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Signs of Change: Studying Climate Change as Social Change from Within

Thomas Scheffer [1] – Goethe University, Frankfurt

Abstract

This essay develops an ethnomethodological approach to studying climate change as social change, positioned between the intervention-oriented concerns of transformation studies and the general theories of social change found in sociology. Rather than treating social change as an abstract process to be explained from the outside, the article approaches it as a practical concern: something that members of society recognise, interpret, respond to, and participate in bringing about. Climate change presents an existential problem that increasingly enters into the routine organisation and reproduction of social life. The article proposes understanding this process through different stages of realisation, in which climate change becomes recognised and responded to in ways that may become increasingly competent, routine, and automatic, while also generating resistance and denial. Drawing on ethnomethodology, the analysis examines the signs of change through which members of society, including sociologists, make these developments visible, accountable, and consequential. Such signs reveal how different stages of realisation coexist, intersect, and inform possibilities for further change. In doing so, the article offers an approach to investigating climate change as social change from within: not as a transformation with identifiable beginnings or endings, but as an ongoing, practically accomplished process.

Keywords

climate change; ethnomethodology; existential problems; social change; transformation; trans-sequential analysis

[1] Corresponding author - contact: scheffer@soz.uni-frankfurt.de

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Introduction

When it comes to studying relatively new *overarching* and *dynamic* phenomena such as human-made climate change, the diagnosis offered by Herbert Marcuse and Franz Neumann may once again prove applicable:

> "To be sure, there were thorough analyses of social phenomena, particularly the causes of unrest and revolution, the conditions of wealth and power, the stability and adequacy of various forms of government, the mechanisms of social control and public opinion. All these phenomena, however, were studied under definitely pragmatic aims, in connection with definite social and political interests, and wherever the investigation went beyond this framework, it was directed by philosophical or even theological ideas." (Marcuse and Neumann 1998, 107-1)

According to Marcuse and Neumann, social change was all too often secondary to concerns for stability,[2] general wisdom, and normativity. The result was a lack of empirical sociologies of change, felt particularly strongly where the need for change is most obvious: in the face of an existential problem. The need for change challenges the ways members, sociologists included, think about society and its social order. Times of change call for sociological thinking to be revised in order to capture the radical implications of such transformations.

Today, sociologists' hesitation to trace and analyse ongoing empirical change becomes apparent in distancing their approaches from climate mitigation. Neo-Marxists claim that it will not happen under capitalist rule (Koch 2012);[3] liberal critics worry that it implies authoritarian rule (Fernández and Hart 2023); critical discourse scholars study how it is captured by eco-fascist thought (Satgar 2021); anti-modern sceptics suspect it is just another trend in the shift toward totalising control (Wainwright and Mann 2012; Braun 2014). Others, engaging in a general cultural critique, give up on it, becoming post-catastrophic instead (Meier and Peters 2025). And the truly concerned demand that it begin in earnest *now*, through fundamentally new ways of thinking. The absence of perspectives that understand climate change as social change appears to be an inherent part of the very phenomenon to be studied.

In the following theoretical sketch,[4] I argue, from a post-dogmatic ethnomethodological perspective, that reflexive sociological responses to climate change as a public matter tend not to derive from dismissing climate change as an important issue, but rather from overly narrow, uniform, and politicised conceptions of social change. To counter the lack of descriptive effort, which risks relegating climate change to the status of external irritation, I propose the following sensitising query on climate-induced social change. The guiding question for such an enquiry is this: How (far) is climate change realised (in this society) today? And how is this realisation observable and accountable for

[2] "It must be noted that it was precisely the dynamic character of the new order which induced its theorists to subordinate the problem of social change to the problem of social stability." (Marcuse and Neumann 1998, 108)

[3] For instance: "In short, within the framework of the current accumulation regime and its consumption norm, and on the basis of the current mode of regulation and energy regime, the type of changes in production and consumption processes that scientists regard as necessary to mitigate climate change will be impossible to achieve…" (Koch 2012: 184-5)

[4] This sketch presents the theoretical foundations for the author's comprehensive empirical diagnosis titled *Climate Change as Social Change: The Stages of Existential Realization* (Scheffer, forthcoming).

such an enquiry? Such a query calls for a diagnostic description that stays true to the complexities of the 'matter in the making'. This description shall capture climate change as a reality in itself and, due to events and processes of realisation, to some degree, of itself. The resulting diagnostics bridge the gap between *transformation studies* and *theories of social change*. Both, I argue, offer capacities for studying the changing status of and orientation towards the force/s of climate change.

When it comes to 'climate mitigation' or climate adaptation' (to use two basic terms from climate governance), social and climate scientists tend either to study single streams of transformation or to examine broader trends in prevailing collective opinion and governmentality. Macro-sociologists frequently interpret responses to climate change as articulations of tendencies in social change itself, such as 'individualisation',[5] 'acceleration',[6] 'synthetisation,[7] or 'digitalisation'.[8] Apparently, Sociology regards climate change as insufficiently social, or insufficiently broad in scope, to warrant recognition as a distinct category within the study of a changing society. When it comes to climate change as social change, Max Weber's term of 'Vergesellschaftung' or sociation (1922)[9] might help us to overcome this exclusion. Climate change as social change involves an entire 'society in formation',[10] consistent with the realisation of a range and nexus of existential drivers such as war, poverty, and mass extinction. In this vein, climate change does indeed push for social change in *all* areas of social life. It becomes, I argue further, an omnipresent social force demanding answers to problems across the countless stages of everyday affairs, specialised/technical apparatuses, and processes of de/mobilising governance.

Between Transformation Studies and Theories of Change

Omnipresent, consequential climate change erodes the strict separation of transformation studies and the sociology of social change. On the one hand, climate change matters to a degree that it pushes for transformative efforts by whatever entity[11] towards mitigation and adaptation. Such organised efforts are regularly captured by transformation studies. On the other hand, even without these efforts materialising, change is taking place in countless ways due to the unleashed natural forces of swiftly changing weather patterns. The two fields of research seem themselves stressed by the driving force of climate change – working against their inherent logics. Let us take a brief look at these two fields:

[5] The term was used by Georg Simmel ([1908] 2009) and Emile Durkheim ([1893] 1984). Updated versions can be found in works by Anthony Giddens (1990) and, more recently, Andreas Reckwitz (2006).

[6] This idea was coined by Paul Virilio ([1990] 2000) and later utilised for a general diagnostic of the (Western) modern condition by Hartmut Rosa ([2005] 2013).

[7] Karin Knorr (2009) uses the term to extend Goffman's microsociology of the 'social situation' to include electronic and digital ecologies.

[8] System theorists such as Armin Nassehi (2019) and Dirk Baecker (2025) offer a sociological take on the general mode of this kind of simplified and accumulative operation.

[9] For Weber, 'Vergesellschaftung' refers to a rule or principle, such as 'rationalization' or 'economization', under which all affairs or businesses are subsumed. Acting upon climate change as something real requires that 'Vergesellschaftung' be understood as the formation of adequate social agency.

[10] It is here that transformation meets societal change: "To achieve net zero goals, a rapid and society-wide transformation is necessary…" (Verfuerth et al. 2023, 97).

[11] Recent transformation studies regarding climate change show a preference for nation-states, alliances of nation-states (Hölscher et al. 2022) or cities (Krueger et al. 2022). Especially the relation to the nation and nationalism is regarded as vastly ambivalent due to prevalent methodological nationalism on the one hand and the global dimensions of climate change on the other (Conversi 2020).

(1) Transformation studies focuses on challenging, genuinely relevant eco-social innovation projects.[12] These projects promise problem-adequate efforts. They are designed and implemented by collective agents, including state agencies, enterprises, and civil society, regarding pressing issues, such as phasing out coal mining and electrifying public transport, in specific regions. A transformation study seeks to measure the gap between promise and fulfilment, between what is needed and what is actually achieved.[13] Work in the field of transformation studies, much like that in organisation studies, assembles 'comparable' cases which it then categorises. Such studies aim at lessons to be learnt beyond the single undertaking: distinguishing contributions by relevance, motivating a wide range of staff, building a corporate identity, accelerating efficiency, enhancing resilience, etc. These general challenges are accompanied by demands to objectify and measure 'success'. The casuistic frame ('organisation'; 'transformation') gathers and compares cases, including aspects of them such as directed programming or overall division of labour. General norms presumed by transformation studies include a shared orientation toward improvement. Objectification of improvement is achieved by methodical reductions to relevant criteria and reachable goals. Transformation becomes measurable. What is more, transformation projects foster scientifically accompanied professionalisation due to expected obstacles and the potential for failure. The knowledge generated through transformation studies moves beyond the case-specific to offer generalisable and objectifiable lessons.[14] The casuistic learning program implies constant *improvement* by orienting towards 'successful' strategies. Climate-induced change confronts transformation projects and their accompanying research with the excess of conditions of success due to systemic dependencies on resources – here: fossil energies - that cause it.

(2) The macro-sociology of social change appears to be fundamentally different from transformation studies by approaching these conditions as somehow shifting ground. Scholars distinguish transformation from change through generalisation markers. Social change is taken as complex and irreducible to a single project; social change exceeds concepts of power and agency;[15] social change has no centre and no plan; social change is normatively ambivalent. These characteristics are most evident where the macro-sociological accounts present themselves as studies of modernity and societal development.[16] From a holistic perspective, modernisation implies a totalising shift away from traditional society, much like Tönnies' transition from the intimate, concrete community or 'Gemeinschaft' to the impersonal, abstract society or 'Gesellschaft', Durkheim's shift from uniform 'mechanical solidarity' to differentiated 'organic solidarity', or Luhmann's move from 'segmentary differentiation' to 'functional differentiation'. Thinking in such generalised terms creates thin and

[12] The term 'transformation' is commonly used in the climate social science literature, a "diverse, fragmented research field" concentrated on high-income countries (Moore et al. 2021). The literature focused on "transformational climate change mitigation" (Moore et al. 2021) as the broad, deep, and rapid societal changes needed to meet the Paris Agreement goals.

[13] For instance, Linnér and Wibeck (2020) developed an analytical framework distinguishing four modes of sustainability transformation, quantum leap, convergent, emergent, and gradual, varying by system level, pace, and scope.

[14] Bärnthaler, Barlow, et al. identified six patterns of transformative climate actions, including prioritising sufficiency over efficiency, empowering collective agency over individual behavioural change, and favouring multi-level planning over market-based governance (Bärnthaler et al., 2025).

[15] Luhmann (1989), for instance, would repeatedly argue that, 'fortunately', functionally differentiated society does not obtain one centre and, 'fortunately', it could not be steered purposefully in one direction. Anti-modern understandings of the term 'dispositive', as used by some post-Foucauldian scholars, seem to run counter to this neo-functionalist intuition.

[16] Definitions tend toward the broadest level of generality, as, for instance, in the following: "Social change is the universal feature of human societies across time and space. The fundamental principle underlying this statement is the degree, pattern, unit, and direction of change…" (Srivastava 2025, 85).

monodirectional accounts of social change. Sociologies of change operate with such two-steps, whereas conventional sociology of 'modern society' situates itself at the current stage, looking backwards to structurally different predecessors. Here, modern society serves as the explanandum, social change as the explanans. Climate-induced change reverses this. It confronts us with a confusing simultaneity of 'sediments of time' (Koselleck 2018) or, by adding a rather performative drift, of diversified stages at different points of change right next to each other.[17] Climate-induced change can be heard as the call for change-to-come or seen as the signs for pending change of even another 'next society' (Baecker 2025)[18] – one that is 'in the air', while still far from being realised.

When examining empirical transformation studies and the macro-sociology of change, we encounter laterally reversed directions and limitations. From here, we can make some general observations on the social scientific discourse: First, the two fields operate separately. This separation reproduces sociological dualisms such as structure/action and micro/macro. Second, we encounter overdetermination of the distinct vocabularies coupled with the mutual principal delimiting of the two fields. The two seem incapable of informing each other. Third, each field seems to omit precisely what defines the respective other. The sociology of social change brackets out collective purpose, focal conflict, and failure, while transformation studies tends to exclude further, unintended consequences and general, displaced drivers. Theoretical holism and positivist operationalisation appear incompatible indeed. Overall, a need for empirical *and* non-reductionist social research on change can be identified, as sketched out by Marcuse and Neumann:

> "The subject matter of Vico's[19] work is the totality of the material and nonmaterial culture in their historical development and interrelation. He views this totality—and this is his decisive achievement—as 'the work of men', thus terminating the vain search for universal cosmic laws under which the social process appeared as the result of more or less suprasocial forces. The social world emerged as the realm of human wants, desires and interests, as the ever-renewed contest between man and nature and history, and when Vico set out to establish the general tendencies of this contest, he tried to do this on a definitely empirical basis." (Marcuse and Neumann 1998, 108-9)

An approach that is broadly compatible with the notion of directed social change, meaning change with an orientation towards a certain problem and its realisation, is adopted by Aykut et al. (2025) in their excellent and exemplary study of climate transformation, here on the German case. They present it as a comprehensive undertaking close to an all-encompassing change. The research group, based in Hamburg, incorporates a broad selection of intersectional processes, each demanding inputs from law, technology, and politics. The following is a longer excerpt from their theoretical framing:

> "Research providing policy advice on the energy and climate transition is generally dominated by techno-economic scenarios based on quantitative calculations using models of the economic and energy systems. These models combine economic and technological processes in complex ways, but largely abstract away from social and political dynamics (...). Climate policy measures, for example,

[17] "The concepts of sediments and sedimentation allow Koselleck to signal the process by which different layers of the past accumulate over time and coexist, if often in volatile ways." (Allen 2019, 444)

[18] Baecker refers to the 'next society' (2025) not in terms of climate change, but as the one emerging through complete digitalisation.

[19] Giambattista Vico (1668-1744) was an Italian philosopher and critic of modern rationalism.

> are often simulated in a highly simplified manner in the form of variations in the price of CO_2. This leaves out the social impacts of such measures, as well as the underlying political negotiation processes and institutional barriers to implementation (...).
>
> Studies on transitions within *sociotechnical regimes* constitute another important approach. Here, the focus is broadened to include social and political institutions; however, technical innovations remain at the forefront as the primary drivers of change (...). For a long time, the role of policy was seen primarily as the 'management of transitions', ensuring that sustainable technologies are supported as they progress from the status of niche innovations to market diffusion (...). Recently, however, issues of power and conflict have come more into focus (...). However, the emphasis remains primarily on the *'feasibility'* of technical solutions (...). Furthermore, studies usually examine transitions in individual sectors – such as the electricity or mobility sectors – without developing an integrated perspective on societal change as a whole.
>
> In contrast to these ultimately technology-centred approaches, our approach locates the driving forces for change primarily in social processes. For example, the current boom in renewable energy can, of course, be explained initially by innovation dynamics and the resulting cost reductions; historically, however, it was also caused by the introduction of the Renewable Energy Sources Act in Germany in 2000 – a political measure which, in turn, was the result of mobilization within the context of the anti-nuclear movement..." (Aykut et al. 2025, 20)

While this theoretical perspective is to a large extent consistent with a broad empirical understanding of directed social change, it differs in several fundamental respects from the climate change as social change perspective. (1) The research field – here: Germany as a nationally contained society - is delimited or framed by using an indisputably valid, proto-theoretical policy orientation. (2) The active role of climate change as an existential problem is opaque, if not entirely excluded. Climate is not considered a force for change in its own right. (3) The 'signs of change', meaning all accountable indications by which members can observe and show that change is taking place, are not an integral part of the approach. This leaves open the question of what members, including researchers, treat as, and reflect on as, data, and how they capture change through these data. (4) The reflexivity of the institutions'/actors' practical orientation is bracketed out, since they themselves use such data as signposts for orientation within the back-and-forth of the demanding work and confrontation. (5) The selected 'social processes' are detached from staged, inference-rich events in the here and now. Events are only accounted for ex post, leaving open the question of how their contingency is practically dealt with. This includes their integration into, and status within, ongoing social processes. To summarise: While Aykut et al.'s (2025) take on social change derives from a demanding comprehensive scheme, a practical grounding in terms of 'signs of change' and reflexively 'doing change' is missing. Climate change as social change seeks to fill exactly this gap.

In the following, I set out how an empirical sociology of climate change as social change can be designed. First, I propose the guiding question, for both members and researchers, of how (far) this totality called society realises climate change. Second, I converge transformation and social change to reveal both the wood and the trees, meaning a *society-in-formation* and the many instances of *doing climate change*. Third, I include the counterforces and discrepancies not only at the level of individual transformation projects, but at the level of a responsive, or, better, response-able, society-in-becoming. The basis for these analytical moves is realist and post-constructivist: the

acknowledgement of climatological knowledge demonstrating that, beyond a certain threshold, global heating is in fact an existential problem: a relatively powerful destructive force capable of questioning the reproduction of society[20] as we know it. For society, climate change is both a driver and a question at the same time. It is part and parcel of the overall living conditions to be realised in practical and social terms.

Situating The Forces of Change

Climate change, like any other existential problem, pushes transformation studies beyond a focus on sectors or regions toward considering the totality of capacities, meaning society. This is because the existential problem concerns, threatens, tests, and, therefore, demands what is often referred to as 'the entire society'. Hence, the efforts to prevent *the worst* involve *all* sectors, systems, and regions - just as they do, for instance, in times of war. Climate change, too, demands the protection of a collective good and a general mobilisation. Agency regarding climate change calls for integration. Such aspirations are alien to liberal theories of social change, in which the latter is understood as taking place without overarching motive, material drive, or common goal, instead being regarded as something that occurs 'wildly', ongoing and unavoidable. With climate change, social change appears all the more necessary. This is the basis for making change accountable and, more importantly, enabling it to be closely observed and measured by all those responsible and concerned.

Various sociological classics describe social change in terms of its driving forces, including certain basics and resources at the heart of it. Max Weber, for instance, referred to coal as the basis of the Western model of modernisation, including general rationalisation and bureaucratisation.[21] Others singled out certain technologies, such as printing devices, electricity, nuclear power (Jungk 1977), virology, birth control, programmed ordering devices (Nassehi 2019), or, more recently, artificial intelligence, as major revolutionary innovations and sources of risk. Each can generate waves of structural change from within, often described in abstract diagnostic terms as eras, phases, or 'stages' (see Stichweh 2020). Yet these 'stages' are rarely reflexively bound to the worked-on and contested 'signs of change'[22] amid those changes. There is indeed some staging going on that provides orientation to those exposed to the existential problem and the attempts to respond to it.

A somewhat inverse theoretical approach is offered by Antony Giddens' *Critique of Historical Materialism* (Giddens 1983), combining the Marxist dialectics of change (driven mainly by economic/technological competition) with Weber's account of the expanding and increasingly rationalised state apparatus. For Giddens, the nation-state as a complex social formation has been driven by military competition. The emerging state-building process had to establish a monopoly over

[20] There are some similarities with war and pandemics here, but also profound differences. Wars eventually end; climate change does not, at least not from a humanist viewpoint. Once certain tipping points are crossed, the forces unleashed will continue to haunt humanity and its ecosystems for centuries to come.

[21] In his renowned essay *The Protestant Ethic*, Weber delimits industrial modernisation "until the last hundredweight of fossil fuel has been burned." ([1904/1905] 2005). Andreas Folkers (2026) develops this further by describing Western modernity as a fossil regime whose residues include ubiquitous microplastics and the accumulation of CO_2 in the atmosphere.

[22] The notion of stage and stages is used to articulate my argumentation. Stages are (1) following Erving Goffman (1959), arenas of visibility and, perhaps, competition and struggle, that (2) signal via certain 'signs of change' (Morris [1888] 1986) progress or regress. The notion of realisation respecifies the stages of change by referring to the necessity of living up to an 'undeniable' existential problem. The staged signs are consistent with what we can legitimately expect in the foreseeable future (see Luhmann [1997] 2013).

the (economic and social) means of (military) violence while facing competing/threatening others. An interesting aspect of Giddens' historical take is the multifaceted nature of his diagnosis. He includes various 'unexpected' stages of change, such as taxation, the sociolegal status of the citizen, and cultural militarisation/nationalism, as integral parts of the ongoing changes. This broad undertaking seems to both resemble *and* go beyond a single transformation. The outcome on the battlefields and the output in terms of military strength came to serve as the reflexive 'signs of change' utilised by the evolving apparatuses to detect, use, and explore possibilities and capacities, which the rising counterforces of the competing 'nations' considered urgently necessary. War, thus, resembles one existential problem that at the same time challenges and pushes an entity-in-formation towards gaining the ability to respond.

Climate change as social change, with the former scientifically established as an existential problem, is in some ways comparable with war-driven change. In both cases, societies are confronted with counterforces to be realised and accounted for. Society's members and apparatuses account for them 'realistically', as something forceful, urgent, even decisive. A response is necessary. Change becomes a complex articulation of what needs to be delivered, what is still lacking, and/or what constrains any possible countermeasures. What is more, by observing the 'reality tests' (Boltanski and Thevenot 1999) through organised or even institutionalised accounts, members situate themselves within a more or less shared and commonly accepted 'problem space' (Lury 2021). In weird and winding ways, Weber's fascination with (economic and bureaucratic) accounting as a cultural technique of rationalisation is taken up by the collectives' 'stages of realisation', through which they seek to understand and study the society's means and measures of living up to a haunting problem. Stages of realisation perform if, how, and to what extent a problem is taken for real. What, then, are the socially established 'signs of change' that are staged and used to render the current stage of realisation visible and steer society toward the next one?[23] There are indeed countless signified *stages* on which change is enacted, observed, and contested by those involved.

Reflexivity, Denial, and The Need for Change

Whereas Weber singled out dominant directions of change, along with the resources needed to bring it about, Giddens located the forces of change among geopolitically competing societies-in-formation. Societies-to-be have been pushed toward rationalisation, including the development of bureaucratic apparatuses to establish general taxation, reliable infrastructure, a weapons industry, and a standing army, all to keep pace with competing others. The driver of change comes in the form of a reality test for society, confronting it with the possibility of fatal failure. But, according to Giddens, there is more to it than that. A new society (here, the modern nation-state) unfolds through these ongoing and distributed efforts. Today, by demanding swift realisation, climate change pushes for a similar reality check in countless ways, transforming the conditions under which members and apparatuses operate. What have so far counted as normal modes of production and consumption

[23] Changes in gender relations and race relations have been marked and accounted for through the observation and performance of language use. The latter, rather than the change itself, remains the object of struggle to this day. The same is true for the use of 'climate language' and 'climate models', to the extent that, for example, the Trump administration has removed the term 'climate change' from public education and communication. See https://www.nrdc.org/stories/how-trump-administration-bakes-climate-denial-us-policy#cancel, accessed September 2, 2026.

become questionable, along with the societal infrastructures and institutional frameworks underpinning them.

Both war and climate change appear as litmus tests of the social and political order: challenges that are not freely chosen from within society, regardless of whether it is governed democratically or otherwise. However, the existential status of the problem is itself 'contested' (Callon 1980), fuelled by post-truth campaigns from fossil state and capital factions. While Giddens' account of war-driven change helps us to conceptualise climate change as a driver of social change, we should not overlook this epistemic contestation. The status of the problem as an existential one refers to and depends on a set of realising preconditions including the freedom of science, professional journalism, the public sphere, and the rule of law. Only as an assured and trusted *fait social'* will the existing problem push for substantial change. Consequently, there is the need to 'do climate change' on countless stages of realisation, from everyday encounters to organised productivities and mobilising governance. Only when it is regarded as a fact does climate change become an external demand to which we must live up and respond. Any major lack of realisation, whether through denial, preference structure or retrotopian rule, renders societies and their members overly vulnerable. It leads to corrosion and decomposition undermining response-ability also in regard to other social and existential problems.

If attributed accordingly, the accumulating destructive forces impose repeated signification of the existential problem on local, regional and general publics, here, through deadly heat waves, floods, tornadoes, droughts, collapsed glaciers, etc. Again, the resemblance to war is striking. Climate change 'attacks' the communities and critical infrastructures from the air, land, and sea. As a result, due to its increasing omnipresence, climate change implies more than selective transformation. The challenge is general. It demands a distributed, collaborative response to the forces accumulating 'out there' through social production and consumption. Accounting for these multiplied forces indeed creates a rising impetus for social change, including moments of stress, overload, and loss. This, again, is where ethnomethodology comes in: as the systematic study of the members' methodical answers to the 'what next?' question. In other words: How should *we* respond to this here and now? And how can communities build the capacity to respond in the first place? This line of questioning implicates the researcher.

Climate-Driven Change: Outstanding or Ongoing?

Conventional concepts of social change explain change and its forces from within society itself, thereby indirectly reinforcing the 'dependency denial' (Hoppe 2026) characteristic of modern societies. Society appears as a self-contained entity operating according to its own logic and shaping its own future. As we have seen, however, this containment-imaginary breaks down when confronted with relational or external forces accumulating faster than social change and broader than social transformation. Today, climate-induced change seems no longer something that can be avoided; rather, it is ongoingly translated into omnipresent social currencies such as CO2-certificates or CO2-budgets. Once accepted as reality, manifold transformations follow from it, changing social life and social institutions ongoingly. What is more, due to its far-reaching implications, climate change has become a site of polarising conflict among progressive, conservative, and, increasingly, reactionary forces. Again, the arenas of struggle are manifold, repeatedly reminding us that we are indeed living in times of climate change. This might be why scholars emphasising the slow-motion disaster of

climate change tend to describe the adequate climate-response as outstanding. Change is depicted as something still to come, if at all. The following is one of many examples:

> "To achieve net zero goals, a rapid and society-wide transformation is necessary. This requires widespread adoption of low-carbon technologies as well as significant lifestyle changes, which cannot happen without meaningful public engagement. While concern about the climate crisis is at an all-time high, there is a lack of awareness among sections of the general pubic of the scale of changes needed to meet carbon targets. A dedicated engagement strategy can help build awareness of the need and support for change by involving the general public in the decision-making processes and the delivery of net zero." (Vermueth et al. 2022, 98)

Any such diagnosis of climate-induced change must start with a Durkheimian relevance marker of climate change as a *fait social*. The lack of consequential mobilisation against it creates an impression of ignorance and denial, as though climate change were not regarded as real. However, much has already been initiated and fixed, grounded in institutionally framed presuppositions. These include (1) the facticity of human-made climate change itself, which draws on the findings of the as such 'improbable' global climate research, and in doing so invoking the authority of science as a fact-fabricating apparatus (see Knorr Cetina 1981); (2) the facticity of scientific findings as a 'mode of existence' (Latour 2013) deriving from a highly specific 'language game' (Wittgenstein 1953), which is positioned alongside and above others, such as 'mere guesswork', 'impression', 'opinion', etc., when it comes to truth claims; (3) the facticity of climate change as a high-ontological-status/high-certainty phenomenon, which serves as a contrast foil assessing the extent to which our social and material practices realise the matter so far. Continuing to deny the matter even today resembles a parasite feeding on the advanced epistemic productivity of global climate science. This perspective allows us to rebuild the stage/s of existential realisation, both as arenas of accounting for climate change and as the level reached so far. On this basis, the sociologists of change can recount how much it took, has taken, and takes to live up to this massive and mounting counterforce.[24]

Interestingly, while accepting that this is a lengthy process, the predominant accounts of the necessary transformations focus entirely on *final solutions*.[25] In contrast, research on climate-induced change unfolds a stagewise exchange of reality checks, responses, and signs of change. Here, our diagnostic motives are similar to those underlying Ulrich Beck's 'risk society' (1992) and his analysis of how modern societies respond to and organise around emerging risks. According to Beck, dealing with risk drives social change across all aspects of social existence, including social relations and institutional life. While in Beck's view, the *first modernity* celebrated the expansion of possibilities, the *second modernity* focused on their negative consequences, thereby becoming increasingly reflexive. Here, reflexivity and accountability also serve as realising features, making contemporaries aware of the accelerating pace of climate change and the need to slow it, from this point onward. Whereas

[24] In understanding 'climate change as social change', I argue that effectively dealing with this challenge requires a global society, complete with division of labour and organic solidarity. Here it is important to note that, from this perspective, society shows a lack rather than an excess of power.

[25] For instance, Marx's theory of 'metabolic drift' (Marx [1939] 1993; see Moore 2011, Saito 2017) suggests that change occurs through the concentration of the industrial workforce. Whereas the countryside supplies the labouring masses with nutrients extracted from the fertile soil, the cities retain most of the resulting organic waste in their sewers, thereby disrupting the cycle of reproduction. Artificial fertilisation here and pollution there places massive strain on the environment.

Beck employed a dialectical diagnostic framework focused on the individual and institutions,[26] the study of existential realisation adopts a triadic framework,[27] examining and relating the differently dimensioned stages of realisation: common sensing, apparative production, and de/mobilising governance.

Between Transformative Undertaking and Overall Change: The Stages of Realisation

For ethnomethodologists, social change is best understood as a members' concept: something that the members themselves practically orient towards. This is how 'signs of change' become part of the social enquiry, including the attentiveness and literacy evolving with them. It is the *literate* members themselves who observe, account for, and practically accomplish climate change as social change. They may do so based on shared experience, common sense, public understandings of science, mass-mediated reports, subsidies, technical norms, insurance regulations, etc. The same is true for entire apparatuses, such as enterprises, labs or public offices, which are bound to particular practical orientations concerning, for instance, market access, commodity standards, legal rules, political programs or ethical demands. Moreover, they may do so in terms of matters understood as causing trouble, awaiting treatment, raising normal expectations, signalling responsibility, and so on. When it comes to climate change, practical orientations are accounted for or staged, thereby allowing members to observe each other in terms of how (far) the problem is realised here and now.

Many Realising Stages, But Only One Current Stage of Realisation

Certain behaviours, customs, technologies, devices, norms, or laws serve as secondary signals and primary resources for such change: from business as usual, through announcements and promises, to the pursuit of advancement and hope. The same occurrences and signs provide the empirical basis for sociologists studying climate-driven change/s. They turn practices, labour, and/or discourse into data of, the degree of, existential realisation. There are manifold examples of this: common references to the electrification of transport and heating, economic accounts on the growing relevance of regenerative energies such as photovoltaics, forms of climate activism, party programs, televised public debates, call-in radio programs, casual weather talk, creations of popular culture such as novels, science fiction, even heavy metal songs. Climate change appears as social change in countless ways.

I suggest, as a heuristic, that the manifold stages of realisation come down to the following modes or dimensions of change: 'common sensing', 'apparatuses of production', and 'governance'. Each mode holds and invests in specific capacities for realising. None of the staging modes can be replaced or supplanted by the others; no single mode can take precedence. At the same time, the respective

[26] That is to say, most diagnostics of change employ a monological model, reducing change to a single decisive core, such as collective thinking or a new technology. See Whitmarsh et al. (2021).

[27] See Marcuse and Neumann's description of Vico's approach to change: "The important point is that Vico transforms the traditional cycle of political orders into one of social orders: the relations that mark the transition from one stage to another are the social relations in which men have organized the material culture." The authors continue: "According to Vico, no isolated factor can be singled out and made responsible for the occurrence of social change. In an established culture, all factors and spheres are so interrelated that it is always the whole itself which changes…" (Marcuse and Neumann 1998, 111-2.).

others seem necessary for the stabilisation of each staging mode. On the different stages, members and apparatuses observe, narrate, fight for, negotiate, measure, and critically discuss climate change as social change, or, in other words, whether the society lives up to, or is going to live up to, the forces of climate change. Thus, a conversation at the bakery about a current weather extreme,[28] a reported surge in gas prices, regulations governing heat pumps, urgent demands for climate adaptation, victims of fatal heat waves, or bans on lawn sprinklers, can all serve as 'signs of change', enabling members to identify the presence/absence of existential realisation. It is in this broad sense of accountability and reflexivity that ethnomethodologists study ongoing social change as a relatively thick and widespread occurrence. Moreover, it is through processes of object formation that studies of work contribute views on material and symbolic production, whether in everyday encounters, factories, or parliaments and legal courts. Realising climate change, indeed, entails multiple stages and involves far more than mere talk.

In the face of these multiple sites and arenas, the question arises of how to integrate these partial views and how to relate them to each other. Again, this is a question that concerns the members' practical orientation. At the same time, it is central to the quest for social change. The members, sociologists included, may find themselves in need of the resources provided by other stages, such as scientific facts and semi-scientific reports (Sauter and Scheffer 2026), technological innovation and market-goods (Callon 1998), climate laws and legal judgements (Scheffer 2024), archived documentation and files (Vismann 2000). By studying the export of resources from some stages and their import by others, our view acquires the breadth necessary for any sociology of change. Thanks to the breadth of our selection,[29] we refrain from singling out one example to act as a symbol of it all. This overgeneralisation is common among both members and sociologists, who tend to infer the overall state of realisation from a single stage, the state of an entire field from one type of data, and our overall situation from single events. Such overgeneralisation may reflect the urge to find stable ground, or the desire to express unrest and despair in the face of increasingly damaging climate change. What is more, the sociology of climate-induced change appears as merely one stage among others, without attaining a privileged position. Some kind of overview, however, is provided by what one could call *existential numbers*: balance sheets for global, national, regional, and local CO_2 budgets. Overall, it is the CO_2 in the atmosphere[30] that provides the most widely available measure of where humanity finds itself in this change-as-a-race.

Members' Accounting for Change

How is it that members, not unlike sociologists, study their own society as changing in this or that direction? Two key conditions might be at play here. First, the *competent* members need to keep pace with the changes underway in order to obtain full membership. Second, the *vulnerable* members are concerned about whether their society is changing sufficiently quickly and in the right direction, given their reliance on certain stable conditions. The first motive for 'doing social change' is linked to

[28] A hybrid study on weather talk was conducted by the author together with MA students at Goethe University Frankfurt. Some of the resulting research papers appear on https://www.fb03.uni-frankfurt.de/175736442/Fallstudien_praxeologischer_Feld__und_Diskursforschung (accessed on September 9, 2026).

[29] In my book, I covered realizing stages such as weather talk, call-in radio shows on heat pumps, car driving test reports, abstracts on photovoltaic innovations, SUVs as retrotopian objects, eco-services, climate litigation, and national leaders' public announcements, for instance on climate conferences.

[30] As I write this article, the core measure is 429.12 ppm (July 2026) compared to 427.87 ppm (July 2025). See https://gml.noaa.gov/ccgg/trends/, accessed September 2, 2026. The value 'ppm' stands for parts per million.

questions of 'doing being ordinary' (Sacks [1984] 2010), such as keeping up to date on common themes, sensitivities, and knowledge. The second is closely related to warnings and signs of existential problems such as war, deprivation, totalitarianism, and the ecological question. It is specifically in light of the latter that members become concerned about the speed and direction of social change. Signs of change are needed here to ongoingly reaffirm the continuity of the 'immortal society' (Garfinkel 1996).

Researching climate-induced change mobilises the stages on which social change is done or performed, enabling the study of the patterns of the respective activities and methods employed by the members. It shows that social change as a subject and horizon is not monopolised by professional sociologists. It is an ongoing practical orientation, urge, and achievement that members competently bring about in both their everyday and professional dealings, as part of communities and apparatuses. This includes members' own epistemic tactics for observing change, their methods of demonstrating that they are keeping abreast of matters, closely following new developments through news or social media, reflecting on where they are lagging behind current demands, and their techniques of knowing and learning the new.[31] Change, despite its rather abstract and general character compared to transformation, is far from an external dynamic or dimension in the members' practical affairs.

It is in these practical relevancies of social change that the 'stages of realisation' obtain such a crucial role. They serve as inference-rich occurrences, offering 'signs of change' for general, broad, and specialised audiences alike. The staged events may feed into extended processes of object and meaning production (see Scheffer 2018; 2024). Stages of realisation may themselves become formative objects, as they are normalised, customised, utilised, or even institutionalised as reliable testing grounds that promise observability and accountability of ongoing social change. The members reflexively use these stages to contribute as well as to experience where 'we'[32] stand in terms of the 'matter of concern' (Latour 2004). Stages of realisation offer fleeting insights into the current state of society and its capacity to provide answers to the most pressing questions. The staging is indeed ongoing.

Studying the stages of realisation is not a privilege reserved for the sociologist. It is not an intellectual 'peephole' onto a changing world 'out there', but a broadly accessible field offering every skilled member the opportunity to take part in participant observation. The accustomed, embedded sociologist would select stages of scopic value to gain an overview of what is going on. An ethnomethodology of social change observes people observing one another, looking for and using hints or signs of change. Here, the others' behaviour is taken as significant for the current stage; some are observed as drivers or brakemen of change; some are taken as profiting from change, others as suffering its costs; some, such as refugees, are taken as advanced and experienced, perhaps by virtue of having migrated from crisis zones to more stable grounds, for now. This way, accounting and accountability become core concepts for pinning down change as a first-, second-, or third-order

[31] Lammi shows how 'what one does' can only be read by referring to systems of showing and knowing it. What matters for the sociologist then, "… is not adherence to formal method but the degree to which enquiry illuminates the structures of intelligibility through which practices make sense…" (Lammi 2026, 13).

[32] The category of 'we' (see Sacks [1984] 2010) is itself something changing and in-formation due to the mutual expectations, demands, and obligations that emerge in the course of problem work. Ultimately, this could entail the global community coming to regard climate change as a problem for humanity or civilisation. The term Anthropocene is commonly used in this way, referring to a horizon of shared effects, matters, and responsibility.

phenomenon. By retracing how individuals, communities of practice, apparatuses, or governance develop and perform certain modes of accounting, climate sociologists can illuminate the registers, sign systems, and idioms of climate change as social change even before a climate regime or society is fully established. Some of such embedded research can show the frequent outcomes of struggles over progress or the partial rollback on certain, more or less relevant stages of realisation.

Existential Realisation as an Unlikely Achievement

Studying climate change as social change does not mean that we can take change for granted or that existential realisation naturally occurs and progresses simply because it is a necessity. Such expectations underestimate the complex nature of change and the practical dependencies and attachments persisting from the (still lucrative) fossil era and the competing problem-framework in place that has derived from the social question in (partial) welfare states. The same is true of the familiar routines, conventions, norms, and know-how geared toward the 'old ways'. Some of the resistance staged so powerfully may derive from these bounded practices and their increasingly outdated equipment and attachments. Change might be necessary and underway, but this does not mean that we, as contemporaries, can count on it coming to pass. This is the link to the transformation projects and the various efforts to push for change.

Another reason why existential realisation is unlikely derives from a one-sided understanding of social change as an undirected, decentred, and overly complex occurrence. There is no dispositive, assemblage, or other power capable of dictating the right speed and direction of change. Concepts such as post-human ethics, ontological politics, or 'a good life' for everyone may provide orientation and critical distance. In themselves, however, they are neither equipped for nor oriented towards pushing for and operating on the level of material realisation. Strategies of change may determine the need for transgressive coalitions, but they too are themselves unable to orchestrate the countless stages necessary to push for the next level of realisation. Change cannot be fully translated into transformation and the other way round.

Two further tendencies may exemplify the improbability of existential realisation despite the urgent need for it. (1) The first is performed by idealist social philosophy and related intellectual traditions that foster illusion and encourage shortcuts. Their stagings appear to serve the desire for hope in the face of impending catastrophe. Instead of confronting the complicated and contingent work for change, they promise salvation. They serve a desire for illusionary visions, which may constitute an important resource for other stages, perhaps allowing members to deal, to some extent, with the 'painful' existential problems. (2) The staging of massive resistance against climate-mitigation measures, through overt climate denial, highly polluting behaviour and equipment, the defunding of climate-science infrastructures, increased fossil-fuel subsidies, and other practices, not only subverts what is already known about the changing climate and its destructive effects, they can also be read as a sign of change underway. This is because the successful realisation of climate change challenges old and powerful elites, widespread business models, professional communities, persistent investment strategies, and dominant capital fractions. Their resistance points to the changes underway and to the ways in which they suffer loss, both materially and symbolically.

By broadening our understanding of change in this way, we can draw on Niklas Luhmann's idea of the impossibility of order. There are countless stages of realisation that must proceed day by day and must support each other in order to reach a next level of existential realisation. The latter deepens

when society responds to the existential problem – by ways of common-sensing, by productive apparatuses, and by the governmental disposition of their capacities - rather efficiently. Moreover, this analytical triadism of differently dimensioned and mutually supportive stages underscores their interdependence, despite their self-referential character as truly and primarily legal, political, economic, and so on. Common sensing dwells on technological and governmental answers for its realism, whereas the apparative capacities shall make sense and are to be mobilised through government, etc. Again, only if the stages complement one another in particular divisions or clusters will our societies become capable of reaching and stabilising a new stage of realisation.[33] Paradoxically, an existential problem is realised, at least for now, once the members can rely on the society's response, and, as a consequence, increasingly forget about it. Existential realisation, hence, pushes for society-formation. Members, apparatuses, and governments may even find themselves immersing in new public spheres, arenas or markets, and systems of power. New waves of 'Vergesellschaftung' (Weber 1922) are brewing with existential realisation.

This triadic thinking may appear opaque and fuzzy. Yet, it may also prevent sociologists of change from adopting a reductionist approach that is, for instance, overly pedagogical, technocratic, or political.[34] What is more, it may help identify the weak spots through which counterforces can undermine any stage of realisation that has been reached. The latter shows, albeit negatively, how members are oriented toward change, for instance when they engage in the production of retrotopian signs (see Bauman 2017), including the reactionary hysteria surrounding common truth and collaborative action. The latter has been shaken by the return of existential problems to Western zones of stability, matters of war, social and ecological questions, and the totalitarian destruction of the public sphere. The contemporary member is confronted with an undecided race over what is needed and what is possible, not only in relation to climate change. As socio-ecological counterforces grow stronger by the day, human incapacities seem to dwindle at the same time.

Conclusion

Understanding climate change as social change challenges and reflects on the separation of transformation studies and the macro-sociology of change. Whereas transformation studies retraces, evaluates, and foreshadows goal-oriented endeavours, including the means necessary, the sequence of milestones, the interplay of bottom-up and top-down integration, as well as the more or less limited outcomes, social change surveys developments across fields, sectors, regions, and communities in order to pinpoint overarching tendencies and drifts. Climate change as social change bridges, to some extent, the two sociological research traditions by placing the push for and accounts of change at its core, with the latter appearing on countless stages of existential realisation.

[33] This sketch differs to a certain extent from the conception of progress envisioned by Vico, and later by modernists such as Habermas: "For Vico, the passage from one to another historical stage is a passage from a lower to a higher form of reason; as civilisation develops, man liberates himself from the sway of dark and unconscious forces that ruled his primitive life and expands the domain of conscious and rational action…" (Marcuse and Neumann 1998, 112). It is not primarily reason itself that is perceived as progress, but rather the pragmatic deployment and utilisation of means for the better.

[34] In this line, Lidskog and Sundqvist (2022) find that the IPCC's 'SR15 pathways' have a strong technical leaning, focus too much on energy supply, and render deeper societal transformation "almost unnecessary". They argue that institutional and socio-cultural dimensions are insufficiently integrated into the IPCC's overall assessments. What they underestimate, however, is what it means to run the UN climate framework in the first place. As one stage of realisation, it must be selective to stay operational.

Through tracing existential realisation, we gain oversight of and different insights into ongoing, distributed change/s. Both are consistent with the cognitive and practical orientations of the members of society, the productive apparatuses and the governmental mobilisations. Change unfolds in the tension between what seems necessary and what appears – not yet - possible. Living in a changing society becomes a recurring motive for contemporaries and their circulating accounts. It gives way to numerous practices, techniques, and procedures enacted and received on stages of realisation. And this occurs not only in political terms, as competing positions between opposing fractions and governmentalities, but already more basically in terms of 'doing being up to date' in everyday dealings.

What is more, these climate-induced changes become a practical interest, where the sheer fact of change taking place, of change to come, of change being postponed or blocked for now becomes a matter of hope or despair, and, increasingly, of life or death. We do indeed live in times of war, social misery, and socio-ecological devastation, and we do so to different degrees and exposures depending on locations and possessions. Here, change is no longer a scholastic diagnostic exercise undertaken by indifferent professional sociologists to identify popular motives 'that come and go', such as people's orientation toward adventure, increased singularisation, or worrying polarisation. It is rather something that increasingly shakes, tears apart, and renders entire societies urging for it. It is the stages of realisation that serve as measures and scopes of such dependencies, functioning also as reflexive observatories of the ongoing accounting for the changes to come. Such accounting binds regions and nations together and may provide the foundation for a new formation of society itself: one capable of taking and giving the signs of a changing world.

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Generative AI Use Statement

The authors declare that no generative AI tools were used in the preparation of this article.