumptions above, which led to his incentive to hire someone else. Incentives and our actions are modelled as isolated or *exogenous* influences and factors that create noise that might disguise the effect.

Incentives in neoclassical theory shift when the individual or the firm in question does not derive any utility/profit from the next unit of the good, or more technically: when there is no growth in marginal utility/profit. This makes us seek out new goods to satisfy our needs. The first glass of water tastes great on a hot summer day, but the fifteenth one is not as enjoyable. Employing another chef in a restaurant where all the workstations are occupied might lower productivity rather than improve it. Another, more relevant example for this thesis: The market prices of buckwheat in Japan have dropped due to overproduction in China (to follow the supply/demand theory in the discipline), and the Japanese buckwheat farmer sees his profits plummet as a result. To make a profit from his production, he must either produce his buckwheat cheaper through economies of scale or go over to another crop that has a higher market price. Keep in mind that this model of supply and demand operates in a state where all external effects from other factors such as climate or soil, traditions or trade policies are held constant. Such *ceteris paribus* conditions are necessary to make

²² <http://www.investopedia.com/terms/o/opportunitycost.asp#axzz2LdOTZCBh> accessed 20 February 2013.

models precise and computable – “[...] their disturbing effect is neglected for a while” (Marshall 1946:366). Managing these unaccountable factors create the need for more centralised planning, and as such the central Japanese government may, through its municipalities, construct dams and levees to reduce the risk of flash floods that might decimate the buckwheat crops. Alternatively, if floods do in fact occur, provide some form of financial support through emergency loans or the like. I will return to my Japanese buckwheat farmer several times during this chapter.

Viewing several factors as exogenous, sharpens the focus, but often drives a wedge between the analysis made in the office of the economist and the phenomena he or she seeks to explain (Reisman 1986:11-12). As such, balancing the analytical rigour that lies at the core of the discipline with real-life applicability is a constant challenge in such models and the methodological individualism in neoclassical models has been criticised for neglecting several ‘real life’ factors that might influence our actions (Hollis & Nell 1975). It is worth noting that Marshall, was careful with describing the economic man as a pure rationality, and took into account our common ‘imperfections’ (Marshall 1946:14-15, 18-20).

2.1.4 Neo-classical understandings of geography

Marshall was also a forerunner in employing geographical factors, like the concentration of businesses, into the analysis of markets (Reisman 1986:86-89). This is still an unusual perspective, as other spatial influences such as nature and landscapes are considered as constants and outside of the models academic economics – even those that claim a emphasis on geographical factors (Krugman 1998). This might be a remnant from the Enlightenment Era and the understandings of our society as something removed from the natural world, or the need to reduce the uncertainties in the economic models. The closest the two disciplines have been previously was during the “spatial sciences era” in geography, when they too sought to lay down laws that could explain the relationship between geographical space and economic activity. Several theories regarding urban and regional development were influenced by this development in economic geography (Glaeser 2000).

This relatively new interest in geography among some prominent economists like Krugman (1995, 1998) and Porter (1998, 2000) seeks to broaden the theories and their application on multiple geographic levels and through new analytical concepts,

such as Porter's "cluster" (Porter 2000). The orthodox view of comparative advantage have been that geographical differences in access to labour and investments are exogenous and that natural resources are basically constant and under the common denominator of "capital" in these models (Krugman and Obstfeld 2006). Ricardo's comparative advantage, and recent theories built on his model, did not take into his account that countries seek to develop their available factor inputs, a critique often voiced by development economists and representatives from critical academic disciplines (Chang 2010:30-1; van der Ploeg 2009:142-3). Porter seeks to broaden the understanding of how such Ricardian models based on comparative advantage in the production of goods are conditioned by technological differences, and how these differences are created by geographical traits (Porter 1998:40-4). His cluster concept also puts the firm in the high seat when analysing regional development. In this "New Economic Geography", spatial features are still more or less considered as externalities, though they are considered as having an (immeasurable) effect on the economic development in the region/nation. The central argument is about identifying key pieces in creating economic activity and making generalisations about the geographical dimension of the economy.

2.1.5 Nature in neoclassical economics – unregulated scarcity

While it is difficult to find an explicit mention of nature and the discipline's relationship to the concept, the scarcity principle is a 'measure' of the possibilities and constraints that are put upon us by the physical world or nature. And since the concept of scarcity is a fundamental concept in the neoclassical discipline, scarcity of natural resources sits at the heart of any formal model, reducing economic action and our possible choices, as well as having implications for the strategies we choose to overcome scarcity (Christiansen 2006:16; Hackett 2011:5; Robbins 2012:16). If the food supply is scarce due to the climate or other external effects such as the ones that had struck the buckwheat farmer above, a possible way to increase output and to achieve economies of scale is to use chemical fertilisers for increasing the output, as and aid in balancing out the negative factors. The constraints created by scarcity of land can therefore be dealt with by using inputs that increase production. Therefore, the finiteness creates economising behaviour and solutions such as fertilisers and

machinery, which were both central components in the Green Revolution (Sutton & Anderson 2004:65).

Post-Green Revolution, modern commodity trade and markets have expanded to envelope the whole planet, where the prices agreed upon in Midwestern cities in the US have a large impact on for instance the aforementioned buckwheat farmer in Japan. But with access to a computer or a phone he can take steps to protecting himself hedging his crops against volatile prices by selling his produce through a futures contract, where he agrees to supply the bought buckwheat in the future to a price decided upon today. The buyer has the contract as a proof of the transaction to be made, and can choose to sell it if he feels like it and in the process make some money – if he is skilled or lucky. The effects of scarcity are offset by mechanisms in the financial markets. Moreover, the contract he originally entered with the farmer can be traded many times and increase its value way over the original value of the crop. The farmer might miss the profit this time around, but he now has an incentive to replant buckwheat for the next season, as the trading has created an increase in prices.

A close relative to neoclassical economics, especially in the matters of such natural constraints, is the neo-Malthusian school (Castree 2005a). Its proponents argue that unchecked population growth is detrimental for the natural environment and consequently human welfare on the same basis as Malthus himself. And while many of the Malthusian arguments were refuted by empirical evidence that show that food production per capita increases due to social arrangements and technological change – to mention a few, therefore many of the neo-Malthusians have now turned their focus elsewhere (Benjaminsen and Svarstad 2010). Some resources are considered to have no plausible substitutes, and their depletion cannot be offset by new technologies, so public action is needed to conserve these – whether it is the biosphere as a whole or local resources (Castree 2005a; Robbins 2012). In his equally famous and controversial article *Tragedy of the Commons*, the late Garret Hardin deals with the issues that arise when rational, utility maximising actors exploit common pool resources. The shepherds all send out their sheep to the field to capture the increase in marginal benefit for one person, but to the ruin for the collective (Hardin 1968). Expanding agricultural production further will only delay the problems that we face, rather than deal with them outright. The most adamant supporters, such as Paul Erlich call for more active population control, especially in

countries where the birth rate is high, to cope with what they consider as a threat for our future on this planet (Benjaminsen and Svarstad 2010:53-54).

2.2 Critiques of neoclassical theories²³

There are several strands of thought that challenge the principles that the neoclassical economic discipline rests on, not only when it comes to its reliance on formal modelling, but also the view on economic actors and the world around us (Hodgson 2006: 130-31; Polanyi 1977; Reinert & Viano 2012; Reisman 2012; Robbins 2012; Taleb 2009, 2012). Hollis & Nell (1975) argue that *positive economics* is a more fitting name for the neoclassical tradition, with methodological implications – some of which I will return to in the chapter about methodology (Hollis & Nell 1975:47-8). Weber (1975 [1904]) also criticised how economists in the academic tradition are ever bent on applying methods of the natural sciences in their theories, failing to recognise that reality does not reduce itself to laws. The following paragraphs will hopefully refine the perspectives of the neoclassical school, and provide the necessary frames for my analysis.

2.2.1 Institutional economics

As regards *man*, we were made to accept the view that his motives can be described as either material or ideal and that the incentives on which everyday life is organised *necessarily* spring from the material motives. It is easy to see that under such conditions the human world must indeed appear to be determined by material motives.

(Polanyi 1977:11 – emphasis added by me)

This is the picture painted by the neoclassical discipline from a palette with indifference curves, game matrices, and econometric functions. But as we have seen, these tools all assume that we are machines driven by our insatiable material wants to maximise (*sic*) our well-being. While the classical and neoclassical school assumes that the market is imprinted in our humanity on which society rests, the father of the

²³ Iconoclasm is perhaps unavoidable in these coming paragraphs, when considering the position mainstream economics has in academia and society.

institutional school, Thorstein Veblen (1857-1929), places a strong emphasis on both the genetically inherited characteristics and the socially malleable fabric of humans (Riesman 1953). Accounts that are more modern have moved away from the genetic factors, focusing more on the social aspects of institutions. This contrast between the neoclassical and the institutional school in economics provides a natural starting point for challenging the theorems and axioms in the neoclassical school. It lies down a different way of analysing economic action on one hand, and a sound explanation for explaining how and why many of the guiding principles in our society have become grounded on neoclassical theories.

As mentioned previously, one of the central assumptions that are put forth by neoclassical economists and their predecessors was that economic actors are guided by our incentives as presented above. In contrast to this we have the concept of *dual inheritance* coined by Veblen, that man in fact is born into this life with certain instincts and is raised in a social context and thus attaining certain beliefs and habits – depending on the time and place (Reisman 2012:32). This is the starting point for us as economic actors, as this social and genetic ‘baggage’ influences our incentives that might or might not be based on the pure rationality found in the neoclassical tradition (Hodgson 2006:143, 167). These influences of inherited instincts have also been elaborated in the field of behavioural economics, which incorporates psychological models to analyse economic life and have built up a solid empirical base that refute many of the assumptions made by the neoclassical economists (Kahneman and Tversky 1979; Kahneman 2012). One of the most important lessons from Kahneman’s research is to be aware of the gap between our intuition and rationality, and that rationality often is our intuition from pre-societal times talking. Veblen (2009 [1899]) argues that these habits form the basis for any institution:

The situation of today shapes the institutions of tomorrow through a selective, coercive process, by acting upon men's habitual view of things, and so altering or fortifying a point of view or a mental attitude banded down from the past.

(Veblen 2009[1899]:126)

Hodgson (2006) adds that “[institutions] make up the stuff of social life” through implicit rules, contributing to the selective and coercive processes that Veblen writes

about (Hodgson 2006:138-9). Not only are they based on our behaviour and habits, but takes on a structural form outside the actual habit – laws are still valid during our sleep, money still has value even though we are broke, and so on. But in principle, as institutions are conditioned by our habits and actions, they are flexible – this also scales with the geographical level.

Since I am challenging parts of neoclassical thought, it is important include the views on institutions in that discipline. Douglass North (1991) exemplifies the way institutions are seen in mainstream economics. He writes, “institutions are *humanly devised* constraints that structure political, economic and social tradition” (North 1991:97, emphasis added). But though they are “humanly devised”, historically speaking, they have evolved to overcome the problems humans have faced when making transactions – whether it comes to reducing the risks associated with expanding markets in colonial times or the risk mitigating rationale behind derivate markets and trading, which can prove to be useful for my buckwheat farmer (North 1991).

To make certain formal rules for trading goods with faraway lands is rational, as well as having a mechanism that can even out the volatile prices on the commodity markets, and this rationality is what lies at the base of this view of institutions. Institutions (humanly or stately devised) provide order in an otherwise chaotic (natural) world, as previously outlined through the writings of Hobbes, where the sovereign state was the prime institution (Hobbes 1985[1651]). If we are to follow North’s argumentation, the rest was left to the natural and rational mechanisms that propelled our societies to where they are today. The opposite of this evolving and rational mechanism is a Middle Eastern marketplace or bazaar, the *souq*, which is seen as a state of inefficiency and inertia (North 1991:102). In a souq, according to North (1991)...

...[t]here are no institutions devoted to assembling and distributing market information; that is, no price quotations, production reports, employment agencies, consumer guides, and so on. [...] Exchange skills are very elaborately developed, and are the primary determinant of who prospers in the bazaar and who does not. [...] *Governmental controls over marketplace activity are marginal, decentralized, and mostly rhetorical.*

(North 1991:103, emphasis added by me)

In a different account about the souq, it is seen as *everything but* inefficient and inert because of the direct exchange of goods between the suppliers and the demanders, therefore having to adjust rapidly to the constant changes in the market. Much like the relationship between language and grammar, trade and commerce in a souq exist independently of the maxims from the neoclassical school (Taleb 2010:182). The souq as an institution survives and thrives because its actors are strengthened from within by the many stressors they encounter during their daily lives – and, as Ostrom (1999) has shown, because the government is largely absent. I will return with further elaboration of Taleb’s ideas regarding these matters at the end of this chapter.

This ‘organic’ understanding of institutions is demonstrated in the narrative of bartering as a natural, human instinct which is a ubiquitous idea in mainstream economics originating in the writings of Adam Smith (2003[1776]:33-5). Here Smith takes on the role of a chronicler of human development where bartering is seen as a genetic predisposition in us – something that parts us from the animals. However, bartering can become inconvenient when dealing with incompatible goods, thus the rational decision would be to have one commodity act as a common denominator for everything. He points out that different commodities such as cattle, salt, seashells and various metals (as coins or bouillons) have been and are being used with this rationale (Smith 2003[1776]:37). This institutionalised idea of the primeval barterer has been refuted by economic anthropologists and historians. They claim that money and debt often preceded any functional bartering system and that money did not develop naturally into a standardised exchange object (Graeber 2011; Polanyi 1977:54-5). A second example is the institutionalised idea that conservation efforts are necessary for the survival of ecosystems, as if humans are regarded as outsiders and a part of our own world guided by different rules – this is not hard to imagine when thinking about how nature is usually regarded in economic models. Institutional developments might be implicit, but their effect is admittedly very difficult to model and therefore implement in a formal theory. By thinking of these markets as rational constructs and their global influence, we cut the analysis of their impact on local economies short.

Hodgson (2006) is critical towards North’s view of institutions as being “self-organising” entities (Hodgson 2006:152-3). He argues that although institutions may appear to be the results of a natural evolution as some rational inevitability, they are in most cases power-laden entities constructed by individuals or organisations

(Hodgson 2006). This might imply that the devisor or devisors had a certain effect in mind when forming the framework for the institution – something made clear by North (1991), but shown as a natural and rational progress. Hodgson (2006) also emphasises that an institution is not only a one-directional arrangement (i.e. a set rule or law that must be adhered to), but that it is also dependant on those that are a part of the institution for its upkeep (Hodgson 2006:139). This has implications for how the different institutions form individuals' thoughts and actions, and how these are consequently reproduced. Formal rules such as laws might form the framework for an institution, but its endurance is wholly based on the acceptance and habituation of its constitutive rules by the individuals that are a part of the institution – backed by expectations of sanctions when broken (Hodgson 2006:143-5). These sanctions do not necessarily need to come from a formal enforcer, but can also come from our fellow individuals – much like a Hegelian view of society where recognition of oneself by others through for instance one's actions is considered as one of the most basic elements of society and its development (Hegel 2006[1820]). Sanctions from our peers may, in many ways, be worse than something from a faceless power, which might imply that whatever that can be called 'institutionalised' is diffused into common knowledge and consequently further reproduced and strengthened along the way. This indicates that institutions can have an inherent spatial dimension, thus making them valuable analytical tools for economic geographers. Institutions are therefore crucial to understanding how and why actors on the micro level act the way they do. For instance, consider the work of Ostrom et al (1999) and Ostrom (1999) where it is shown that local institutions in many cases do a better job of managing local common pool resources, than national and supranational ones, due to the difficulty of cooperation and organisation when schemes get to big. Adapting to the changes in the natural systems is also easier, when the stakeholders are close to the action on the ground.

This kind of context sensitivity is also emphasised by Fløysand and Jacobsen (2010), as established institutions in the region must not be taken for granted by authorities that seek to implement policies that affect the economic performance and innovative capacities of the region. Excessive planning and standardisation might hinder unexpected and positive effects, and should therefore be avoided when seeking to support a region or a community. The opacity of the institutions in any community make overarching plans and regulations that seek to affect the creative capacities and

resource management difficult to implement and can even be counter-productive (Fløysand and Jacobsen 2010; Ostrom 1999; Ostrom et al 1999). This is in contrast to the theories of Porter (1998, 2000) and Krugman (1991, 1998) where it was assumed that the comparative advantages in a region could be codified and replicated in different regions by identifying the elements that made the original region successful.

2.2.2 Social capital

Essentially forms of institutionalised practices, the basic idea behind the concept of *social capital* is that there are certain relational elements in a mainly horizontal social structure that act as a lubricant for human (inter) action. This leads to mutual benefits, such as cooperation and learning (Falk and Kilpatrick 2000). Coleman (1999) further explains that “[u]nlike other forms of capital, social capital inheres in the structure of *relations* between actors and among actors” (Coleman 1999:16, my emphasis added). Being a broad definition, it opens up for a number of different interpretations of the concept. The practices and habits under the umbrella of the concept are perhaps older than civil society itself, as humans have always been reliant on the support of their peers to survive through such cultural adaptive mechanisms (Kovalainen 2005).

Social networks have aided the distribution of resources and formed our interaction with the natural environment around us – for instance through the production and reproduction of knowledge about the land around us (Sutton and Anderson 2010:98-104). The souq I mentioned earlier, is a good example of place where social capital manifested in family ties, mutual dependence between the merchants through their informal relationships creates benefits for those in this system (Coleman 1999:18).

Ostrom (1999) elaborates the concept further by adding the (perhaps obvious) factor of time and how social capital “is embedded in common understanding rather than physically obvious structures”. A form of social capital can be family structures and collective norms and rules in a village, to take two examples relevant for this thesis. What I regard as probably the most important insight from Ostrom regarding this matter, is that social capital is not easily constructed through external involvement, and that the role of government can best be referred to as a “double edged sword” (Ostrom 1999:181-3). Funding from outside and physical capital are but the beginning when it comes to expanding farmlands through building terraced

rice paddies – local knowledge about climate, soil nutrients and cultivatable plants are vital for success with the crops and cooperation between the locals are as important, if not more important than the original building blocks. Furthermore, social capital in a community can easily be overlooked by an outsider and difficult to measure. There might exist a common understanding, but those that share it do not readily express it, nor are they always consciously aware of it – thus social capital is predominantly intangible and tacit in its form (Ostrom 1999:176-181). Too much, or even any, involvement from the central government might end up stifling the ‘stock’ of social capital that existed in a community. Ostrom (1999) puts it well when writing that “[c]reating dependent citizens rather than entrepreneurial citizens reduces the capacity of individuals to generate capital” (Ostrom 1999:182). Similar insights can be gained from Friedrich von Hayek (1975[1944]) and his thoughts on how thorough economic planning affects society and its citizens in a wholly negative way and Taleb’s (2012) sentiments on how centralised planning can be detrimental for society as a whole by removing the decision makers from the consequences of their decisions (Hayek 1975[1944]:41-4; Taleb 2012:128-133).

Social capital therefore has an inherent geographical aspect to it, related to geographically proximal relationships that share the benefits. In communities located in the periphery, both in geographical and economic terms, the concept can be put to good use when looking at what institutional factors that hold the community together as economic actors. Polanyi (1977) further explains that among the main forms of integration in the human economy we find reciprocity, redistribution and exchange, which can be identified in most cases and on all geographical scales, but perhaps most clearly on the local level (Polanyi 1977:36-8).

2.2.3 Political ecology – challenging the apolitical

The apparent descriptive fashion of the neoclassical discipline is visible in the many ways the discipline seeks to establish laws and theorems for incentives and economic action, and how the mechanics are seemingly value-neutral through how they portray the actors involved. Even those claiming objectivity and a strictly descriptive perspective fall into Hodgson’s institutional trap I mentioned earlier.

Political ecology is a critical field of science, it is openly normative, and mainly deals with the relationship between humans and the environment and

criticising existing views on the assumed chasm that divides the two spheres – which in political ecology are considered as *a* sphere (Robbins 2012:29). Nature and (human) culture are considered as symbiotic, rather than divided and the one using the other, a view as many strands of thought have institutionalised – some into laws like I showed earlier (Castree 2005a:108; Sutton and Anderson 2004:2). The moat between nature and the ‘human world’ was dug out during the Enlightenment Era and has been there ever since, with the aforementioned, powerful and convincing institutions that uphold the separation. The idea asserted by political ecologists is that such separations are false and often constructed by those seeking to control or influence and how this creates an uneven playing field for those involved – an inherently political process uncovered by critical research (Robbins 2012:83).

The axioms put forth by mainstream economics are often presented as foundations for policy, and as a means for reaching an end – be it the taxation of emissions, the arguments for forest conservation in accordance to the discounting principle, or how fishing quotas are decided upon (Brekke 2006:130-2; Hackett 2011:83-91). While these actions might seem rational and well grounded when superimposed on a national or supranational scale, those in the field of political ecology are primarily interested in what such measures mean to the local actor and their community – and the connection between the different geographical scales. On ‘the ground’ we are able to see the inherently political dimension in matters perceived as natural or value-neutral by other, more dominant strands of thought (Benjaminsen and Svarstad 2010; Robbins 2012:14-6). This focus on toppling the apolitical perspectives and narratives is perhaps best illustrated with how political ecologists view the neo-Malthusian perspectives on resource scarcity and human population. It all starts with pointing the critical torch on Malthus himself:

When it was first offered up in Malthus’s 1793 formulation, the ecoscarcity argument was presented as an explicit justification for social policy. [...] Malthus insisted that since famine and starvation were essential to controlling runaway human populations, such events are “natural” and inevitable.

(Robbins 2012:17)

The law that controls populations is in fact not ‘natural’ at all, and has more to do with the moral and political standpoints of its author than with natural systems. At the

same time, neo-Malthusians like the aforementioned Paul Erlich based their theories and work on anecdotal observations (Benjaminsen and Svarstad 2010:54). Seeing how the focus of Hardin (1968) was on theoretically constructed farmers and ethically questionable positions towards people in the ‘third world’, rather than collecting empirical data such as Ostrom, who has falsified most of Hardin’s assumptions (Benjaminsen and Svarstad 2010:54-6; Ostrom et al 1999).

A more direct blow to the theories in the mainstream economic tradition deals with the apolitical responses to the very political issue of resource management, and how models from environmental economics should be adopted for more efficient resource management (Hackett 2011). This is thought to create a ‘win-win’ situation where environmental conservation will happen alongside economic growth²⁴ if we apply the proper medicine in the form of policies based on theories from the neoclassical school (Robbins 2012:18). As an effect, the problem may be reduced to merely creating markets where the assumptions I presented earlier create incentives for the reduction of pollution, stabilising the price of commodities and so on – steps that are considered ‘natural’ and rational since its based on scientific data and political processes (Robbins 2012:83).

Though the critical part of political ecology is vital for dealing with the apolitical and ‘natural’ conditions, the field also has a progressive side seeking to map working institutions and utilise local knowledge to overcome the apolitical ecologies. Robbins (2012) refers to this approach as the ‘hatchet and the seed’ – a hatchet that “aggressively dismantles other accounts” and planting intellectual seeds as possible solutions (Robbins 2012:98-9). Political ecologists achieve this by drawing on knowledge from both natural and social sciences. This can manifest itself as studying the local natural systems and the interplay between them and the human community with methods from biology and anthropology or sociology. This synthesis also contributes to shedding a critical light on how knowledge about certain phenomena is produced and institutionalised (Benjaminsen and Svarstad 2010:12-3). It also provides a critical take on ‘objective’ accounts about natural systems that often constitute the base for exclusionary policies towards local communities. These

²⁴ This can be illustrated by the environmental Kuznets curve, where economic growth/income is on the Y-axis and the use of natural resources/emissions are on the X-axis in a Cartesian coordinate system, and we see the relationship between the two as a concave curve. The basic idea is that economic growth is harmful for the environment up until a certain point where changes in production and consumption (among other things) lead to a decoupling and therefore a reduction in harmful effects from growth (Hackett 2011: 317-318).

conservation practices are backed up by intentions of protecting the environment from harmful economic practices, while ignoring the fact that far from all such practices cause damage to the environment (Robbins 2012:106). In fact, Polanyi (1977) stated that there are two meanings of *economic*²⁵: A formal understanding where the logical and rational action of economising based on scarcity, and a different understanding that...

...points to the elemental fact that human beings, like all other living things, cannot exist for any length of time without a physical environment that sustains them; this is the origin of the *substantive definition of economic*. [...] The two meanings, the formal and the substantive have nothing in common.

(Polanyi 1977:19, emphasis added by me)

The ‘substantive’ is the cultivation of land to meet one’s need for food, foraging in the forest and hunting – as such it played a bigger part in human lives in earlier times. The ‘formal’ is monetisation, foreign trade for expanding markets, central planning and control – based on constructed scarcity (Polanyi 1977). This substantive understanding is rarely considered as important for those fronting the orthodox economic ideas as it does not require advanced mathematics and does not lend itself easily to policymakers. Even still, it is the substantive practices of locals that are considered as destructive and not those based on the formal understanding in environmental (neoclassical) economics – for instance fortress conservation, the planting of monoculture crops and climate forests (Benjaminsen and Svarstad 2010; Hackett 2011; Robbins 2012). Ostrom et al (1999) is sensitive to this understanding of economic activity, and even though she does not refer to it as substantive, there is a general understanding that the local institutions by and for locals are better than those that originate from outside actors that might not be aware of the specific social and natural context of that area. Polanyi’s substantive economics also relates to the fundamental understanding of humans as a part of nature – a view shared by those in the field of political ecology (Robbins 2012).

Present the case of my struggling Japanese buckwheat farmer to a political ecologist and he or she will probably start looking into the seemingly apolitical nature

²⁵ See chapter 2 in Polanyi’s (1977) book, “The Livelihood of Man” for a deeper discussion of these two meanings.

behind buckwheat prices and the fertiliser market. How the constraints faced locally by the farmer may be a result of commitments in a monopsony with actors who are also connected to the production of fertilisers. The political ecologist might also analyse the soil and the climatic conditions to see the physical constraints the farmer faces when deciding to switch to a different crop – maybe these constraints are less of a problem than the integration in a system where the farmer has little or no power.

2.2.4 Antifragility – embracing natural disorder and benefitting from it

The final broadside towards how neoclassical theories are in use today comes from arguably one of the most prominent iconoclasts today, Nassim Nicholas Taleb and his idea of fragile and antifragile systems. With a background from mathematics and as a Wall Street-trader, he has been inside the machine that produces and lives off the axioms in economics today. Hailing from a small town in Lebanon he has also been a part of economic systems²⁶ that build upon wholly different elements (Taleb 2010).

His concept of “antifragility” is an umbrella term for systems that benefit more than they are harmed from being exposed to disorder (Taleb 2012:3-4). For instance, Taleb talks about how many systems in our society that are inherently antifragile have been made fragile by layers of regulation and formal rules – for instance in modern agriculture, and in traditional economic arrangements like the souq in many middle eastern countries. Antifragility is being exposed to risks, which then benefits the system it is a part of in various ways, but not always.

Nature is the prime antifragile system with redundancies that prevent the system from collapsing when exposed to shocks. Taleb (2012) argues that the lack of such redundancies in society today is what leaves us exposed to large shocks like the recent financial crisis. An organic and complex system as nature needs these stressors to develop the necessary redundancies to endure future shocks. For instance: our body becomes stronger when we work out, but needs regular workouts (i.e. stress) to keep its strength and resilience (Taleb 2012:59). A machine is the stark opposite, as it does not like stressors and it needs constant upkeep to function, whereas the organic is self-healing. The mechanism of evolution builds precisely on the idea that those that do not cope with the environmental stressors for any number of reasons will not be able to survive (Taleb 2012:54-8).

²⁶ For instance, the souqs that North (1991) refers to in his article.

This brings us to another central point in Taleb's concept of the antifragile, namely that small shocks are necessary for not falling victim to the large one we might not see coming, i.e. having redundancies in the systems. Taleb (2010, 2012) calls these large opaque events with heavy impacts for "Black Swans", and he uses the recent crises in the financial markets as examples of what happens when you isolate financial institutions from everyday stressors, and that eventually become 'too big to fail'. The Black Swan makes its appearance when for instance the bank sitting on a mountain of (hidden) debt due to leveraging goes bust and causes huge reverberations throughout the system it is part of. According to Taleb, avoiding volatility and risk by for instance institutionalising the leveraging of debt through the financial system, centralised planning through the central government and removing the redundancies provided to us by natural systems makes us wide open to these opaque events that we might not recover from (Taleb 2010). This institutionalisation cannot be viewed in an 'organic' sense (as North would put it) as there are strong elements of both political, economic and academic power involved in creating and reproducing these institutions. These are described by Taleb (2010, 2012) as the "Soviet-Harvard" model, where these constructs are legitimised by the ruling government and bureaucracy, and controlled by a financial elite who's actions are further legitimised by theories from mainstream economics, as I discussed in part 2.1 of this chapter. This characterisation of academic economics is quite fitting when reading textbooks, academic papers and the works of the classics in which one can see clearly that the theories and mathematic equations are put forth as bases for policy²⁷. These heavy structures then fill up the space in peoples' lives previously occupied by heuristics – a phenomenon that can be illustrated by the way modern agriculture has all but removed the need for being sensitive to natural systems. The necessary redundancies are ironed out and the risks seemingly removed, at least on the surface. In reality, according to Taleb (2012), this is what causes the "Black Swans" to appear and wreak havoc even though we think we have all bases covered (Taleb 2012). In the "Soviet-Harvard" model creativity and innovation are thought to be attainable through planning, establishing frameworks built on statistical models for the sake of predicting how the plan will play out – thus ironing out the risk normally associated with ingenuity and tinkering, which according to Taleb (2010, 2012) rarely bares any

²⁷ Recall Polanyi's *substantive* and *formal* description of economics, where the latter coincides with Taleb's 'Soviet-Harvard' characterisation.

fruit in a low risk climate. It is through allowing trial, error and sometimes failure that we can gain the most from the unexpected (Black Swans).

Complex systems like nature “[do] not require complicated systems and regulations and intricate policies”, which is quite intuitive when taking into account how humans have benefitted from nature’s antifragile systems through agriculture for thousands of years – it does most of the work for us through irrigation and fertilisation to mention a few services it provides (Taleb 2012:11). Local knowledge (know-how) about natural systems existed before academic research institutionalised it. The causality and the mechanics behind the effects of this knowledge are hidden from us, but in some fashion, we try to make sense of it. Thus the causes behind the effects might be mistaken for something else than what they really are. Thus we have what Taleb (2012) refers to as “lecturing a bird on how to fly” – and taking credit for their flight because we used some form of theory that was “confirmed” by our observations (Taleb 2012:194-5). He asks us to be sensitive to the fact that not every form of knowledge goes through academia or corporations for the knowledge to be useful. Mistaking the cause of a successful innovation or policy might prove to be disastrous in a different context with wholly different preconditions – the measure or policy may therefore be counter-productive. The context sensitivity requested by Fløysand and Jacobsen (2010) is therefore vital to further our understanding of how local factors absorb the policies and outside measures differently, and how they might downright repel them. We therefor run the risk of committing a narrative fallacy – i.e. trying to fit a story or pattern onto “a series of connected or disconnected facts” (Taleb, 2012:431).

Also, with too much involvement however good the intentions are “harmful unintended side effects” may occur, as the treatment may cause more harm than good – and the risk increases the more complex the system is. This is referred to as iatrogenics in medicine. Taleb (2012) uses the concept in a social and economic context to explain what happens in a “Soviet-Harvard style” system where interference from those in charge, but who are not affected from the intervention (Taleb 2012:111-4).

We are trying to modify nature, instead of building systems that utilise nature’s antifragility that we used to which we adapted. As hippy-dippy as it may sound, the bounty we receive from nature has been millions of years in development, and that development has not been regulated or guided by economic laws and axioms.

But the post-Green revolution development have long been lamented as detrimental to precisely such systems, as ‘fragile’ monocultures reliant on chemical fertilisers and pesticides are being created as necessary for increasing yields, along with the need for seeds that can survive in harsher environments (Robbins 2012:236-7; Sutton & Anderson 2004). In accordance, it can easily be argued that “food is no longer produced and processed – it is engineered” (van der Ploeg 2009:6). Small-scale farmers, previously more reliant on their own heuristics through experience and knowledge about local biological conditions, are being exposed to these mechanisms through an increased reliance on debt driven production, as they need machinery and often an external supply of seeds and chemicals (Netting 1993; van der Ploeg 2009). And while these practices might create gains on the short run in an economic sense, the long term health of the ‘patient’ previously benefitting from stressors are being reduced to relying on external aid for surviving. Fragility is now institutionalised on top of a system that has been inherently antifragile for millennia. In such a system, the ones who gain the most (i.e. the commodity traders and large multinational agriculture companies) lose the least through their lack of exposure to the consequences of their actions that are felt by the producer (Taleb 2012). This lack of exposure is the source for the ‘limited liability’ that characterises many stockholder companies and branches of government – institutionalised to the point we see it as unavoidable for the economic systems to function properly. Taleb refers to this lack of exposure, as *not* having “skin in the game”, in other words one that “keeps the upside but transfers the downside to others”, and does not feel the consequences of his actions or policies (Taleb 2012:376-380). Those who make these predictions that are used by policymakers are rarely hurt by their predictions. They get all the upside, and the ones affected by the policies the downside. “Skin in the game” is about taking responsibility for one’s actions, be they good or bad.

3. Methods

The previous chapter about assembling the frame, and this chapter will outline *how* I intend to fill that frame with meaningful representations of the data collected, like Ragin & Amoroso (2011) describe in their discussion about conducting social research. The world is out there, but we need to wear a special set of spectacles to see the parts we need for our analysis. These spectacles are equivalent to the methods used – why we chose a certain way of collecting data, how we collected it, where it was done

3.1 Qualitative research

The truths we seek as *social* scientists never exist in a vacuum, be it a social, economic or geographic, and is covered by many layers of representations and interpretations by the subjects that inhabit such contexts. I have chosen a qualitative approach, as the aim of my work is not to deduce laws about social mechanisms, to generalise about them or even use data as foundation for predictions, but move beyond the a priori characterisations in quantitative research – exemplified in part by the neoclassical school some paragraphs ago. Max Weber (2000[1971]) rejects this hubris in academic economics connected to quantifying human action and shoehorning it into their deductive models (Weber 2000[1971]:195-200). Indeed, one can ask how skewed a perspective that tries to sum up billions of years of evolution, codifying it into computable symbols – with the assumption that they will provide valid answers to the questions we ask about human (economic) action. For instance, the substantive economy that Polanyi (1977) focused on, along with the institutional frames outlined by Hodgson (2006) are both difficult, if not impossible, to compress into maxims such as those found in orthodox economics. Erik S. Reinert asks for a stronger emphasis on *observing* the economic reality or the ‘real economy’ rather than continuously applying abstract theories and analysing numbers on a screen, like the Ricardian trade model²⁸ or cost-benefit functions. Furthermore, Taleb (2012) is quite adamant about the dangers associated with those that make predictions based on

²⁸ A presentation of alternative economics by prof. Reinert <https://www.youtube.com/watch?v=FIM6EB4LRH8> watched March 6, 2013.

economic models and theory and do not face the consequences of their reasoning – something that became apparent during the last crisis in the financial markets (Taleb 2012). I would also argue that this lack of ‘skin in the game’ in *economic research* is especially problematic considering the prominent role it plays in forming the policies and institutions that control much of society, as I showed earlier. We must not forget that the researcher is very much a part of society and has been formed by his background, and can hardly claim objectivity when constructing knowledge about social phenomena.

Empirical knowledge rests on observations through our sensory apparatus, but beyond the observable, real world, there are interpretations and different meanings that can only be understood through being mindful to the subjects that inhabit the world (Moses and Knutsen 2007:28). Hay (2010) refers to qualitative research as “intensive” where the goal is explanation of the situation we surround ourselves with rather than statistical inference from what we examine to a larger population (Hay, 2010:71). Our (qualitative) selection is determined by finding certain places, situations and informants and organising them by type, rather than the frequencies in which they appear (Holter et al 1996).

I wish to attain a deeper understanding of the interactions between the subjects and their surroundings through observing and experiencing some of what they experience, but at the same time I need to take the step beyond observation to interpretation and reinterpretation that Thagaard (2011) presents. One of the main goals of qualitative research in the social sciences, shared in this thesis, is precisely to attain in-depth knowledge about a social phenomenon and its inner workings. These insights that are difficult to attain when undertaking large-N²⁹ inquiries based on a Hempelian approach which assumes that an event can be explained by using natural laws (when X, then Y) and certain assumptions about the conditions when these laws are valid (Hay 2010; Moses and Knutsen 2007; Ragin & Amoroso 2011). Insights derived from qualitative research may be interpreted differently dependant on the eyes of the beholder, but some are more compelling in relation with the established theoretical frames and due to its internal consistencies. The main point is that we have covered many aspects of what we study to be able to make such interpretations and reflections, and in the end qualified generalisations.

²⁹ To allow for the application of statistical methods followed by generalisation (Skog, 2010).

3.2 Direction of the research

To explain this I use the “Interpretive model” as it is presented in Ragin & Amoroso (2011), where social research is portrayed as dialectic process between the “images” we get from our collected data and the “analytic frames” we create from existing theories and ideas (Ragin & Amoroso 2011:60). The two most common ways of conducting social research is either basing it on existing theories and the testing of these or starting with a white canvas letting the data guide the research (Hellevik 2006:81-3). The former is referred to as the deductive approach, whereas the latter is called inductive. Both can be applied with equal efficacy in qualitative research, but depending on the initial goal of the researcher one of the two might prove as a better starting point. Qualitative research can start with any of these, but due to interpretations and re-interpretations the researcher makes of both the applied theories and the collected data, a strict deductive or inductive route might miss important insights during the research. According to Danemark et al (2002), a key part of an “explanatory research” project³⁰ is filtering out certain components of the phenomenon under scrutiny, as there are no ways of uncovering every possible aspect of it (Danemark et al 2002:109-10). A central aspect in the process they outline is that of *abduction*, where the researcher tries “placing and interpreting the original ideas about the phenomenon in the frame of a new set of ideas” (Danemark et al 2002:91). This may sound as unfounded generalisations. However, the core aspect is identifying certain mechanisms, or even just the smallest cogwheels in this mechanism, and bringing these into a different setting/case – implying an element of generalisation, but not in a universal sense. The new frames we use to interpret the ideas might not be very useful or give us new insights, therefore as Ragin & Amoroso (2011) state, we need to move back and forth between our ideas and the frames we wrap around them, a process they call *retroduction* (Ragin & Amoroso 2011:60). It is the continuous dialectic between the collected data that forms the images and the theories and ideas that form our frames – these two are then adjusted until we get the representation that adheres to our original goals, given the restrictions we face considering the limited time on our hands and access to information. Retroduction is also important for upholding the dynamism of knowledge creation when trying to uncover the

³⁰ The authors outline a research based on the ontology and epistemology of critical realism, which will not be activated in this thesis, although the process gives me valuable insights on how to handle the relationship between data and theories.

mechanisms that we search for in our data. A purely deductive or inductive project would surely miss many interesting side-roads that make the researcher ask new questions about her/his project, and this dialectic is essential in critical, social research (Ragin & Amoroso 2011:50).

In my case, the data collection was done while I had a general idea about what I wanted to examine and why, but no formal problem statement or research questions that were etched in stone. This, I think, allowed for more explorative approach in the field and openness towards the different aspects of the region I visited. Moreover, because I was not heavily bound by a starting theory I have been able to calibrate and re-calibrate the frames to the data – and vice versa. Still, I did have some of the central theories about economic actors and action and how they could be applied on the data in the back of my head trying to look for hooks to hang my observations and impressions on. The retroductive process mentioned above, is a way of including the researcher (myself) into the text, as my reasoning, reflections and feelings during the fieldwork and the writing process, all contributed to the back and forth process – as well as being subject to continuous changes throughout the process. It is a big difference between distancing yourself from the research in the name of seeking objectivity and being critical to your own role and place in it. This is highlighted by Burawoy (1998), when he accounts for how reflexive science “elevates *dialogue* as its defining principle and *intersubjectivity* between participant and observer as its premise” (Burawoy 1998:14 – emphasis added by the author).

3.3 A case study

The study of regions and smaller locales in economic geography plays a vital role in elucidating the important geographical aspects and their interplay with the social and economic factors, and case studies are a common tool in this respect (Castree 2005b).

Without embracing the idiographic aspects too tightly, case studies can be used to illuminate many of the specifics of a place – be it economic, environmental, historical or social aspects. I chose a case study of a locale to be able to investigate a specific type of nature/human relationship at a specific place and how, for example, recent economic developments affect the village and their way of life. One can also

ask if the collected data point towards that the developments observed are ‘a case of’ increasing fragility etc. but such questions will be saved for the next chapter.

Committing to a single case study means that I need to take heed of whether the facts and images that I fill my frame with are consistent, and this is where the aforementioned process of retrodution comes in as a corrective mechanism allowing continuous refinement of both the analysis of data and the theoretical frames (Ragin & Amoroso 2011). A case study is also a good tool for making generalisations, which can later be used on similar cases – not in a quantitative sense, but by applying our *deep* insights to comparable social, economic or geographic contexts. This also prevents the generalisations from extending too far and too wide, since we do not consider them universal (Hempelian) laws due to the ever present need for interpretation by the researcher.

3.4 Fieldwork and collection of data

Getting close to the people I wanted to learn more about was integral in being able to see their connections with the outside and their community, it was therefore natural for me to travel to where these subjects might be located. This was a natural consequence of the influence from political ecology, where ‘on the ground’ studies are important to see the effects of a change on the subjects and the connections that exist between them (Robbins 2012). Burawoy (1998) also emphasises a local focus so that we can observe and examine the connections between those on the ground and inputs from the outside by participating in their context “because it distorts and disturbs” – this distortion and disturbance will tell us something about their social order. (Burawoy 1998:16-7).

After a period of searching online and enquiries sent to the Japanese embassy in Norway as well as the Norwegian embassy in Japan, I found an organisation called the Satoyama Experience, who arrange for people to visit Hida-Furukawa to see how satoyama communities and landscapes are. They also collect and spread information about the village communities and the traditional practices, and arrange events where one can participate in such practices. My hosts from the Satoyama Experience arranged for a place to stay and helped me get in touch with many of the people I wanted to talk to.

Having previously studied Japanese language and culture, I had lived in Tōkyō-area for five months a few years ago, and I spent three weeks travelling the main island two years ago. I consider myself having a good amount of knowledge about the cultural and social mores, though this is a slight geographical generalisation as I have mostly been near the more densely populated regions in Japan. Spending a month in a rural environment proved to challenge to my existing knowledge, presuppositions and images I had about the Japanese countryside.

I spent the month of November 2012 in Hida-Furukawa, and this was the first time I really experienced the ‘real’ countryside of Japan – no neon signs, no skyscrapers but rice paddies flanked by dense forests. People in the more rural areas of Japan, are not as used to ‘outsiders’ like me, as in the more urbanised regions where there are plenty of tourists. Still, the town of Hida-Furukawa attracts some tourists due to its large town festival during April and being near many mountains that are used for alpine skiing. Nevertheless, the region is not exactly within the radius of the more popular areas in Japan, which I considered a good thing when I first came in contact with my hosts in the town – I wanted to explore this part of Japan that lives in the shadows of the imagery from well-known cities such as Tōkyō and Kyoto. I wanted to surround myself with what I wanted to examine and later analyse, adhering to a central point in Hay’s definition of qualitative research (Hay 2010).

This immersion, though far from the levels attained by most anthropologists, was further strengthened by living in the middle of a part of Hida-Furukawa with rice paddies and small plots where vegetables are grown. The house where I stayed was an old house built in the 18th century by local master carpenters, located around 20 minutes from the town centre by bicycle, and the village of Tanekura was around 30 minutes from town centre of Hida-Furukawa by car. Getting around is an issue in the Japanese countryside, as many villages are quite remote and are only reachable by car. The forests are very dense and have unstable soil conditions, therefore hiking or using a bike to Tanekura, or other villages for that matter, were never an option. A small portion of the fieldwork was also conducted in the Kanazawa and Komatsu areas on the east coast of Japan.

In addition to the data I collected through interviews, conversations and observation, I used books about the topic that gave me insights into the geographical diversity in the changes going on in these communities and natural systems. All my informants except for the two professors I interviewed are treated anonymously, as

their names did not have any significance for my work. The following paragraphs summarise the fieldwork organised by the places I visited.

3.4.1 Fieldwork in Hida-Furukawa and the village of Tanekura

Following Reinert's advice on actually observing the 'real' economy, I wanted to observe and talk to the members in a village that was part of a satoyama landscape as defined by Duraiappah et al (2012) and Takeuchi (2003). Due to the preparations for the winter season, it was challenging to get access to the villagers in Tanekura, as they were very busy at that time. Snowfall in the region is quite heavy, therefore much time is spent on putting up snow barriers around the houses and covers on the fields. The farmers in Tanekura used hay and dried rice plants to cover their fields that also functioned as fertiliser for the coming season. These activities are very labour intensive and coupled with the fact that the villagers consists of mostly elderly folks, gave me a small window for interviews and observations. Still, I was able to spend two full days with the villagers, during which I interviewed them and spent some time walking around the village to see the landscape and how the village was organised both socially and how the fields and buildings were placed. I also had a short, guided tour of the village before the two days I spent there. The village leader was kind enough to let people know that I was coming and they welcomed me into their homes for the interviews and I got to enjoy their hospitality. Therefore, issues with me being an outsider in the village and even a foreigner, like those outlined by Thagaard (2011:77-8), was not something I noticed to have an impact on my data collection. I was, however, careful when I introduced myself to the villagers and presented my background and intentions, so that the villagers would feel more at ease with an outsider like me (Solberg 1996). To my surprise³¹, I was told by my host that some of my questions were unfit to ask to the villagers as there were some about the future of the village and what can be done to possibly attract more people to such villages. The village is important for their business, and they did not want me compromising this arrangement. Initially such a message was quite frustrating to receive the day before my first day in the village, especially since it could severely affect my data collection,

³¹ When thinking about this incident later, I concluded that this was a small culture clash. My impression is that critical research and the questions it implies is not the same in Japan as it is in Norway (or other western countries). Politeness and indirect language is preferred over direct questions that *might* be perceived as rude. In this light, I understand the concerns my host had.

but at the same time, I kept these ‘warnings’ in mind during my time in Tanekura. None of the villagers refrained from answering the questions that were deemed unfit, and several had long and interesting reflections to share on these matters.

My language skills in Japanese are adequate for informal conversations and in informal settings, but during the interviews with the villagers, an attendant who served as an interpreter accompanied me. I also had some conversations with him about the state of farmers in the Hida-Furukawa area, as he had studied permaculture for several years and had many insights to share – both before and after the days I spent in Tanekura. For the interviews themselves, I primarily used a semi-structured interview with a set of themes and questions that I handed to my interpreter in advance so he could prepare for the interviews. The flexibility of the semi-structured approach is that I am able to have a set frame for the interview with the themes I want to know about, and at the same time giving my informants space to bring some of their own themes to the table. This is one of the strength of the semi-structured form compared to the structured, where one focuses on the answers, rather than on the questions (Hay 2010:110). I asked many of the same questions to all the villagers I interviewed for the sake of being able to compare some of their insights and also for uncovering differences. Many of the questions were therefore often altered during the interview and sometimes wholly omitted or asked as follow-up questions for the sake of letting the villagers use their own concepts and language when responding. This is where the arguments from Polanyi (1977) about acknowledging that the substantive part of an economy cannot be shoehorned into equations and simple (yet complex) models, shine. Especially since money was not an important in the village nor more central elements of the formal economy. Intangible phenomena such as institutions, the way Hodgson (2006) defines them, can be revealed by observing and letting the informants talk about their reality. I have to be the one creating the images Ragin & Amoroso (2011) refers to, but I am dependent on the responses from my informants for being able to get the ‘focus’ right.

Due to the language barriers, I sometimes caught my attendant off-guard with the follow-up questions, where he needed a moment’s explanation from me to convey the correct meaning with the question, but it proved useful as it gave me a possibility of refining my thoughts and asking a more precise question to the informant. This also happened when my questions were unclear to the villagers, in which case they always

asked me to elucidate the questions, strengthening the important dialogue between the informant and me.

Before every interview, I presented my project and myself and made it clear for the villagers that they could stop the interview at any time should they feel like it. I let the villagers talk freely, as my questions were open ended and encouraged them to reflect over their own experiences. Some of the villagers were very enthusiastic during the interviews, and my impression was that I had very good rapport with all my informants in the village – even those that were a bit more modest during the interviews. I used both a small digital recorder as well as a notebook for notes on how some words were enunciated, the body language and the behaviour of the informant. I also added comments on the physical surroundings and my own thoughts before, during and after the interview. The duration of the interviews varied from 35 minutes to over an hour, and most of them lasted for around 40 minutes.

The interviews were transcribed directly from the recording device at the end of each day, though I spent quite some time after returning to Norway getting the translations right as my interpreter/attendant sometimes struggled with the transition from Japanese to English. Without any prior knowledge of the Japanese language when it comes to its emphasis on contextual expressions and so forth, I would have struggled more with transcribing, but the combination of the attendant's interpretations and my translations while transcribing worked well together. It also helped that I could slow down the playback on my recorder so picking up difficult words and expressions were made less challenging.

I followed the advice from both Hay (2010) and Thagaard (2011) about the importance of taking notes in addition to recording audio, but in some cases I did not want the recorder to come between my subject and me and I refrained from using it. The notes I took during the interview regarding key expressions they used and their body language etc. during the conversations were essential in this process, as they helped me remember many of the non-verbal cues, which also added to the whole picture. It is still necessary to point out that a direct translation from Japanese to English is impossible due to large differences in the language structure and when it comes to words and idiomatic expressions. My own translations bear testament to this, and I therefore rewrote them to 'proper' English to be more intelligible for the sake of coding and systemisation, and if I were to use something as a quote. The focus was on conveying the meaning and not the correct grammar for linguistic purposes.

Reflections made during this process were often connected to the theories I had thought about using, and necessitated a selection of those I considered as fruitful. The frames were therefore already in the making during this stage, and part of the continuous retroductive process mentioned in 3.2 and in Ragin & Amoroso (2011:60).

The most challenging part of my fieldwork was probably to get in touch with public officials from the city of Hida-Furukawa. English is rarely, if at all spoken in the Japanese public domain³², and so my contact with the city office had to go through my hosts, who translated my letter of request and some of the questions I would like to ask them. At the two occasions I met with representatives from the agricultural department and the department for economic affairs, I quickly understood that an interview was not possible in the normal sense as the officials instead gave a presentation of the current policies in the two spheres. It was not that I failed to acquire interesting information, but it was not room for questions outside what they had prepared for – this was pointed out to me by one of my hosts who said that public officials are not used to dealing with critical questions. I discovered that any questions outside the ones I already had emailed them were a challenge. Still, the officials were very open about the predicament that the city and the surrounding villages were in, and shared many of the problems and their plans for abating them. They also provided me with printed statistical data on the region's demography, economic composition and information about the central policies – all in Japanese, of course, so translation of what was interesting for this thesis was necessary.

3.4.2 Kanazawa and Komatsu – Satoyama international training programme

Before leaving for Japan, I sent a letter of request to prof. Koji Nakamura, an ecologist and central figure in the satoyama research community, for a meeting. The result of this was that I was invited spending two days along with representatives from Kanazawa University who hosted a month long training course in Satoyama practices for officials from abroad³³. During these two days I spoke to prof. Nakamura and prof. Ryo Kohsaka, an economist dealing with forest policies. Both were central during the COP10 in Nagoya in 2010 where the Japanese delegates presented the

³² Webpages can have English translations, but English is not spoken by most bureaucrats or even elected politicians. However, the ministries provide good access to official documents and reports in English.

³³ The group I joined had representatives from China, Nepal, Mexico, Iran, Ghana, the Philippines and Mali. It was organised and funded by JICA (Japan International Cooperation Agency) as a part of their work in the field of environmental conservation.

‘Satoyama Initiative’. The procedure with them was pretty much the same as with the villagers: they were presented with my project, my background and were given the option to stop the interview at any time. As I did not get much time with prof. Nakamura, he recommended that I should read a book he edited, which would give me a good idea of the state of Satoyama in today’s Japan³⁴ in a more in depth manner than he could over the course of a twenty minute interview.

My initial plan was to do most of the fieldwork in Tanekura and Hida-Furukawa, a trip to another region gave me a good opportunity to see other rural communities, and to see and hear some of perspectives on Satoyama in Japanese academics, as well as the projects organised to spread the knowledge about such practices. I also got the to see what is being done by local stakeholders, as there was a ‘Satoyama nature school’ in the village of Takigahara near the city of Komatsu. At the nature school, a couple of the central figures presented ways of how their village is adapting to the changing economic conditions in rural Japan. Afterwards, I asked both some short questions which I drafted during the presentations. During these two days, I mostly took notes and used my recorder during the presentations in Takigahara. I was more of an observer, as opposed to interviewing several people in Tanekura. The group I was accompanied by three JICA-representatives who served as interpreters and guides – transcribing these recordings demanded a lot less effort than those from Tanekura. The days in Kanazawa and in Komatsu added more elements to the images in the making, and gave me further perspectives on the circumstances around satoyama areas. However, I must stress that Hida-Furukawa and Tanekura was the main sources for data and knowledge during my fieldwork and will receive the most attention in my analysis.

3.4.3 Other aspects of my fieldwork

After hearing about the role Nōkyō plays in the Hida-Furukawa area (described in 1.5), I decided to contact them to see if I could talk to them about their involvement in the area. I had heard from my attendant that getting in touch with them would not be easy as a foreigner with questions (perhaps critical) would most likely not be welcomed. I did not receive any replies on the requests I sent them, so I will turn to

³⁴ The book *Satoyama--satoumi ecosystems and human well-being: socio-ecological production landscapes of Japan* by Duraiappah et al (2012).

my own observations of Nōkyō's presence in Hida-Furukawa, interviews with the villagers and the conversations I had with an independent agricultural consultant working in the area. I will also be using Nōkyō's webpage for information and insightful articles by Bullock (1997) and Yamashita (2008, 2009a, 2009b) as secondary sources on the Nōkyō system.

Much of my time in Hida-Furukawa was, as stated earlier, spent on transcribing the interviews and going through my notes from the days 'in the field'. I had to wait until the third week before I could talk to the officials from the municipality. I usually had some days without concrete plans, so besides doing interviews and transcribing, I did a lot of cycling around the town and to some of the nearby villages, that were not located deep in the mountains, to get a good sense of the landscape and the physical geography of the place. During these trips, I often stopped to have a short talk with the farmers working in the fields. The rice fields in the valley were criss-crossed with small roads for the machinery and made it possible for me to get close to the fields and in touch with some farmers during my bike outings. These chats with the farmers were valuable, as gave me a good impression of their day-to-day work and their brief outlooks on their life in Hida-Furukawa and an opportunity to use the insights from Burawoy (1998) about "disturbing" to get an idea about the social context of the subject (Burawoy 1998:16-7). The meetings were informal and kept short as I did not want to take up their time during their busy days as the weather started to get colder throughout my stay. I refrained from using a recorder during these talks, so I quickly jotted down notes after I had talked to the farmers.

Early in my stay, I took part in a renovation project where a group of volunteers come together to help a family with an old house. In my case, I joined a team that were to clean out the ground floor of a 300 year old house a young married couple with a baby boy had gotten for free, but needed help to make habitable as it had been vacant for some time. During that day, I had a few conversations with both the husband and the wife about their choice of moving back to the countryside, which I quickly jotted down in my notebook afterwards. I left my recorder off, as the situation deemed it unnatural for me to stand there and record while everybody was busy working.

A few days before leaving Japan, I also interviewed one of my hosts about her thoughts about her life and her family's life in the countryside compared to living in

Tōkyō. I applied the same interviewing procedure with her as with the villagers, but her husband was busy travelling and running their business so he received the same questions on email. Replying by email took away the opportunity to ask proper follow-up questions and letting him speak freely about the themes in the interview guide, though he still provided me with extensive replies to my questions.

3.5 Validity of my generalisations

This concept is crucial in any research project, even one with a limited scope like this master's thesis. While mostly associated with positive science and quantitative research, validity still has meaning outside the quantitative realm (Thagaard 2011). The main difference is that quantitative methods use mathematical functions to secure the validity of the data, at least for project at hand. Qualitative research is based on the interpretation and reinterpretations of meanings and consequently the researcher's subjectivity. My responsibility as practitioner of qualitative research is to make the research process as transparent as possible, to account for my data collection and to underline why I chose to interpret the data in a certain way. The reflexivity during my work has also been useful for critically assessing my own position while writing and while collecting data, as the issues I seek to shed a light on are too important to be handled frivolously.

As far as the ability to generalise from qualitative studies goes, one can argue that this is a difficult task since we cannot prove how *reliable* our findings are, at least not mathematically with probability theory. *Validity*, however, is a strong point since we aim for depth, rather than width in analysing the data collected (Grønmo 1996:92). This depth is what leads us qualitative researchers to the underlying mechanisms, which we can base our generalisations on (Hernes 1998). Depth and context both are central in qualitative research and although direct extrapolation is not always possible or even desirable, qualitative research is a fruitful way of applying existing generalisations, in the form of theories, to new contexts as the goal is in this thesis. It then comes down to the perspectives and the interpretations of the next researcher to use the generalisations further – hopefully in a well-grounded fashion. Finally, I want to add that insights from Burawoy's (1998) *extended case method* also highlight how qualitative case studies can be extrapolated

to a bigger picture through the connections it has to the outside factors that influence it (Burawoy 1998). Extrapolation can thus be made possible through tracing the connections of the phenomenon under scrutiny, to the external influences.

4. Analysis

Before moving on with the analysis, I want to clarify that there are several important distinctions between the general countryside and satoyama communities. They overlap in some aspects, but are distinctly different in others. The aura of tradition that hangs over the countryside in the Japanese consciousness invokes powerful images of vast culture and nature landscapes in harmony, therefore the general countryside is not always discernable from a satoyama landscape. But these two concepts should not be conflated, as satoyama areas are specific parts of the countryside and therefore influenced by the changes that have happened, as described in 1.3.

Much of the countryside in Japan consists of monoculture farms and forests, the latter often are replanted ones funded by the government to counter erosion and to offset Japan's CO₂-emissions (Duraiappah et al 2012; Totman 1989). Such forests contribute little to the local economies as the forest floor has few plants due to the plastic geomats that cover it, along with the densely planted trees. Moreover, Japan's industrial agriculture is one of the biggest consumers of inorganic³⁵ farming chemicals in the world³⁶. Farmers involved in conventional agriculture are a part of the Nōkyō's (the national agricultural cooperative association) system of agrichemical supplies, loans, machinery and their near monopsony on rice and several other agricultural produce (Bullock 2007; Yamashita 2009a).

In comparison, a *satoyama* is usually based on local inputs with little or no reliance on external financing through debt as the natural resources in an area cover most of the needs in a satoyama community and agriculture has relatively low input demand compared to conventional agriculture (Duraiappah et al 2012; Takeuchi 2003). Debt is fuelled by scarcity, which does not apply in a satoyama setting when considering the redundancies found in nature that these communities are based on.

³⁵ With nitrogen, phosphate and potash as the main compounds.

³⁶ URL: <http://www.nationmaster.com/red/country/ja-japan/agr-agriculture&all=1> accessed 14 April 2013

4.1 Existence of satoyama – real or symbolic, organic or subsidised?

In section 1.2 I presented an image of satoyama as a way of removing the barrier between humans and nature, and that satoyamas are a good example of mutually beneficial interaction. To use Taleb's (2012) vocabulary, satoyama can be considered as an example of *antifragility* since the human activities do not break down the natural (antifragile) systems, but rather use them for the benefit of nature and humans. That said, even though large parts³⁷ of Japan can be considered as satoyama landscapes, there are as many varieties of satoyama as there are satoyama communities. The different established definitions of satoyama in academia also add to this convolution. Therefore, when arriving to Japan and Hida-Furukawa, I did expect a gap between the accounts of satoyama in books and articles and the reality I observed and participated in. Watching documentaries³⁸ of peaceful and luscious rural areas and enchanting images of humans enjoying a near symbiotic relationship with nature are only a part of the image of satoyama in Japan. This image holds true in some instances, but not all. I found several understandings of satoyama during my fieldwork, but I found that the concept balances between two broad understandings that stood out in the data: a symbolic and a practical one.

4.1.1 Satoyama as an ecological myth, a symbol of the *real* Japan

The former carries with it a notion of a wedge between the social and the natural world. Something that was presented as a central issue in political ecology, and the way such divisive representations often serve as a tool for exerting influence by some actors over others for various reasons – often disregarding the local context (Benjaminsen and Svarstad 2010; Robbins 2012). An example of this is how struggling rural areas become tourist locations with the help of government subsidies create something 'special' to attract visitors (Moon 1997).

The *symbolic* understanding is also visible in the official accounts of satoyama, and the way it is characterised as age-old traditions of living with nature and carefully managing it for the benefit of both humans and the biosphere. This

³⁷ Recall that roughly 40% of the landmass is defined as satoyama landscapes, though with regional discrepancies, according to Duraiappah et al (2012:3). Some regions have close to 70%, others less than 10%.

³⁸ <http://tv.nrk.no/program/koid20008810/japans-hemmelige-skog> seen many times during the course of this work. Last viewed 2 April 2013.

image also retains a link to Japanese nature philosophy and religion (Shintō) where the wild nature is ‘tamed’ or ‘cooked’ through attributing it with religious and spiritual connotations – thus making it a part of culture (Asquith & Kalland 1997). Satoyama is presented as a central part of the Japanese cultural heritage, as something that has endured the upheavals during the past two centuries, which was outlined earlier. The farmer is seen as a hard working, but happy individual living in harmony with nature. This image of satoyama is put forth by the Ministry of Environment (ME) about the protection of biodiversity through conservation of these traditional satoyama areas³⁹. Though the means are somewhat unclear, the goal of the “Satoyama Initiative” (mentioned earlier in 1.2.4) is to “realise societies in harmony with nature”. It is also an international effort to collect satoyama-like practices and traditions from around the world in an effort to create a framework for satoyama – usable for policymakers, foreign and domestic. Restoring satoyama is thus part of Japan’s environmental policy, and the Satoyama Initiative is the roadmap that will lead society back to nature (Duraiappah et al 2012:3).

4.1.2 The “real” and marketable satoyama

Another central facet of the symbolic understanding is that it is *marketable*. The aesthetically pleasing scenery, the peaceful villages where time seems to be passing slowly are presented as havens for urbanites seeking to escape their hectic life in the city. This, according to Moon (1997), creates the need for turning nature into a commodity ready for consumption by the urban populace. Nature and the experiences that are marketed becomes something that city dwellers can purchase with money (Moon 1997:232). She hits the nail on the head when stating that...

...[m]an no longer exists as part of nature but outside and above it, which has now become an object to be sold as well as to be protected as some sort of ‘limited good’

(Moon 1997:233)

Limited in this case implies something special or exclusive, and thus the government grants that are given to these places focuses on their marketable traits (such as scenic

³⁹ <http://satoyama-initiative.org/en/> last accessed April 17 2013.

landscapes or charming houses). Instead of the original variety in institutions, knowledge and habits of the area or region, the focus becomes increasing the comparative advantage the areas have in aesthetically appealing scenery in line with the arguments of Krugman (1991, 1998).

Because satoyama as is often viewed as the “real Japan”, to paraphrase one of my informants, located in the countryside where people are thought to be more connected to nature than their urban counterparts, it is seen as the incubator for solutions to present and future environmental problems. This might very well be the case, but a uniform understanding of a concept this complex with regional and local differences. Satoyama can therefore be seen as a symbol for an ideal Japan, and institutionalised by the central government in an effort to get people interested in the countryside. This process is further strengthened by how this ideal satoyama is seen as a solution for the social and environmental problems Japan is facing. And at the same time as a solution for environmental problems around the world – whether it is climate change or loss of biodiversity. Still, the policies enacted by governments since the Meiji-era (1.3) have greatly affected the countryside with the negative cumulative effects seen today. Singer and Bird (2010) expresses this duality well, writing:

Valid doubts persist about whether satoyama has ever been fully realised in its ideal form, or whether a national government whose policies helped destroy the traditional rural environment has any right to turn around and trumpet that network of integrated ecosystems as a model for the world.

(Singer and Bird 2010:45)

In Tanekura, the inn that was built and funded by the municipality represents this symbolic understanding. The idea was to attract tourists and visitors to the village and allow them to see how people live in a satoyama. Granted, the inn is a beautifully constructed building and they serve dishes made by produce from the village, but according to the village leader, it does not contribute much to the village economy. The villagers themselves are too busy with farming and are too old to be able to run the inn full time, so it is closed most of the time. Visitors do come, though in many cases it is through outside connections that the inn is booked. The villagers themselves are happy for the visitors, but do not see the increased exposure having a

lasting impact on their life – in fact, many did not even mention the construction of the inn when asked about the biggest changes that have happened during the last decade.



Figure 6: Ideal representation of satoyama, see the footnote for description of the elements ⁴⁰ (Source: *Satoyama-Satoumi Ecosystems and Human Well-being – Summary for Policy Makers*⁴¹)

4.1.3 Satoyama in practice – insights from the ground

The *practical* understanding of satoyama encompasses what I observed in Hida-Furukawa and Tanekura, and what I learned from the interviews with the villagers. Here the traditionally robust and even antifragile practices have been continuously developing without having a specific blueprint or the like, and are more ‘down to earth’, for lack of a better word, than the glossy descriptions found in the aforementioned government documents. Very few satoyama communities are isolated

⁴⁰ a: coppice woodland for firewood and charcoal, b: coniferous plantation, c: red pine woods, d: homestead woodland, e: bamboo grove, f: grass-land, g: rice paddy field, h: field, i: irrigation channel, j: irrigation pond, k: settlements, l: livestock (cattle and chicken), m: wild vegetables and mushrooms, n: prescribed burning of grass-land, o: maintenance of irrigation channel, p: management of coppice woodland and bamboo grove, q: management of coniferous plantation, r: collecting leaves of deciduous woodland for manure production, s: charcoal burning, t: shiitake mushroom production, u: shrine, v: northern goshawk, w: Japanese salamander, x: kingfisher, y: farmers and foresters, z: hikers

⁴¹ URL: http://www.ias.unu.edu/resource_centre/SDM-EN_24Feb2011.pdf last accessed 19 April 2013.

from the rest of Japan, and they have been subjected to many changes the past century. Satoyama areas are not places where the characteristic practices, traditions and communities are kept in time capsules for spectators to marvel at. Hida-Furukawa and similar towns are not in the Middle Ages with horse drawn carts in the streets and people walking around in kimonos. It is a modern small town, but it surrounded by productive land and villages where life is more robust (for now) than in the metropolitan regions, and therefore more self-sufficient and more directly reliant on nature than many other places in Japan. With that I mean a stronger reliance on local inputs and labour and less need for connections to foreign markets to meet the demands of those living in the area

Part of the practical understanding of satoyama is recognising that the concept is as varied as the number of communities that can be said are more or less ‘in sync’ with nature. Geographical conditions are varied, as are the local economies and how traditional knowledge is used in a rural community. Therefore an overarching definition encapsulating satoyama apart from some of the practices used is hard to accomplish, let alone base a national policy on. Herein lies the problem with the symbolic understanding apparent in policies from the central government, as it was outlined by Ostrom (1999) – too much outside involvement weaken the institutional structures that have contributed to the practices that have kept the community alive and its relationship with nature intact. These norms and practices are anchored to the community, whereas influence from national policies acted out by the municipality or through the prefectural government do not come close to having as much impact – this is the case in Tanekura. The knowledge and skills in the community matter more than help from the outside. Here, these institutions have evolved in spite of, not because of formal policies. Policies from the municipalities are oriented toward direct support like rice supplies during the off season, grants for the upkeep of fields and farm roads and fences, whereas the national policies are more broad scoped in that they offer general support to businesses and tourism in the countryside. More on these issues in a few paragraphs.

My informant Prof. Kohsaka of Kanazawa University pointed out that many of the measures from the government and municipalities serve more as “pain killers” with a limited timeframe, than as long-term measures, and do not abate the underuse of resources and other problems. This seems plausible considering how easily social capital in such small communities can be overlooked by agents of change from the

outside, and how difficult it is to construct social capital through such involvement in the first place (Ostrom, 1999:180-1) The “pain killers” have so far been subsidies trying to attract young people back to the countryside – in Hida-Furukawa this includes a supply of rice and support throughout the growing season when there is little to sell. Other common measures have been establishing a base for tourism In many ways this seems somewhat futile, as there are few jobs created in the region and especially ones that pay as well as those in the urban regions. In any case these measures are not significant for the villagers, as most of them did not seem to have any special connection to the municipal government.

The important thing to consider is that satoyama areas and communities existed and thrived before someone decided to name them satoyama, and well before it became a concept of policy, which is in line with Taleb’s (2012) “lecturing-birds-argument” which was presented in 2.2.4. When there are unclear causalities, arguably most of the time in the social world, we may erroneously see clear cause for an effect, though the real cause might be invisible to us. In our case, positive developments in a community might be attributed to outside factors (such as policy) even though it was the inherent strengths that have kept satoyama areas robust over the years. Satoyama, or rather, its unnamed predecessor has been institutionalised over a long period of time, perhaps centuries. Nature has endured, but the strong institutions devised by humans cannot endure without certain habits connecting the place to its people, and their continuous survival.

Furthermore, satoyama is not shielded from the changes that have taken place in Japan through the course of the last century, thus it is meaningless to characterise satoyama today without taking these factors into consideration. Satoyama communities have felt these changes along with the rest of rural Japan, and it is therefore natural to turn my attention to their inhabitants in the following paragraphs.

4.2 Actors and institutions in a satoyama

The forest is left alone because the timber is not needed for housing or charcoal. So the people don’t care about the forest as much as before. The knowledge about [taking care of] it is diminishing.

(Hida-Furukawa city official)

The forests have been under-utilised for several years since forestry started to disappear in the region, and this has caused wildlife such as wild boars, black bears and deer to move closer to populated areas in search of food. A young farmer pointed out to me that his father used to get timber, herbs, mushrooms and herbs from the forests, and used to put out food waste in the forest for the boars to eat during the winter and spring. This kept them from coming to close to the rice paddies possibly harming the delicate rice plants and ruining the harvest. Similar observations have also been made by Duraiappah et al (2012), where they are highlighted as a lamentable consequence of the changing demography of rural regions and satoyamas.

4.2.1 Fencing out nature

Putting up fences is a common measure against the uninvited guests, but this also closes large forested areas off for the public. Such fences, sometimes electrified are supported by the municipality, but the funds are limited to “problem areas” (seen in a pamphlet for the measure). From a political ecological standpoint, we could argue that this contributes to the separation of man from nature and eroding the robust practices, which is serious in itself, but even more so when the institutions in a satoyama have been founded on access to forests for food and fuel (Duraiappah et al 2012:21; Robbins 2012). Of course, the demand for fuel and food from forests have been decreasing for many decades now, according to prof. Kohsaka, for instance with Chinese timber imports taking over the timber markets that used to be based on local resources (interview 8 November 2012). Many in Hida-Furukawa used to be employed in forestry, with vast tracts of forests to harvest from that was carefully managed through coppicing and letting the remaining trees do the replanting, with little involvement from the central government. Rather, community planning has had a strong foothold in both farming and forestry in Hida. Still, partly because of changes in the international markets of timber, as mentioned by Prof. Kohsaka, the industry is all but gone today, with a few individuals getting timber for maintenance of older farm houses, as the few modern houses that I saw were built from prefabricated concrete slabs – in stark contrast to the history and landscape of the region. With less demand for Japanese timber from for instance the Hida-Furukawa region, many of the satoyama forests will suffer from abandonment, and the farmers will continue to be

visited by uninvited guests (Duraiappah et al 2012:128). Another part of the explanation used by several villagers is the increased reliance on fossil fuels for household purposes like cooking, rather than making coal from the abundant supply of timber in the area. According to municipal statistics, the main source of energy in Hida-Furukawa is the waterways with small, hydroelectric plants using the water from the mountains to make electricity, whereas fossil fuels are used mainly for transportation and for farm machinery.

4.2.2 Aging, depopulation and the consequences for satoyama

The actors maintaining the institutions that make up the local satoyama are of vital importance for the survival of the nature/human-exchange that has been shown to increase biodiversity and robustness (Duraiappah et al 2012). One of the biggest challenges for the future of satoyama communities is the disproportionate number of people over sixty years of age in Japan. The average age of those living in the *countryside*, and in most satoyama areas is well above 60 and increasing – this is also the case in Hida-Furukawa and Tanekura. Demographic data from the municipality in Hida-Furukawa show a marked decline in the general population since the mid 1950's and mainly in the younger age groups, especially in the area where Tanekura and other, smaller villages are located. This reinforces the image from sources that point to the lack of young people being part of the problem that has besieged many rural areas of Japan (Duraiappah et al 2012:60). This does not mean that the elderly are not able to work hard, something that was made apparent to me early during my fieldwork. But many villages face inevitable abandonment when people pass away one by one, with no one to take over. The social capital that made the relationship between the village and its surroundings work so well disappears quickly when its local elements are unused (Ostrom 1999:180). If the people disappear, the institutions and social capital disappears with them, and new forms take time to create if new settlers should arrive.

In Hida-Furukawa developments like these have led the central government through the municipality to try and create incentives for people to stay put in the rural regions in the form of monetary grants and supplies of rice during the growing season for the farmers. The farmers can also apply for grants based on the incline of the slope they want to cultivate in order to build or maintain terraced fields. Nōkyō also plays a

big part in distributing the rice grants and consequently introducing the farmers to their other services (outlined in 1.5). One farmer said that it is difficult to imagine how life would be without them in the region – a statement that can be interpreted as either an expression of support to the structure Nōkyō provides for small-scale farmers or a way expressing Nōkyō's omnipresence as intrusive or disruptive. The majority of those I talked to considered the presence of the national cooperative as something natural, although many expressed that they often did not use the services provided.

There are no colleges or universities near Hida-Furukawa, so those wanting an education have no choice but to leave, and the demographic data of Hida-Furukawa show that they usually do not return. The villagers also expressed this when they told me about their children and where they lived: some in Nagoya to the south, and a few in nearby Takayama. They help their parents out during the growing season with ploughing and with coppicing the trees. But when I asked the villagers if they expected their children to return, one replied that her children “had no intentions of moving back”, another sadly remarked that her children “could not understand why [she] would not move to live with them in the city where life is more comfortable”. She said that her place was here in the village with her “other family”.

Moving away from the village (in this case to either Hida-Furukawa or nearby Takayama) is unthinkable for most of those living in the village – even for the grandson of one of the elderly ladies I talked to (he is 32 years old, and the youngest I spoke to), who serves as the village's *benriya* or handyman. He could, for instance, not understand why younger people did *not* want to live in a peaceful and beautiful place like Tanekura:

A lot of young people think that the countryside is boring and backwards, but it is really the opposite. Everyday is different with a new challenge, especially here in the village. There is much less stress here than in the city.

(Interview with the grandson/handyman 23 November 2012)

The issue of perceived risk the younger generation have to life in the countryside was mentioned by prof. Kohsaka, as the wage gap between rural areas and the metropolitan areas is considerable, further keeping those needed in the countryside

from returning (interview 8 November 2012). The issue of expensive education in Japan is also a factor, and most universities in Japan are privately run, where yearly tuition fees can exceed 50 000 Norwegian kroner⁴², in addition to enrolment fees, application fees and living costs⁴³. Hayek (1975[1944]) views this fear of risk as a step towards wreaking fundamental values of freedom in society, and writes:

We cannot blame our youth when they prefer the safe, salaried position to the risk of enterprise after they have heard from their earliest childhood the former described as the superior, more unselfish and disinterested occupation.

(Hayek 1975[1944]:51, my translation)

Add the indebtedness from one's education to the equation, and going into a risk filled enterprise like farming seems even less tempting. Starting a new or upholding an existing satoyama might prove difficult with little knowledge about the essential, local factors. The road may thus be short to seeking aid from the well-established system within the Nōkyō-network for farmers. Meaning that the road to even more debt financing is short for a struggling farmer without help from an already established community with knowledge and skills – the agricultural consultant I spoke to said that for many it was inevitable.

Of course there are exceptions like my hosts, who left their well paid jobs in an professional services company in Tōkyō to lead a more robust life relying less – and to get people from other parts of Japan to see the upsides with living in a satoyama area. Being able to spend time with their kids and being more relaxed as opposed to the extremely busy life they had in the city. According to them, there are economic incentives from the government for businesses in such areas as they live now, but these seemingly provide weak long-term support. Instead they had to start from scratch with everything, and rely on the support from their neighbours in the beginning. A few of the villagers in Tanekura were married into the village from outside towns and villages, and had little experience with farming. Here it is apparent why local institutions are important for the development of knowledge, aided by for instance social capital (Ostrom 1999). Those that arrived from the outside and became

⁴² My conversion as of 12 May 2013.

⁴³ <http://www.japan-press.co.jp/2006/2499/education.html> accessed 3 April 2013

part of the Tanekura “family“ learned the skills from their neighbours, something most of the permanent residents recalled with fondness:

When someone didn't know much about farming, we always welcomed them and involved them in everything we do throughout the season. The hardest is to learn how to cooperate with nature, but that [works differently] for every person.

(Interview 22 November 2012)

The “newcomers” developed their own techniques incrementally through trials and errors, alongside what they learned in the village which most characterised as hard work but rewarding. Taleb also emphasised the need for allowing trial and error to create new knowledge and to stay antifragile (Taleb 2012). The “new” villagers considered the support provided by the rest of the community as crucial during this period indicating that the locally embedded institutions in the form of the habits and knowledge of the welcoming villagers are indeed of great importance.

The strong commitment to one's neighbours and indeed the entire community was striking to observe for a Norwegian urban-dweller. But my experience was seemingly not too far from Japanese urbanites hailing from Tōkyō and other large cities: My host said that many of their friends in Tōkyō rarely have time to do anything but work “from eight in the morning ‘till eight in the evening”, even with kids at home. Thinking about a more robust life is not easy when you are bound by the concrete constraints of a metropolis such as Tōkyō, especially when there is no time to do anything about it. Living costs are increased three-fold and in some cases more when living in Tōkyō as opposed to Hida-Furukawa, according to my hosts. Therefore, work is always on your mind.

4.2.3 Less need for money (i.e. debt) in a satoyama

In the city, the concept time is institutionalised as being convertible to money to pay for everything you ‘need’ around you, whereas in the countryside (especially in a satoyama) time is not nearly as strongly associated with acquiring currency. This can be interpreted through North's (1991) ideas as an organic and rational development: Living costs are high due to a high demand on living space and people have to work

more to pay for their life in Tōkyō – a process they have to adhere to. But Hodgson’s (2006) insights about the flexibility of institutions should not be overlooked. They depend on our participation and conditioning to survive. And the communities in these villages are tightly woven together through many years of friendship and cooperation. In fact, the strong and mutual dependence was also very visible in Tanekura already after talking to a few of the villagers during the first day, and clear signs of a vast ‘reserve’ of social capital (as discussed in 2.2.2) in the village built up over many years. The Buddhist priest in the village pointed this out by referring to a village life based on trust and cooperation rather than money – which was rarely if ever used in Tanekura or the nearby villages. Of course money is needed to pay for amenities such as electricity, petrol and groceries – keeping in mind that satoyama is not inside a sphere where the flow of time has stopped. But the fact that money does not play a significant role village life, might explain why the inn has had a small impact on the local economy. It might also point to resilience in satoyama communities against powerful institutions like money and debt because the communities are relatively self-sufficient – something I will return to shortly. Of course, some of the villagers do produce some special products like red turnips and certain kind of Japanese ginger⁴⁴ and make some money selling them at the local markets, but the small profit they do make goes to the upkeep of the village roads and snow ploughing during winter.

Bartering is not common in Tanekura nowadays; at least it was not something the villagers were used to as they mostly shared their produce with each other regardless of expecting something in return from the others. They saw this as completely natural, and the priest told me that during busy parts of the year he receives produce from the other villagers as thanks for organising the religious activities throughout the year.

4.2.4 Past and present in Tanekura – the villagers’ perspective

One of my informants in the village was a 93 year old WW2 veteran and retired farmer, and the oldest resident in the village. He had lived in the village his whole life and thus been a part of the many changes that took place in Japan and affected the countryside (some of which were presented in 1.3). In his view, the most marked

⁴⁴ Both of which do not grow other places than in Tanekura, according to the village leader.

change is that people today are much more reliant on outside factors to make a living. For instance, he told me that before the advent of chemical fertiliser and pesticides in the 50's, every family in the village used to have their own horse. The horse was a vital part of the household, and was mourned like a family member when it passed away. It played a role in turning the leftovers from last year's harvest into fertiliser for the next harvest, in the ploughing and planting season, and with clearing show during the winters.

We used the forest much more before. Charcoal, mushrooms and wild plants were very important for the village [...] profit has never been important, as we shared what we didn't use to the others in the village.

(Interview 22 November 2012)

Charcoal production for fuel and trade, growing vegetables and rice for food were the norm around 50 years ago, according to my 93 old veteran. Money was rarely if ever used in transactions, and trust based on long term relationships both within the village and with other villages was what helped the village when crops were bad. They travelled around 30 km to Toyama to work in the fields and were paid in rice, which was distributed to everyone in the village. Some of the men in the village did this regularly to ensure food security in the village in case their own crops failed. An interesting fact shared by many of the villagers is that they rarely lacked anything important like food or water – the resource supply was rarely perceived as *scarce*. Even if the harvest was unsuccessful one season, they kept a year's supply of rice and fermented vegetables in their storehouses. These were built in a safe distance from the family house in case of fire. As such, money was never considered important in transactions within the community or with other similar communities. Water still comes down from the mountains and most of their food from their fields. What they cannot produce, they get from other villages or from the local markets, and daily life was centred on the community.

This lack of both perceived scarcity and actual scarcity implies that there are other mechanisms that drive the actions in the village, which becomes more apparent when considering the way the villagers shared goods and produce with each other as described earlier. This is also evident in the way money is considered unimportant in

the community. When we take away scarcity as the foundation for productive activity we begin to see that optimisation becomes founded in the community rather than in the actions of the individual as it is in neoclassical thought. We saw in 2.1.1 and 2.1.2 that scarcity created the need for centralised rules and power to deal with possible conflicts that could arise if people and communities were left to themselves in a society with absolute freedom and scarcity (Hobbes 1998[1651]; Locke 2008[1689]). Looking at the way traditional agriculture has functioned in Japan before the country's green revolution in the 1950s and the insights from the villagers in Tanekura indicates otherwise.

In this respect village life in the past and in a lesser degree today, as described by the villagers, share many of the characteristics featured in Polanyi's (1977) definition of the *substantive economy*, discussed earlier. Man's need for sustenance from his surroundings and the importance of one's community as a container of the local knowledge are central in the substantive economy. Economising based on scarcity did not make much sense to many of the villagers – and it still does not, therefore many of the arguments from the neoclassical school and North (1991) fail when looking below the surface of the institutions in the village. Especially the focus on the individual actor and how his/her preferences guide the utility-optimisation discussed in section 2.1.3. The community and their shared knowledge about the local conditions that affect their crops are the foundations of the village – not plans from the municipality or from the Ministry of Environment about how to be a satoyama. This also points toward an accordance with Taleb's (2012) description of how iatrogenics – the harm done by the “healer” – on the part of centralised policy makers can have severe consequences for not only individuals, but indeed the whole society through failing to see the consequences of their actions. Also, in Tanekura the food production has always been high enough to suit the needs for everyone in the village before synthetic fertilisers came into the picture.

This brings me back to the point made by the WW2-veteran, that reliance on outside factors has increased during the last half of the 20th century. And while the construction of the inn was highlighted earlier as a measure to attract people to the village, it has not ushered in any substantial change to the village. Nōkyō, on the other hand has done just that for several years. According to the consultant I talked to, it has played a large role in changing region's agricultural practices during the last century – as it has in the rest of the country (Bullock 1997). Interestingly, not many of the

villagers see these changes as problematic. Most of those that used inputs provided by the national cooperative, did not question its role in the region as the cooperative provides tools to make farming less cumbersome for elderly farmers. Looking at this phenomenon through the frame of the institutional theories discussed in 2.2.1, I find that the need for these inputs have been seen as a *natural* consequence of the challenges that have plagued the countryside (in the case of Tanekura an aging population). While North's (1991) view steers me toward accepting the rational organisation of such a system, political ecology on the other hand gives us the perspectives to brush off the apolitical guise of the Nōkyō system in Hida-Furukawa.

Considering the economic power of Nōkyō in the agrichemical business, they have a vested interest in keeping farmers using their products, and as I previously implied, fragilising a system that has been built on nature's inherent antifragility (Bullock 1997; Taleb 2012). These synthetic fertilisers are a cheap and readily available and brought by a small lorry to the village upon request. Part of the explanation for Nōkyō's position and apparent importance is shown by Bullock (1997):

The economic incentives of membership are considerable – e.g., cheap and easily available credit, technical assistance, and easy input purchases. Indeed, it can be difficult to farm without being a [Nōkyō] member [...]

“Too easily”, a retired railway engineer turned organic farmer commented on this fact. He was very adamant about keeping the ‘old ways’ with the use of oil cakes rice and bran along with compost as fertilisers. Nevertheless, he could understand the dilemma many of the others had between not being able to work as hard and as long days as before and therefore needing something that could make cultivation easier. In his opinion, organic farming was not much harder and yielded healthier produce due to the lack of artificial chemicals in the crops. Those that were using fertilisers from Nōkyō, although infrequently, said that these inputs were *not* for increasing yields. Therefore not part of production optimising in accordance with market demands, but rather because they do not have the energy to look after the fields as much as they have to when farming organically⁴⁵ (essentially how farming was done in the old

⁴⁵ As defined by the Japan Organic Agriculture Association (URL: <http://www.joaa.net/english/what.htm> accessed 13 April 2013).

days). This implies that this institutionalised need for these fertilisers is not based on real needs of the villagers, but rather artificially created need where these inputs are associated with less work – which is according to the ‘organic’ farmers, not the case with such small fields as they have in Tanekura. The fields are small enough to cultivate without the use of “unnatural” and “expensive chemicals” (interview 22 November 2012). It is hard to see this phenomenon apolitically, especially since the villagers had been using traditional fertilisers with good results (at least according to the two oldest villagers in the village), and that the influx of Nōkyō products are part of a larger system that encapsulates a larger geographical area: the whole countryside of Japan, but anchored in Tōkyō (Bullock 1997). The national cooperative has institutionalised their services as almost indispensable for farmers all over Japan, which contributes to reinforcing the existing institution. Taking the perspective of North (1991) in this matter and seeing this as a rational and organic development makes us ignore the insights from Hodgson (2006) about how institutions really are heavily power laden structures that are constructed with a purpose – far from being neutral and apolitical constructs. This becomes even more evident when seeing their modus operandi on their webpage⁴⁶ through the framework of institutional thought. There they present themselves as an essential service provider, insurance, “better living guidance” and agrichemicals, something that was presented in section 1.3.4 as well.

The agricultural consultant, who was a permaculture farmer himself and had worked in several satoyama villages, stated that the influence Nōkyō had in the Japanese countryside was detrimental for the communities. The products they sell to farmers through their credit scheme (generating debt) does not leave much choice to villages struggling to make ends meet, as the prices of their produce have gone down in the face of cheaper imports. Nōkyō gets all the upside through increasing its sales, whereas the farmers get all the downside depending on outside outputs to increase yields – but only on the short term, according to the consultant. In fact I learned several farms and villages have been abandoned precisely due to the soil being depleted of its nutrients, and in constant need of artificial fertilisers that the community could no longer afford. As a consequence their crops failed to the extent that they had to give up farming in that area. He explained that it often starts with

⁴⁶ <http://www.zenchu-ja.or.jp/eng/multipurpose> last accessed 10 May 2013.

farmers seeking employment elsewhere to increase their income, becoming part-time farmers. This point is also emphasised by Yamashita (2008), and its implications for a stable supply of food and the upkeep of farmland. Some of the villagers in Tanekura had shifted to part-time because they did not have the endurance required to commit to farming on a full-time basis. They stated that this was when artificial fertilisers first came into question, and consequently the involvement of Nōkyō.

There are arguably few examples this shocking about the consequences of what happens in a system rife with what Taleb (2012) refers to as limited liability through lack of exposure. The central financial branch of Nōkyō is geographically far away from harm that might happen in villages due to the use of their fertilisers and debt obligations. The limited liability is ascribed to the business model of the national cooperative's lack of obligations towards those that buy the agrichemicals sometimes financed with debt from their own banks. They are not exposed to the downsides the farmers encounter when the natural nutrients in the soil are reduced due to synthetic fertilisers or when they default on their loans because their production has gone down. This is fortunately not yet the case in Tanekura, since there are several villagers who still favour of adhering to organic farming principles and since most villagers are loyal to the needs of the village. But the streamlined Nōkyō system cannot be said to contribute to the robustness of such villages through their extensive debt creating credit system and the easily obtainable chemicals. I discussed earlier how these elements could contribute to farmers and their villages becoming more exposed to risk as opposed to relying the resilience present in their communities – for instance through excessive reliance on and exposure to outside factors (prices on fertiliser, interest rates on loans). The breakdown of the necessary redundancies in nature, redundancies that Taleb (2012) enunciates as vital for antifragility and that were exemplified by the WW2-veteran above, might contribute to the increased reliance on planning for optimisation where short term time and labour saving tools such as synthetic fertilisers become increasingly important.

Another development in recent years worth looking into is the increasing centralisation in region, which was lamented by most of the villagers as disruptive for village life. The fact was revealed to me after asking a 77 year old widow the relationship she had to the municipality, upon which she said that the municipality has moved many of the village functions to Hida-Furukawa so they had to travel to town more often than before. Among the expropriated functions are meetings previously

held in the village about permits for arranging local food festivals and changing the crops grown in the village. The latter goes against the established principles the villagers have shifting their crops according to their needs and the expected season. This was highlighted by many of the villagers as a long tradition and something they have practiced since their childhood with their parents, a deeply institutionalised practice upheld by cooperation among the villagers and using their personal experience throughout the year to have a good harvest – stated as one of the most important aspects of the villagers’ lives. Such changes might break up the ‘flow’ of social capital as outlined by Ostrom (1999) and Kovalainen (2005) and contributing to an increased dependency on outside sources of influence, instead of continuing to hone their communal cooperation in these matters – very disruptive for the community.

There is, for instance, a long tradition of celebrating the harvest through honouring the late patriarch of the village with food from the fields and the forest, according to the Buddhist priest. In his opinion, the festival strengthens the already strong bonds in the village. Basing their yearly farming activities on habits and informal knowledge, the villagers also expressed that seasons vary immensely from year to year making formal plans and cost-benefit analyses very out of place in Tanekura. Economic profit is not the goal in Tanekura, there are no stockholders to appease and therefore there are no motives to seek economies of scale. They *have* ‘skin in the game’ as Taleb (2012) referred to it, which means taking risks but also internalising these risks. Production is by the community and for the community. It is therefore difficult to reconcile the North’s view on institutions to overcome the chaotic nature, when it is the chaotic nature that gives satoyama communities their resilience and productivity, as expressed by the railroad engineer:

I have to be ready for anything. But this is the interesting part of farming. You get to experience the chaos and order in nature. [...] I don’t understand why someone wants to disturb that with chemicals.

(Interview with the retired railroad engineer 23 November 2012)

This quote is also a near perfect example of how complex (and chaotic) systems like nature (here represented by organic farming) are better off with simple heuristics for

the sake of antifragility as opposed to disturbing their complexity with compounds that disturb the resilience of the systems. These heuristics might be the locally developed and embedded practices in the satoyama community that have evolved through trial and error (as in section 4.2.2).

4.2.5 The future of satoyama – through the eyes of the community in Tanekura

Having talked about the villagers' perspectives on past and the present in Tanekura, it is only natural to address their outlook on the future. Here, many of the villagers had diverging views, with some being optimistic and several more being slightly pessimistic. With the image of the present situation of both Hida-Furukawa and Tanekura, and the Japanese countryside in mind, this did not strike me as surprising – although the bluntness of some of the villagers was not expected. These 'blunt' villagers gave me the fullest answers when asked about the future, as most simply stated that they hoped that the village would survive – in spite of the daunting outlook for many villages all over Japan.

The old WW2 veteran gave me a dim outlook, where he did not see a bright future for villages like Tanekura, with the many changes that have befallen Tanekura and other villages. The veteran voiced his concern about who will follow in their footsteps:

Fewer and fewer people grow up learning how to farm like my generation. Who would want to go to school for many years to be a farmer for very little money compared to other jobs, I wonder...

(Interview with WW2 veteran 22 November 2012)

His rhetoric question at the end sums up many of the issues connected to the problems I have addressed so far, among them depopulation and what happens with satoyama institutions when villages disappear. Thus an erosion of the accumulated knowledge in the village is inevitable, something that the WW2-veteran was clear about during the interview. Without this social aspect of satoyama, institutions that contain decades of habits that contribute to the community will die out – as institutions are in. As Ostrom (1999) states: “if unused, social capital deteriorates quickly”. The veteran's

statement also points toward the chasm existing between the countryside and the urban regions of Japan, and how those living in cities like Tōkyō and Nagoya perceive the countryside. Considering the points addressed in 4.1.1, viewing satoyama as an time capsule one can visit to take the load off for a short while, seems more plausible today than a critical mass of urbanites wanting to move to the countryside and take up farming or forestry.

I got the impression from the villagers I talked to that those that come to the village do little else than take some pictures, converse a little with some of the villagers (those that are not busy working) before leaving. There might come someone that would move to the village after seeing its qualities, but most of the villagers I spoke to do not see this as a likely scenario due to the high threshold they see for (young) urban residents settling in their village. To me it seemed like they saw different rules for those living in cities and those in villages, comparable to the distinction I made earlier about what one's life revolves around in for instance Tōkyō and in a village like Tanekura. One of my hosts told me that there are in fact many younger individuals and families that seek a more robust life in the countryside, where they are safer in an event of an earthquake than in Tōkyō. The small family I had a conversation with during the house preservation project just outside Hida-Furukawa expressed their fondness of nature and belonging to a small community where their two kids can grow up with the opportunity to play in the forest and to know what nature is “not just pictures in books and something outside of cities” (interview with the couple, 4 November 2012). They had been welcomed by the community with food and help to make the abandoned farmhouse they got for free into a home. The villagers in Tanekura said they would welcome young families in the same manner, and aiding them in growing their own food together with the community. Social capital is ready to be shared, and with good measure, since transferring the knowledge, practices and norms are vital for the survival of these institutions (Hodgson 2006; Ostrom 1999). But so far, this is just an expressed hope from the villagers, as no one has yet to move to the village in the last decade, except for the handyman and the daughter of one of the widows in the village, the latter working outside the village.

Another troubling development that will do little good for the future of satoyama villages and landscapes was expressed by the farmers around Hida-Furukawa who were concerned about many farmers living on debt to make ends meet.

Debt that is provided by Nōkyō along with the whole package of ‘services’ outlined before. “Who would want a life built on debt that never goes away?” one of the farmers asked, also rhetorically, pointing out the high costs and low revenues farmers face today (short interview with a farmer, 5 November 2012). As we have seen, fewer and fewer choose this life now, and possibly even fewer will in the future.

4.2.6 Insights from Takigahara – using the local knowledge

There are, as stated earlier large discrepancies between satoyama regions in Japan. Where some areas possess less capacity for acting upon the challenges faced by the local communities while others have had more resources and therefore come further in acting upon the challenges. The latter was what I observed in Takigahara, where depopulation contributed to the closing of the elementary school as well as the kindergarten in the small town. These two buildings have been turned into a school where the locals and actors from other villages or areas can learn about how to manage satoyama landscapes, create businesses with local resources and more⁴⁷ – without breaking the rules of nature. The interesting bit is that everything is run by the villagers on a voluntary basis, both regards to plans and the projects they initiate – all while not receive any grants from the municipality or other outside players. They actually cooperate with Kanazawa University when it comes to satoyama research in the area, but otherwise it is the community that runs the school by their own volition. As in Tanekura, the local institutions and the knowledge are used and developed in situ, instead of being guided by external actors. The benefits from such an approach were made clear by Ostrom (1999), Taleb (2012) in section 2.2. It can also be considered as an ideal scenario from a political ecological standpoint because it is the local knowledge along with a dialectic understanding of the relationship between nature and man that forms the base of the activities in the satoyama school (Robbins 2012). When it comes to the local resource base, it was actually voiced that there is an abundance of available resources in the area for the community to realise their goals through the plans from the school. Therefore, introducing scarcity into the model in

⁴⁷ There are six branches of the school that cover different aspects of satoyama in Takigahara: Research on biodiversity in the area, business creation based on local resources and knowledge, exchange program with other satoyama areas in Japan, organic farming school, developing new dishes from local produce, and how to rehabilitate satoyama landscapes.

Takigahara would undermine the both the physical and social capacities in the community, something that was apparent in Tanekura as well.

4.3 The outlook for satoyama

It is clear now that there are a large number of factors affecting satoyama in both positive and negative ways, but since this thesis is on a graduate level, I will not be able to tackle all of them. The positive factors have perhaps not been as visible as the negative ones, and admittedly my findings from Hida-Furukawa and Tanekura do not immediately fit the ideal picture seen in 4.1.1, but there are some positive elements as well. These paragraphs will show some of the developments I observed as part of a larger context in Japan – parts of which were foreshadowed earlier.

4.3.1 Increasing fragility in satoyama areas

Taleb (2012) states that an antifragile (or robust) system is often made more fragile when those with “no skin in the game” meddle too much with that system. In section 2.2.4 I explained this as when an actor gets the upside of an arrangement but transfers the downside to others – for instance the way the centralised agricultural cooperative Nōkyō creates a need for external inputs through their counselling service and finances this through their banks throughout Japan (Bullock 1997; Yamashita 2009a, 2009b). They not only get the upside, but they create the entire scheme where the upside/downside relationship is skewed in their favour from the beginning and reinforced through their other services (*sic*) to rural communities - some that were observable in Tanekura as stated in 4.2.4. This is also comparable to Ostrom’s (1999) insights about the weakening of local institutions when the central government or outside actors intervene – benign as the intentions might be. In the case of satoyama, there has been a clear disruption of the institutions that have kept the satoyama or satoyama-like communities alive for centuries. The idea behind fragility/antifragility is that something antifragile benefits from disorder – in this case disorder in nature – while a fragile entity breaks down and needs continuous upkeep of external inputs to

stay alive – like industrialised monoculture farming (Netting 1993; Taleb 2012). One of the main issues in Japan, in this context, is *underuse* of natural resources, therefore the ecoscarcity argument often put forward as a reason for conservation is apparently not applicable in this context, but there is a *constructed* scarcity in effect when it comes what has happened to the satoyama landscapes all over Japan. With this I mean that the disappearance of these culture landscapes, with the consequences it has for the local communities, is not something that has happened organically – the scarcity in satoyama areas comes almost directly from the underutilisation of the Japanese countryside through several decades on economic growth focused around almost everything but the countryside (as outlined in 1.3). According to the professors I spoke to and the farmers around Hida-Furukawa, turning this around is difficult with the limited possibilities the general public see in the rural Japan. Those wanting a life in the countryside as farmers, are met with a market not only dominated by imported goods, but Nōkyō's significant role in that market, as well (recall 1.3.3 and 1.3.4). Furthermore, regulations concerning health and safety have become stricter over the years due to an increasing outbreaks of diseases among livestock and in monocultures – something unheard of in small villages like Tanekura where these factors are not an issue as they do not raise livestock or rely on monocultures. Fragility lies in uniformity not variety, because when one area of a monocrop gets a fungal disease the risk of that disease spreading to the rest of the field is high – to the dismay of the farmer. The representatives of the Satoyama Nature School in Takigahara expressed their worries about the regulations, as they were a clear hindrance in marketing their wild boar meat that has been safe for the villagers. The same wall of legislation was met by the municipality in Hida-Furukawa, when trying to support the launch of products based on local medicinal plants at hot spring spas.

The demographic change in Japan along with continuing urbanisation has left most of the responsibility of maintaining the physical and intangible aspects of satoyama to elderly people. Although many of the villagers I talked to in Tanekura and the farmers in Hida-Furukawa are hard working and in good shape, the fact that there are not enough younger individuals to hand over the knowledge about satoyama to is inescapable. The elderly cannot work as hard as before, so to make farming a little easier, several farmers use artificial fertilisers and pesticides that are extremely easily available by the delivery service Nōkyō provides. Machines are also rented during the sowing season to make ploughing and sowing less cumbersome. These

external inputs are in essence agents of fragility in a relatively antifragile, and at the very least, robust system. The villagers that practiced organic farming were critical of this development, but did not want to disrupt the community by involving themselves too much in the practices of those who used Nōkyō chemicals. But the services Nōkyō provides are almost mandatory for a farmer in Japan, and several farmers stated that people without much prior knowledge of farming are the perfect clients, as they need more external inputs to balance their lack of skills and knowledge. This knowledge gap between the older farmers and those young who are brave enough to follow in their footsteps is thus filled with a continuous dependency on debt, chemicals and the set prices on what they buy produce for. The farmer is exposed to international markets and their fluctuations – far away from his influence, i.e. actors that have no skin in the game, as explained earlier. Furthermore, the introduction of debt makes it necessary to produce a surplus for the sake of profits to pay off the loans – which can be solved with purchasing fertiliser from the one who initially loaned you the money. This arrangement might seem like a rational institution as North (1991) described it – that has evolved organically due to the constraints faced by the farmer – but not when it leads to the disruption of satoyama institutions. Especially considering the negative environmental impact that follows (Duraiappah et al 2012:135-7). Thus, the farmer and his community get the downside, while Nōkyō reaps the upside due to their position. The results are observable in small villages like Tanekura and in rural towns like Hida-Furukawa. That Nōkyō is so well integrated into life on the countryside is not a mere rational coincidence, nor is it (at least in its current form) a desirable arrangement for the farmers – more like a necessary evil in the eyes of many of those I talked to. Many also fear that these increasing commitments to actors from the outside may make them loose focus on the village's needs and what is important for the community.

The aspect of social capital was addressed earlier as a bonding agent in the village, but the concept has a “dark side” through institutions based on coercive structures that might destroy other forms of social capital present in a community (Ostrom 1999). Traces of this is seen in the way Nōkyō has institutionalised its services to (organically) replace the traditional, natural fertilisers. The social capital connected to how compost, oil cakes and rice bran is used is suppressed by inputs that are put forth as labour saving and productivity increasing – according to the consultant I spoke with. Something that is highly debateable when considering the

negative consequences these inputs have for these communities in the long run. Also, increased productivity implies the notion of optimisation for profit, which I explained earlier, does not necessarily translate directly to satoyama communities where cooperation for the sake of the village is more important than optimising production to make a profit. Thus, it can be argued Nōkyō has effectively contributed to the erosion of many of the institutions that contribute to an antifragile or robust life in these villages. The social capital that supported these institutions is, as I stated earlier with reference to Ostrom (1999), not something that grows back by itself – “if unused it deteriorates rapidly” (Ostrom 1999:180). The result, while not necessarily permanent, is an increasing degree of fragility in villages like Tanekura, when people and their institutions disappear and the vacuum that is left behind is filled with centralised policies and arrangements from Nōkyō.

The countryside has had a history of creativity and risk taking in place of the vast amounts of capital and debt available in the big cities of Japan – largely driven by the absence of a regulating body and outside investors. Rather, it was the community and the natural resources that formed the groundwork for the enterprises in the countryside (Fukutake 1980). Their capital was in the soil and in the forests, readily available – whereas now, even the forests are fenced off to prevent wild animals from harming the crops.

4.3.2 More focus on the countryside and satoyama in Japan

The focus on satoyama and sustainability under the label “the Satoyama Initiative” has brought a renewed attention to satoyama in the public realm, with research on the benefits satoyama landscapes have for both humans and the surrounding areas’ biodiversity – and how changes mostly after the 1950s have affected these systems (Duraiappah et al 2012). A short summary of the results were presented in 1.2.4, and while the trend has been clear not much has come from Tōkyō in terms of policies that have satoyama protection as their focus. Most measures are more like “quick fixes” aimed at creating incentives for moving to the countryside and using the land by subsidies, and there is little focus on long term plans (interview with prof. Kohsaka 8 November 2012). Tourism in satoyama areas have been highlighted as a way of reviving the cultural services of satoyama areas, such as traditional cooking,

craftsmanship and production, and has gained a lot of support from the central government because it is thought to create rural jobs and awareness of satoyama values (Duraiappah 2012:45; Moon 1997). This has only had a limited effect if I am to believe what I heard and observed in Tanekura, Hida-Furukawa and Takigahara as well – the focus on tourism does not contribute much to the villages other than some positive attention. The main source of income and support for the livelihoods of the people come from their locales through agricultural production and the use of the forest resources. In Takigahara, this also came from the local quarries, which sold stone to construction projects all over Japan. It can therefore be argued that satoyama tourism will not turn around the urbanisation trend. Rather it might contribute to the view of satoyama landscapes as a romantic varnish of past glory, in need of conservation for the sake of their idiosyncrasies which can function as a ‘ecological myth’ that can be visited for those usually surrounded by concrete and asphalt. Many these projects connected to products and romantic areas risk getting too much attention on the expense of the traditionally robust activities in the areas and communities involved – should they fail, the physical and social capital invested might be lost. The inn in Tanekura can be seen as an example of such a measure, where the locals do not see it as a big contribution to the village other than attracting some visitors. And even though they stated that visitors made the village more ‘alive’, the villagers also stated that they were usually too busy to partake in the operations so outside help was necessary to run the inn when visitors arrive.

I got a different perspective on rural tourism from my hosts (husband and wife), who are part of the satoyama tourism wave – only with a clear idealistic touch wanting to have a more robust life than they could ever have in Tōkyō. To me they stated that wanting to keep the rural lifestyle alive and show to other young people that it is “cool” to live in rural part of Japan and that it is part of maintaining the natural and cultural heritage of Japan. They see themselves as an intermediary between the local stakeholders and potential settlers or visitors from the outside. According to the wife, there are many others like them seeking a life away from big cities, wanting a better life and safety from harm that can be caused from earthquakes that can devastate coastal cities like Tōkyō. My hosts were able to break the aforementioned institutions that kept them in the city and move to the countryside to start a family, and become what I consider positive role models for others wanting to take the plunge. They give a more nuanced outlook on the future of satoyama areas,

as there does indeed exist a fair number of individuals who do not want create a life for themselves in rural Japan⁴⁸ and being a part of the community and the knowledge base – thus not contributing to a degradation of the social capital in the area. Rather, by cooperating with different villages and spreading the specific satoyama knowledge in these places they contribute to reinforce the institutions and spreading them to more people, both crucial components in the survival of institutions and their social capital (Coleman 1999; Hodgson 2006; Ostrom 1999). According to the agricultural consultant I talked to, there are many young, part-time workers who are quitting their jobs and taking up farming several places in Japan – many supported by the local farming communities. In Takigahara, I was told by one of the satoyama school’s teachers that there are many young people wanting to learn the skills they offer at the different school branches and take the skills back to their own communities where these learning opportunities are not present. Such projects might help the transfer the knowledge about traditional agriculture to the younger generation to further the development of the satoyama principles today; indeed this is part of the rationale behind the nature school in Takigahara. Prof. Nakamura, of Kanazawa University told me that he has been in charge of a program in an area further north in Japan aiming to teach satoyama principles and how the relationship between nature and the community is essential to grasp in order to take satoyama forward. There are courses that aim to train younger people so they can use their new knowledge to strengthen their own communities.

Taking these insights further, I hold that focus on satoyama should not be limited to conservation, but developments that take the fundamental changes in the Japanese economy and society into account. Conservation creates inertia and fragility through suppression of the institutional development that have been essential for developing the knowledge and habits in a satoyama. Especially when considering the issues that were addressed in 4.1 about how satoyama can be viewed as a time capsule containing the symbol for Japan as a nature loving country considering the focus it has received in national policies. In Duraiappah et al (2012) a possible development trajectory for satoyama is presented as “Satoyama Renaissance”, where the urbanisation trend turns around as people get tired of life in the concrete metropolis

⁴⁸ <http://foodtank.org/news/2013/04/kosegare-brings-young-people-back-to-japans-farms> accessed 20 April 2013, <http://www.japantimes.co.jp/community/2012/02/25/our-lives/austerity-weve-embraced-it-in-the-countryside/#.UYy47ZVzrFI> accessed 23 October 2012.

wanting to become more self sufficient and lead robust lives. Another interesting aspect is that a decentralisation of government authority is also highlighted as a process that could possibly follow a more dispersed populace where locally oriented, low input production creates a higher degree of self-sufficiency along with stronger communities. Such predictions should be taken with a grain of salt, since most developments observed by the many researchers that have contributed to the book are in fact showing the opposite, in spite of some moving in the right direction (Duraiappah et al 2012).

4.4 Protecting satoyama – insights from economic geography

Being a multifaceted discipline, economic geography may indeed contribute with some interesting perspectives on how satoyama can continue being robust in the future and how the knowledge in the satoyama communities can be.

Acknowledging the fact that there is a false dichotomy between nature and human culture today can be the first step to get rid of false representations of what satoyama is today – as it is shown in political ecology (Robbins 2012). This is closely connected to the insights from institutional economics and the concept of social capital, where locally embedded knowledge and habits are seen as part of continuous and reflexive processes that are place dependant (Hodgson 2006; Kovalainen 2005; Ostrom 1999). It is crucial to acknowledge the value of letting the satoyama culture develop with nature as it always has, rather than conserving the traditional state to preserve what can best be described as a varnish.

Nobody in Tanekura expected to be ‘saved’ by the government or the municipality as they had their own ways of coping with the changes, and they still had productive soil and resources in the forest that they could use to be self-sufficient. Of course, as implied by the place dependency of institutional processes identified by Ostrom (1999), things might be wholly different in other areas of Japan, therefore having a uniform understanding and policy towards the problems facing the satoyama areas undermines the diversity. Variety exists in nature, in how the seasons affect growing conditions and the people present. In Taleb’s words, these complex arrangements can be considered “antifragile”, but are harmed by iatrogenics with too much intervention from the outside (Taleb 2012:117). The iatrogenics I observed

came authorities on one hand seeking to establish increased tourism to satoyama areas without considering the influences such plans might have on the communities. In the case of Tanekura where money was not a key factor in people's lives, an inn was built to attract visitors – but not only does the inn contribute little to the formal economy of the village, the villagers themselves are not able to partake in running the inn due to their age and occupations. On the other hand, Nōkyō also contributes to this through the all-encompassing system they have created in the countryside and that have started to seep into satoyama areas as well – as in I observed in Tanekura. Still, the villagers I spoke to share few attributes with the economic man from the neoclassical school, as they were more concerned with the welfare of the community and their neighbours than optimising their production – they knew that the rest of the community is there, as a safety net should the crops fail or something similar should happen.

Another important contribution from the field of economic geography, albeit through political ecology is keeping the bottom-up perspective where otherwise value-neutral and seemingly apolitical actors are seen in a different light (Benjaminsen and Svarstad 2010; Robbins 2012). Nōkyō is the prime example of this in Hida and Tanekura with their 'natural' position established in the Japanese countryside. I argue that this has played a considerable role in destroying satoyama through exercising their immense political and economic power on both the supply side when it comes to agrochemicals, loans and machinery, and their monopsony on rice and most other grains. This does not cause the existing institutions in a given community to break down and disappear. However, the robustness concerning resource use and the attention to local conditions might be reduced as an ever-greying populace on the countryside (recall that nearly 47% of the farmers are 70 years or older), are unable to tend to the fields as they could when they were younger. This was the case in Tanekura, and seeing the influential role of Nōkyō in the whole of Japan, it can be safely assumed that this goes on elsewhere, this was at least the opinion of the agricultural consultant who had experience with permaculture farming in other parts of Japan. Recalling the insights from Ostrom (1999) and Hayek (1975[1944]) earlier about how excessive central planning can end up creating dependant citizens rather than independent citizens, efforts from municipalities and the central government must take into account the role of Nōkyō and its negative contributions in this context. The institutionalised image of satoyama as picturesque

nature haven with happy farmers does not fit well into the reality I observed, where the substantive economies in villages slowly get swallowed by the formal systems, creating fragility in an originally robust system.

5. Conclusion

At the beginning the thesis I posed the research question: *What are the sources of fragility in satoyama, and how do they affect the embedded antifragility in such areas and communities?* In addition to answering this question, other findings from the analysis will be supplied to add weight to the conclusion. There are many causal relationships, and most of them are opaque to us due to complexities that exist in these socio economic and socio ecological relationships. It is therefore important not to fall into the narrative fallacy trap that Taleb (2010, 2012) warned about.

As I asserted at beginning of the analysis, satoyama areas do exist, albeit in varying forms depending on their geographical location. Considering the far-reaching changes that have occurred in Japan, it would be naïve to believe that satoyama communities have come out unscathed from the upheavals and without influences from outside factors. Antifragile as these landscapes and their inhabitants have been at one period in Japan's history in the form of traditional agricultural practices, I identified a number of sources of fragility that have affected satoyama in different ways.

5.1 Sources of fragility in a satoyama and their effects

The changes that have taken place in rural Japan during the last two centuries, since the Meiji-restoration that was presented in section 1.3, has had fundamental effects on the antifragility of the satoyama communities. Having made use of institutional theories in the analysis, I have looked for the institutional changes and if they contributed to fragilising the robust satoyama practices in rural communities.

One of the strongest sources I identified was the way conventional agriculture with its focus on monocultures, economies of scale and reliance on large inputs of agrichemicals, have made it more challenging for the younger generation to pursue robust farming practices in satoyama areas. Another aspect of this is the knowledge gap that already exists, is the local knowledge and heuristics the elderly have to make a robust living – knowledge that is not easily built up if the elderly disappear before the next generation is there to learn the ropes. This also contributes to the underuse of

satoyama landscapes due to the aging populations that do not have the same capacity to care for the local resources in the same way as before. The underuse of the forests around the Hida region have seen the number of wild boar, bears and deer that can destroy the crops increase. As a solution, the municipality have financed fences in the most exposed areas, fencing out one of the most important elements that have contributed to the antifragility of satoyama communities: the local natural resources in the forests. Thus the uneasy balance in the system is disrupted and further reinforced by the continuing underuse that comes with fencing “dangerous” nature out, not letting people move in and out of the forest as they have for ages to get food, building materials and fuel. As access to the forest have been important for the robustness of many satoyama communities, a disruption of this practice may lead to the deterioration of practices and habits associated with it. This was pointed out in 4.2.1, along with the influences from international markets and their effect on the timber industry in Hida.

In the village I visited, this demographic development has led some of the inhabitants to start using synthetic fertilisers to make farming less strenuous. This leads me to the next source of fragility, which is the institutionalised system created by the national agricultural cooperative Nōkyō. As it was presented in 1.3.4 and later discussed in 4.2.4, its omnipresence in rural Japan make it difficult for any farmer to ignore them even if they live and work in a satoyama. I argued that there is a *conscious* institutionalisation in work at the part of the national cooperative, not an organic development out of rationality. Because they control most of the market for inputs such as synthetic fertilisers, pesticides and farming machinery and large part of the market of rice, the conditions for making a living without being attached to this system is contributing to the fragility. This development was visible in the accounts of many of my informants, some of them being farmers since before the advent of artificial fertilisers and other input factors that now are deemed as necessary. These types of synthetic input factors remove the variety and the natural redundancies in the natural systems satoyama landscapes are based on. The systems are full of volatility that the people living in satoyama areas have used wisely for generations, and by trying to control this volatility with agrichemicals removes this chaos that one informant characterised as necessary for a successful harvest season. As I discussed in 2.2.4 and further in 4.24, this volatility and the need for natural stressors to build up redundancies are vital for staying antifragile. The risk associated with agricultural

production are internalised in the community through the institutions that have been built up to cope with bad harvests through cooperation during production, sharing of the produce – basically helping each other in difficult times. This contradicts the ideas in neoclassical economics discussed in 2.1.2 and 2.1.3, and supports the insights from Ostrom (1999) and Ostrom et al (1999) that were addressed in 2.2.1 and 2.2.2. Upholding the local institutions matters more than profit-optimising, as well as creating future trust through social capital in the village. The economic man from 2.2.1 was nowhere to be found in the community.

In 4.2.3 we saw that the need for debt in satoyamas have traditionally been low, as the need for outside inputs have been low, but development recounted so far indicates that this development in conventional agriculture has affected satoyama communities in a negative way. Through the system of the national cooperative, debt-generating credit is easily available and the repayment of the debts requires profit optimisation, which is challenging in the skewed Japanese market for agricultural produce. Moreover, profit and money has traditionally not been important in a satoyama, and the villagers in Tanekura made it clear that production was for the sake of the village and the community – not for profit. In Takigahara, the picture was slightly different in that there were projects aimed at starting businesses based on local resources in the area, but not on debt.

Another fragilising element exists in the way satoyama landscapes and their inhabitants are viewed as a timeless symbol for the benign relationship between man and nature, which in some cases might be based on misconceptions discussed in section 4.1.1. This has implications for the measures from the central government when it comes to how it supports these areas, where conservation of satoyama culture has been a priority. These conservation measures often highlight the aesthetic values of rural satoyama landscapes with the goal of attracting urban visitors through increased tourism to these areas. What they might overlook is the institutional framework in place, supported by the local habits and practices that have kept the communities alive for many generations that are based on robust agricultural production rather than capitalising on the local scenery, which is arguably a more narrow activity than growing food for the community.

In Tanekura, the inn that was built in an attempt to attract visitors from the outside is not operated on a regular basis, as visitors are far between. When some do arrive, their presence does not contribute much to the economy in the village nor do

the villagers consider it a considerable contribution to village life. Profit optimisation has never been a major issue in the village, as discussed in 4.2.3 and 4.2.4, as the resource base has always been ample in the area. Economisation based on scarcity was not part of the villagers' lives, so money was never of great importance other than for basic amenities and lately also for agrichemicals. Therefore, the villagers in Tanekura are still relatively antifragile since they predominantly rely on their own production and on the community rather than relying on outside factors that might increase the fragility in the community.

5.2 Critical reflections

Looking back on the month of fieldwork I undertook, and the following process of analysing the data along with applying the different theories have taught me a lot of a topic of which I had little prior knowledge. Both institutional economic theories and the ideas from the works Nassim Nicholas Taleb (2010, 2012) have yielded interesting insights into how robust satoyama communities and their practices are affected by the changes that were presented in 1.3. Perspectives from political ecology were important for seeing the political aspects of the Nōkyō-system, and for highlighting the importance of having a local focus in order to see the perspectives of the actors on the ground. Challenging the established concept of scarcity in neoclassical economics is a central part of political ecology that also played a significant part in this thesis, as well as aversion against the logics behind conservation of nature and culture. The strong bond between the villagers in Tanekura and the way they led their lives in spite of the profound changes they have experienced, showed me the importance of this local focus and the understandings it gave me during the course of this thesis.

However, the two meetings I had with the municipal branches could have fared better, as I did not get the opportunity to ask any critical questions to the representatives that could have added more layers to the explanations behind increasing fragility in satoyama areas. The municipal governments in Japan play a significant role in local development.

Ideally, I would like to have visited Tanekura during a different season. For instance during the harvest or the planting season, where I could have observed the

practices and habits in the village directly to get a clearer picture of how the institutions in the village function during more productive periods of the year. Spending more time in the village, and possibly staying there for a longer period of time could have yielded a deeper understanding of why some of the villagers chose to use synthetic fertilisers, and how this was done alongside those that practiced organic farming.

Even though the role of national agricultural cooperative was discussed extensively in the analysis chapter, an interview with representatives from the organisation would have given me the possibility to get their perspective on what role they play in Japan's rural regions and their take on traditional, organic farming practices and satoyama. Learning the rationale behind their practices, which in this thesis was identified as a significant source of fragility, would shed additional light on an important contributor to fragility in satoyamas (Taleb, 2012:9).

5.3 Significance and future challenges

Being a qualitative study that examined many idiographic aspects of satoyama in specific areas, the results are not readily applicable to other robust or antifragile cases and need reinterpretation if they are to be used in other studies, as outlined by Thagaard (2011). The paragraphs above outline possible directions for further research (and not necessarily in Japan) on the matters analysed in this thesis to deepen the understanding of the changes that have taken place in satoyama areas and robust communities in other parts of the world.

Our knowledge of the world is built incrementally, and the knowledge that has been accumulated in these communities for many generations and has made a robust life possible. Satoyama shows us that biodiversity and human sustenance can go hand in hand without destroying our resource base. Letting the insights of the members in these communities fade into oblivion along, while the fragile land use practices of conventional agriculture expand, will have serious implications for the survival of satoyama and other robust communities that contain the solutions for a robust future.

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Appendix – interview guides

The first interview guide was for the villagers in Tanekura. They appear fully phrased to make it easier for my interpreter, but most of them were altered, expanded on and sometimes wholly omitted during the interviews, depending on the informant.

The two other sets of questions were presented to the agricultural and the economic department of the municipality before meeting their representatives on which they prepared a presentation as well as documents and statistics that could be interesting based on the questions they received.

1. Interview guide for the villagers

General questions:

- How old are you, and how long have you/your family lived here in Tanekura?
- What do you do/did you for a living and how long have you been doing it?

Questions about production:

- What do/did you grow/produce?
- Did you do it full time or part time?
- Can you briefly explain the process behind the production?
- What kind of fertilisers do you/did you use?
- Do you use any machinery in the process?
- How much is for your own use? What do you do with that which you don't use yourself?
- How did you learn your skills? Self taught, learned from your family, went to a certain school?
- Could you describe a typical day in your life?
- How do/did you plan for the different seasonal events – sowing, harvest time and such? What makes a successful season in your opinion?
- Where and how do you sell your products? Do you cooperate with others in the village?

Questions about the relationship with “world” outside, the municipality/the region:

- How often do you go to town (per month), and usually for what purpose?
- What can you say about your and the village’s relationship to the municipality?
- How would you describe your relationship to this area?
- Can you tell me about what you think are the most important changes that have happened in the village during the last few years?
- What do you think can be done to make villages like your own even more attractive to people from the outside (like people from urban areas)?

2. Interview guide for the department of economic affairs

General questions:

- Can you explain the main responsibilities of this department?
- What would you describe as the department’s most important task?
- What is your role in the department?
- How long have you worked here?
- What do think is the best part of the job?

The economic situation of this region:

- What are the most important economic activities/industries in this region (manufacturing, agriculture, services)?
- How has the position of the different industries changed over the past decade or so?
- How would you say that the economic difficulties and the demographic challenges in Japan have affected this region?
- Can you explain the national position of this region when it comes to trade, and promotion of the regional industries and products?
- What sort of policies does the municipality have for encouraging local business and entrepreneurship?

- Can you explain the types of policies for attracting people and business to the region?
- What sort of support does the municipality offer to sustainable businesses, or those who wish to start a sustainable business?
- How successful have these policies been?

In conclusion:

- When looking ahead, what would you say are the biggest economic challenges for the region?
- Is there anything you would like to add?

3. Interview guide for the agricultural department

General questions:

- Can you explain the main responsibilities of this department?
- What would you say is the most important task(s) of this department?
- What is your role in the department?
- How long have you worked here?
- What do you think is the most interesting part of your job?

Agricultural policies and the relationship with satoyama:

- What are the central policies towards satoyama villages and their communities? Is the focus on increased integration with the rest of the region or more self-sufficiency?
- How does the municipality promote sustainability through these policies?
- In what way do these communities contribute to the regional agricultural economy?
- Around how many villages are there in this area and how many acres of land are we talking about?
- Are there actions taken toward preserving the traditional knowledge in these communities? What kind of actions?

- Can you tell me about the self-sufficiency rate of the region? Is increasing the self-sufficiency a goal, or is there more focus on more integration with the rest of the nation? If so, how are these issues addressed by the municipality?
- What are the most significant changes that have taken place in the region in the last decade or so?

Closing questions:

- What would you say are the biggest challenges for the region in terms of agriculture and sustainability?
- How is your outlook on the future of satoyama areas and communities?
- Is there anything you would like to add?