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# On Social Scientific Approaches to the Concept of Climate Change<sup>1</sup>



## ABSTRACT

Climate change, both as a natural and a social phenomenon, represents a defining theme and challenge for contemporary global scientific, economic, political and cultural life. In my study, I would like to present an approach to the issue that does not primarily focus on the specific social effects of climate change, but tries to model how the phenomenon is thematised in social communication networks. According to my assumption, as a discursive node that thematizes social knowledge, the concept of climate change also participates in the definition of meaning systems that are much broader than the specific topic.

The study presents the concepts of climate change created in social communication processes, reviews the structure and different layers of these concepts, and also the discourses of social communication related to climate change.

The study also addresses the problems indicated by the concepts of ‘agency’ and ‘anthropocene’, which, through the interpretation of climate change as a natural and social phenomenon, point to a new thematisation of the relationship between nature and society within the system of social knowledge.

## KEYWORDS

Climate Change, Anthropocene, Social Communication

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## INTRODUCTION

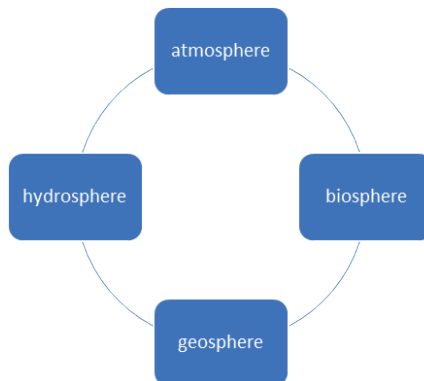
The range of issues and problems related to climate change is extremely complex from several points of view, it affects almost the entire spectrum of social sciences from philosophy to theoretical and empirical sociology, economics, political science, literary and cultural sciences. As a result of all this, “There is no one story to tell about climate change. We need a broad variety of insights about climate and its interactions with the human mind and its cultural manifestations; such insights will offer a sufficient number of entry points for human actors to work creatively with the idea of climate change rather than let it paralyze us with fear or fatalism. Neither climate nor humans are fully in charge”<sup>2</sup>.

The present study wishes to outline a social scientific approach, but it is important, above all, to clarify the essential differences between the natural and social science interpretations of the concept of climate change. It is, then, worth examining how the concept of climate change appears in the so-called “social reality”: what is the relationship between the conscious (knowledge-like) and the indirect, non-conscious (attitude-like) components that build the interpretation of the concept and motivate the social actions related to it.

## 1. HOW DO THE NATURAL AND SOCIAL SCIENCES UNDERSTAND CLIMATE CHANGE?

In the following I would like to briefly review two juxtaposed interpretation ranges of the concept of climate change: the one from natural and the one from social science investigations.

From a point of view of natural science, climate change is a quantifiable, measurable and modelable natural phenomenon, which can be modeled as a holistic system formed by the interactions of natural “spheres” (geosphere, biosphere, hydrosphere and atmosphere) that can be interpreted as operationally closed systems:



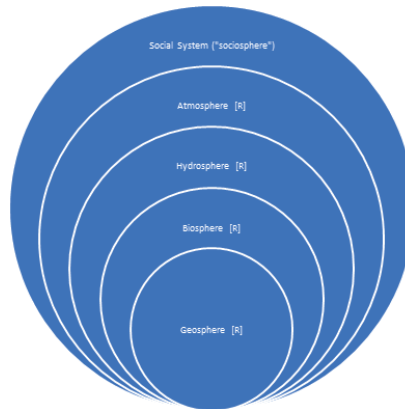
<sup>2</sup> HULME 2015. 298.

The goal of natural science studies is to quantitatively model and understand these systems and their interactions, as objectively as possible, focusing on the systems themselves. According to the generally accepted self-interpretation of natural science investigation, its subjects are natural objects.

At the same time, climate change is also a social phenomenon. As soon as we recognize that humanity has become the shaping agent of the physical climate (a recognition which is mostly concentrated in the Anthropocene concept<sup>3</sup>), we must become aware that economic, cultural, social, political and ethical practices make the filters that define the socially constructed meaning of climate change. It is important to emphasize that the “social concept” (meaning) of climate change has an indirect relationship with the natural phenomenon itself: “And as this idea meets new cultures on its travels and encounters the worlds of politics, economics, popular culture, commerce and religion – often through the interposing role of the media – climate change takes on new meanings and serves new purposes.”<sup>4</sup>

The meaning of climate change thus takes on new and new “social” elements in the networks of social communication, very different from its original “natural” aspects. It fits into a web of different attitudes, ethical, ideological and political beliefs, past and future interpretations related to risk, technology and well-being.<sup>5</sup> (Their conceptualisation, operationalisation and measurement is a rather large methodological challenge, which in itself generates serious debates.)

In the ‘social concept’ of climate change, the previously presented systems (spheres) can be modeled in addition to the system of society, more accurately, as parts of it:



As Figure 2 also shows, in the ‘social concept’ of climate change, the spheres described with natural science tools do not appear in their ‘reality’, but are embedded in social reality, in the form of representations defined by meaning systems (this is indicated in the figure by the individual [R] index attached to the names of spheres). This is how the concept of climate change takes on socially created and defined meanings, and in this form it appears and becomes perceptible to the members of societies (in form of public discourses).

<sup>3</sup> For the term ‘Anthropocene’ see: Arias-Maldonado 2015. 73–95.

<sup>4</sup> HULME 2009. 37.

<sup>5</sup> HULME 2009. 38.

As Martin Voss also points out, the problems related to climate change began to emerge for researchers (natural scientists) from the middle of the 20th century, but for the public, all of this could only appear from the beginning of the 21st century, because as parts of social reality the problem, the possible overview and the ability to act are all constituted in the social space, in the form of direct and indirect interactions and communication processes.<sup>6</sup>

As a result of the above, the aim of social science studies is to reveal, in general, how the social system includes and processes the systems originally identified as natural. In this respect, in my opinion, at least two different approaches can be distinguished, the difference of which leads to the so-called “agency problem”.

One view could be essentially summarised as a natural cause (in this case, climate change) directly leading to certain social consequences. This model of natural cause and social effect tries to describe the direct social consequences of climate change, such as migration, the emergence and functioning of various forms of violence, etc. This approach is basically characterised by empirical efforts to explore the current situation.<sup>7</sup>

The second approach ventures much further than the first one in the field of social hermeneutics, insofar as it wants to explore the history of the perception and cultural reflection of climate (the cultural concepts generated and defined by it) as a background for the interpretation of the current situation<sup>8</sup> (Thorough historical analyzes of Hungary and the Carpathian Basin from this point of view can be read in the works of Imre Pászka<sup>9</sup>). This approach is interested in how all those social filter systems and discourses which, according to their own nature and possibilities, make the concepts of climate and climate change accessible to social communication, are created and function. This understanding is theoretical and mostly characterised by historical sensibility (the question often arises, for example, how the concept of climate could be interpreted before and after the appearance of units of measure, measuring devices, and scientific models).

The difference between the two approaches leads to a question concerning the essence of the possible interpretation of climate change, namely the so-called “agency problem”,<sup>10</sup> which can be briefly summarised as whether scientific modeling views climate itself as an *index* indicating change or as an *agent* of change. In the first sense climate, as an indicator of measurable weather trends, gives a sort of indexical sense of change: this fundamentally quantitative approach, primarily based on measurable data, is expressed with the term ‘Climatic Change’ (under which title a magazine was also launched in 1977). The basic question in this case is: *what* is climate change?

In the latter sense, climate is an agent of change: a natural force *and* sociocultural pattern that causes both natural and social changes (in English terminology: Climate Change. Here, ‘climate’ is a noun, the cause of change, not merely an adjective). This approach (which has been increasingly popular in the literature since the 1990s) generally places more emphasis on the non-direct, mutually determining, dialectical relationship of natural and cultural connections, rejects the ‘natural cause – direct social consequence’ model that can be considered traditional. The basic question sounds like this: what does climate (change) *do*, how does it affect?

<sup>6</sup> Voss 10–15.

<sup>7</sup> The best-known example of this model is perhaps: WELZER 2015.

<sup>8</sup> BOJA 2005; GLACKEN 1976; HULME 2009.

<sup>9</sup> PÁSZKA 2019; PÁSZKA 2020.

<sup>10</sup> For the agency-problem see: HULME 2015.

According to this, climate is a natural force transformed into a social one, “which influences social habits, economic well-being, health, and the total energy of nations”.<sup>11</sup>

The perception just summarised in the words of Mike Hulme thus defines the inherently natural phenomenon of climate change as a social/cultural agent. At this point, it is worthwhile to place next to it another concept that has become extremely popular since the turn of the millennium: Anthropocene. This idea is discussed in an extremely wide spectrum of sciences, from earth sciences to economics, philosophy, cultural anthropology, critical social sciences, and geopolitics. In essence, this is within the scope of agency, only from the “other side”, insofar as it thematises that human (social) action becomes a determining force (agent) in terms of the shaping of the natural environment: “[the Anthropocene] refers to a new phase in planetary history, we are told, when humanity has become a major force of nature that is changing the dynamics and functioning of Earth itself”.<sup>12</sup> In his famous essay, Bruno Latour points out the significance of all that regarding the scientific approach and epistemology in general: “While the older problem of science studies was to understand the active role of scientists in the construction of facts, a new problem arises: how to understand the active role of human agency not only in the construction of facts, but also in the very existence of the phenomena those facts are trying to document”.<sup>13</sup> Juxtaposing the agent concept of climate change presented by Hulme and the Anthropocene concept, the dialectical relationship between the natural and social spheres (interacting with each other and mutually determining each other) is clearly outlined. In my opinion, an accurate understanding of this relationship is the key and the starting point for the actual, theoretically demanding understanding and possible modelling of climate change (and its significance) from the point of view of the social sciences. This is where Martin Voss’s statement can be understood, according to which the research on climate change actually confronts the social sciences with their own basic questions, if, for example, it prompts a reconsideration of the old, fundamental ontological and epistemological connotations of the paradigms of realism/social constructivism (in other words: naturalism/sociologism). These are based on the fundamental separation of society and the natural environment and assume the primacy of one of the two spheres as a starting point, while both the agent concept presented by Hulme and the Anthropocene concept (especially with the emphasis placed by Latour) are subordinated, interacting, and posit a new kind of relationship.

## CLIMATE CHANGE AS A FORCE ORGANISING SOCIAL DISCOURSES

When defining the social concept of climate change, we are not asking about objects, but about subjective representations of natural objects and phenomena. The natural and social science approaches therefore talk about climate change quite differently. So differently, in fact, that Martin Voss states that “Climate change as a positivity (positive fact) independent of humans, which can be pointed out ‘out there’ with the methods and tools of the natural sciences, does not exist for the social sciences”.<sup>14</sup>

<sup>11</sup> HULME 2015. 290.

<sup>12</sup> LÖVBRAND – MOBJÖRK – SÖDER 2020. 2.

<sup>13</sup> LATOUR 2014. 2.

<sup>14</sup> VOSS 2010. 26.

Regarding societies, “knowledge and understanding of climate change is mediated through a range of social and discursive practices. The unique complexity of climate change means that such mediations span a wide range of institutions and representational practices, from positivist science and the environmental movement, to media representations, politics and popular culture”.<sup>15</sup> I would like to emphasise that the knowledge systems and discursive practices also mentioned in the quote primarily do not directly include (professional) scientific results, but rather beliefs that play a fundamental role in the construction of the so-called “social reality”,<sup>16</sup> the self-interpretation and world-interpretation accepted as reality by the given society. The most important medium of social reality is so-called “ordinary knowledge” shared by different systems of social communication. The term ‘knowledge’ will be defined in the words of Mike Hulme: “Knowledge is a form of representation in which some material or imaginative reality is given discursive shape, political legitimacy, and cultural status through technological and social processes. Whether knowledge is scientific, local, or personal, its making always involves human values and cultural framings”.<sup>17</sup> The body of knowledge about climate change can be understood as a synthesis of various concrete knowledge contents (‘facts’) and various, basically subjective, emotionally colored and unreflected associations, framings, moods, in short: attitudes.

The social knowledge created in the manner described above has been organised into discourses. These discourses are mostly characterised by specific knowledge-attitude combinations, their specific thematic contextualisation (e.g. climate change and migration, climate change and capitalism as closely linked) and their own language, i.e. metaphors and vocabulary (according to Mike Hulme: climate change as battleground, justification, threat or inspiration<sup>18</sup>). The literature<sup>19</sup> separates (with some simplification) three major discourses in social communication related to climate change: the discourses of ‘climate catastrophe’, ‘climate scepticism’ and ‘climate realism’. The first sees climate change as an unstoppable catastrophe, the second as a product of political-economic conspiracy theories, and the third as a phenomenon that can be understood, modelled and managed scientifically.

As an illustration I would like to briefly present below some data, which came from a questionnaire survey conducted in April 2021 at Pannon University, in the framework of the Climate Change National Laboratory. The online questionnaire was filled out by 10 000 people, of whom 3 810 answered all questions. The survey was not representative, but at the same time the relatively high number of responses certainly allows for conclusions about trends – certainly in a way and to the extent that corresponds to our current, illustrative intent.

Based on the results of the survey, the vast majority of respondents represents the discourse of climate realism. A very small percentage of them agree with the propositions of the discourses of climate catastrophe and climate scepticism: only 1.9% completely agree with the statement that “climate change is not actually happening, it is a pseudo-scientific and political slogan”, and 3.6% with the statement according to which “climate change can no longer be stopped, no matter what the politicians and scientists claim”.

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<sup>15</sup> DOYLE 2011. 2.

<sup>16</sup> For the terms „social reality” see: BERGER – LUCKMANN 1967.

<sup>17</sup> HULME 2015. 294.

<sup>18</sup> For the metaphors described by Hulme, see: HULME 2009. 40 – 42.

<sup>19</sup> JANKÓ – MÓRICZ – PAPPNÉ 2011.

On the other hand, 80.7% believe that climate change is a completely real threat, and 69.9% agree or completely agree with the statement “If world leaders accepted the models and opinions of scientists, climate change could be stopped”. In addition, 73.8% agree or completely agree with the statement “Climate change is a process that can be accurately modelled scientifically”: therefore, the discourse of ‘climate realism’ really represents an overwhelming majority among those who filled out the questionnaire.

## LAYERS OF THE CLIMATE CHANGE CONCEPT

Below I would like to present the possible layers of the complex concept of climate, decreasing in the level of abstraction and related reflectivity. The grouping below, borrowed from Ferenc Jankó,<sup>20</sup> clearly shows how the various elements of knowledge and attitudes can be layered on top of each other, outlining the spectrum from objectivity to subjectivity, from the conscious/reflected to the completely unconscious/unreflected. It is worth emphasising that the terms defined below as “climate concepts” denote individual points of the spectrum, they are not necessarily separated from each other according to exclusive or relative importance. As Ina Dietzsch puts it, “one endpoint is the abstraction of the complex statistical construction of climate change, and the other is experience and living, in the context of which ordinary people organize their actions and make their moral decisions.”<sup>21</sup>

Our actual climate concepts are located somewhere on the spectrum, perhaps closer to one or another of the “climate concepts” presented here, but in any case including elements that can be assigned to the others. In other words: our actual climate concepts can be modelled as a proportional synthesis of the components presented below.

- a. **Statistical climate concept:** This is the climate concept of meteorology/climatology. It is actually a statistical model and as such, a scientific construction: “global climate” as such cannot be experienced concretely anywhere, just as “average temperature” does not exist in an observable way. The source of the statistical climate concept is the scientifically controlled public (specialist texts, informative texts, etc.). This is the “scientific”, factual, objective (considered) concept of climate.
- b. **Cultural climate concept:** A concept that can be interpreted in the context of the community, society, a concept that is not strictly reflected, interwoven with beliefs, subcultural elements and meaning systems (such as, for example, the system of observations built into popular culture and consolidated in nursery rhymes, but this is also the climate concept of climate sceptics). In this concept, the attitudes and the associated dictionaries (metaphors) and narratives (e.g. “climate catastrophe”) are present in a structured way.
- c. **Psychological (or “individual”) climate concept:** It appears at the level of the individual, it depends on lifestyle, place of residence, age, etc. It is formed in the memory, based on one’s own observations and memories related to the climate. People compare “today’s” weather to this (e.g. “every Christmas used to be white”). Of the three, this is most closely related to unreflected and unstructured attitudes, and it is the least conscious in general.

<sup>20</sup> JANKÓ 2017.

<sup>21</sup> DIETZSCH 2017. 22.

The more subjective and unreflected layers of the complex concept of climate can only be explored and interpreted indirectly, with questions directed at the attitudes related to them, firstly because of their lack of reflection, and secondly because – as mentioned earlier – attitudes play a decisive role in their formation and operation.

The set of natural phenomena of climate change can therefore actually be understood as an external irritation penetrating societies, which can only appear and act in the contexts of social reality in accordance with the laws and connections of these contexts. Climate change can and does become an actual, integral part of everyday life and social actions filtered through meaning systems, possible associations and attitudes that determine the realities of individual people. What we know about climate change itself and the ways in which it actually affects us through our social reality (determines our some of our actions, attitudes and, where appropriate, our anxieties) are not necessarily directly related. One of the primary tasks of social science research is to explore and understand these not necessarily conscious mechanisms of influence and meaning systems (in a word: contexts) in order to make social actions aware and organized in a suitable way at different levels of social life, from the micro-environment of everyday life to the level of political decision-making. A valid and effective response to the irritation caused by climate change in any social environment can only be given in the form of conscious and, if possible, coordinated action patterns, because the problem can ultimately only be approached through actions, and these actions are motivated by the complex climate concept outlined above. Let us emphasise again: it is not necessarily about actions appearing at the social macro-levels. In the everyday life of individual people, there are also motivations that, consciously or not, are definitely related to environmental problems expressed in the phenomenon of climate change, and the actions motivated by these are an important part of the totality of social reactions related to climate change. As an example, I would like to refer again to the data of the survey conducted by Climate Change National Laboratory cited earlier: 88.2% of the respondents collect waste selectively, 71.5% claim that they only buy things that are absolutely necessary, 84.9% use LED bulbs, and 84.8% claim that they have their devices repaired rather than replaced – these are all decisions and actions motivated by the problem examined, which are represented by a very high proportion of the respondents.

At their own level and in their own way, these data also prove that human action (even at the level of the individual) is a fundamental component of climate protection and, in general, of the closely related environmental awareness: climate change is a problem shared by both the natural and social spheres in terms of its cause and solution. It appears in its agency, in its dialectical relationship.

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