

European Architectures in the Age of Climate Change

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Abstract

As a reaction to worldwide calls for a change of the ecological consciousness, and a general overhaul of the global economic system, new movements and manifestos are emerging in connection with the construction industry, which is one of the sectors that can make a significant contribution to climate protection. In this article, European Architectures in the Age of Climate Change (EAACC) are being proposed as an idea that brings nature, society and architecture together, and has the potential to reshape the cities and regions of Europe into a cleaner and fairer tomorrow. A socially just, environmentally friendly, and economically productive Green New Deal (GND) implemented in the Urban Agenda of the European Union can pave the way for a sustainable urban and rural future Europe.

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1 - Following the famous dictum: "Europe will be forged in crises, and will be the sum of the solutions adopted for those in crises" | "Europe will be established through crises and that the outcome will be the sum of the outcomes of those crises" by the French entrepreneur and mastermind of the European unification process Jean Monnet in his "Memoirs" (1978) (Ball, 1991: XXI); also see Altiero Spinelli (1941), "Manifesto di Ventotene".

We, the people of the world, are in the midst of a crisis – the climate crisis!

I believe in the sacredness and dignity of the individual. I believe that all men* derive the right to freedom equally from God*. I pledge to resist aggression and tyranny wherever they appear on earth.

Declaration of Freedom, 1949 - Berlin Freedom Bell, since 1950

Introduction

We, the people of the world, are in the midst of a crisis – the climate crisis! This is a problem that can only be solved globally, and for which political decisions made at supranational levels are of central importance. In the first chapter of this article, "The European Utopia was Forged in Crises", the history of the European Union (EU) is told against the backdrop of crisis developments, as a way to comprehend mistakes from the past, and to reflect on present values in the face of new emergencies. In the second chapter, "The Inevitability of a Global Green New Deal", the possibility that many aspects of society, especially in the sectors of energy production, agriculture, transport, and housing, can be changed at the same time is explored. In the third chapter "Towards European Architectures in the Age of Climate Change" the central idea is formed: Architecture, society and nature merge and provide a decentralized and regional supply of renewable energy and food production. The fourth chapter "Critical Regionalism Reconsidered" draws from architecture history and provides the ethical and aesthetic background of the EAACC. And the final chapter "Cities and Regions of a European Republic" draws from political theory and provides the structural and political background of the EAACC.

The European Utopia was forged in crises¹

Given the current environmental and political state of affairs, one cannot help but wonder whether the EU's ideals and economic objectives are sustainable. The utopian idea of a European community was born under the impact of the Second World War, as a path of pacification and communitarization in times of crisis. The communitization of coal, steel and agriculture was pushed forward in order to provide mutual assistance in the reconstruction of the destroyed cities and economies, and to ensure the food supply of the population. The European Coal and Steel Community (ECSC, founded in 1951) granted its member states

duty-free access to coal and steel; for the first time, individual European states surrendered their national sovereignty in certain areas to a supranational European organization. With this unification process a new political state order on the European continent was expressed. Central to the process of legalizing the European utopia was the preservation of democracy, personal and political freedoms, and the Rule of Law. This was followed and made legal by the signing of the Treaty of Rome (1957). A generation later, after the end of the Cold War and with the fall of the Iron Curtain, the founding treaty of the EU, the Maastricht Treaty (1992) was signed; with constant improvements (Lisbon strategy, monetary union, eastward expansions, and of particular interest for the further argumentation is the EU's Urban Agenda in the (New) Leipzig Charter and the Pact of Amsterdam) the European project finds its present form (European Union, 2021). Currently, the world is in the middle of a decisive turning point, and so is Europe and the EU (Assmann, 2018; Fischer, 2019). The time is ripe for a reflection and revision of dysfunctional political structures on the European level, not least for the sake of the survival of our planet Earth. It seems the climate crisis is merely acknowledged, but only ineffectually addressed, because the capitalist system as a whole would have to be rethought in order to combat the problem with real effectiveness – and this touches upon issues of redistribution of power structures not only in the EU but in the entire world (Mason, 2015; Lessenich, 2016). SARS-CoV-2 can also be understood as a sub-crisis of the climate crisis, i.e. symptomatic of a weakened ecosystem (Bernstein, 2019; UNEP, 2020).² It is a great challenge to make the post-pandemic reconstruction process socially just and ecologically sustainable, and it is only conceivable in connection with climate protection and justice (Martin, 2020). Rapid social change is of the utmost climatic urgency. In the past, global emissions have only fallen significantly in times of severe economic crises, e.g. during the Great Depression in the USA in the 1930s; the collapse of the USSR in the late 1980s; or the Corona pandemic in the short run. Moreover, rapid social changes can only be observed in times of war and the associated war economy, which, unfortunately, caused further humanitarian and ecological disasters. With

2 - Additionally, find a comprehensive collection of articles on the relationship between Covid-19 and the environment [Online]. Available at: <https://www.genevaenvironmentnetwork.org/resources/updates/updates-on-covid-19-and-the-environment/> [Accessed: 28 January 2021].

The time is ripe for a reflection and revision of dysfunctional political structures on the European level.

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regard to the scale of the necessary changes, particularly because they have to be socially and economically sustainable, there is no documented historical model (IPCC, 2018; Klein, 2019: 76-77). Severe economic crises in the 20th century were always countered with economic stimulus packages. In Europe, after the Second World War, the suffering population was met with far-reaching aid measures through the US-funded European Recovery Program (ERP or Marshall Plan, 1948-52). And in the USA, under the presidency of F. D. Roosevelt, the Great Depression of the 1930s was countered by a broad-based New Deal for a liberal welfare state; including new laws on social security and minimum wages, the divestiture of banks, the electrification of rural areas, social housing in cities, the introduction of soil protection programs, the planting of two billion trees, and the investment in culture through the Public Works of Art Project (PWAP). But these historical examples have contributed to the stimulation and expansion of a CO₂-intensive lifestyle – urban sprawl, disposable consumption – and thus presumably bear some responsibility for the current climate crisis. However, these historical examples make clear that not all the details need to be worked out before one can begin to engage in dynamic learning processes with the GND today. All previous mobilizations contained multiple false starts, improvisations, and course corrections (Klein, 2019: 81).

The inevitability of a Global Green New Deal

In 2018, the Intergovernmental Panel on Climate Change (IPCC) released a *Special Report* on the impacts of *Global Warming of 1.5°C* above pre-industrial levels. In this report, the urgency of reducing CO₂ emissions is directly related to strengthening the global response to the threat of climate change, sustainable development and poverty eradication efforts (IPCC, 2018). An inclusive and fair transition towards a decarbonized society is a great challenge, and thus the process of decarbonization is pivotally embedded in corresponding initiatives, economic stimulus packages, and comprehensive political transformation ideas and programs, such as the Global Green New Deal (GGND) (UNEP, 2009). The globalization critic and political activist Naomi Klein explains the basic idea of the GND as follows:

[I]n the process of transforming the infrastructure of our society at the speed and scale that scientists have called for, humanity has a once-in-a-century chance to fix an economic model that is failing the majority of people on multiple fronts. Because the factors that are destroying our planet are also destroying people's quality of life in many other ways, from wage stagnation to gaping inequalities to crumbling services to the breakdown of any semblance of social cohesion. Challenging these underlying forces is an opportunity to solve several interlocking crises at once.

In tackling the climate crisis, we can create hundreds of millions of good jobs around the world, invest in the most systematically excluded communities and nations, guarantee health care and child care, and much more. The result of these transformations would be economies built both to protect and to regenerate the planet's life support systems and to respect and sustain the people who depend on them (Klein, 2019: 55-56).

The European Green Deal, as officially presented by the EU Commission, has the goal of becoming climate neutral by 2050, but it has a strong economic and technological focus, and relies primarily on private investors; it neglects the widely-accepted sustainability triangle as the basis for a socially just, green and economically productive development. Although massive investments can help to reduce CO2 emissions significantly, we must not be content with "a New Deal painted green, or a Marshall Plan with solar panels" (Klein, 2019: 81). The end of environmental pollution at high speed is not achievable only with individual bureaucratic measures such as a CO2 tax.³ In contrast, the European Spring Coalition presented a different approach to a GND for Europe in which they distinguish between technologically-driven climate protection and socio-economically oriented climate justice. In addition to investments for a global ecological transformation, their program contains decisive measures to eliminate tax havens, a humane and effective migration policy, a clear plan to fight poverty in Europe, a fair labor pact, and a European convention on women's rights (European Spring, 2019; DiEM25, 2019). Such demands can also be found in Climate or Environmental Justice movements, such as the Sunrise Movement or the Natural Resources Defense Council (NRDC, founded in 1970). By combin-

3 - This was particularly made clear by the French Gilets-jaunes movement, which was formed against price controls lacking a social policy program.

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Architecture and construction is a major part of the overall solution.

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ing ambitious goals with powerful political methods, following scientific research, many aspects of society can be changed in the shortest possible time. This applies above all to the sectors of energy production, agriculture, transport, and housing, which means that architecture and construction is a major part of the overall solution. Public transport (subways, streetcars, light-rail systems and cycle paths) should not only be planned everywhere but affordable to everyone, and perhaps even free. Along those transit lines, energy-efficient and affordable housing should be provided, including smart electrical grids carrying renewable energy (Klein, 2019: 158), complemented with agricultural cultivation on the rooftops of buildings.

Towards European Architectures in the Age of Climate Change

Inspired by the worldwide youth movement Fridays4Future, more and more initiatives are being formed that focus on a new ecological and socio-economic ethic, such as Scientists4Future, or those that affect architecture, e.g. Architects4Future. The *Planet Home* manifesto, recently published by the Bund Deutscher Architekten⁴ (BDA), also sets out positions “towards a climate-friendly architecture in city and country” (BDA, 2020). The construction industry is by far one of the most resource-intensive sectors of the economy, and thus can make a significant contribution to climate protection. A key measure in reducing overall energy consumption is the energy-efficient renovation of buildings. This resonates with the EU’s controversial call for a new European Bauhaus (European Commission, 2021), which can be understood as an attempt to aestheticize the technical and industrial focus of the European Green Deal; meaning the world-famous and universally popular Bauhaus brand is used here for a social-romantic aestheticization of questionable political actions (Holl, 2021). However, technical solutions solely cannot contribute sufficiently to shaping rapid social change, e.g. the use of ecologically certified building materials in architecture, or Smart City concepts in urban planning, or other greenwashing technologies, trigger rebound-effects,

i.e. false energy efficiency (Förster, 2013; Göpel, 2020)⁵ which ultimately cannot be regarded as adequate critical sustainable architectural and urban practices. The sociologist Ulrich Beck contrasts his vision of greening cities in his book *The Metamorphosis of The World* with the attempt to limit urban climate initiatives solely to technological interventions, and refers to critics (e.g. Swyngedouw, 2010) who:

will be right in warning us against the post-political tendencies of ‘sustainability’, whereby urban climate initiatives are reduced to technocratic forms of infrastructural intervention, consistent with a neoliberal emphasis on the entrepreneurial city as a space of capital accumulation (Beck, 2016: 359).

In contrast, representatives of a socio-ecologically oriented GND point out that the most successful solutions for industrial planning systematically direct control to the municipal level, e.g. energy cooperatives and organic urban farming, which take the interests of the users into account (Klein, 2019). A decentralized supply of wind and solar energy is needed, again, in the hands of municipalities or cooperatives, and not the monopolies and giant power plants of the old New Deal, which use fossil fuels or hydroelectric power from dammed rivers (ibid.). Even today, 70% of the energy produced worldwide comes from small suppliers; decentralized micro-gridding could cover 90% of the future energy demand (Graaf, 2018). Every building could be planned as a small power plant producing sustainable renewable energy; a symbiosis of architecture and energy production could serve rethinking established building typologies. Moreover, in recent reports by the United Nations Conference on Trade and Development (UNCTAD) and the International Assessment of Agricultural Science and Technology for Development (IAASTD) it is stated that the future world population can only be fed by relatively small-scale and locally controlled production units. According to Joe Nasr, an expert on food safety, urban agriculture will become routine for architects (Nasr, 2012). For example, building-integrated systems for urban food production open up solutions to the competition for space between the city and agriculture, e.g. the agro-urban architecture of Altmarktgarten Oberhausen.

As of today, decentralized diversity prevails over industrial monoculture (in agriculture and energy): 70%

5 - Economists like Amartya Sen or Maja Göpel criticize the inadequate basis for calculating GDP and thus the foundations of economic speaking and thinking habits. Damage to the environment caused by the manufacture or use of a product is not included in any economic balance sheet. Cf. The de- and post-growth-economy movement, e. g. the German initiative by Niko Paech or Christian Felber, who pleads for an accounting of the common good (economy), or the Cradle-to-Cradle principles conceived by Michael Braungart and William McDonough.

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of the food produced worldwide comes from small farmers, i.e. from rural and non-industrial agriculture (UNCTAD, 2013; IAASTD, 2018). Alternative forms of socio-ecologically sustainable living and solidarity-based economic activity are already being tested worldwide in countless local and regional experiments, such as in inclusive cultural projects, self-organized housing and neighborhood initiatives, (urban) gardening and agricultural cooperatives, (rural) permaculture collectives, the Transition town movement or energy cooperatives; in many approaches, new economic models such as the circular economy are being tried out (Meireis, 2021: 196-204). Although much of this is still prototypical, research-based, sometimes socially exclusive and/or only approved as a temporary project, e.g. the project R-Urban in Colombes, an urban-rural experiment including circular economy principles, such projects are important testing grounds for bringing nature, society and architecture together as equal partners.

Urban and rural EAACC could be implemented across the globe; ecological and socio-political aspects can have concrete effects on aesthetics, e.g. imagine appealing zero-energy residential buildings for all social classes and ethnic groups, built with democratic participa-

Fig. 1, 2 - Roof-top garden with greenhouse and closed circuits for urban food production on an administrative building, Altmarktgarten Oberhausen by Kuehn Malvezzi - Atelier Le Balto, 2019. Source: hiepler, brunier.

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Already around the time of the French Revolution the utopian thinker Louis-Sébastien Mercier included urban rooftop gardens in his utopian vision of the New Paris in the 25th century.

tion of the future residents (Klein, 2019). Pioneering sustainable buildings are already today equipped with energy and food production units on their roofs. This overlaps with considerations on post-pandemic developments in architecture and the city, where new concepts for living, working and public spaces are required. Today, it is quite urgent to think the future anew, or even at all, since late capitalism was not least constituted by the absence of utopian thinking in the cultural discourses of postmodernity (Jameson, 2005; Meireis, 2021). Already around the time of the French Revolution the utopian thinker Louis-Sébastien Mercier included urban rooftop gardens in his utopian vision of the New Paris in the 25th century. In his book *L'An 2440* the Parisian urban fabric remained essentially unchanged; the only difference being the streets free of traffic, lined with pedestrians and, as said, the houses equipped with rooftop gardening, or perhaps even rooftop farming (Manguel, Guadalupi, 1981: 240-241). Urban rooftop farming has multiple advantages: short delivery routes, often ecologically compatible cultivation, and thus a good climate balance. This resonates with a recent announcement by the Mayor of Paris Anne Hidalgo, who suggests that the French metropolis shall become a city of short distances for pedestrians and cyclists (*La ville du quart d'heure*), i.e. cities shall no longer subordinate themselves to cars, but cars to cities. This is no less than a paradigm shift which finds great approval in other cities too (Greenpeace, 2020).

The presented architectural examples and political ideas can be understood as a reference system that provides the basis for the conception of the EAACC as critical theory or practical philosophy of architecture that ties together socio-political, ecological, economic and not least aesthetical principles and values.

Critical regionalism reconsidered

The ethical and aesthetic background towards EAACC draws from architectural history and provides insight into a specific discussion on the environmental role of architecture in the early 1980s, when the authors Michael Andritzky, Lucius Burckhardt and Ot Hoffmann pleaded for self-determined living and ecological building with nature (Andritzky, 1981). In the same context, the authors Alexander Tzonis, Liane Lefaivre



and Anthony Alofsin (Tzonis, 1981) refer to the architecture critic Lewis Mumford, and focus attention on the point that critical-regional architecture (as social art that satisfies human needs and advocates humane environments) is explicitly directed against nationalist, fascist, capitalist and colonial takeovers (ibid.: 126-127). They suggest that the idea of critical regionalism, albeit historically grounded in the 19th century, is not a fact of the past but an unfulfilled promise that can create future identities (ibid. 133). The architectural historian Kenneth Frampton conceived a program for a critical regionalism, which is to be understood as resistance to the process of universalization and universality, and in favor of specificity and locality (Frampton, 2001; Avermaete et al., 2019). He conceives of deliberately *limited* architectures that emphasize less the buildings as free-standing objects, than as places that are created by the construction of the buildings; meaning, representing and serving *limited* societies in a critical-regional sense, in particular considering specific characteristics of the site, such as topography, light and climate. However, a new regional approach is not a matter of style imitation and limitation, but of sensitivity to local resources, which can include a reinterpretation of stylistic elements. Regional elements shall be reinterpreted without

Fig. 3 - Eco-Box by Atelier Architecture Autogerée (AAA) and the citizens of Colombes, Île-de-France, 2009-17. Source: AAA.

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Fig. 4 - Lynar 38, multi-storey residential timber construction in Berlin-Wedding by Schäferweningenprojekt, 2018. Source: Markus Löffelhardt.

Fig. 5 - Maggie's Centre, St. James's University Hospital Leeds by Heatherwick Studio, 2020. Source: HuftonCrow.



This line of thought provides the basis for a systemic, regional, and decentralized architectural thinking as part of a socially just, green, and economically productive GND.

sentimentality, but with a view to anchoring a world culture locally, which also regards the sensitivity to the spaces in between, where public life takes place and tells us about the political motivations behind the respective project. Ultimately, the quality of such a regionalism depends on the connection between the political identity of a society and its architects (Frampton, 2001). Following this, it can be reflected with the sociologist Bruno Latour, that it is time to reassert the importance, legitimacy, and necessity of belonging to a territory, but, paradoxically, without confusing this with the ingredients added to the local – ethnic homogeneity, museumization, historicism, nostalgia, false authenticity (Latour, 2018: 65) – as he writes in his book *Das Terrestrische Manifest*. The search for a sense of belonging and protection can go well with renouncing territorial boundaries in the name of identity, whether local/regional or national/global. Following these considerations, it becomes apparent that rethinking aspects of critical regionalism helps to redirect today's accelerated globalization processes in a humane way, on the level of architecture and cities. This line of thought provides the basis for a systemic, regional, and decentralized architectural thinking as part of a socially just, green, and economically productive GND. Material and energy efficient solutions can be applied to any building typology and function, be it for administrative, shopping or fairground purposes, private housing and cooperatives, or health care centers.

Cities and regions of a European Republic

The structural and political background of the EAACC draws from political theory and provides insight into rethinking the institutional and parliamentary design for Europe, promoting the civic commitment of the many (Guérot, 2019). That corresponds with the European guiding document for sustainable urban development entitled *New Leipzig Charter: The Transformative Power of Cities for the Common Good*. It is meant to be a strategic compass, focusing on empowerment of municipalities, to which municipalities, cities and metropolises in all EU Member States can align themselves (Deutscher Verband, 2020). As of today, EU policies are still shaped along national borders, which have long since ceased to exist in the

industrial sector and in value chains, and therefore no longer reflect the economic reality (Guérot, 2018: 156). The socio-economic imbalances in Europe are not between nation states, but between center and periphery, i.e. urban and rural regions (Guérot, 2018: 157). European cities can be imagined as cultural anchor centers – as nodes in a pan-European or even global network – in which transnational governance structures have long been established. Accordingly, Beck suggests world city alliances as the new spaces of climatic hope: no other form of organization is better equipped to experiment with, invent, and actually implement the new multi-sited architectures of political decision-making for the 21st century (Beck, 2016: 358). Thought-provoking impulses for this come from political thinkers such as the philosopher Jürgen Habermas or the political scientist and European politician Ulrike Guérot, who plead for a restructuring of the EU constitution in terms of citizenship. The continuing political fragmentation of the world and in Europe is at odds with the systemic coalescence of a multicultural world society, and blocks progress in the constitutional *civilization* of state and social relations of power (Habermas, 2014: 44, emphasis added translated by the author). On the way there, Habermas advises the *transnationalization of popular sovereignty* (ibid.: 51, emphasis added). The growing dependence of nation states on the systemic constraints of an increasingly interdependent world society has to be acknowledged as irreversible, ergo the political necessity to extend democratic procedures beyond the borders of the nation state becomes apparent (ibid.). The political idea of a European Republic originates from Guérot, who uses the term *republic* to refer to the original meaning of *res publica* (common good), and argues that states have only borrowed sovereignty from *us*, and now *we* shall take it back, and build the first transnational, representative democracy in Europe: decentralized, regional, post-national, social, and democratic. She suggests a network of approximately 50-60 European regions and cities, over which the protective roof of a European Republic is stretched, and under which all European citizens are equal in their civil and political rights. This could be the European claim of the 21st century: a new concept of citizenship (Guérot, 2019: 103-104), that is embedded in a decentralized politi-

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cal system, enabling small citizens' assemblies, or an upgraded regional parliamentarism, that functions as a network, with transnational constituencies and parties. In this way, many, especially rural regions, will be upgraded in the political system of the future Europe and have more participation in the European big picture (Guérot, 2019).

Conclusion

Having taken a closer look at the history of the EU, we are led to a suggestion that past mistakes in crisis management will not be repeated; instead, reflections on present political values in the face of climate change were presented, displaying the inevitability of combining and implementing ambitious goals in the sectors of energy production, agriculture, transport, architecture, and urban planning with powerful political methods (under the legal umbrella of a supranational GND). Pioneering *European Architectures in the Age of Climate Change* are potential leaders and change-makers, creatively tying together law and policy-making processes, industry, and the will of future inhabitants, and mediating between economic and socio-political policies. Architecture has the potential to contribute to solidifying identification processes that these local and regional developments will experience in the face of climate change. The EAACC is a new type of architecture or architectural network, which is the potential realm where society and nature meet and merge, and the future of Europe is not only being represented, but fundamentally shaped and designed with the principles of critical-regional aesthetics, that provide a local supply of renewable energy and food production. The critical crossroads of the Corona pandemic, climate change, the fall of western dominance, the decline of capitalism, and the rising of a more heart- and earth-centered consciousness is the perfect time to get new architectural utopias for the 21st century accomplished.

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