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Coordinating for life.
Success and failure of Western European societies in coping with rural hazards and disasters, 1300-1800

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Project summary

Societies in past and present are regularly confronted with major hazards, which sometimes have disastrous effects. Some societies are successful in preventing these effects and buffering threats, or they recover quickly, while others prove highly vulnerable. Why is this?

Increasingly it is clear that disasters are not merely natural events, and also that wealth and technology alone are not adequate to prevent them. Rather, hazards and disasters are social occurrences as well, and they form a tough test for the organizational capacities of a society, both in mitigation and recovery. This project targets a main element of this capacity, namely: the way societies have organized the exchange, allocation and use of resources. It aims to explain why some societies do well in preventing or remedying disasters through these institutional arrangements and others not.

In order to do so, this project analyses four key variables: the mix of coordination systems available within that society, its degree of autarky, economic equity and political equality. The recent literature on historical and present-day disasters suggests these factors as possible causes of success or failure of institutional arrangements in their confrontation with hazards, but their discussion remains largely descriptive and they have never been systematically analyzed.

This research project offers such a systematic investigation, using rural societies in Western Europe in the period 1300-1800 - with their variety of socio-economic characteristics - as a testing ground. The historical perspective enables us to compare widely differing cases, also over the long run, and to test for the variables chosen, in order to isolate the determining factors in the resilience of different societies. By using the opportunities offered by history in this way, we will increase our insight into the relative performance of societies and gain a better understanding of a critical determinant of human wellbeing.

Coordinating for life. Success and failure of Western European societies in coping with rural hazards and disasters, 1300-1800

PART I PROBLEM STATEMENT, OBJECTIVES AND HYPOTHESES

I.1 The issue, research question and approach

The precariousness of human life is highlighted, perhaps most clearly, during hazards and disasters. Throughout its history mankind has struggled with the scourges of famine, flood, the sword and pestilence. Western European history offers many telling examples of disasters, such as the crop failures and ensuing Great Famine of 1315-1322, which claimed millions of lives, or the All Saints Flood of 1570, causing inundations all along the North Sea coast, from France to Denmark. Other disasters were man-made, such as the Thirty Years' War, which brought havoc to Germany and caused the death of immense numbers of people and livestock.

The impact of these disasters – defined here as major calamitous events causing significant destruction or loss of life – varied greatly between different regions, even in cases where the degree of the hazard or threat was actually quite similar. While, for instance, several parts of France, the Netherlands and Germany in the 18th century experienced severe soil erosion and the loss of agricultural potential as fertile topsoils were washed or blown away, neighbouring areas that had equally fragile soils were able to prevent this (see below, WP4). Similar differences can be observed between societies confronted with crop failure, where some successfully managed to prevent widespread famine, or even eradicated famine altogether, as England did in the course of the early modern period, while others were hit hard and saw many die from hunger (WP3). Differences are apparent not only in the prevention of disasters, but also in the recovery of societies once they had occurred. For instance, some regions devastated by war recovered quickly and regained their previous levels of wealth within only a few years, while others sank into a deep, long-run depression, as observed in many parts of early modern Germany (WP6).

This project investigates the societal causes of these differences. It aim is to determine why some societies – the resilient ones – were able to buffer hazardous events and prevent them from developing into disasters, or – if a disaster could not be prevented – responded well, mitigated its effects and enabled a quick recovery of their economy and society, while other societies were far more vulnerable and unable to cope, leading to greater numbers of casualties, more extensive loss of capital goods or economic stagnation. In order to understand these differences, we will look at the differences in the organizational capabilities of various societies. More specifically, the project aims to disentangle the relevant formal and informal institutional arrangements available within those societies – and more specifically those organizing the exchange, allocation and use of resources – and analyse how these were formed, maintained and employed in the face of hazards and disasters.

This project starts from the observation that these institutions were not, or at least not always, formed as the automatic and logical response of societies to these threats, since they often also served other functions or were geared towards the interests of particular groups within society (section I.3). The differences in the quality of these institutions, and in their success or failure in enhancing a society's resilience, can therefore only be understood from the different contexts in which these institutions were developed and implemented, i.e.: within different coordination systems, including the market and the state, and within

different political and social contexts. Whether this is indeed the case, which elements are crucial, and how this works, has never been systematically investigated. This project will do so, by testing a set of four hypotheses, which each pertain to one crucial aspect of the context in which the institutions were formed and used (sections II.1 and II.2). These hypotheses will be tested in a long-run, comparative analysis, which covers the period 1300-1800 and uses rural localities with different characteristics, situated within six Western European regions, as test cases.

This approach will enable the project to break new ground. It will take a next step, from the descriptive and often eclectic discussion of individual disasters that has been dominant so far, to *systematically investigating the main determinants of societies' resilience*. By using the wealth of data offered by history - hardly employed in the field of disaster studies as yet - in combination with a set of hypotheses to be tested within a comparative framework, this will open the way for us to arrive at explanations, instead of descriptions or intuitive reasoning.

I.2 The current state of research

Over the past decades, researchers have become much more interested in natural and human disasters, under the influence of the growing interest in sustainability issues and the perceived or real increase in the vulnerability of present-day societies (UNDP, 2004; Blaikie et al., 1997: 30-45). The large numbers of studies produced by natural scientists, biologists and geographers have traditionally focused on the physical or biological causes of the hazards and disasters and on a description of their effects, that is, they focus almost entirely on the nature of the event itself. Recently, however, scholars have moved away from the idea that disasters are purely physical, unpredictable and almost unavoidable, and have come to view them instead as occurring through an interaction between exogenous forces and hazards, which pose the initial threat, and the resilience or lack thereof in different human societies (Tierney, 2007). The occurrence and consequential impact of disasters, therefore, is at least in part determined by the qualities and strength of the society that they strike. Many of the studies that employ this perspective are looking for these qualities mainly in the fields of technology and physical infrastructure. In doing so, they – often implicitly – attach great importance to the availability of wealth and material resources, since these enable a society to create technology, and to employ it in order to cope with hazards and the ensuing disasters.

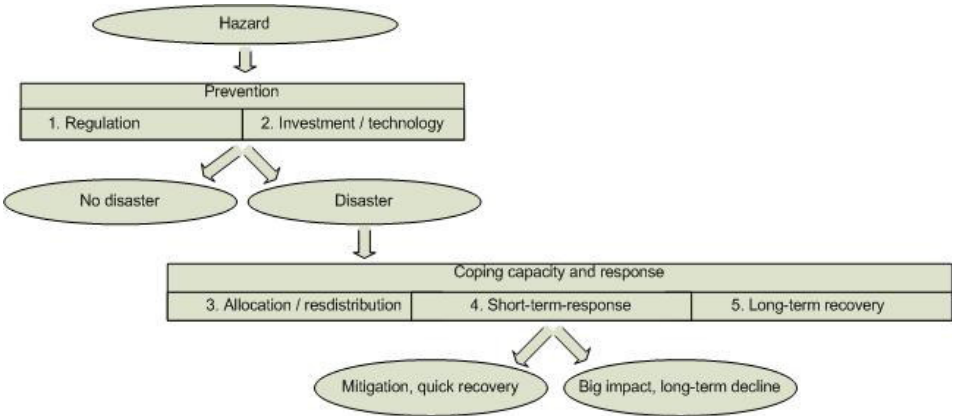
This assumption has, however, in turn been undermined in recent years. It is becoming increasingly *evident that material aspects are not decisive in this respect, and certainly not exclusively so*. Various recent examples, including hurricane Katrina in 2005 and the nuclear disaster at Fukushima in 2011, show that technology and wealth in themselves are not sufficient to prepare for hazardous events, to buffer their impact or to react in an adequate way. These recent disasters took place in the wealthiest and technologically most advanced societies in the world, which proved unable to respond well. Trust in technology as the prime solution is waning; technological solutions can even increase risks, as demonstrated by the growing number of technology-induced disasters.

Following these insights, economists and geographers increasingly suggest that knowledge, technology and wealth as such are not decisive, but that rather the key factor is the institutional framework that channels their use to make a long-run difference to a society's resilience (cf. pioneering work by Ostrom, 1990). Sociologists, within the new sub-fields of disaster sociology and environmental sociology, and scholars in development studies, have even more clearly adopted this promising line of thinking and have come to view *disasters more as social rather than physical-natural occurrences*. They point to the crucial role of institutional systems in coping with hazards and preventing disaster, or in finding responses to it in the short and long run, or a society's inability to do so (Tierney, 2007; an early example: Blaikie et al., 1997).

The literature so far has been, however, mainly characterized by statements, general discussions or descriptive examples of the role of institutional systems in resilience Furthermore, the historical literature on disasters has been mainly focused on the 'cultural responses' to them, or the 'societal perceptions', sometimes with a religious theme (Schenk, 2007). As a result, *a systematic approach that would allow us to find institutional and societal explanations for resilience or vulnerability has yet to emerge*. This project proposes to offer such an approach by utilising the research opportunities that are offered by history for a long-run, systematic analysis. This programme will supersede the more descriptive studies of separate events, both contemporary and historical, and identify the fundamental mechanisms at work (cf. innovation, section IV.1). This will be possible by employing the wealth of historical cases and analyzing them within a robust comparative framework. The clear differences in the impact of historical shocks, and the different responses to them offer ample material for making such a comparison. These opportunities have hardly been used as yet. In recent times, the history of disasters has developed into a serious and thriving sub-field of history, and many events are increasingly better investigated, yet the work still tends to be descriptive in nature and most historical studies continue to treat disasters as separate events (observation by Lübken & Mauch, 2011). Even the thought-provoking, recent book by Jared Diamond (Collapse: 2011), is a series of case studies, not a systematic analysis. An explanation as to why some societies are able to develop more successful arrangements and are more resilient in the face of hazards than others, is still missing. This project wants to find the explanation. In order to do so, I will first zoom in more closely on the relevant institutional arrangements.

I.3 An institutional approach to hazards and disasters

There are several ways in which institutions, and the way they are applied, determine the capacity of a society to find viable solutions to threats or to cope successfully with disasters. Schematically, and not exhaustively, the groups of relevant institutional factors and the fields work they operate are: [1] regulation in order to prevent disasters from occurring in the first place or to limit their effects; [2] institutional stimuli for investments in technology helping to prevent or alleviate disasters; [3] the improvement of market institutions or redistributive measures that facilitate an efficient allocation of resources and the alleviation of disaster; [4] institutional stimuli for rapidly finding and implementing short-term responses; [5] institutional stimuli for long-term recovery. These institutional clusters (represented in the figure below) are taken as the basis for organizing the proposed research project (cf. section III.3: WP2-6).



In looking at these institutional clusters, the project focuses on the material losses (in lives, capital, agricultural potential or wealth), and the prevention of these losses, not on the perception of disasters and the way cultures mentally coped with them. The latter is the field where over the past years substantial progress has been made (Schenk, 2007; e.g., Rohr, 2007: 32-65), but for the material aspects a systematic historical investigation is lacking most conspicuously. The institutions it aims to investigate are formal ones (laws,

property rights, regulations, rules of exchange), but it will also include the informal ones (values, religious beliefs, customs and the associated networks), at least to the extent that they influenced the practical outcome (Nee & Ingram, 1998). This is also the point where the project aims to make a meaningful connection to the perception of disasters, insofar as these perceptions influenced the formulation and application of institutions aimed at combating the material risks and losses incurred.

To be sure: the relevant institutions are not only those that were specifically formed in order to prevent or combat disasters, but rather the whole of the institutional toolkit of the respective societies. Included among them are the institutions which organized the exchange, allocation and use of resources more generally, for instance those structuring market exchange, since they at least indirectly, but often also directly, affected the capacity of societies to prevent disaster or to recover quickly (Bankoff, 2003). In that case, these institutions fulfilled multiple goals and were not necessarily geared best towards enhancing a society's resilience. Moreover, although some institutions were in part shaped in response to economic or ecological challenges, they were also formed by social bargaining, and dictated by the interests and preferences of persons and social groups (Nee & Ingram, 1998; Ogilvie, 2007). In this respect, too, they were not always optimally efficient or rational, and they clearly differed from society to society. Similarly, the application and use of these institutions is also influenced, or even determined, by their social contexts: who is using these institutions and for what purpose? Particular interests may have caused people or groups to divert from formal rules or norms, or to not properly enforce them. Along these lines, the premise of the project is that, in order to explain the success or failure of societies in coping with hazards and disasters, we need to look at the context in which the relevant institutions were formed and applied.

Therefore, the project will survey the wider systems in which the institutional arrangements are embedded (next section) and the social and political context in which they are formed and applied (section II.2). This survey enables us to identify four key variables in the success or failure of institutional arrangements in generating maximum resilience, to be developed into concomitant hypotheses, which will be tested in the project.

PART II METHODOLOGY: THE HYPOTHESES

II.1 Hypotheses 1 and 2: institutional arrangements and coordination systems

The relevant institutions did not function in isolation, but were developed and applied within different coordination systems; the larger systems that coordinate and regulate economic activities, like the market as within a market economy, or the state, communities, associations or (religious) organisations, or a mix of them. Over time, these coordination systems varied hugely in scale and scope. In the 13th century, in Western Europe the challenge of providing adequate food, water and other resources, and of coping with all possible challenges and disasters, was mainly the responsibility of small, almost autarkic communities. These could organise property, exchange and allocation among the small numbers of people involved. The then dominant systems for the coordination of exchange and allocation, like the village community, were comprehensive systems, often also aimed at serving simultaneously social, cultural and / or religious goals, and aimed at reducing risks and negative side-effects of human activities within their own, small locality.

The following period saw the rise of two new allocation systems - the state and the market. They emerged in some parts of Western Europe in the 11th/12th centuries, in others a few centuries later, and in a slow and protracted process they further gained in importance in the course of the late Middle Ages and early modern period (van Bavel, 2007). The rise of the market offered new opportunities for exchange, but it also reduced possibilities for local coordination and entailed only weak incentives to control negative externalities. Both the rise of the market and that of the state broke the localized links between economic actions and consequences, which may have led to the neglect of protective measures, for instance. Their rise, and the associated decline of autarky, could therefore heighten a society's vulnerability. On the other hand, the market could enhance the flexibility of exchange and allocation of resources from wider areas and stimulate investments from a bigger pool of capital. The state could support this role, and additionally create instruments for redistribution and relief systems, spreading risks and buffering hazards. Neither did the previous, autarkic systems automatically increase resilience, as argued by Jared Diamond for the extreme case of Easter Island, for instance (2011: 79-119, although not undisputed). The effect of autarky on the functioning and quality of the institutional framework, therefore, is not self-evident and now requires further investigation. The role of this variable (measured as the share of goods, land, labour and capital exchanged between parties *within* the locality) will be tested in the project by way of this hypothesis:

H1: A high degree of autarky exerts positive effects on the capacity of its institutions to cope with hazards and disasters.

A next observation is that the different coordination systems, and the institutions embedded within them, could each exert positive or negative effects on a society's resilience. With respect to the role of the market, Karl Gunnar Persson in his investigation of the grain markets of early modern Europe shows, for instance, how grain trade could either lead to the calming of output shocks and the eradication of famine through the integration of well-functioning grain markets, or to the aggravation of their effects, as a result of segmentation of markets, monopolization or market failure (Persson, 1999; also WP3).

The influence of the state in a society's resilience and coping capacity, exerted mainly through legislation, taxation and redistribution, could equally be positive or negative. During the mid-19th century potato famines in Northwestern Europe, national and provincial poor relief systems, emigration schemes and state trade policies in Belgium and Westphalia were able to either prevent or at least mitigate famine, but in Ireland the crisis was actually exacerbated by British state policies (Ó Gráda et al., 2007: chapters by Gray and Vanhaute). States in some cases stimulated investment in relevant technology and infrastructure, created instruments for redistribution and relief systems, and enforced legislation and

regulation to promote the resilience of societies, as in fighting soil erosion (WP4), for instance. In other cases, however, governments and public authorities, when confronted with hazards, failed because of corruption, inertia and inefficient bureaucratic processes, while public policies often also appear to have had unintended, negative effects, especially when aimed at quick wins and special interests, instead of long-term security (Tierney, 2007).

In between the state and the market, all kinds of communities and associations could be active, including village communities, guilds, charitable and religious organizations, kinship organizations, cooperatives and commons. Whereas in market economies exclusive property rights in private hands prevail, associations rather have communal rights or collective goods, and they often use informal institutions, like trust or reputation, and networks (Ostrom, 1990). Just like the state and the market, their effect on the resilience of a society was a widely varying one, as is reflected in the fierce debate on the role of the commons in the depletion or protection of shared resources, with Garrett Hardin and Elinor Ostrom as main protagonists. To a large extent, the effect of the commons on the prevention or mitigation of hazards, such as the overexploitation and erosion of pasture lands, or their failure to do so, depended on their exact institutional organization and context (a case study: de Moor, 2009).

The respective role of markets, states and associations in resilience could therefore vary greatly, from a positive to a negative one, but this project wants to explain *why* this role is so varying. What were the decisive elements in their success or failure? In order to arrive at explanations, the project formulates a next hypothesis. Being dependent on a single coordination system seems risky for any given society. The historical examples suggest that a combination of coordination systems generally worked better for a society's resilience. Returning to the example of the 19th-century potato crisis, now one of the best investigated historical cases thanks to the recent comparative study by Ó Gráda and others (2007), it seems that Flanders' population benefited from the fact that state relief systems were complemented by communal, charitable and religious organizations and social networks, which enabled people there to survive, whereas in Ireland these were weak and people had to rely almost fully on the policies of an unwilling state (Vanhaute, 2007). A variation of coordination systems (as measured by the spread of goods, land, labour and capital exchanged over the different systems) seems to have offered more flexibility and freedom of choice for all actors in exchanging and allocating, and to have lent them more agency in withstanding hazards and coping with disasters, with a positive effect on a society's resilience (for measuring this: section III.2). This is tested by way of the following hypothesis:

H2: A society's resilience is improved by a combination of several coordination systems, rather than the superiority of one or another of these systems.

II.1 Hypotheses 3 and 4: institutional arrangements and their social and political context

The second set of hypotheses can be formulated by looking closer at the social and political context, and by asking who is developing, using and enforcing these institutions and to what end? Amartya Sen, using the Bengal famine of 1943 as one of his case studies, focuses on the claims or entitlements people had on food and other commodities, and on their distributional effects, either preventing famines or causing them, with food often being drained from those areas and from people who needed the food most but were unable to pay for it (Sen, 1988; for exclusion of groups: Jörg, 2008: 318-357). In societies characterised by high inequality, others argue, the opportunities for the poorer segments to influence institutional arrangements will be limited and shocks will hit these segments relatively hard. Even minor shocks can push these vulnerable groups over the edge (Blaikie et al., 1997: 46-61). The same reasoning is applied to the role of political systems, as with the claim that a more democratic or accountable state will likely fulfil a more positive role in the prevention of famine (Ó Gráda, 2009: 229-258). The argument that the relevant institutions, and their

outcomes, are shaped by disparities in political power and property, is pressed even more persuasively by Ted Steinberg (2000). He – almost polemically - argues that natural disasters in American history not only hit the poorer segments of the population disproportionately, but also were far more destructive than would have been necessary, as a result of institutions and decision-making skewed to the interests of the wealthy.

With respect to protection from floods, however, the opinions are more mixed. Some authors would claim that absolutist kings or rulers organized management, protection and relief effectively, also because of their desire to portray themselves as protective stewards. This may be argued for early modern France or for northern Germany, where princes assumed a more prominent role after the disastrous flood of 1717 (Jakubowski-Tiessen, 1992). Others have, on the contrary, discussed cases where the organization of water management became dysfunctional as the decision-making process became concentrated into only a few hands. A prominent case is coastal Flanders, where in the course of the late Middle Ages land was accumulated by urban investors who were interested in economic gains, and not necessarily in sustaining an expensive water management infrastructure, while at the same time the land users and local inhabitants became excluded from the decision-making processes, elements which negatively affected the institutional arrangements and their effects (Soens, 2009; also WP2). As a result, Soens argues, this coastal society was regularly hit by floods and loss of land, despite the availability of wealth and technology.

The importance of the social context is also discussed in relation to the responses to the Black Death in 1348-1350. Areas characterized by a high degree of freedom and self-organization of people, and a well-balanced distribution of power and property between social groups, such as the Low Countries, saw this pandemic being followed by a growing competition for wage labourers, rising wages and the development of dynamic labour markets. In contrast, areas where noble or patrician large landowners were predominant, both in property and in political leverage, such as Italy, parts of Germany and initially England, saw the same disaster being followed by legislation and measures taken in order to freeze wages or even coerce labourers (Cohn, 2007; also WP6). In the longer run, a fairly rapid demographic recovery can be observed in those regions where broad groups had direct access to land and resources by way of property and inheritance systems, while in other regions, where this access was much more unequal, the population remained low for many centuries even up to the 18th century (a comparative test: van Bavel, 2002).

Most of these studies suggest that social equality, or a balance between individuals and social groups, generates the institutional arrangements that enhance the resilience of a society (also: van Bavel & Thoen, 2012). This idea, however, mostly remains intuitive or at best it is described for separate cases, but it has not been made operational and tested in a systematic, comparative way. Does it hold, under what circumstances, and how does it work exactly? What are the crucial elements? In order to answer these questions, the project disaggregates the concept of equality into two main elements: a political and an economic one. This will make the idea of social context more defined, allows us to quantify it (especially the economic element, by way of distribution and inequality measures) and offers us the opportunity to make the emphasis on social context testable, by way of two hypotheses:

H3: Political equality in the polity where the relevant institutions are made, through a high degree of political participation and representation, increases the coping capacity of a society's institutions.

H4: Equal opportunities in access to material resources and an equitable distribution of property generate the institutions that reinforce a society's coping capacity

These hypotheses will allow us to test whether the increased agency of broad groups of people – politically or economically – indeed had a positive effect on the institutional

arrangements used against the threats of hazards and disasters. Together, the four hypotheses, which are each centred round a key variable in success or failure, will be tested through a comparative analysis of concrete, historical cases, as developed in the next part.

PART III METHODOLOGY: CASES, METHODS AND WORK PACKAGES

III.1 The testing ground: selected regions in Western Europe from c. 1300 to 1800

The project will test these hypotheses through a *within-region* comparison. It will compare groups of rural localities that differ in a limited number of variables, situated within a region which is homogenous in soil and other characteristics, and which is confronted with one particular hazard. This within-region test can be repeated for several regions, which enables us to keep the number of relevant variables limited each time, while still a full range of characteristics is analysed. These tests will be complemented with a comparison *between regions*, in order to better capture the variables at work at the macro-level.

In its research design, the project makes use of one of the peculiarities of the Western European countryside in the pre-industrial period: the presence of a multitude of regions each had its specific soil, landscape, landownership structures, and agrarian and social organisation, and in these respects formed a fairly homogenous unity (van Bavel, 2010: 15-27 and 380-397). This regional variety is most clearly observed in the countryside, much more than in the towns, and it often persisted into the 19th century, in the form of what could be labelled regional "social agro-systems" (Thoen, 2004). In many cases, these regions can be clearly identified and demarcated, because of their marked differences, which often existed even between neighbouring regions. An example is inland Flanders with its infertile soils, characterised by small-scale property in the hands of peasants, who by way of intensive agriculture, cash crops and proto-industrial activities tried to survive in a balance between markets and subsistence-orientation, versus neighbouring coastal Flanders with its sea clay soils, dominated by large landownership and big tenant farmers, who concentrated on large-scale agriculture and fully oriented their production towards the market (Thoen, 2004; van Bavel, 2010).

The project uses *six of these regions* for the within-region and between-region comparisons. They are located rather closely together but each possessed different characteristics. Moreover, they are all blessed with the required source material. The regions selected are: Norfolk, Picardy, coastal Flanders, inland Flanders, Holland and Münsterland. This selection includes coastal and inland regions; regions with fertile and infertile soils; peasant-dominated regions with strong peasant associations; proto-industrialised peasant societies; agrarian capitalist ones; and ones undergoing a rapid transition to the latter. Some regions were fairly autarkic, while others were highly commercialised and deeply involved in markets. Also, these regions were part of different political organisations at the macro-level: Norfolk as part of a centralised kingdom, Picardy as part of a composite monarchy, the regions in the Low Countries as part of a collection or federacy of principalities with strong urban influence, and Münsterland as part of an ecclesiastical principality with decentralised lordly influence.

The chosen research design makes use of this constellation along three lines:

1) The six regions were fairly *homogenous* in climate, landscape, soil, landownership structure, agrarian development and socio-economic development, while they were each part of the same polity or state, and mostly shared the same religion. This allows for a within-region comparison between localities that held many variables in common, and were confronted with the same hazard, and thus offer relatively stable background conditions, while they *differed in a limited number of variables*, allowing us to select those cases most-suited to perform an effective test of the various hypotheses (i.e., groups of localities showing variations in those variables we want to test for). The project thus makes use of the homogeneity of the regions plus the more limited differences between the localities within those regions.

2) The six regions were each fairly homogenous but *differed between them* in climate, landscape, soil, landownership structure, agrarian development, socio-economic

development, polity and religion. This allows us to *repeat and perform the within-region test* described under 1) several times for different regions and thus *to capture and test for different variables at each time*. To this end, we will select for the test those regions where a particular hazard occurred in its most acute form (e.g., Norfolk, coastal Flanders and Holland for storm surges). The project thus makes use of the differences between the homogenous regions plus the more limited differences between the localities within those regions and the fact that within each region they were confronted with the same hazard.

3) The six regions were fairly homogenous but differed between them differed in climate, landscape, soil, landownership structure, agrarian development, socio-economic development, polity and religion. This allows for a *between-region comparison* in order to capture the variables working at the macro-level.

The end-limit of this investigation is set at 1800. In part this is an arbitrary choice, since this year did not mark a sharp, fundamental break, even though there was an acceleration in technological progress and the growing role of markets and states. These modern developments did not automatically prevent disasters, as evidenced for instance by the catastrophic famines in Ireland and Flanders in the years 1845-1850 (Ó Gráda et al., 2007). We do observe, however, that Western Europe in the course of the 19th century gradually overcame most risks, also by shifting negative externalities to societies overseas. Moreover, the choice to terminate the investigation at 1800 is made for practical reasons, in order to limit the work load and guarantee the feasibility of the project, also in view of the fact that the expertise of the PI and the Utrecht research group is especially in pre-industrial history (cf. section IV.3). This is where most progress can be made and where the competitive edge of the PI is located.

These cases from Western Europe between c. 1300 and 1800 offer the laboratory for investigating the role of institutional arrangements in the coping capacity of societies and identifying the underlying causes of their success: at a general, macro-level by comparing between the regions, but more importantly between localities within these regions. Moreover, the regions chosen offer heuristic advantages and opportunities, as the sources and data for investigating the whole period, including the medieval part, are available to a relatively large degree (cf. III.4), which allows us to employ the long-term perspective needed for understanding these slow, protracted processes. The use of this relatively limited number of regions for all WPs enhances the interaction within the project and enables the researchers to benefit from each other's work. Also, research into these regions is developed far enough to permit answers to these bigger questions, since many of the building blocks are already available and the academic networks for this type of comparative research already exist (cf. also IV.4: international collaboration). These regions are not chosen because it is assumed that developments in Western Europe can be used as a shining example or a blueprint to be applied elsewhere. Rather than taking Western Europe as a whole, and celebrating its achievements and successes, this project will focus on the differences within this area, and on explaining successes *and* failures.

III.2 Qualitative and quantitative methods

The work packages are structured on the basis of the institutional clusters relevant to the resilience of societies (identified in I.2), that is: regulation aimed at prevention, institutions conducive to investment, institutions enabling allocation/redistribution, those stimulating short-term responses and those fostering long-term recovery. The work packages (defined below in III.3, WP2-6) *each focus on one type of hazard / disaster*, which is selected on the basis of the opportunity it offers to *analyse the functioning of one or two specific clusters of institutions*. For instance, the hazard of storm surges is most suited to investigate the functioning of institutions aimed at prevention (WP2). Each of the work packages will analyse the effect of the four variables which are hypothesized to determine the success or failure of these institutions (H1-4, formulated in sections II.1 and II.2), that is: its degree of economic autarky, the mix of coordination systems available within a society, the degree of economic equality, political representation, and degree of wealth. Each work package,

therefore, tests all four hypotheses, guaranteeing the coherence and interaction within the project.

The test will be performed by comparing different rural localities within a region in their confrontation with the one type of hazard/disaster, in order to contrast their ways of dealing with this challenge and analyse their different responses and the effects. Where possible, the same hazard/disaster will be chosen, in order to rule out the differences in the impact as a result of differences in the intensity and scale of the hazard itself. If not possible, the differences in the scale and intensity of the hazard will have to be included in the analysis. The comparison itself requires an in-depth analysis of the processes on the ground. In each work package, localities within two or three regions will be used as test cases, with the regions chosen according to their relevance vis-à-vis that specific type of hazard or disaster (cf. below III.3). The analysis will be complemented by a more general comparison between these regions, in order to analyse the effect of the variables at work at a bigger, regional level.

The identification of correlations and the testing of the hypotheses are undertaken by *a combination of qualitative and quantitative analyses*. On the one hand, classical, heuristic and empirical skills are needed, in order to unveil the functioning of the relevant arrangements in particular. This also requires an investigation of the archives and the edited sources (cf. III.4), in order to reconstruct what relevant institutions were available and how they were used. These institutions include formal ones (laws, by-laws, property rights, regulations, rules of exchange) that are relatively easy to detect in the sources, but we will also try and include the informal ones (values, religious beliefs, customs and the associated networks). This qualitative analysis will be combined with quantification, where possible, of both the variables and the outcomes. In order to measure the impact, various indicators will be used, to be selected in accordance with the nature of the hazard or disaster, including: numbers of lives lost, extent of destruction of capital goods, extreme price rises, reduction of agricultural output, or the loss or degradation of agricultural land. Measures of the success of the long-run responses are whether a society can recoup the loss of land, labour or capital, regain its previous levels of welfare combined with a similar social spread of wealth, or even exceed them, and increase its capacity to withstand a repetition or another hazardous event. Comparing the cases, also taking the differences in the force of the hazard into account, makes it possible to establish the degree of success of the various types of arrangements.

Much progress can be made by quantifying developments. Although the data are available (cf. the description of sources: III.4), *the opportunities to analyse datasets systematically*, in order to establish patterns or correlations, *have hardly been used yet*. In order to employ this opportunity, where possible through the application of statistical methods, the team members in the project will jointly build databases containing the quantitative material on the hazards/disasters investigated (cf. the indicators mentioned above), an endeavour coordinated by a postdoctoral researcher with quantitative skills (cf. WP3).

The datasets will help establishing both the number and magnitude of disasters hitting the selected localities, and their capacity to recover from them, that is, the outcomes that need to be explained. The next step will be a qualitative analysis of the causality (cf. also below WP2-6), by way of micro studies. For instance, clusters of more market-oriented localities in Münsterland will be compared with more autarkic ones there, in order to assess where the institutional arrangements were better able to cope with damages of the Thirty Years War and to bounce back more quickly, and why (test of H1 in WP6). We will compare clusters of villages and polders in coastal Flanders and Holland where the distribution of political and decision-making power over the actors was fairly even to those where it was uneven, in order to see how this affected the institutions in question, and what the effect was on the capacity to cope with the 15th-century storm surges (test of H3 in WP2). Similarly, localities in Picardy with an equitable distribution of resources will be compared to some where this distribution was highly unequal, in order to analyse whether this affected the institutions

used in the face of erosion of fragile soils in the 18th century (test of H4 in WP4). How did the distribution of wealth affect the way the relevant institutions were used and applied? If localities where property was more unevenly distributed turn out to have been better able to develop and enforce the regulation needed to prevent erosion, this would be an effective falsification of H4.

Next to this, also an inductive approach will be applied. Within each region the localities will be identified that were relatively hard hit and they will be contrasted with those that were only mildly hit, in order to assess whether these displayed any significant differences in one of the variables to be tested for, and why. The results of the deductive and inductive methods will supplement each other, and be complemented with the between-region test at the macro-level, and will allow for an effective test of the hypotheses.

III.3 The work packages

The research is organized within seven work packages. Two more general ones are scheduled at the beginning and the end of the project, and guarantee its successful start and finalization, while five specific ones (WP2-6) each centre round one type of hazard and form the heart of the project. These WP's share the comparative approach, the variables/hypotheses to be tested and the focus on institutional arrangements. This, and the shared design of the research, ensures the optimal academic and practical interaction between the sub-projects and the researchers involved. Intensive collaboration and exchange of ideas will be vital to the proposed project. Regions and time frames of the separate WP's are chosen for their relevance with respect to the hazard investigated and the availability of source material (cf. III.4).

WP1 Strengthening the foundations: delving into the cases and building datasets (Months 1>6). This relatively small work package, scheduled at the beginning of the project, will fine tune the case selection for the comparative tests, start analysing the cases and make the first step in building the project's databases (cf. sections III.2). In doing so, it will solve possible methodological issues we will come across at the start of the project, especially in measuring impacts and responses. This stage of the project requires close contact with the international specialists working in the field, who will be intensively involved in this stage, also through a workshop and research exchanges (cf. IV.4). The results will be crucial not only to the project, as they strengthen its foundations and give the other work packages a jump start, but also to the academic field more generally, especially since they include the presentation of a comparative methodology for investigating and explaining resilience, which is lacking as yet. This work package involves the PI and a postdoctoral researcher, who will devote an estimated 6 months to this work package (0.4 and 0.8 fte respectively), and subsequently will be assigned to the other work packages.

WP2 Harnessing the water: Technology and investments allowing societies to buffer storm surges and floods on the North Sea coasts, 1300-1700 (Months 6>42). Did coordination systems stimulate investments and the application of technology in order to prevent or remedy disasters? If technology was available, why was it used or not used? If wealth was available, why was it invested or not invested? A field where these issues can be fruitfully explored is water management and the investments made in combating the destructive effects of storm surges and floods. Institutional measures promoting these investments included the promulgation of by-laws regulating maintenance of infrastructure, fiscal measures, legislation and property arrangements which stimulate drainage and investments in technology (van Cruyningen, 2012). In these fields, people could rely on state coercion and regulation, but also on the coordination offered by associations such as water management boards, or on the market offering stimuli for investment. An opportunity to investigate the choices made, and their different effects, is offered by the storm surges on the North Sea coast in the late Middle Ages. These surges affected coastal Flanders, Holland and Norfolk, but with very different effects within and between these regions, as measured by the number of floods, the losses of lives and the surface areas lost or regained (Soens, 2009; Galloway, 2009). This variety allows us to investigate the link between their

institutional arrangements and socio-political characteristics (market-oriented or not, strong central authority or not, peasant associations or not) and the variance of the destructive effects. This will be complemented with a more general comparisons with developments on the German coasts (exemplary study: Jakubowski-Tiessen, 1992). The added value of the work package over the existing literature will particularly be in the long-term, comparative analysis, which requires some academic maturity and makes this work package well-suited to a postdoctoral researcher (3 years, 0.8 fte).

WP3 Getting access to food: Allocation and redistribution in the mitigation of crop failure and famine, 1500-1800 (Months 6>54). Famines, resulting from bad weather and crop failures, posed most clearly the need for efficient allocation, and malfunctioning of allocation could have the most horrific effects. Responses could be coordinated by the state, associations or the market, and institutional measures could vary from public storage and registration of grain stocks to regulation on choice of crops and food processing, price setting, import subsidies, export bans, forced cultivation and food distributions (Meuvret, 1988; Jörg, 2008)). The choices made, and their effects as measured by price levels, price volatility and number of deaths, will be investigated for the early modern period, as the central state potentially played a strong role, through legislative measures and more direct intervention (Persson, 1999). The different institutional responses to crop failures and famines, and the interplay between local and factors, will be analysed though a comparison of cases in Holland, Picardy and Münsterland. In view of the abundant price data and the research opportunities these offer, this work package is well-suited to a postdoctoral researcher experienced in quantitative methods (4 years, 0.6 fte).

WP4 Arresting the soil: Success and failure of societies in preventing soil erosion, 1500-1800 (Months 6>54). Soil erosion, with fertile top soils being washed away or covered by drift sands, was found all over Western Europe, especially during the 16th and second half of the 18th century, as it was fuelled by population growth, adverse climatic conditions and growing commercialization. Still, the impact varied widely, as measured by loss of agricultural land or decline of output. This WP focuses on the regions with vulnerable soils, as most particularly the loamy and sandy loamy ones, in Münsterland, inland Flanders and Picardy, and it reconstructs developments through local inquiries, reports and crop yield data, as found in tithe registration, for instance. Next, it investigates the institutional instruments and responses of groups of different localities within these regions. It will analyse how institutions were formed in order to prevent soil erosion, such as limits on numbers of cattle, restrictions on felling trees, prescriptions on plowing methods and the lay-out of parcels, and how these were observed and enforced, as evidenced by conflicts about actual practices (cf. de Moor, 2009). The project will also investigate the mechanisms for recovery, such as subsidies for planting trees, tax remission schemes or the introduction of labour corvées. How were these organized, who devised the rules and enforced them (public authorities, associations and commons, or the market?), and with what degree of success? The scope for archival research in this so far underexplored field where very little recent work exists, makes the WP well-suited for a PhD student, preferably one capable of connecting to the field of historical geography (4 years, 1.0 fte).

WP5 Window of opportunity or death-blow? Long-term responses of rural economy and society to plagues, 1348-1600 (Months 6>42). Why were pandemics sometimes followed by recovery or even economic growth and increasing freedom, but in other cases by economic decline and increased coercion? This WP investigates the long-run effects of pandemics and the resulting labour shortages, by focusing on the institutional responses. Which responses were applied, including wage fixing, restriction of mobility, and changes in inheritance customs, kinship rules and marriage patterns, and what were their effects on economy and society in the long run (for instance: Cohn, 2007)? It is clear that main differences, or even divergences, existed between societies, but how and why were they forged? The long-term perspective also enables an analysis of how the disaster affected the institutional organization itself. Did it lead to institutional sclerosis or rather stimulate

institutional innovation, and did institutional changes in their turn positively or negatively affect economy and society? Also, how did inheritance and property arrangements shape the effect of the plague on wealth distribution (Alfani, 2009) and subsequently on the potential for economic recovery? Recovery will be measured by the development of production figures, lease prices or wealth assessments. Used for this test will be the Black Death and the other big pandemics of the later Middle Ages. Compared will be clusters of localities in coastal Flanders, Picardy and Norfolk. Since this is a wide field where a lot of literature already exists, which requires some overview and considerable analytical skills, this work package is well-suited for experienced researchers. It will be entrusted to a post-doctoral researcher (3 years, 0.8 fte) and the PI (2 years, 0.4 fte).

WP6 Wake-up call or death knell? Responses of rural economy and society to war, 1550-1700 (Months 6>54). Warfare often caused destruction of crops and capital goods, grave losses in livestock, a decline in agricultural production, and the disruption of food trade (exemplary description: Adriaenssen, 2007; also Potter, 1993). This WP analyses what institutional responses were applied by war-hit rural societies, including lease arrangements, customary deductions and investment schemes, and how these enabled them to cope with the effects, or not, especially in the long run. A main question will be whether regions characterized by market-oriented tenant farmers and big landlords, through the variables investigated, were better able to cope with adverse effects of war than peasant societies with strong communal organizations. A similar question pertains to the role of the state, for instance by way of its fiscal and administrative arrangements. Again, the long-term perspective will also allow us to analyse how war affected the institutional organization. Did it stimulate institutional innovation, and did institutional changes in their turn positively or negatively affect economy and society? Economic recovery will be measured by the development of lease prices, output figures or wealth assessments. Also measured will be the changes in the social distribution of wealth, which may be seriously affected by the effects of war, and how these changes affected the potential of these regions for recovery. The wars selected for this test are those of the 16th and 17th centuries, more specifically the Eighty Years War (1568-1648) and the Thirty Years War (1618-1648). Compared in both tests will be clusters of localities in inland Flanders, Picardy and Münsterland. The scope for archival research in this so far underexplored field makes the work package well-suited to a PhD student (4 years, 1.0 fte).

WP7 Drawing together the main lines (Months 1>60). One component of this WP is the supervision of the various WPs, the monitoring of their progress and interaction of the researchers, and the integration of the WPs into the project as a whole (PI: 5 years, 0.2 fte, in addition to his other activities within the project). Another component is the construction and statistical analysis of the database containing the quantitative material of the project (cf. also III.2) (postdoc, 4 years, 0.2 fte and 0.5 years 0.8 fte; next to this, he will also be involved as researcher in WP3). The central component of this WP, especially in the latter half of the project period, consists of the development of a new conceptual and interpretative framework for better understanding the relationship between a society's resilience and its institutional arrangements. This will require us to make a big advance in the theory formation in the field. Also, the new insights regarding the variables investigated - which are yielded by the separate WPs, will be consolidated into a general synthesis. Jointly, the results should be worthy of being considered a milestone in the field and an obvious starting-point for further academic enquiry. Additionally, this WP will specify the current societal relevance of the project's results. These components will be the responsibility of the PI (2½ years, 0.4 fte), partly in collaboration with two postdoctoral researchers (6 months, 0.8 fte).

III.4 Source material

This project combines archival research with a reinterpretation of the secondary literature. It will use the large number of studies about specific disasters, and the description of individual cases, and also the available general surveys and repertories for certain types of

disasters, including floods, famines and bad weather. Also, there are the large numbers of recent studies of political organization, coordination systems, levels of wealth and wealth distribution in the test areas. This material can be fruitfully used within the analytical framework to be employed here. Research in the primary sources will be needed to supplement and fill gaps in this material and to further probe into specific aspects, especially where it concerns the institutional arrangements and their application. Very useful for investigating the normative arrangements are the editions of by-laws, legislation of local and central authorities and other legal-juridical sources, widely available in editions particularly from the late-19th and early-20th centuries, compiled by antiquarians, scholars of legal history and local historians. The material from these editions will now be used within our new framework and be made relevant again. Additionally, archival research will be needed, especially in town accounts, judicial records of courts, fiscal records, and administrative records of public and religious authorities, in order [1] to reconstruct and analyse the institutional arrangements and their use, [2] to investigate the tensions between norms and practises, and [3] to assemble the quantitative material (food prices, lease prices, numbers of casualties, etc.) to be integrated in the project's databases and used for the quantitative analyses by the team members (cf. WP3 and III.2).

PART IV INNOVATION, RELEVANCE AND ACADEMIC SETTING

IV.1 Innovation and progress beyond the state of the art

This research project links hazards and disasters to the functioning and structural characteristics of historical societies, and uncovers otherwise hidden causes of their coping capacity, an opportunity seldom employed as yet. In doing so, it connects the present interest in ecology, natural events and sustainability to mainstream history in a meaningful way. The project also integrates recently developed ideas on the formation of institutions (New Institutional Economics) and the longer established ones on the functioning of markets (neo-Smithian approaches) and social structures (neo-Marxist approaches), with the popular but somewhat blunt concepts of sustainability and resilience. This will enrich the many research fields that deal with sustainability, by sharpening these concepts, and it will energize the field of history, which has not yet really integrated these concepts yet. It therefore opens new research horizons into both directions. Also, because of its systematic approach, this project will yield the sharp results which will enable us to develop *a new interpretative framework and theory of resilience and coping capacity*, which is missing as yet. In its turn, the project's newly-developed theory, in combination with the robust - perhaps even provocative – results I expect from the project, will generate further research and spark new debates – which are absent in the historical subfield currently characterized by a descriptive approach.

This project will also have an impact outside the field of history. It introduces the analytical and heuristic opportunities offered by history to the natural and social sciences. The resulting new framework will help to steer scientists away from the technocratic and mechanistic approaches found in many present studies on coping with hazards and disasters, and highlights the role of the social and political context. It also will create a robust alternative for the casuistic and descriptive approach to hazards and disasters, which is predominant not only in historical studies, but even more clearly in sociology and economics - where research is this field is often applied, rather than fundamental. Instead, this project will provide a more analytical and systematic approach, but nonetheless connected to detailed, empirical research, firmly grounded in the sources and using historical skills. The project thus moves beyond descriptions of success and failure in coping with shocks, to understanding the causes of resilience.

This project also will break new ground in methodological terms. It will enable us to apply and test newly developed ideas to the various parts of Western Europe, now brought together in this comparative investigation. In this endeavour, the project stands out, because of its grand design and the laboratory-like approach to history. Because of its scope, challenging nature and comparative layout, this type of research will not "automatically" spring up from existing national research schemes, but requires a deliberate investment, which will advance both our mode of thinking and our knowledge further than would be possible within a more conventional research approach.

IV.2 Relevance to society and policy

The tension between the security and the livelihood of increasing numbers of people, the limited stock of natural resources and the vagaries of nature, is a constant in human history and not something of the past, as witnessed by recurrent famines and water shortages in the developing countries nowadays. In view of the on-going population growth in the world, global warming, the exhaustion of resources and the environmental degradation, this problem may become even more pressing again in the near future and affect the world more generally, leading to a greater vulnerability of societies (UNDP, 2004). How can humanity, in this situation of increasing tension, cope with climatological, ecological, and technological shocks and challenges? Which institutional instruments are needed to enable us to do this successfully? The insights offered by the project will help to supersede the ad-

hoc approaches to these crises, offers a better understanding of the differences in the resilience of societies, and may help policy-makers to remedy some of the shortcomings in today's arrangements.

More specifically, this research project will illuminate how past societies have coped with the possible negative effects of scale-enlargement and increasing externalities, especially as a result of the emergence of markets. This issue is similar to the difficult process the world is going through at the moment, as the national states and their integrating role are dissolving in yet another acceleration of the growth of scale, now to the global level, and opportunities to shift away negative externalities, and the possible negative effects on the provision of food, water and energy, are even bigger. Why do some societies handle these challenges much more successfully than others?

After a period of optimism and great trust in the fruits of technological progress, there is a threat that basic necessities will become scarcer, their distribution less equal and their provision less sustainable. It is clear that technology cannot be the sole answer to this threat, and that this hard, technological side of the solution must be paired with a favourable soft side, found in the social and institutional arrangements of a society. The increased vulnerability to disasters, especially in developing countries where the resilience of societies is often limited, forces us to develop new types of governance in order to cope with this challenge. The ways in which past societies have searched for this when faced with a similar challenge, and our insight into the causes of their success or failure in doing so, may provide the best guide in taking these steps.

IV.3 Academic setting

The research will be embedded within the Utrecht University group of Economic and Social History, which in addition to the PI himself, includes renowned scholars working on sustainable economic growth and social inequality in the long run, such as dr. Oscar Gelderblom, dr. Tine de Moor, prof. Maarten Prak and prof. Jan Luiten van Zanden. The quality of the section was rated excellent, with the highest possible score on all criteria in the most recent external review, and it has built a tradition of close collaboration between its members in recent years. The researchers recruited will be fully integrated within the group - also through its weekly seminar -, and become part of its academic interaction.

Within the group, the present research team of the PI focuses on the pre-industrial period, and particularly on how shifts in institutional arrangements have affected growth and inequality in the long run. A main topic under investigation by the team is the changes in the organization and functioning of markets for land, labour, capital and goods, and their interaction with other coordination systems, especially in late medieval Europe. By way of this research, the Utrecht group aims to uncover the causes of the regional varieties in economic and social change, a search which has also stimulated the accumulation of expertise within this group in employing comparative analysis as a research tool. The present project can therefore directly benefit from this expertise and can be expected to have a jump-start. Conversely, this setting allows the scientific breakthroughs achieved by the project to be embedded in future research plans.

The wider academic environment at Utrecht University is also conducive to the project's success. The research team and the group of Economic and Social History in their turn are main constituents of the university focus area "*Origins and Impacts of Institutions*". This interdisciplinary focus area, of which the PI is the academic coordinator, unites the research of the leading Utrecht academics from sociology, public administration, law, economics and history around the questions of how institutions are shaped and how this determines their effects; questions directly related to the approach of the project proposed here. The focus area thus offers an inspiring academic platform for collaboration with, for instance, sociologists working on networks, co-operation and inequality – such as prof. Marco van Leeuwen and prof. Beate Völker, with economists working on institutions and economic sustainability – such as prof. Hans Schenk, and scholars of governance working on disaster

management – such as prof. Arjen Boin. This makes the expertise and input from other disciplines directly available to the project.

IV.4 International collaboration

This proposed will be embedded in several international research networks. First, there is the *Centre for Global Economic History* at Utrecht University, in which the PI acts as a member of its organizational committee. Utrecht is also the host of CLIO-infra, which offers the infrastructure for large datasets and an opportunity for assembling and opening up the quantitative data needed for this research project (WP4). Collaboration is also facilitated by the *Datini Institute*, through its annual study week at Prato for economic historians of the pre-industrial period from all around the globe, and its scientific committee, of which the PI is a member. He can also draw on the collaboration in the field of rural history developed within the recently concluded COST Action a35: '*Programme d' études scientifiques sur les Sociétés Rurales Européennes' (PROGRESSORE)*, in which the PI has acted as a core member of the Management Committee and co-ordinator of the working group "*Landed property and property rights"*.

In addition to these formalized networks, the PI collaborates on a more individual basis with specialists in late medieval society, including prof. Bruce Campbell (Belfast) and prof. Chris Dyer (Leicester), those of pre-industrial economies, such as prof. Paolo Malanima (Pisa), rural historians such as prof. Nadine Vivier (Le Mans), prof. Gérard Beaur (Paris), prof. Erik Thoen (Gent) and prof. Stefan Brakensiek (Duisburg) and ecological historians, including prof. Petra van Dam (Amsterdam), dr. Tim Soens (Antwerp) and prof. Janken Myrdal (Uppsala). The established collaboration with these economic and social historians, who also geographically cover the various parts of Western Europe used as test cases, strengthens the international, comparative dimension of the project, and will be further facilitated by the joint workshops to be organized within the project.

Equally relevant to the project is the long-standing and intensive collaboration within the CORN-network (Comparative Rural History of the North Sea Area). The PI is a founding member of the network and a member of the board. After having concentrated on economic and agrarian developments, this network recently extended its scope to ecological and environmental issues, as is exemplified in one of the axes for its future activities: "*Rural Resilience to Disaster*", co-directed by the PI, in collaboration with Petra van Dam, Tim Soens and Ulrich Pfister (Münster). This network, funded by the Research Foundation Flanders (FWO), brings together researchers from Scandinavia, Britain, France, Germany and the Low Countries, as in the three sessions on the impact of warfare, epizootics and climate at the EURHO conference in Bern (2013). The project proposed here offers the opportunity to connect these academic networks and forge new links, which will also be enabled through the new research framework and methodology that we aim to develop. This project will thus stimulate new levels of collaboration and new lines of large-scale comparative research, and has the potential to boost the research field as a whole.

PART V REFERENCES

Adriaenssen, Leo (2007), *Staatsvormend geweld. Overleven aan de frontlinies in de meierij van Den Bosch, 1572-1629,* Tilburg.

Alfani, Guido (2009), 'The effects of the plague on the distribution of property: Ivrea, Northern Italy 1630', *Population Studies* 64.1, 61-75.

Bankoff, Greg (2003), *Cultures of Disaster. Society and Natural Hazard in the Philippines*, London.

Bavel, Bas J.P. van (2002), 'People and land: Rural population developments and property structures in the Low Countries, c. 1300 - c. 1600', *Continuity & Change* 17, 9-37.

Bavel, Bas J.P. van (2007), 'The organization and rise of land and lease markets in Northwestern Europe and Italy, c. 1000-1800', *Continuity & Change* 22, 13-53.

Bavel, Bas van (2010), *Manors and Markets. Economy and Society in the Low Countries, 500-1600*, Oxford.

Bavel, Bas & Thoen, Erik (2012), 'Rural history and the environment. A survey of the relationship between property rights, social structures and sustainability of land use, in: Bas van Bavel & Erik Thoen (eds.), *Rural Societies and Environments at Risk. Ecology, Property Rights and Social Organisation in Fragile Areas (Middle Ages – Twentieth Century)*. Rural History in Europe 9, Turnhout, 15-42.

Blaikie, Piers, et al. (1997), *At Risk. Natural Hazards, People's Vulnerability, and Disasters*, London/New York.

Campbell, Bruce M.S. (2010), 'Nature as historical protagonist. Environment and society in pre-industrial England', *Economic History Review* 63, 281-314.

Cohn, S. (2007), 'After the Black Death: labour legislation and attitudes towards labour in late-medieval western Europe', *Economic History Review* 60, 457-485.

Cruyningen, Piet van (2012), 'State, property rights and sustainability of drained areas along the North Sea coast, sixteenth-eighteenth centuries', in: van Bavel & Thoen (2012), 175-202.

Diamond, Jared (2011), *Collapse. How Societies Choose to Fail or Survive*, London.

Galloway, James A. (2009), 'Storm flooding, coastal defence and land-use around the Thames estuary and tidal river c.1250-1450', *Journal of Medieval History* 35, 171-188.

Jakubowski-Tiessen (1992), *Sturmflut 1717. Die Bewältigung einer Naturkatastrophe in der Frühen Neuzeit*, München.

Jörg, Christian (2008), *Teure, Hunger, großes Sterben. Hungersnöte und Versorgungskrisen in den Städten des Reiches während des 15. Jahrhunderts*, Stuttgart.

Lübken, Uwe, & Mauch, Christof (2011), 'Uncertain environments: natural hazards, risks and insurance in historical perspective', *Environment and History* 17.1, 1-12.

Meuvret, Jean (1988), *Le problème des subsistances à l'époque Louis XIV. Le commerce des grains et la conjuncture*, Paris.

Moor, Tine de (2009), 'Avoiding tragedies: a Flemish common and its commoners under the pressure of social and economic change during the eighteenth century', *Economic History Review* 62, 1-22.

Nee, Victor, & Ingram, Paul (1998), 'Embeddedness and beyond: Institutions, exchange and social structure', in: Mary Brinton & Victor Nee (eds.), *The New Institutionalism in Sociology*, New York, 19-45.

Ogilvie, Sheilagh (2007), '"Whatever is, is right"? Economic institutions in pre-industrial Europe', *Economic History Review* 60, 649-684.

Ó Gráda, Cormac (2009), *Famine. A Short History*, Princeton.

Ó Gráda, Cormac, Paping, Richard & Vanhaute, Eric, eds. (2007), *When the Potato Failed. Causes and Effects of the 'Last' European Subsistence Crisis, 1845-1850*. CORN publication series 9. Turnhout.

Ostrom, Elinor (1990), *Governing the Commons. The Evolution of Institutions for Collective Action* Cambridge.

Persson, Karl Gunnar (1999). *Grain Markets in Europe, 1500-1900. Integration and Deregulation*, Cambridge.

Potter, David (1993), 'Les fruictz que la guerre rapporte': the effects of war on the Picard countryside, 1521-1560', in: *War and Government in the French Provinces: Picardy 1470-1560*, Cambridge, 200-232.
Rohr, Christian (2007), *Extreme Naturereignisse im Ostalpenraum. Naturerfahrung im Spätmittelalter und am Beginn der Neuzeit*, Köln.
Schenk, Gerrit Jasper (2007), 'Historical disaster research. State of research, concepts, methods and case studies', *Historical Social Research* 32, 9-31.
Sen, Amartya (1988), *Poverty and Famines. An Essay on Entitlement and Deprivation*, Oxford.
Soens, Tim (2009), *De spade in de dijk. Waterbeheer en rurale samenleving in de Vlaamse kustvlakte, 1280-1580*, Gent.
Steinberg, Ted (2000), *Acts of God. The Unnatural History of Natural Disaster in America*, Oxford.
Thoen, E. (2004) 'Social agro-systems as an economic concept to explain regional differences. An essay taking the former county of Flanders as an example', in B. van Bavel & P. Hoppenbrouwers (eds), *Landholding and Land Transfer in the North Sea Area, Late Middle Ages – 19th Century*. CORN Publication Series 5, Turnhout, 47–66.
Tierney, Kathleen J. (2007), 'From the margins to the mainstream? Disaster research at the crossroads', *Annual Review of Sociology* 33, 503-525.
UNDP (United Nations Development Programme), Bureau for Crisis Prevention and Recovery (2004), *Reducing Disaster Risk. A Challenge for Development*, New York.
Vanhaute, Eric (2007), "So Worthy an Example to Ireland". The subsistence and industrial crisis of 1845–1850 in Flanders', in: Ó Gráda, Cormac et al. (2007), 123-148.

Section 3: *Feasibility, deliverables, resources and budget plan*

3.a Feasibility of the project and deliverables

Given the ample availability and accessibility of the source material, the structure of the research layout and the experience built at Utrecht University in dealing with this type of research, the feasibility of the project can be considered high. Any potential risks, including those resulting from the high ambitions and wide scope of the project, can be buffered, also because of the division into work packages. Each of these packages is valuable in itself, but jointly they enable a synthesis at a higher aggregate level and a wider academic impact also on theory formation (WP7), which remains intact even if one or two of them are only partly successful. In my previous projects as a PI, I have demonstrated the ability to combine the development of new ideas with the delivery of concrete results, for myself and my team members, within the set time limits. One component of this is encouraging my team to develop the intermediate results of their research into concrete publications and to publish regularly in high-quality forums (A-journals). This is also an indirect, but very fruitful way to monitor their progress, complemented by weekly individual meetings and monthly collective meetings, including the discussion of progress reports or papers. This also ensures the interaction between the team members and helps to tackle joint challenges. Jointly, the team members will also build a databases containing the quantitative material, to be employed for analysis by the research team. Subsequently, the databases will be opened up to the academic community as a whole, by way of the associated website: http://www.cgeh.nl/global-economic-history-datasets, hosted by Utrecht University.

The post-docs are expected to regularly produce papers, already from the start of the project, and have them published in both international journals and conference volumes. The post-docs will also edit two volumes of syntheses with contributions by several members of the research group, aimed at strengthening the cohesion of the research. These volumes are linked to three international workshops to be organized by the team: one aimed at methodology (scheduled at the start), one at discussion of the academic results, and one aimed at dissemination (a high visibility event). The two PhDs will each produce a PhD manuscript, to be published as a monograph, and contributions to conference volumes or national journals. The PI, apart from coordinating the project and supervising the members of the research group, plans to produce four articles in international A-journals (a synthesis, a theoretical article and articles relating to specific topics), a range of contributions to conference volumes and relevant journals, and a synthesizing monograph, to be published by a first-rate international publisher.