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Outline of the Sociological Approach of Synergy Representations

Abstract Since the beginning, sociology ceded the study of the interaction of society and its natural environment to the natural sciences, and preferred the perspectives inside the society itself. Depending on the research focus, one can complement this approach, if it is presupposed that the changes in the life-praxis of societies/communities/ individuals, the occasional diversions from trajectories are triggered not just by intra societal factors, but these can be affected by nonsocietal factors, or by factors in- and outside society. The elaboration of these assumptions required some boundary crossings which led to the explication of the similarities and differences between environmental history, climate history etc., and sociology. This also led to the introduction of data, concepts and theoretical considerations requiring the sociological perspective. Consequently, the followings can be the tasks of sociological inquiry: the inclusion of narrative historical sources into the research – in this case Transylvanian memoirs from the 17th and 18th centuries – which report natural (climatic, biological) anomalies or extremities as well as their demographical and social consequences. The complementation of the dataset and the parallel inclusion of intentional and unintentional anthropogenic effects and events into the research justify the introduction of the notion of coeffect for the confluence of multiple factors. The introduction of the concept of coeffect was motivated by two considerations. Firstly, it was the principle for systemizing the narrative dataset (typology). Secondly, it enabled the portrayal of the perceptual perspective of the observers' environment (objects, events, and occurrences), the joint concern, immediate/intermediate experience, the position in social space, socialization, the role of knowledge patterns regarding events, occurrences and their consequences (representation). This experimental study aims to draw attention to the research opportunities in historical sociology and the sociology of knowledge that emerge from this new perspective.

KEYWORDS narrative story forms, coeffect, anthropogenic-natural, experience, knowledge-pattern, representation



The term 'approach' in the subtitle refers to the uncertainty that occurs whenever the researcher comes across a field where the path is visible, but not trodden. Thus, it is no coincidence that the issues below are rather ad hoc notes of some concerns arising in the course of a longer project, sometimes rather essay-like, uncompleted and not providing a clear summary of research results. There are numerous difficulties in the establishment of the referential, conceptual and theoretical frameworks of *anthropogenic* (due to human factors, caused by humans) and *natural-biological* (climatic, epidemics) issues, as well as in the analysis of local, regional,

etc. consequences of possible relations of different effects. In this paper, we highlight two of these questions that really test the researcher's limits. The first is caused by the laxity and diffuse diversity of the database on this topic. The second difficulty arises from the literature, as there have been many thorough studies and theoretical reflections published which focus on the different factors separately, but they do not consider the 'synergies' suggested by us. Therefore, even a limited and selective use of these synergies requires continuous interdisciplinary study. In order to solve this problem, we do not have to compile the knowledge and information of different fields on a European level, but we have to establish a conceptual and theoretical scheme that is suitable for unifying and leading the contextual diversity of the topic. However, such conceptual approach which can define our position should not skirt current discussions and discourses on climate change, and even in a wider sense, this is the issue that makes our project relevant and up-to-date.

1. As people become more aware of the climate change, more and more criticism has arisen simultaneously, from several aspects, towards the followers of the classics of sociology, who, according to the ideology of the early industrial revolution, still consider the conquest and subjugation of the natural environment as a criterion of socialization. It is not a coincidence that Niklas Luhmann talks about the *'abstinence of sociology'* when considering relations between the social system and the environment – it is due to the fact that sociology was not 'theoretically ready', it has "passed the topic to the natural sciences almost right from the beginning, and tried to get rid of it, in order to prefer the society and its parts, as well as perspectives within the society".¹ Thus, instead of sociology, it is mainly social communication that thematizes ecological problems.

Debates over the concepts and definitions of ecology and climate change within risk discourses and modernisation theories of reflexive sociology (Beck, Lash, Giddens) have drawn attention to the 'new' distribution of tasks among politics and economy, to cultural integration and to features of discourses on this topic construed according to 'inscenario'.

According to reflexive sociology, nature which is referred to on the basis of different 'cultural patterns' 'does not exist anymore'.² And "what still is, (...) those are different socialized forms of nature", formed by scientific views, where "everyday actions are determined by abstract models of climate change specialists" (BECK 2008. 108., 109). Comparative anthropology (*Science studies*)

¹ In accordance with the remarks of N. Luhmann (see: LUHMANN 2010. 9., 10–17.), according to U. Beck: "This makes an end to a long period in the history of sociology, when, in the framework of early division of tasks (a strict border between social and natural sciences) sociologists could disregard 'nature', the other side, the environment or the world itself. Neglecting nature perfectly reflected this special relation towards it. This is clearly detectable in Comte's writings. (...) Disregarding nature thus presupposes domination over nature. This is how the 'consumption process' of natural (goods) was realised, as Marx understood the process of labour and production." (see: U. Beck, 2008:108/3.fn.). The provocative 'farewell' to the dualism of nature and society can be attributed to the founder of new anthropology (*Science studies*), B. Latour (see: Latour, Bruno, 1999. 2002.). Those who similarly emphasize the unity of nature and society are: ADAM, BARBARA – BECK, URLICH – VAN LOON, JOOST (eds.) (2000): However, when it comes to climate change, even if from different perspectives, there are more and more books, studies and conferences on the complexity of the ecosystem in the fields of sociology and anthropology. (see: SUSAN A. – MARK NUTTALL 2009.; GIDDENS 1990., 2000., 2008. www.policy-network.net., BECK 2003., 2008.; CASTELLS 2006. vol. II.)

² In their book, *Risk and Culture* (1982), Mary Douglas and Aaron Wildavsky, conclude the following: "there is not very much difference between the dangers of ancient and modern civilizations." Such approach to the question "reveals such sociology (its failure), which reduces everything to social questions and neglects the immateriality and material character (physical change, destruction), i.e. the 'also-too' nature of risks (social inscenario)" (see: BECK 2008. 109–110).

has a more radical approach: “Aren’t you getting a bit tired of those sociologies that are solely built around the society, and which perhaps survive only due to repeating the words ‘power’ and ‘legitimacy’, *as sociologists are neither able to cope with the content of objects nor with the world of languages, however, still these are the ones that create society*” (LATOUR 1999. 155. the citation selected by I.P.). The contents of objects and the world of languages in this aspect calls for getting beyond the dual view of the world, i.e. for understanding that nature and society are not two antagonistic transcendences but one and the same, and by the intermediation between the two “there is a certain status of nature that corresponds to each status of the society” (LATOUR 1999. 151.).

It is reasonable to ask how long we should maintain such sociological approach and attitude which “*reduces everything to a social issue*” and neglects the ‘also-too character’ of the interaction between nature and society (BECK 2008. 110.). Such and similar considerations arise from an actual perspective that is trying to understand the human world not only within the relations of cultural effects. The approach based on the ‘also-too character’ of the interaction between nature and society seems to create a new generalizing scheme which emphasizes the equalisation of effects, while it hides the difference between the continuous and the episodic. However, such and similar efforts to equalise effects/consequences break on those orientations (belonging to the main stream) which place sole emphasis on meanings related to ‘nature’ and ‘nature destruction’. U. Beck criticises the reality-construction of Anglo-Saxon discourses and cultural theories, which by emphasizing the knowledge of non-professionals, attribute priority to actor-like and institutional factors. In these, the “material and symbolic substance of nature destruction” has turned to be ‘action-centred’ which manifests in a ‘discursive change of structure’: “cognitive structures, narration models and taboos” are “created, formed and changed”, thus “reality becomes the purpose and the product of action” as a result of which a kind of ‘ambiguity’ will become dominant in building up ‘reality’. On one hand, it is the ‘transformation of the world’ as the purpose of action (theory of actors and institutions); on the other hand it is the ‘creation of reality’ (cognitive construction of knowledge). Both formulate the same question: how to “(re)produce the reality itself by discursive means”. Answers differ according to the amount of ‘reality’ we dispose of (i.e. whether we have more or less of it). The more they are connected to decision-making bodies, orienting action, the more ‘realistic’ they are, or at least “seem to be realistic” (BECK 2008. 116.). It seems that the constructivist tendency of the ecologic discourse has anchored itself at ‘save the world-like’ knowledge constructions, arising along the destruction of nature. Its image of reality is constructed, thus Beck neutralizes the ‘also-too’ relation, aimed at going beyond the dualistic world vision, by a new term of ‘reality’: the reality ‘itself’, as he puts it, is a network of people’s actions, action structures, action routines, patterns of perceiving, etc., which are realised and changed. Therefore, it is difficult to imagine reality beyond human action, both on material and symbolic levels. If it is true, reality does not exist in ‘itself’, but exists only if people create it, make it and represent it in some material or immaterial form. In other words, even the discursive change of the system must create a reality from something and for some purpose. Beck identifies reality with the social world, and the reality ‘itself’ is created and constructed from this. His term of reality considers nature and the physical-objective conditions of the social reality only an object of (nature) destruction. Difficulties arise when we stick to such approach of reality, where reality itself is a reality considered as actions, constructed within the society, and nature is only considered as a given reality, as in this case we get far from admitting that nature, as well as the action-oriented organisation of humans, is an active part

of the ecosystem. The question is whether the terms of social action, social interaction, goal-rational action, etc. will be still suitable for understanding human and non-human relations, if we eliminate the dualism of nature and society and admit their interaction.

The fact according to which there is a reality which was not constructed by humans, seems to be neglected, however this reality is nature, received by people *in situ nascendi*, as a kind of facility. Nature is a facility not passive but dynamic, changing, disposing of history, which might not be in accordance with the 'save the world' visions of discursive action orientations. Human action, both in general and concrete terms, is adaptation, which assumes that what we need to adapt to. However, the living world, including humans, does not easily adapt to the changing environment, and the changing natural environment also regulates somewhat the ways of adaptation, by providing variable conditions for the creation, life and survival of living forms known by us (and not others), such as physical forms, geographical distribution, nourishment, etc. The relative continuity and discontinuity of these may be learnt through history. All these refer to the well-known fact that geological and climatic changes actively intervene, change the living world, pose new challenges to it and force it to adapt. Natural environment is not only shaped by the social world of humans, but the natural environment itself limits the scope and forms of people's 'furnishing' actions, even if humans' vision of future is unlimited. The fact that anatomic conformation of the speaking and acting human (known as today) in the living world is such as it is (four limbs, torso and head), determined/determines the technical/cognitive ways of his adaptation to the physical environment. Thus, humans possess such physical/mental features and skills that must be harmonized with the natural environment (which provides them with the required conditions for their existence), i.e. humans must adapt to a changing, active natural environment which influences their conditions of life and which does not work according to the rules and regulations set up in their social world. However, there are strategists of modernism, boasting with unlimited self-confidence, aimed at shaping the environmental conditions for existence suitable for humans (and sciences were following this idea as well). This approach proved to be fragile and unsuitable as beyond certain limits, nature may not be regulated and subjugated to rules created by humans. Current discourses on ecological crisis, accordingly with the halt of our hope in steady progress, mark it as the destruction of nature. And they are not mistaken, as this will be maintained until we follow the current model of civilisation. Participants of ecological discourses, even if they are not aware of, sense that a new pattern of our relation to nature will imply certain changes in the organisational-institutional framework of the existing society. They have more or less become aware of the fact that different ideas about the creation of man-made social worlds, built upon the theory of evolution, might not be applied to nature. Changes (geological, climatic) in nature follow cyclic rules which might not be integrated in the historical-cultural schemes of evolutionary irreversibility, theological history, neo-evolution and unintended consequences. Attempts that try to explain the improvement of man-made technical and technological means aimed at the exploitation of nature both theoretically and empirically, should also be included in the aforementioned scheme. Improvements of different evolutionisms and attempts to adapt bio-cybernetic models (genetic algorithms) have been trying to explain adaptation according to selection, while they doubt the appropriateness of making difference between nature, society and culture (see: neo-evolutionists). By adapting cybernetic-biological models, emphasis was placed on the unintended consequences of human decisions (see: neo-evolutionists). This has led to the hypothesis of Luhmann's system theory which highlights increasing contingencies and which understood the history of humankind as an 'increasing

improbability' (SÁRKÁNY–SOMLAI 2012.; LUHMANN 1992. 283.). Differentiation and complexity, which have been earlier described as a quality scheme of evolution/progress, finally ended up in the realm of contingency and incidence, making the terms of evolution and progress, as well as their related theories even more relative and discredited within the social world. There was just a small step missing to eliminate the dualism of nature and society in social sciences, too – mainly due to naïve (movements, group-forming) and scientific motivations of current ecological sensitivity. This suggests somewhat that there might be some correlation between the limits set by nature and the defeated hopes in progress. Paradoxically, social sciences, which have been constructed according to schemes applied by natural sciences, after long wrong turnings, will fall again into nature's lap, to gain fresh strength for new, existence-transcendent (alien to life) visions of social change.

Climatic change of our days is neither a new phenomenon, it has always existed and will exist as well. Actually, we speak about a very obvious fact, which means that we should recognize that nature is an active agent. Its reality should not be doubted by any preference of 'cultural patterns' related to the concept and definition of nature (norms, utopia, counter-plan). There were some leading concepts in the phenomenological school of sociology (Schütz, A.) at the beginning of the last century that showed enhanced sensitivity towards the relations of everyday life and considered nature and society as a common world of life which is a given facility, and did not doubt their unity. However, this made their relation somewhat neutral and passive, thus their interaction became hidden. The unity of the world of life may form a unit, only if we assume interrelated relations of effects between the components, which, due to the relation between the components, have impact on nature and society as well. This facility should not be ignored, as conditions for social organisational forms, individual life practices, and the reproduction and continuity of life (in the narrower and broader sense as well) are provided by nature as a physical environment – without this community and the formations of societies become unreal. According to the Biblical tradition, God created man on the sixth day, just after the conditions for life, i.e. nature had been formed. Evolutionist sciences also suggest something similar, i.e. the time of anthroposociogenesis does not correspond to the time of the genesis of nature. This refers to the fact that their principles of operation should also be different. Man has to willy-nilly continuously adapt to the resources provided by nature in order to stabilise his existence and the continuous reproduction of his existence. Adaptation also refers to quality levels of interactions between nature and society. Therefore, short- and long-term consequences of interactions should not only be involved in naturalistic narratives or discourses about the ecological crisis, as the combination of before/after perspective will become hidden from us, as well as inscenarios also visualise the future after the present, although the present also has a past, nature has history which is very much variable in time and space. There might appear also some optical illusions when the anthropogenic-like globalisation processes are applied to nature, and people talk about global climatic change. The paradox is that economic globalisation itself is nor a new, neither a permanent process. It has had many upward and downward trends in the past. Late modernity and/or the ecological sensitivity of postmodern should not forget that *it is not only human organisational forms that destroy the environment and nature, but environmental changes and disasters have similar destructive effects, and break individual and communal life practices, force us to restart or even make the environmental conditions for restarting impossible.*

The world of life, the world of nature's and society's unity may not be generalised by the balance implied by the 'also-too' character, and is not the world of utopic harmony, neither

characterised by the predominance of either component. After all, doubts of our days may rightfully arise against people who arrive later – it is their deliberate or unintended actions which are the dominant destructive power. Besides the aforementioned society-centred perspective, it is due to the fact that people's environment-shaping and 'furnishing' actions seem to be exploitative, consuming, visible and fast-paced, while changes in nature are slow and take a long time, however, nature might have some unexpected, sudden and destructive outbreaks, which might interrupt or even eliminate accumulated artefacts, institutional frameworks of a given ecological community, as well as their creators, i.e. human population, and the continuity of the social world at a certain point of time, within a certain space. Thus the natural factor includes both episodic and cyclic phenomena that follow/interrupt long processes. The human world is not free of any of these. Being charmed by our current perception of speed, we tend to forget the fact that some segments of economy, such as capitalism or the formation and stabilisation of organisational-institutional frameworks of modern societies reached their current shape just in the second half of the 19th century, following their start in the 14th century, and having gone through different local transmissions. Moreover, this process is still not completed, not to mention the breaks/interruptions of its application, which have resulted in different local versions. We also know numerous examples in history of the consequences of interactions between anthropogenic and natural factors. In some cases, even with our scientific knowledge, it is difficult to define what caused the disappearance of some human social organisations in different regions of the world throughout history: was it humans, changes of the environment or the interaction of the two. However, it is a fact that our complex social world, as it is known today, and which has been, with smaller and larger interruptions, continuously climbing the stairs of culture and civilisation, regardless of favourable or poor environmental conditions, is mostly found in the same physical space where it was at the beginning of our history, despite the fact that there have been significant changes of populations and cultures, as well as syncretism. Newer sociological theories which observe worlds of life (worlds of nature and society) in their interactions and unity, should not neglect the fact (that is well-known from history) that they are not only human social organisations that harm nature, but with its unpredictable destructive powers, nature may also cause changes of the physical space which will result in changes of the living conditions of the social world.

Actions motivating the protective behaviour of humans which aimed at ensuring the continuity of their living conditions have had of course, still have and even will have numerous unintended consequences for nature.

Human intervention, however might change, decrease or even increase this destruction, while nature – as far as we know it today – is not motivated by such considerations. Today, by our scientific knowledge and equipment we are able to predict several possible 'intentions' of nature, to assess biological and public safety risks, however we are still unable to move forward from our defensive position which requires constant change and renewal of the framework of our living conditions. It is not enough that different forms of confrontation, with their intended and unintended consequences, are continuously present in our social world, there is always the unpredictable natural environment with its surprises. These two, i.e. the anthropogenic and the natural, even if not to the same extent, have effect on the worlds of nature and society as well. So far these effects have been scattered and disperse, both in time and space, have been regional and local, and still they are, although their consequences might go beyond their local scope, so they might result in a kind of global impact. The world of humans suffered numerous local

and regional anomalies (weather, epidemics, war) in the past centuries; their impact emerged to continental and intercontinental levels, of which contemporary people were more or less aware: they passed oral or written tradition to us, to commemorate and make us learn from these lessons. Still, they were not characterised by the phenomenon of inscenario, which envisions nowadays not the real but the expected, possible consequences of effects imposed by human and natural forces. It does not mean that past events were not dramatised and possible future events were not characterised by apocalyptic visions. The situation has changed only slightly: mediated communicative spaces of those that happened and of those that might happen have been compressed, and they get to each and every part of our world in a mere fraction of a second.

2. Ecologic discourses of our days are formulated from the perspective of present concerns, among the consequences of which are attempts to get beyond the dual vision of the world. However, it is still the schemes of earlier universalist orthodoxies that have inspirational power, which are involved in the construction of a global social change – as a result of the climatic change which they consider/suppose to be global. Universal schemes of discursive reality constructions, by following the ideological pattern of globalising economy, do not count with the diverse local societies, with the fact that economy is integrated in the society, and with the alternative nature of economic changes, integration and disintegration. The cause for concern is whether climatic change presupposes social changes or not.

Without doubt, there is a correlation between the two, climatic change might generate changes in lifestyles which might have some effects on the organisational-institutional structure of society. Neither the dual and ambiguous attempt of science that searches the secrets of nature in laboratories, nor attempts to protect humans and nature are without risks, nevertheless, their sets of instruments, construed from their observations, may soften the consequences of anthropogenic effects. To stay within our field of study, we can conclude: *if we examine the consequences of social effects of climate in the framework of its history – which is the aim of our project – we should be aware of numerous direct/indirect implications which are part of our past, but have not yet lost their actuality.*

Under the present conditions of climate change, we will see its related implications better, while some concrete manifestations of climate were also seen in the past, such as the correlations between effects of meteorological and hydrometeorological phenomena.

The difference between the past and present is not characterised by the lack of climate events, but by the transcendental and scientific ways of understanding experiences which will influence our knowledge when applied in defensive strategies. However, there are some common features of the past and the present, which seem to be involved in anthropological constants, and which may be detected in human action and behaviour patterns, evoked by different crises.

Structural changes in a given society might be affected by the climate, but in some cases, there might be some changes of forced adaptation triggered by some biological (epidemic/pandemic) and public safety drivers, not independent from the climate. These changes of the social structure are only latent, hardly sensible at present. A great example of this is the Black Death (1347–1350) which killed almost half of Europe's population. After the devastating pandemics, England experienced a change in its economical structure, due to the lack of workforce, people changed from agriculture to sheep farming, which had long-term effects on the English society. It is often forgotten that social sciences, such as sociology, are able to document events of the past and present, and might only guess what might happen next – thus it seems to be a legitimate question whether the variable formal/conceptual organisations of societies (in different

time and space) are able to give universal answers for the challenges of natural-biological and anthropogenic events, or their protective strategies are limited by their cultural knowledge, adapted to their natural and historical environment. Any scientific study shall conceptualise the narratives of weather, epidemics, public safety and past suffering, its hypotheses – according to the available database – shall be integrated in a conceptual-theoretical framework which will outline the intended procedure of processing certain topics. However, this does not mean that we force the facts into universal schemes of well-known and accepted conventional paradigms. We do not state that these schemes are useless, we only intend to say that when we involve some factors, which vary according to time and space, in the interrelation of effects, it is the variability of these factors that determines those issues that follow conventional schemes and open up to generalisations, and those issues that are ecologically and culturally local, particular, unique and cannot be generalised. The world of life is the unity of the worlds of nature and society, and as we have mentioned, it is universal as it is the framework/basis for all living conditions for all existing human organisations. Human existence and action are basically oriented towards adaptation, their organisational forms and their concepts represent different ways of adaptation, both in the narrower and the broader sense. It is not a coincidence that unlike in the present answers given for the challenges imposed by the environment in the past were also different. The natural environment itself is variable/changing and affects the ecological and living conditions of a particular human organisation in different ways according to time and space – as well as it affects adaptation to these variable/changing ecological conditions. Meteorological and hydrometeorological climate events are triggers for the change/variability of ecological time/space whose distribution/impact is experienced through unequal, episodic, local and regional events, even nowadays. Historically, the impact of natural-anthropogenic factors (which evoke climate change) also varies according to different ages; but any processes that lead to climate change are/were determined by natural factors. Processes of climate change in our days thus may be identified neither with any similar consequences in former historical ages nor with any consequences that will occur in the future, as the nature of effects-consequences will be determined by the knowledge of a particular social organisation. In the past, information originating from ages before instrument measurements were applied, was conveyed through different channels and was of descriptive character, conceived within the perspective of heard/saw, while adaptation of human organisational forms had much less impact on the climatic conditions of the ecological environment than it has today. Still, deforestation, river channelling, building of irrigation systems, etc. (which served to maintain and preserve particular communities and societies) evoked/may have evoked climatic changes in the local environment. It is no coincidence that we lay stress on the historical aspect of climate: *climate, as a definitely natural process, has much more impact on the intensity and level of anthropogenic and biological events both in time and space, which is not true vice versa*. We are not able to find any examples in the database of the history of human adaptation which indicate that epidemics, phenological, paraphenological events or issues of public safety or war would have any impact on the progress of meteorological and hydrometeorological circumstances of the climate. On the other side, huge agricultural works, involving river channelling and the building of irrigation systems, which were already implemented by some ancient empires (such as China), had unquestionable impact on the microclimate, yet we are not fully aware of their continental effects. While observing climatic changes in our continent, climate change specialists of the Carpathian Basin and Europe (E. Le Roy Ladurie, C. Pfister, L. RÁCZ) draw attention to the action of Alpine glaciers and the effects

of Atlantic Ocean currents, and not to the consequences of anthropogenic events. This refers to the fact that in the past it was not usual to expect such level of human intervention that might have caused radical climate changes in our closer and more distant ecological environment. Still, studies of historical sociology should consider such anthropogenic-like economical and demographical forces as deforestation and river channelling (river Tisza) that require adaptation, and whose meteorological and hydrometeorological consequences are sensible even today. Unlike in our age, before the age of the industrial revolution there were no such drivers in the economic life, lifestyle, habits and the operation of organisational-institutional mechanisms, neither in the Carpathian Basin nor in Europe, which would have resulted in any significant climatic change. Not to mention the fact that any potential climatic effects of the western industrial revolution (based on coal mining) affected the Carpathian Basin only indirectly before the end of the 19th century. During the small European ice age (1300–1860), Alpine glaciers and currents of the Atlantic Ocean, the Mediterranean Sea and the Siberian cold had much more influence on the weather in the Carpathian Basin, and their cycles had more serious impacts on the agriculture, on the safety of food management, on human and veterinary medicine and on the demographic conditions of the communities of our region, and as a consequence, on the population's vision of the world. Even this ad hoc listing is able to present the complexity of the question to researchers, and draws attention to local and regional differences, to the special nature of approaches, to the ambiguities of different topics and to the necessity of finding new solutions. When we highlight our topic, i.e. the correlation of anthropogenic and natural factors, we must face the question whether they form a system or not. We have already referred to the fact that climate has an impact on the intensity of biological and anthropogenic factors both in time and space. If it is true, climate, as an active agent of the complex ecosystem, will not form a system in the strict sense of the word, even if we have assigned anthropogenic-biological factors to it. The spatial and temporal distribution, the variability of involved factors, the local and regional variability and the temporary, episodic nature of their relations, as well as the unstructured knowledge about affected statuses, groups and protective strategies will contradict to the systems approach.

By somewhat simplifying these difficulties, arising from the aforementioned circumstances, it is no coincidence that we have given preference to the theories of social sciences on the present climate change, as this made us able to conclude our thesis on this topic: *according to this thesis, it is the meteorological and hydrometeorological climatic events that are crucial among the different factors that affect representations of synergies*. It is the variability of climate whose consequence-related effects are present during affecting/regulating the nature, intensity and spatial-temporal scopes of events/issues of anthropogenic nature. As a consequence, *by introducing the term of synergy, we will be able to see the social consequences of consecutive and overlapping effects of the natural (weather, climate), biological factor and the anthropogenic, human action and behaviour*.

There is a narrower, more traditional approach that highlights consequences of the combination of *epidemics – famine – war*, but this approach would leave the meteorological and hydrometeorological dimensions of the climate, the nature and the scope of the intensity of effects/consequences hidden. Archive documents³ which form the basis of our database are mostly

³ I did research in Transylvanian archives (Csíkszereda, Marosvásárhely Sepsiszentgyörgy, State Archives; Gyergyószentmiklós, Székelyudvarhely- ecclesiastical archives and archives of parishes in villages and municipalities) between May-July of 2013, thanks to the nine-week long research grant offered by Campus Hungary. I could purchase foreign literature from financial assistance offered for research professors by the University of Szeged, for which I hereby express gratitude to our university. I am also grateful for the support provided by the local government of Algyő Nagyközség.

narrative, and tell about environmental issues (heard and seen, dependent on and independent from human action) through stories. We have discussed the nature of such and similar documents earlier,⁴ so we only refer to the fact that any stories communicated by people in oral or written form (action for Weber), are subjective, intended and motivated, i.e. they are a reflected articulation of reality, and not the reality itself, but the reality that is reflected by the storyteller (observer) – as it had been seen by him and as he wanted others to see it. It is well-known from quantum theory that the relationship between the observer and the observed object is not neutral. Before Heisenberg and Born, Dilthey discussed the hermeneutical problem which tried to determine how many factors influence the relationship between the observer and the observed object. Recently, it has been Luhmann who reviewed Karl Mannheim's sociology of knowledge, and considered the observation of the observer to be important. These observations seem to refer to scientific research, and they are also characteristic of a non-professional, everyday observer. They are not free of such observation. The problem is without doubt not too simple, nevertheless, we must be aware of the fact that we are talking about human issues, and thus we should not forget to consider these aspects of difficulties about the so-called objectivity more carefully.

Our field of study, i.e. the synergy of anthropogenic and natural factors, may also be included in the relative validity of the aforementioned human issues. It has several reasons: our database from the archive mainly originates from those ages when instrumental measurement was unavailable. Despite several trials, the development of modern medicine, health care, bureaucracy, public safety, food management, etc. is still somewhat traditional, thus observers of the present are only provided with past descriptions that convey pure empirical knowledge. Reports originate from the literate elite. In the observed period (16–19th centuries), the majority of people from East to West conveyed everything what they saw/heard/experienced through oral information channels. Anthropogenic-natural events that happened simultaneously, had different effects and consequences in space, thus variability should be assessed simultaneously, and this requires us to measure the intensity of spatial contents of information flow in the given period, as well as of the spatial-temporal changes of drivers. We should concretize and classify the factors, i.e. select those factors of synergies that are determining, natural or anthropogenic. Then select those natural factors which actively affect the living conditions of an ecology community. Nature in general, as a complex and difficult system, i.e. the ecosystem is only relevant for human organisations, if its impact can be concretized in the ways of its manifestation and rational elements of its operation may be understood. Our past and present experiences/knowledge consequently appoint climate as being an active agent of the ecosystem. Pros and cons about the climate change of our days are formulated along the epistemological issues on the relationship between nature and the society, both in social sciences and in sociology. And, when it comes to climate change, it is the anthropogenic factor that is marked first in the causal relation of its study, which is due to the fact that all changes are explained on the basis of social environment. Doubts arise especially in relation to the latter, as sociological literature has less interest in the study of social consequences of natural-biological factors than in the anthropogenic factor, which does not mean that is without history.⁵ National and international literature report on meteorological, hydrometeorological, geological, biological, anthropogenic events and the spatial and temporal

⁴ PÁSZKA 2007, 2009., compare: PÁSZKA 2010.

⁵ Terms of *Chinoiserie* and a *hydraulic society* for example emphasized correlations between the natural-geographical environment and the governing regime (see: PÁSZKA 1984. 27–47.; WITTFOGEL 1964., compare: PÁSZKA 1984.)

manifestations of different factors diachronically, and present them in descriptive/explanative representations, integrated in the paradigms of the given special science. This means that, even if they indicate so, they are neither interested neither in the issues of possible synergies nor in a synchronised analysis of events. As it has become clear from the aforementioned explication, epistemological insights emphasize the importance of going beyond the dichotomy of nature and the society, but they only refer to the general relationship between nature and society, and do not concretize any possible relations between other drivers.

3. In order to concretize the aforementioned suggestions, we try to draw up a general scheme that serves as a basis for a longitudinal observation which would synchronize the spatial and temporal consequences of climatic and biological drivers with the intended and unintended actions of humans. In order to realise our idea and to create a potential documentary framework and the main organising principles for such sociological study of history and knowledge, it is necessary to cross several boundaries between different disciplines. The table below was constructed according to the orientations of our study, and our aims were formulated on the basis of the available database. The table is mainly constructed in accordance with our purpose, but any extensions or reductions are to be applied in case of new, unforeseen thematic implications that will arise in the course of our study.

SOURCES AND TYPES OF THE STUDY

Natural	Archeological	Archive-library //	Narrative	Literature
Meteorological	excavation logs	maps	diaries, chronicles	sociology
hydrometeorological		tax tables	histories	demography
phenological		population	life histories	climate history
paraphenological		statistics	biographies	epidemiology
geological		official	amulets	anthropology
epidemiological		documents	historia domus	pharmacy
		medical reports		medicine
		wills		military history
		archives		history-geography
				history of science,
				migration history
				ethnography
				history of law
				historical ecology
				etc.

Studies before the time when modern instruments and procedures were used, both in the national and the international practice focus on spatial and temporal records about weather and epidemics.⁶ Excavations of cemeteries and churches of the Middle Ages and the early modern age and the epidemiological analysis of plague cemeteries are a newer development (e.g. in Maksacernát in Székely Land or Bouches-du-Rhone in France). However, studies on the weather and epidemics still do not focus at all on archived medical reports and administrative protective measures of health care systems, which make the level of knowledge in the relevant age visible, and mark the beginnings of involving bureaucracy, health care and public safety in public policy. A more detailed study of narrative-type historical documents, such as diaries, memoirs,

⁶ The classification of sources related to the research on climate history (see RÁCZ 2001. 19. /2.1.1, 27./2.2.3) which we complemented with *narrative type* sources.

biographies, histories, deeds, *historia domuses* is significant in many aspects during the study of synergies: observers in a particular age usually provide a detailed description of events that happened in their closer or more distant environment, report on their direct/indirect experiences related to these, thus make their subjective views, knowledge about these events, as well as any habits and rituals applied by them in critical situations available. This does not only expand the circle of sources on climatic history, geology, biology and anthropogeny, but provides us with insight into the world view and future visions of people in a particular age, according to which they understood their situations in life. Besides archive documents, it is these narrative historical sources which present the particular cases of continuous fights, expanding mercenary, billeting, robberies, pillage, spread of epidemics, growing taxes, etc., which imposed a permanent danger on public safety in these ages. Both in the broader sense of social studies and in the narrower sense of sociology, one should not focus exclusively on the longitudinal study of great climatic changes that affected history, but on the set of personal, communal or generational experiences related to events evoked by weather, biology or anthropogeny, which were recorded by our ancestors as events to remember due to their influence on their habits and the trends of their future plans. Involving the newest results of natural and social sciences in the study of synergies and checking the reliability of primary archive data are aimed at integrating regional databases in a more universal field of knowledge and at expanding the interdisciplinary framework of this study.

The aforementioned suggestions do not intend to comprise all traditionally known sources and secondary literature on weather and biological anomalies, or on human destruction.⁷ From the perspective of synergy studies, sociology and social studies should be aimed at learning and understanding the social consequences of weather anomalies, anthropological and biological events (wars, administration, epidemics), as reported by their observers. This shall be done on the basis of related documents, within a closer or wider geographical space, within a longer period, and according to certain thematic classifications.⁸

The image of the past that revealed from primary and secondary databases will present a universal phenomenon to us, yet its spatial and temporal distribution is very much fragmented, not only in a particular continent but in a particular country as well— according to regional, local, microclimatic, hydrographic, demographic particularities and the particularities of settlement pattern, military procession, economics and trade, etc. Events of biological nature (such as epidemics and the plague of locusts) are diffusive phenomena, are not aware of any borders, while the intensity of weather extremities (floods, drought, freezing), despite the continental characteristics, are local. Wars, which usually take place at historically trodden sites, are similar, although the range of their concomitants (such as plague, syphilis, cholera, dipsomania, robbery, etc.) significantly exceeds these sites. A typical topic among complaining narratives in archive documents is the depredation of troopers.

Here we have no opportunity to provide a detailed description of all these burdens on everyday life, but it is a fact that natural-anthropogenic synergies are mainly local. Thus, while formulating a thematic unit, it is very important to identify the position of data providers/observers both in space and time in order to make the following clear: the person who provides

⁷ PFISTER 1988. – types of archive sources in his table summarizing sources on climate history and types of information: chronicles and annals, administrative records, manorial records, personal notes, early newspapers, early instrumental surveys. Types of information: descriptions of weather, instrumental observations, biological information: phenological, paraphenological (quoted by: RÁCZ 2001. 27./2.2.3).

⁸ As for synthesising historical sources on climate changes in Europe, major works do not deal with Central Eastern Europe at all: (see: LE ROY LADURIE 2008).

information is a direct, primary (witness, victim) or an indirect or secondary (hearsay) observer of events.⁹ As it is known, contemporary providers of data/observers would attribute the consequences of natural, biological and related anthropogenic events to transcendental forces which does not mean that they would not recognise some correlation between the events. However, the sociological representation of synergies suggests a consolidated, complementary study of natural, biological and anthropogenic factors in all cases where these factors are combined, or the simultaneity or consecutive/overlapping nature of the consequences of their synergies may be detected or not.

INFORMATION TYPES AND PRINCIPLES OF ANALYTIC CLASSIFICATION

Spatial	Temporal	Thematic	Synergy nature-anthropogenic	Consequences socio-demographical
local	year	freezing	drought-famine- epidemics	population decline
regional	season	drought	flood - drought - war	high prices
national	month	flood	lack of money - flood	migration
continental	decade	phenological	earthquake - fire	pauperization
	day	paraphenological	flood - taxes - war	debt/servitude
		earthquake	freezing - flood - drought	public safety
		epidemics, famine		traumatisation
		war, robbery		destruction of
		bureaucracy		the social space (disorganisation discontinuity)

Our process is aimed at emphasizing the demographical-social consequences of synergies between spatial-temporal thematic information, conveyed by people/observers. On the other hand, by highlighting synergies between natural, weather and anthropogenic factors, we also try to detect the aspects of narrators' representations about events or stories, i.e. to understand the meaning that these narrators attributed to their observations/information and the ways they understood/explained the considered/real interrelation between these events and histories. Sociological suggestions, unlike suggestions of climate and epidemiology histories shall on one hand pay attention to the normal cycles of weather, to the spatial density of repeating pandemics/epidemics, as this allows us to assess differences between normal and extreme events within a particular period of time: changes of human resources and instruments, required to maintain certain life practices, may be compared according to the perspective of 'before and after'. On the other hand, it reveals the connections of different events caused by humans (war, epidemics) and nature (earthquake, flood, freezing), told by our narrators in episodic and/or linear schemes events or through some stories compiled about the events, which may also be included in the term of synergies. The perspective of 'before and after' here may reveal differences between statuses before and after demographic, communal/social consequences of the synergy between anthropogenic-natural events, as these are presented by the narrator. Contemporary observers do not understand different events, caused by either humans or the natural environment, and

⁹ Thematic and spatial-temporal classification of data about climate history is presented by Rácz L in a pie chart, divided into three fields. His approach is definitely more illustrative as he presents weather cycles; nonetheless we have drawn up a linear/vertical scheme that corresponds to the Pfister scheme much better. We have also applied some more important elements of Rácz's diagram, which seem to be more relevant for the narrative documents used by us (see: RÁ CZ 2001. 37., diagram 2.3.2.1.).

resulting in negative/positive consequences, as synergies. *By introducing the term of synergy, we try to reveal demographic and social consequences (population decline, migration, pauperisation, etc.) of the combined, spatially and temporally sequential effects of intended and unintended damages caused by natural, weather and biological factors (flood, freezing, earthquake, phenology) and by anthropogenic, human action and behaviour (such as war, robbery, fire, epidemics, taxation).*

Precise geographical location of spaces is essential, as effects and consequences of the weather are spatially and temporally separated, i.e. the instability of the microclimate and meteorological and hydrometeorological events are not independent from local and regional terrains. On the other hand, as we have put it before, climate has a more decisive impact on biological and anthropogenic processes than vice versa.

Impacts and consequences of anthropogenic factors are more predictable both in time and space, and to some extent, it is also true about biological events, which are related to the expansion of centralisation, uniformisation and bureaucratization (development of the public health system, quarantine, etc.) from the 18th century. Some degree of organisation may also be seen in earlier historical ages, which is proportional to the feudal structure and to the efficiency of organisational-administrative practice (lobbying, balance of power, defence) of towns and cities.

Separation of synergies and consequences of the aforementioned factors is also justified by analytic considerations, as drivers and their implications mostly follow each other according to different spatial (local, regional) distribution and shorter-longer periods of time, possibly one overtakes the other, or they overlap. Factors whose consequences evoked synergy, even if to a different extent, destroyed local, regional or national communal/social spaces, and seriously obstructed individuals and groups to follow their usual lifestyles, as well as hindered stabilisation that would have been required for regeneration. A possible typology of synergies may be drawn up according to the variability of time-space, extension/intensity and impact/consequences. According to these, we may speak about national and local strong, medium or weak synergies.

According to the presented database, we will be able to outline the aforementioned relation between natural, weather-anthropogenic events and their consequences. All this depends on the contents of sources: archive documents are short and stick to the facts, while narrative documents (memoirs, histories, biographies) are valued for making the narrators' experiences about certain events available and for providing understanding and explanation. They usually have a dual purpose: on one hand they actualise and compare actual experiences with earlier similar and/or identical experiences, and on the other hand, especially if some anthropogenic events correlate with weather or epidemic anomalies, they warn about the future by some 'signs from Heaven' and formulate predictions about what else might happen. They sense some correlation between epidemics and war. They compare these events with normal periods, although normal periods are still considered relative from the aspect of the stability of their life practices. Identification of writers of documents/stories in archive and narrative sources does not cause any difficulty to us, as their status, position in the feudal society and religion is certified by their signature (seal) on the document. More and more frequent correspondence among the forming bureaucracy, orders, etc. provide a comprehensive picture about the levels of protective measures, usual and new practices, usual or forced patterns of group solidarity and about deviant behaviour in the particular age.

Besides the outlined conceptual and formal characteristics, we must see that representations of our sources override our stereotypes about restricted, limited contacts, relations and communication, considered as typical in this age. As Mihály Cserei (a contemporary) puts it, it

is 'communication', i.e. people and centres of trade – markets and cities – what causes 'contagio' (contagion) in the 17-18th century Transylvanian feudal society. History and chronicle writers sometimes relate (or see some correlation between) damages caused by humans (with intended or unintended consequences) to weather-related problems: they considered extreme weather, epidemics and war as a kind of omen of existing or forthcoming social crises. It is not surprising that sometimes accumulation and simultaneity of negative events evoked images about the forthcoming end of the world. Writers usually tell about events which they observed directly, but there are numerous events reported by them which they had only heard about. This kind of information about weather is usually not related to their close environment and goes far beyond it, usually containing national or even broader, continental news – of which learned much after particular events had happened – usually from pilgrims wandering abroad, soldiers, legates or through postal service. Thus, there was information-flow, and writers showed great interest in all international news, regardless of their origin (they came from the neighbouring or from distant countries). However, when we decide to study the possible anthropogenic effects of weather conditions in Transylvania and their synergy representations, we should not ignore the fact that the geographic – topographic – hydrographic picture of Transylvania was/is not uniform but very much fragmented. Thus, weather and its related anthropogenic states show great variability even within the same historical region (such as Transylvania), which also results in significant differences among cultural principles of economic and social practices of the population, even in periods of tranquillity. Organisational forms of social and communal spaces, instruments of the ecological community, quality of food stocks in households, interiorised cultural patterns, lifestyle, habits, common rituals, the structure of households and families, the stability and structure of houses in villages and cities, order in settlements, etc. had significant influence on the efficiency of protective measures in extreme situations. Despite all this, communal/social spaces of székely villages and Saxon cities with several centuries old self-government were/are broken and destroyed, especially in extreme situations. It is still true today. The problem to be solved lies in the methods of regeneration, as surveys on possible population growth in periods after damages 'caused by God' do not provide any answer for the short- and long-term consequences of the suffered trauma, and sources remain silent about them as well. Knowledge is transmitted in families, communal spaces (markets, churches, the army), official announcements and other face to face situations. These notes and reports which recorded narratives of complaints of common people do not contain any other solutions for traumas than guilt and remorse. Neither churches nor rational theology have any answers for how to cope with traumas caused by extreme situations. The body and the mind are treated only by bureaucracy, and its expansion shows correlation with the 'politicizing' of weather, epidemics and public safety – there are more and more schematic orders that give a detailed description about protective measures which originate from above. These prescribe the same solutions from Croatia to Transylvania, despite the fact that weather extremities, epidemics and damages caused by war are local and regional, both in the colonies of the Habsburg Empire and all around Europe. Let us see a typical example: plague, which was regarded as the archetype of epidemics, almost disappeared from Western Europe by the end of the 18th century, and the Viennese bureaucracy ordered still the same protective measures during the great cholera outbreaks in 1831 and 1872. Bureaucracy may be excused as there was very little difference between medicine and popular medicine at that age. We know about different amulets, recommended for the elite, which offered their patients drinks mixed from herbs, vegetables, spirit, wine and even some metals. The social status of

specialists of empirical medicine, such as physicians and surgeons was different, although they proved to be almost inefficient during the frequent visits of God's evil. Physicians were doctors with university degree, a kind of internal specialists, who prescribed medicine, were early representatives of recent telemedicine, usually served rich cities and the elite, and enjoyed a luxury lifestyle. During periods of epidemics they usually escaped. Surgeons, i.e. barbers – who often were executioners as well – carried out dirty work, such as amputation and the treatment of wounds, etc. Their 'knowledge' was mainly based on ancient Greek medicine, and most of the time they did more harm than epidemics and wars. After border regiments were set up in Transylvania and especially in Székely Land, military doctors were regularly employed. Thanks to them, numerous records were left to us, telling about the symptoms of epidemics, while there are very few which tell about successful treatments. All the aforementioned issues help us to understand why these critical situations, caused by extremities, evoked apocalyptic and 'end of the world' visions in people of these ages. This was supported by their experience as well, since natural and biological disasters repeated generally in ten-year cycles, not to mention the unreliability of public safety, which got even worse due to the almost permanent war-like spats.

In the course of studying synergies, we have to recognise other consequences of drivers (as results of their combined or individual impact) which are usually attributed to social inequality by sociologists. Thus, survivors of extreme situations either became much poorer or became wealthy due to inheritance, or possibly migrate or became servants. All these resulted in a restructured society, which was not characteristic in Transylvania, as we have already referred to it, as it was in the whole continent. It also means that we also have to consider drivers outside of society when studying reorganisation in the social structure, as well as when studying disintegration and integration processes. On the other hand, we might understand narratives about suffering better in our age, if we are aware of such experiences in the past.

We have also referred to the fact that writers of sources (archive documents, narrative stories) usually had certain intentions when they constructed their texts, which might have been subjective motivation or the fulfilment of orders given by authorities. It is a common feature that they are recorded *ex post*, from memory, which raises some doubts about their reliability.

When processing sources, studies in the field of climate history use the procedure suggested by Clim-Hist.¹⁰

According to their suggestion, one should use both quantitative and qualitative methods, after data (collected before and after surveying) have been selected and reliable data have been organised thematically according to temporal and spatial aspects. Reliability is acquired through selection, comparing data with similar data from other sources, the frequency of surveying/ observations, etc., which ensure that temporal limits for weather observations "were defined for one month at least" (RÁCZ 2001. 36.).

Another way of checking reliability, especially in our case, might be to highlight demographic-social consequences caused not only by the climate but by the synergy of more factors. We have also applied a special sociological procedure, and examined population and tax cen-

¹⁰ About the method of Clim-Hist (see: PFISTER 1984. quoted by: RÁCZ 2001. 37. 2.3.2.2. diagram)

suses which were made since the Principality of Transylvania was formed (1541) until Habsburg colonisation and a dozen times after it as well.¹¹

We must see that numbers in population and tax censuses are secondary, interpreted sources, not always sufficient, they are not always simultaneous with weather and anthropogenic anomalies, but surveys on longer terms (population decline, decreasing number of taxpayers) might be useful for setting up trends. On the other hand, reliability is also a relative issue – without relativising trials of scientific validity, we must admit that even those arguments about reliability are not free from uncertainties which have been supported by different quantification, weighting and indexing methods, as we are using, selecting and comparing data originating from such primary and/or secondary observers whose observations were probably not valid even at the time of recording. Intentionality is detected not just in statistic and narrative data of past ages, but in our days too, let us just think about large numbers of data, constructed according to different purposes and objectives. With all these, we only wanted to draw attention to those difficulties which we have to consider when we come across processing archive documents, tax tables, narrative historical stories, etc. It is even truer when we are interested in representations (conveying meaning) of stories told by different narrators. Their reliability shall be proved through comparing their information with other contemporary sources and through thorough study.¹²



The real test for linking factors involved in synergies according to the presented outline would be a monographic processing. We only intended to draw attention here to the questions and difficulties that arise during research and to set up a possible conceptual-theoretical framework for our topic. I hope that I could also draw attention to the fact that in past ages, as well as recently, the living world of communities and societies was/is embedded in a multidimensional correlation of effects, and even if sociology tries to understand the organisational and operational forms of individuals and groups within the society itself, we should not forget that there are several factors outside society which might limit or hinder the progress of potential resources in particular societies. Therefore, when trying to understand integration and disintegration processes, one must consider the complex interplay between multidimensional factors taking part in these processes. Learning about the knowledge of people before the modern, scientific world and information are not useless at all, even for us who live in a very much complex civilization, built on the basis of sophisticated, scientific knowledge, and thus being really fragile as well. *

¹¹ Data about székely people (see: SZÁDECZKY LAJOS 1896. 177–321., 1029., 1030., 1031., 1032., 1033.): lists of noblemen and free székely people in Seps, Kézdi, Orbai, Csík, Gyergyó, Kászón, Udvarhely, Maros, Aranyosszék, who were made listed and pledged by György Basta, commanding general, for loyalty to the king-monarch. Surveys on taxes and population, performed in Transylvania by the Habsburg monarchy, are presented by: PÁL-ANTAL 2007 (Marossszék), 2009 (Udvarhelyszék), 2009. (Csík-, Gyergyó- és Kászonszék.), 2011 (Háromszék).

¹² Further information about this issue in the Hungarian literature, from different aspects: theoretical-historical (see: GYÁNI 2000. 128–145.), anthropological (see: NIEDERMÜLLER 1988), social psychological (PATAKI 2001.), sociological (PÁSZKA 2007., 2009., 2010.)

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