

PCP Forum 38/2022: Climate change and the protection of cultural property

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Niklaus Ledergerber: Editorial. Climate change and the protection of cultural property.

Dear reader,

Just a few years ago, we were discussing how the looming threat of climate change could be averted – today, the discussion is a different one: How can we protect ourselves from the impacts of climate change, and to what extent will we have to live with them? For climate change makes itself felt not only through heat days in the cities or changes in the vegetation of our Alpine world – it also affects our cultural heritage. This will also have an impact on preventive protection measures for objects listed in the PCP Inventory of the Federal Office for Civil Protection (FOCP).

For instance, while humidity in interior rooms used to be a problem, current research is studying the effects of longer heat periods and the ensuing aridity on buildings and other types of artworks. In Switzerland, the Federal Office of Culture (FOC) has convened an expert group on this topic, which is also on the agendas of many institutions and educational establishments around the world.

In 2020, ICOMOS stated that the effects of climate change for the built cultural property will be long-lasting and irreversible. The latest insights are gathered and evaluated in international working groups. The elaborated guidelines include nine concrete recommendations with statements on limiting global warming, on the protection of the natural and cultural heritage, on updating scientific insights, on steps for mitigating the loss and damage potential, on questions of risk and vulnerability assessment, or on financial aid to poorer regions.

Climate change cannot be stopped with minor individual actions. If the negative impacts on our cultural property are to be successfully contained, we need a global consciousness and international cooperation with the development of concepts, strategies, and solutions.

Roland Hohmann: Adaptation to climate change in Switzerland – the federal Council's strategy.

In Switzerland, we notice climate change especially during the summer months, which are becoming increasingly hotter and dryer. Since 1864, the average summer temperature has increased by 2.3 degrees Celsius, and the number of heat days with temperatures of over 30 degrees Celsius have increased markedly. Climate change will continue in the coming decades as well. Unless we manage to lower global greenhouse gas emissions, a further increase of temperatures by 2.0 to 3.3 degrees Celsius is to be expected in this country by the middle of the century.

Already in 2012, the Federal Council adopted the strategy paper *Adaptation to climate change in Switzerland*. The measures for its implementation were summarised in the Action Plan 2020–2025. The adaptation strategy has two main thrusts: On the one hand, adaptation to climate change is to be integrated into the respective sector strategies and implemented in the framework of sector policies. On the other hand, adaptation measures are to be optimally coordinated and synergies exploited.

If the adaptation strategy is to serve as a framework for coordinated and targeted advances in the future too, it must continuously be developed further, taking into account the latest scientific insights.

Christoph Werner: Climate change and civil protection. The role of the FOCP.

The civil protection authorities are tasked with the protection of the population and its livelihood (including cultural property) in case of disasters and emergencies. Responsibility for managing such events mainly rests with the Cantons. The Federal Administration regulates basic aspects and ensures the necessary coordination. To this end, strategies, whitepapers, and guidelines – for instance, for carrying out threat analyses and creating contingency plans – are elaborated.

Among other things, the Federal Office for Civil Protection (FOCP) periodically assesses the risks to which Switzerland is exposed. Climate change has a direct impact on certain hazards (such as flooding or heatwaves), indirect impacts on others (such as restrictions on traffic routes or the spread of diseases and epidemics), and no impact on some (e.g., cyberattacks).

The FOCP works together with representatives of the federal and cantonal administrations, with academics, and with critical infrastructures. In connection with climate change, these include the National Centre for Climate Services (NCCS), the National Platform for Natural Hazards (PLANAT) or the Steering Committee Intervention in Natural Hazards (LAINAT).

In several projects, the protection of cultural property is directly involved as a subsidiary area.

Carine Simoes: Climate change: The threat to cultural heritage.

In the sphere of protection of cultural property, climate change is not a peripheral matter, but an urgent challenge to the preservation of cultural property.

In Switzerland, gravitational natural hazards (flooding, mudflows, avalanches, hazards in connection with melting glaciers, landslides, or rockfalls) are certainly among the biggest risks. Such natural hazards have been especially prevalent in alpine regions for centuries. However, due to climate change, such events will occur more frequently and presumably also be more severe in the future. This insight in particular has prompted the explicit inclusion of disasters and emergencies in the legal text during the revision of Switzerland's legislation on the protection of cultural property in 2015.

According to the PCP Strategy of the FOCP for 2021-2025, the focus is on creating emergency plans for disaster events, on protection, and on efficient, urgent disaster management. Such measures significantly reduce the risks to cultural property.

At the international level, the meeting of the G20 culture ministers in the year 2021 has, among other outcomes, heightened awareness of the need for stronger engagement to enable a coordinated response to the challenges that climate change poses for cultural property.

Reto Nussbaumer: Climate change, energy transition, preservation of monuments.

Interestingly, all three elements of this constellation are frequently referenced together. Often, one finds indirect – and frequently even direct – mentions of the fact that the inventory of listed monuments is also affected by climate change, and that the success of the energy transition depends on the “energetic refurbishment” of this architectural heritage resource, which by the way is a non-renewable one.

An objective review of the quantity structure and its share in the overall inventory of buildings, and an equally objective review of the efficiency, usefulness, and adaptability of the protected historic

building stock reveals a different picture. If the problem is tackled with sound judgment, focusing on the topic of building culture – certainly in its sustainable version in terms of efficiency, consistency, and sufficiency – such diverse issues can be treated and answered in an objective fashion.

This is also the core concern of the *Klimaoffensive Baukultur* (see box on p. 31), an initiative involving various sponsoring organisations from the sphere of building culture.

Carol Nater Cartier: Water at the museum depot – Nightmare scenario with a happy ending.

The heavy rains of May 2021 led to backwater in a sewage pipe, which caused water to flow via the emergency staircase into the collection depot of the Baden History Museum.

The emergency team of the Swiss National Museum came to the rescue almost immediately: It supported the museum team in planning and carrying out the evacuation and put them in touch with a professional project manager, the Baden civil protection organization, the protection of cultural property specialists, and (for storage of the cultural property) the Federal Office of Civil Protection (FOCP). The evacuation was carried out as planned within six working days. The cultural property was stored in the FOCP refuge (safe haven), since no emergency depot for cultural property was available in the Canton of Aargau.

Ultimately, the Baden History Museum seized the opportunity created by the return of the objects by revising its storage concept and optimizing its object documentation.

Lena Reimann: Rising sea levels threaten UNESCO World Heritage sites.

A significant number of World Heritage sites are situated in coastal areas. Over the course of the 21st century, due to climate change and the ensuing rise of sea levels, these will increasingly be at risk from flooding.

Two scientific studies (Reimann et al., 2018 / Vousdoukas et al., 2022) have identified a total of 109 World Heritage sites, of which 50 percent are already in danger today, including the Venice lagoon (Italy), the Cathedral of St James in Šibenik (Croatia), or the archaeological sites of the North Sinai (Egypt) and Kunta Kinteh Island (Gambia).

The results of both studies reveal an urgent need for action regarding adaptation planning. So far, the potential threat of rising sea levels has been given only scant consideration in the management plans for the World Heritage sites. One exception is the *MOdulo Sperimentale Elettromeccanico* (MOSE for short) in Venice, which consists of submersible floodgates that have been installed at the entrances to the lagoon and can protect the city from high water levels.

Thus, the results of both studies can also contribute to heightening awareness of the potential effects of climate change.

Martina Haselberger, Marija Milchin, Gabriela Krist: Cultural property under pressure in the climate emergency.

Aging, weathering, and damage to external areas of cultural property are influenced to a large extent by climate and weather. Temperatures and the existence of water play key roles in this connection.

How will the climate crisis affect the speed and intensity of degradation processes? Which hitherto irrelevant damage mechanisms should we expect to see in our environment in the foreseeable future? Which preventive, conservation, and restoration measures will be relevant in the future?

By exchanging insights in conservation science and connecting them with climate research data, conservators are trying to find answers to questions such as these. Regular monitoring is an important step that can enable them better to assess climate-induced changes. It is also increasingly helpful to subject preventive measures for outdoors protection of objects, such as winter shelters, to critical evaluation and explore their future potential.

George Kremlis: The Way Forward. Addressing the impacts of climate change on cultural and natural heritage.

Today, the effects of climate change are starker and more obvious than ever. This is why climate change is now widely recognised as a global climate crisis. The melting of glaciers and the polar ice, the rise of sea levels, global warming, the disturbance of the ecological balance and loss of biodiversity, in addition to ever more frequent extreme weather phenomena in general, threaten many aspects of our lives and, indeed, make the need to combat climate change and its impacts a global goal. Among other serious consequences, attention has been called to the impacts of climate change on the natural and cultural heritage.

In this context and following the International Conference on “Climate Change Impacts on Cultural Heritage – Facing the Challenge” held in Athens in June 2019 and the High-Level Event on the same subject during the UN Climate Action Summit held in New York in September 2019, the Prime Minister of Greece launched an initiative aiming at protecting cultural and natural heritage from the impacts of climate change. This is a pioneering initiative, as it focuses on the relationship between climate, the natural environment and culture, as well as their interconnections and interdependencies.

The organisational structure of the Initiative

The proposal of the Greek Government has been included in the Climate Action Summit 2019 Report of UN Secretary General Antonio Guterres, who has proposed the establishment of a steering committee, called Flexible Mechanism (FM), composed of representatives from UNFCCC (United Nations Framework Convention of Climate Change), UNESCO, WMO (World Meteorological Organization) and Greece. Greece is represented in the Flexible Mechanism by Mr. George Kremlis, Advisor to the Prime Minister on Environment and Climate Issues; UNESCO by its Director for Cultural Policies and Development, Ms. Paola Leoncini Bartoli; the representatives of UNFCCC are Mr. Youssef Nassef, Director of Adaptation Division, and Ms. Ina Lambert, Associate Programme Officer of Adaptation Division. The WMO is represented by the Director of Science and Innovation and Chief Scientist, Professor Jürg Luterbacher.

The Flexible Mechanism is supported by the Coordination Unit established in Greece by decision of the Greek Prime Minister. This unit, as a standing secretariat, is headed by Greece’s coordinator of the Flexible Mechanism, George Kremlis, and consists of the Representative of Greece for Climate Change, Professor Christos Zerefos; the Chair of the Greek National Committee on Climate Change, Professor Costas Synolakis; the Chair of the Working Group on Climate Change and Cultural Heritage of the Ministry of Culture, Professor Constantinos Cartalis; and Ambassador Loupas Ekaterini, acting as the Coordinator of the Organization Committee of the International Conference on the Impacts of Climate Change on Cultural Heritage.

The inaugural meeting of the Flexible Mechanism took place in January 2021, and it was reflected in the UNESCO Executive Board's 210th session (Decision 210 EX/40), where the framework and next steps for protecting natural and cultural heritage from climate change impacts were agreed.

The main elements and objectives of the Initiative

The initiative is global in nature, meaning that it is addressed to all nations. It is worth mentioning that as of June 2021, 110 states have shown great willingness to be part of this effort, with more than 100 of them having officially endorsed the initiative – a fact which demonstrates, without doubt, its strong potential and the broad interest in it. Focal points of the initiative are being nominated in these countries and a network is being established among them. Furthermore, the initiative has been supported by the Council of Europe and other international organisations and NGOs as ICOMOS, SDSN (Sustainable Development Solutions Network), GEO, Europa Nostra, World Human Forum).

The initiative has two main and complementary pillars: the protection of the natural heritage, including natural monuments, national parks, etc.; and the protection of the cultural heritage, such as archaeological monuments, cathedrals, or outdoor areas of great cultural significance or even neoclassical buildings with unique architecture. Accordingly, it would not be an exaggeration to characterise this initiative as an effort to link the past, the present and the future.

The main objectives of the initiative are:

- (a) To establish a wider network of sites, including the UNESCO network of protected monuments and sites. To that end, each country will select sites that will be shortlisted in this data repository after a thorough evaluation based on specific criteria agreed upon by the Flexible Mechanism's members. A digital identity will be assigned to each site, and the site's exposure and vulnerability to the consequences of climate change will be tracked. It should be noted that, in terms of climate change impacts, site evaluation and monitoring are critical for identifying the optimal techniques for adaptation/resilience to climate change and its consequences. Digitisation, the use of geographic information systems and other IT tools will be leveraged to support the activities of the initiative.
- (b) To promote and accelerate the implementation of actions and cooperation schemes, to build a bridge between scientific knowledge and tools for climate mitigation and adaptation with informed decision making by the interested states, and to enhance the relevant research, contributing to the science basis and providing the necessary tools for the accomplishment of those goals.
- (c) To develop a platform for sharing best practices in order to mitigate the impacts of climate change on natural and cultural heritage, and in particular on the protected sites, and to make them climate resilient.
- (d) To contribute to climate change mitigation and adaptation by raising awareness and promoting stakeholder engagement (museums, archaeological sites) for this purpose.

Launch of a Questionnaire and Evaluation of the replies

Aiming to improve its knowledge base, in June 2021 the Coordination Unit launched a questionnaire addressed to all countries that have declared their support for the initiative, in order to collect information on the endangered cultural and natural sites and, among other concerns, to identify the associated climate risks. In this way, a knowledge database will be created that will support the definition of the resilience of the sites to climate change and the impacts of climate change as well

for the development of a typology of measures that could be applied. The completion of the questionnaire by the supporting countries is in progress.

As of June 2022, 31 supporting states have completed the questionnaire, and 141 sites have been listed. The first finding derived from the survey showed that 45 % of the cultural and natural sites reported are not included in UNESCO's World Heritage List, while the responsibility for mapping and assessing their vulnerability to climate change impacts is shared between the Ministries of Culture and Environment. Therefore, it is crucial that competent authorities increase collaboration at the national level and revisit their strategies and prioritisations with a view to safeguarding their heritage.

Almost the whole range of climate and environmental hazards are felt by the reported cultural and natural heritage sites, which calls for multi- disciplinary and holistic approaches. In addition, for the sites not included in the World Heritage List of UNESCO, it turns out that multi-sectoral impacts are already being experienced and are of significant concern, highlighting the urgency of international and local action.

While the vast majority of the participants (90) of the survey report that their country has adopted a national climate change adaptation strategy framework, only 60 % of these include dedicated reference to cultural and natural heritage, demonstrating the need to raise the issue higher on the respective climate action agendas.

It is encouraging to see from the results that robust scientific methods, e.g., climate modelling and data-driven approaches (including those that use satellites) are already deployed to support decisions for adaptation measures and the increased resilience of cultural and natural heritage, but modern techniques are still lagging behind. Combined with the urgent need for capacity-building, training and education, the findings demonstrate the need to adopt and communicate good practices and coordination mechanisms at different levels. These main findings of the survey have been presented at the High-Level Event organised by the Coordination Unit in UNFCCC COP 26 and during the Chairmanship-in-Office of Athens in the South East European Cooperation Process.

Previous actions promoting the initiative

The Greek Initiative has been presented at events of great importance and has received significant response, e.g., at a side event to UNFCCC COP 25 (December 2019) attended by representatives from many countries, including ministers, diplomats, and climate specialists, as well as representatives from multilateral international institutions, international non-governmental organisations, academia, civil society, and youth. The initiative was also presented at a side event of the G20 Ministerial Meeting on Culture (April 2021), the Delphi Economic Forum (May 2021), the 9th Regional Growth Conference on the climate crisis and sustainable development (June 2021) in Greece, and in many other events, highlighting the global character of the initiative.

The 8th Summit of the European Union's Southern Countries (EU MED 9) was held in Athens on 17 September 2021. Here, decisions were taken on environmental and climate change issues and the Athens Declaration on Climate Change, and the Environment in the Mediterranean was signed. The nine EU Mediterranean States (Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia, and Spain) have agreed, among other topics, to work together to protect the Mediterranean's cultural and natural heritage from climate change challenges by taking dynamic action and officially supporting the Greek Initiative at the UN, "Addressing climate change impacts on cultural and natural heritage", and its goals. In this context, the nine Mediterranean EU states agreed to take part in a pilot project aiming at protecting the Mediterranean region's cultural and natural legacy against the effects of climate change. The pilot project revolves around the concept

of creating a “climatic identity” for the cultural and natural heritage monument or site that each member state will designate in the scope of the project. The pilot project will be coordinated by the Academy of Athens, in collaboration with the Coordination Unit, and will be based on cooperation between the aforementioned member states in the Mediterranean area. National working groups comprised of experts on cultural and natural heritage, climate change, disasters, biodiversity (in case of natural or mixed monuments/sites selected) and heritage preservation/protection experts will be formed, with the purpose of joining forces for this pilot project.

The Academy of Athens has already established a methodology for Greece’s chosen monument, the Archaeological Site of Olympia, which focuses on the identification of climatic threats, with vulnerability and risk assessments to follow in the next phase. This methodology will serve as a model for identifying and analysing the risks associated with each cultural and natural heritage monument or site. For all selected sites, the experts of the Academy of Athens will provide the climatic data for the current conditions, as well as the near future and end of the century climatic projections under the emission scenarios RCP2.6, RCP4.5, RCP8.5, for the estimation of the vulnerability and risk indicators. This effort is currently in progress.

In Brussels on 2 November 2021, the Greek Government – through the Coordination Unit of the Greek Initiative – successfully organised a hybrid High-Level Event in the framework of UNFCCC COP 26. Ministers of culture and ministers of environment from ten different countries and many prominent politicians and climate experts from different international organisations and NGOs (UNESCO, WMO, UN SDSN, GEO, ICOMOS, World Human Forum) had the chance to interact and raise awareness regarding the tremendous effects of climate change, while the necessity to integrate culture into climate action was recognised, through identifying effective practices, monument vulnerability criteria, and proper methodology. All participants agreed that the initiative should be promoted further through international campaigns and that related measures should be integrated into education. Simultaneously, they emphasised the need to share best practices and promote bilateral and multilateral collaboration at state level.

On 30 May 2022, the online high-level event “Addressing climate change impacts on cultural and natural heritage in South East Europe” took place, in the framework of Athens’ Chairmanship-in-Office of the South-East European Cooperation Process, organised by the coordination unit with the support of the Ministries of Culture & Sports, Environment & Energy, Climate Crisis & Civil Protection, and the Ministry of Foreign Affairs. During the ministerial panel, fourteen ministers and high-level representatives of culture and environment from ten different capitals discussed the impacts of climate change on the cultural and natural legacy, emphasising the need to collaborate and work together across disciplines.

Moreover, climate scientists and experts as well as representatives from international organisations, and in particular UNESCO, described in detail how the devastating effects of the climate crisis, such as extreme wildfires, sea level rise, and rising sea temperatures, have already impacted the natural and cultural heritage, both tangible and intangible.

The next major milestones for 2022

The initiative aims to further develop its network in order to include some small island states of the Pacific and Indian Oceans affected by rising sea levels, but also archaeological sites of the highest cultural importance that are exposed to adverse climatic conditions, including Greek ones, such as the archaeological site of Delos Island, characterised as ground zero. In this scope, the Greek Initiative will be presented in a side event of COP27 to be organised in the Mediterranean Pavillon in

cooperation with the Union for the Mediterranean. Emphasis will be given to the aforementioned threatened island of Delos.

Climate change is a multifaceted global threat that needs to be at the top of the international agenda. Experts can forecast certain future climatic conditions and recommend mitigation and adaptation plans based on observation, knowledge and expertise. With a view to keeping our heritage, both natural and cultural, intact to the largest possible extent, it is vital to realise the importance of working together against the devastating threats of climate change and its impacts.

In this respect, it seems very apt to slightly paraphrase Aristotle's famous saying: "In all things of nature [and culture] there is something of the marvellous." We are proud that the Greek Initiative is contributing, inter alia, to raising global awareness of the threat to our marvellous natural and cultural heritage and to the mainstreaming of culture and environment in climate action.

For more information regarding the Greek Initiative, you can visit the relevant website:
<https://ccich.gr/>