



# Culture-based solutions to climate change adaptation

Report no. 7-2025





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## Foreword

On a fine autumn day in 2024, 60 researchers, municipal officials, conservationists, farmers and volunteers meet to discuss, work and find culture-based solutions for climate adaptation.

Perhaps you've never heard of culture-based solutions? It was unfamiliar to many of the participants, but through the Klimathon, the definition, judgements and concrete solutions were discussed in more detail.

Culture and cultural heritage are the glue that binds a society together. Cultural heritage is traces of our history, preserved in buildings, landscapes, stories and traditions around us. Climate change will change both our culture and our cultural heritage. We believe that we need to utilise culture, that we can use old knowledge from culture and cultural heritage to adapt society to a changing climate.

Culture-based solutions are not new, but it's about learning from what farmers, carpenters, indigenous people and other cultural practitioners have known for thousands of years. How have they built boathouses and houses in the past, and what relevance does this have in the future? What is the social benefit of burning coastal heaths in western Norway or California? What role should local communities play in climate adaptation efforts? How can we use our cultural heritage to mobilise local communities for climate action? These are the questions we discussed at Klimathon, and in this report we will show some of the solutions we propose.

Kristian Valen and Elin Valand Advisors on cultural environment and climate adaptation Rogaland Fylkeskommune



## **Authors**

Siri Veland
Mathew Stiller-Reeve
Lene Røkke Mathisen
Kristian Valen
Carlo Aall
Elin Valand
Jannike Allen
Spencer Klinefelter
Elisabeth Angell
Hege Agathe Bakke-Alisøy
Hilde Buer
Sahra Gwen Campbell
Bjørg Miriam Dahle
Cathy Daly
Tore Dolvik
Johannes Ellingsen
Mathies Ekelund Erlandsen
Stine Lise Espeland
Gry Evensen
Mathilde Engum Rolland
Cecilie Flyen
Peter Forrás
Marit Sætre Færevåg

NORCE / Noradapt, San Jose State University Village Green Haugesund kommune Rogaland fylkeskommune Vestlandsforsking/Noradapt Rogaland fylkeskommune San José State University Central Coast Prescribed Burn Association NORCE Norwegian Research Centre Samfunn Bergen kommune Sørværet Villsau Museumstjenestene i Rogaland Sola kommune Carrig Conservation & University of Lincoln Kvam herad Universitetet i Stavanger Museum Stavanger Sveio kommune Statsforvalteren i Rogaland Haugalandmuseet Norsk institutt for kulturminneforskning Vestland fylkeskommune Edda kino / Haugesund kino og konserthus KF Magnus T. Hauge Anne Mette Haugen Siri Vatsø Haugum Gaute Widerøe Hennig Madli Hjermann Idun A. Husabø Kiersti Isdal **Bente Marie Johansen** Kjersti Konstali Johanne Lomheim Lu Li **Stephanie Mayer** Victoria Miles Marie Pontoppidan Anette Morvik Robberstad Ineke de Rezende Maria Salem **Ellen Urheim Tveit** Agnes Vevle Tvinnereim Marte Lange Vik Siri Vikse **Snorre Waage** Jan Windsholt

Haugesund kommune Rogaland fylkeskommune Museumssenteret i Hordaland, Lyngheisenteret Vindafjord kommune Haugalandmuseet Vestlandsforsking/Noradapt **Region Nordhordland IKS** Sveio kommune Geophysical Institute, University of Bergen / Bjerknes Centre for Climate Research Rogaland fylkeskommune NORCE Norwegian Research Centre Climate / Bjerknes Centre for Climate Research NORCE Norwegian Research Centre Climate / Bjerknes Centre for Climate Research Nansen Environmental and Remote Sensing center NERSC NORCE Norwegian Research Centre NORCE Climate / Bjerknes Centre for Climate Research Riksantikvaren Norconsult Ryfylkemuseet Sveio kommune VILL MER/Bærekraftige liv Høgskulen på Vestlandet Haugesund folkebibliotek Vestland fylkeskommune Rogaland fylkeskommune



## Klimathon 2024 - Bridging the gap between climate adaptation and cultural heritage

#### By Mathew Stiller-Reeve, Lene Røkke Mathisen, and Siri Veland

Climate adaptation requires collaboration across disciplines, sectors and communities. Local planners face significant challenges as they navigate national regulations, diverse landscapes, land use, economic factors and public opinion. To make decisions that affect both current and future generations, they must also understand how the climate has changed over time and anticipate how it will evolve.

To meet these challenges, new ways of working together are crucial. Building trust and mutual understanding across disciplines and sectors creates opportunities to share knowledge and experiences. With this in mind, Klimathon was established as a platform to promote community building, creativity and interdisciplinary collaboration. Using a customised hackathon methodology, each Klimathon emphasises group work, collaborative problem solving and concrete solutions to pressing challenges in climate adaptation.

This year, Klimathon focused on the intersection between **climate adaptation and cultural heritage**. Until now, when we think about cultural heritage and climate adaptation, we most often consider how we can adapt our cultural heritage and cultural environment to climate change. At Klimathon 2024, we wanted to highlight an emerging area of innovation: **Culture-based solutions**. Internationally, such solutions are recognised for their potential to meet climate challenges while preserving cultural identity<sup>1</sup>. For example, at the Makli Necropolis in Pakistan, a World Heritage Site, communities are reviving the traditional craft of handmade terracotta tiles, preserving cultural heritage while creating sustainable workplaces,<sup>2</sup> and

energy-efficient buildings adapted to the local climate. Cultural heritage opens avenues for creatively engaging people with climate change issues, by connecting with what matters to individuals.<sup>3</sup> For instance, the sense of place people acquire through understanding their local cultural heritage sites and practices, or through exploring the ways the knowledge and practices of migrants might offer novel solutions in their new host countries.

In Norway, these ideas are only just beginning to gain traction, despite the country's long history of adapting to a challenging and variable climate. Norwegian cultural heritage holds invaluable lessons for modern climate adaptation. Klimathon 2024 explored how cultural heritage can serve as a resource for climate adaptation, promoting both community resilience and long-term planning. The theme also created a space for collaboration between sectors that may not usually intersect, paving the way for innovative solutions.

#### Klimathon in Haugesund

In previous years, Klimathon has been held in Bergen and online. The fourth Klimathon was the first to take the event to the districts, and took place in Voss in 2022. We saw the benefits of placing these climate adaptation talks in a typical municipality (outside the bigger cities) and gathering people in places they might not encounter in their working day. Klimathon 2024 marked the first close collaboration between Vestland and Rogaland counties, with Haugesund as the host city. Haugesund's location on the border between the two counties made it the perfect host for gathering participants from both regions, strengthening networks and promoting collaboration across geographical and professional boundaries.



Haugesund Library was an ideal setting for this year's Klimathon. As a cornerstone of Norwegian cultural heritage, libraries are hubs for sharing knowledge and promoting contact in society. Hosting the event in the middle of the day in Haugesund municipality reinforced the importance of integrating climate adaptation into everyday spaces. In addition, the library's public accessibility enabled extended engagement with the event's outcomes, including displaying posters and allowing visitors to familiarise themselves with the ideas generated during the Klimathon.

#### What you can expect in this report

This report provides an overview of the Klimathon methodology, describing how it differs from traditional hackathons and how it was applied in Haugesund. It highlights the ideas of each group, culture-based solutions defined by the participants and insights into the collaborative process.

We also take an in-depth look at one specific culture-based solution: the management of heather landscapes on the west coast of Norway. These landscapes, shaped by traditional practices now largely forgotten, show how cultural heritage can inform both climate adaptation and mitigation, while promoting local food production and preserving a red-listed ecosystem. Conversations with local farmers, firefighters, biologists and international colleagues provided a deeper understanding of the potential of controlled burning to sustain these ecosystems and food systems.

We hope this report not only provides an inspiring presentation of this year's Klimathon, but also triggers new ways of thinking about the intersection between climate adaptation and cultural heritage - both in Norway and beyond.



I think that the discussion around what the participants perceived as their challenges (and an acceptance to talk about it) created a safe framework where all ideas are allowed and all expertise is useful. It provided fertile ground for good and creative discussions.



## Hackathons and the Klimathon method

#### By Mathew Stiller-Reeve

The Klimathon approach draws a lot of inspiration from hackathon events. The term "hackathon" combines "hacking " and "marathon" and was first used in 1999 during a software development event. A hackathon is an event where participants work intensively within a limited time frame to solve one or more problems through joint group efforts. Participants from different fields come together to participate in interdisciplinary teamwork, often for 24-48 hours, with the aim of developing innovative solutions. While the problem to be solved is usually defined in advance, creativity and autonomy in the problem-solving process are key components of the hackathon methodology<sup>4</sup>. Traditional hackathons are often structured as competitions, giving participants the chance to win prizes, gain prestige and expand their professional networks. Although the format was initially most often associated with software development, it has increasingly been used in a number of fields<sup>5.</sup> Since the early 2010s, many variants of hackathons have emerged, including climate hackathons <sup>6</sup>, urban hackathons (focused on participatory urban planning) and green hackathons (addressing challenges related to environmental sustainability).<sup>7,8</sup> Not only do hackathons help develop new ideas to address challenges in participants' respective fields, but they also offer other benefits. An important aspect of both hackathons and Klimathons is that participants learn from each other, which builds capacity for climate adaptation as well as interdisciplinary collaboration. Participants co-create solutions to a common problem through participation in strong interdisciplinary group work. Navigating through unexpected input and insights from disciplines that you don't normally have to consider can make collaboration challenging. Nevertheless, sharpening such skills is highly relevant in today's society. Many issues are complex and require you to be challenged to think outside the usual patterns of co-operation within and between sectors.

In a Klimathon, the event begins with a few short inspiring talks that provide different perspectives on the problem at hand. However, the main focus of capacity building happens within the groups themselves. While working together, participants naturally teach each other about concepts, ideas and different ways of working and thinking. Finally, by collaborating and learning from each other, participants expand their networks and are more likely to stay in touch and collaborate again in the future.



Klimathon benefits from all the advantages of traditional hackathons, but also includes some key differences in how they are run. In a traditional hackathon, participants are usually free to define their own workflow and group dynamics. Based on feedback from the first two Klimathons, we introduced an approach where one participant in each group was invited to act as an informal group coordinator. These coordinators attend a short session before the Klimathon to familiarise themselves with the event and encourage them to create a friendly atmosphere in their groups and ensure that everyone has a voice. Beyond this, the coordinators are permanent members of each group. In addition, in response to feedback, we developed and refined a loosely structured workflow that groups could choose to follow voluntarily. This workflow, which was presented at the beginning of the event, involves steps such as getting to know each other, mapping and defining a specific problem and innovating a new solution.

Another difference worth noting is that a Klimathon is not a competition, unlike most hackathons. At a Klimathon, all ideas are equally valued and serve as inspiration for the dialogue at the end of the event. In a typical hackathon, each group presents their work to the other participants and a jury. A Klimathon, on the other hand, replaces these presentations with posters. During group work, the participants develop their ideas and display them on an AO-sized poster template. Before the final session, all posters are displayed and a rotation is organised so that someone from each group is always present at the poster to explain their ideas and participate in discussions with others. The last session is a large dialogue session, where all participants can work in teams and exchange ideas.

#### "

There was a positive and encouraging vibe among the group members. However, it was clear that we needed a group coordinator to make sure we stayed on topic and made continuous progress.

#### "

I think the strength of our group lay in our differences. Had we been in wholehearted agreement on the path and the process, we would never have arrived at our result, of which we were all proud.





Typical hackathons often allow participants to form their own working groups, usually resulting in teams made up of individuals with different backgrounds and skills, but there is no guarantee of multidisciplinary groups. In contrast, Klimathons are designed as multidisciplinary events to develop interdisciplinary solutions to 'societal tangles' or 'intractable problems' related to climate adaptation. To ensure that participants are challenged across disciplines and expand their networks, we deliberately design the groups in advance. We aim to create teams that include individuals from research (both natural and social sciences), the public sector (from municipal to national level) and the private sector, including NGOs.

This emphasis on interdisciplinary work is also reflected in the event's planning process. Planning typically starts a year in advance and involves collaboration between experts from both the natural and social sciences, as well as representatives from the public sector, including county and municipal levels. The organising committee often changes for each event (although some key personnel are involved each time), bringing in new perspectives to further shape and develop the Klimathon concept.

An important change in this year's Klimathon is that all participants are invited to co-author the report. Each participant had spent at least two days at Klimathon, contributing their views and ideas. Since the group projects and ideas are discussed in the report, it was only fitting to give everyone the opportunity to be listed as an author. Afterwards, a survey was sent out to all participants, and those who responded are included in the list of co-authors (see the last section of the report).

## Haugesund2024



#### By Mathew Stiller-Reeve and Lene Røkke Mathisen

Haugesund Municipality became involved in the planning of Klimathon early in the autumn of 2023. Prior to this, there had been a dialogue between Vestland and Rogaland county councils about what the theme for Klimathon 2024 should be. When the theme of cultural heritage and climate adaptation was decided, Haugesund was asked to host the event. The reason was both the city's central location between the two counties and the extensive work that has been done here with climate protection of cultural heritage and climate adaptation of society, among other things through the use of traditional techniques and knowledge in the management of outlying areas.

The municipality of Haugesund agreed to host the event and allocate resources to participate in the Klimathon working group. The municipality's contribution was primarily to take responsibility for local tasks related to the event, such as choosing a conference venue, organising accommodation, dinner, transport and the like. It was also important that the municipality's representative participated in the actual planning and work on local anchoring and communication.

During our first tour of Haugesund, various public locations were considered, but it quickly became clear that Haugesund Public Library was the best option. The library offered both practical solutions for plenary and group work and the opportunity to reach a wider audience, both during and after the event. The library also gave us the opportunity to hold Klimathon in a local context, where climate adaptation will take place. Libraries are also an important part of Norwegian cultural heritage, sharing knowledge and providing important meeting places in local communities, which can be argued to be an important part of local climate adaptation.

#### **Funding and planning**

Securing funding for Klimathon 2024 proved to be a challenge. Previously, a number of research institutes and organisations had contributed both funds and working hours, but many experienced pressure due to cost cuts in higher education and research. This meant that we had to spend more time than usual writing applications and securing funding for all parts of the event.

We are very grateful to our funding sources, which reflect the interdisciplinary nature of Klimathon: Rogaland County Council, Vestland County Council, Haugesund Municipality, NORCE, the Research Council of Norway, the Directorate for Cultural Heritage, the Bjerknes Centre for Climate Research, the Norwegian Climate Service Centre, and San José State University in California. In addition, both NorAdapt at Vestlandsforsking and the Centre for Energy Transition at the University of Bergen contributed working hours to the organising committee.

#### The organising committee

As always, the organising committee brings together Klimathon partners from different sectors and backgrounds. It is crucial that the committee reflects the breadth of the participants' perspectives. This year's committee included researchers from both the social and natural sciences, as well as representatives from the private and public sectors. On the public side, representatives from municipal and county councils responsible for climate, environment and cultural heritage participated.



The interdisciplinary composition requires time for co-operation and idea development. The first meeting took place almost a year before Klimathon, and we met roughly once a month to allocate individual and joint tasks between meetings. A significant part of the work went into writing applications, but we also spent time developing work assignments for the group work and background material. The interdisciplinary nature of the committee made it possible to draw on different professional networks, which was crucial for both broad engagement and the interdisciplinary discussions that characterise Klimathon.

#### Klimathon 2024: Implementation and evaluation

At Klimathon 2024, we gathered participants from the research, public and private sectors who work with climate and cultural heritage. The composition of the participants largely reflected the programme committee. A total of 64 people registered, with a balance between Western Norway and Rogaland, but a slight preponderance from Rogaland and Haugalandet. There was also a good balance between public administration, research, museums and business.

Haugesund Public Library proved to be an ideal arena for both professional and social interaction. Plenary sessions were held in the main hall, while group work took place around the building. The fact that the library was open to the public at the same time as Klimathon created a positive synergy. Visitors to the library could experience and discuss with the participants what Klimathon is, and why culture and culture building are central to climate adaptation. In addition, the library provided access to inspiration and literature that might not have been available in a more traditional conference room.

The evaluation after Klimathon showed great satisfaction among the participants. A total of 34 people responded, with 76% saying Klimathon was "very good", 15% "good" and 9% "OK". Criticism was limited, but some wanted more participation from young people, and one person was less satisfied with the group work. Group work can challenge the usual ways of working, even though it reflects normal processes for collaboration. The group coordinator has an important role in ensuring the direction of the work. This is also an important part of Klimathon because it is in the meeting with others that you are challenged in new ways of thinking and working, and from there find new actions and solutions. We are taking on board the feedback about being clearer about expectations in the introduction and will work to fund participation from young people at the next Klimathon.

#### These four main points in particular characterised the feedback:

- **Networking and collaboration**: The event created many new contacts and laid the foundation for interdisciplinary and international collaboration.
- **Inspiration and motivation**: Participants were energised and believed that collaboration is the key to successful climate adaptation.
- **Knowledge and new perspectives**: The event provided increased understanding of climate adaptation, new angles and insight into interdisciplinary approaches.
- **Culture for climate adaptation**: Many people gained increased awareness of what culture means for climate work and ideas for how this can be integrated into practice.

## Why culture-based solutions?



#### By Siri Veland and Carlo Aall

Climate-related hazards, and policies to address them, have impacts on culture. The sense of place and belonging carried in language, ideas, beliefs, customs, codes, institutions, tools, and techniques, even in works of art, rituals, and ceremonies can be affected - but they also have an active role in finding solutions.<sup>9</sup> The Paris Agreement stresses the contribution of traditional knowledge, and the knowledge of indigenous peoples and local knowledge systems.<sup>10</sup> As UNESCO Netherlands argue, "not only does climate change force us to protect our cultural heritage, but our cultural heritage can also protect us.<sup>11</sup>

The term culture-based solutions was first used by UNESCO<sup>1</sup> in 2016 and included mitigation efforts, but the term has not been developed or widely used. In Norway so far, CbS concerns protecting cultural heritage from climate change. For example, The Nordic Council of Ministers emphasised that climate adaptation must preserve the integrity of cultural heritage.<sup>12</sup> In this vein, Bryggen in Bergen uses rain beds instead of 'grey solutions' with drainage pipes that would stand out in the heritage site. The plants in the rain beds make the soil porous so that the water is stored and allowed to run off slowly without accumulating in the wrong place. Recognition that cultural heritage is being forgotten in the green shift also led to the initiative to include cultural heritage researchers when building wind turbines or adapting old infrastructure to climate change.<sup>13</sup>

The Directorate for Cultural Heritage recognizes the importance of culture in the 2021 climate strategy, "Cultural environment management is part of the solution."<sup>13</sup> The strategy describes how to protect cultural heritage from the negative effects of climate change, and to some extent also what positive contributions knowledge of the cultural environment field can make to emissions reduction - but falls short of articulating how the culture and cultural heritage can contribute to society's need for climate adaptation.

The motivation to host a Klimathon on CbS was to mature this field by co-creatively exploring how culture contributes to climate adaptation together with practitioners. At the same time, we had a desire to challenge the distinction between nature and culture in the complementary approaches to nature-based solutions. The International Union for Conservation of Nature has society and culture as ripple effects and objectives, but there is often competition between economic priorities, and decisions rather than cooperation prevail for culture-based solutions. When we focus on culture and cultural heritage, we can look for their ripple effects on nature and climate adaptation. In Ireland, Cathy Daly and colleagues have set a strong example in the *Heritage and Climate Action Training Intersections of Cultural Heritage with Climate Action Policy*<sup>14</sup> where they show how enhancing the resilience of traditional land use will benefit both tangible and intangible cultural heritage. For instance, hedgerows preserve sense of place and slow flood waters.

The concept of culture-based solutions thus poses an important question: can culture and cultural heritage also contribute solutions to climate change? In our planning, we found several examples where tangible and intangible cultural heritage brings with it materials, techniques and understandings that we can utilise in climate adaptation. The idea that a hackathon could help explore the potential of culture-based solutions created a desire to explore the concept. Something as simple as the direction of panelling on buildings is a culture-based solution that saves homeowners large sums of money. In Western Norway, we've always known that it's a good idea to be able to replace the bottom plank when it becomes rotten. Vertical panelling is then not such a good idea. Another example is heathland burning. This 5,000-year-old cultural tradition is almost forgotten but can reduce the risk of wildfires, store carbon, reduce temperature, and preserve a listed habitat and cultural landscape.



## 9 projects on culturebased solutions from Haugesund

During Klimathon 2024 in Haugesund, the 42 participants were divided into 9 groups that developed their own proposals for what culture-based solutions could offer for their topic. On the following pages are pictures of the posters each group created, their definition of culture-based solutions, what problems the group would work together to solve, and a brief description of the solution. The professional competency, understanding, and distance was greater than previous years. Given the connection between the two fields, this was also to be expected. For that reason, it probably took longer than previously to understand what the problem was, what we wanted to solve. It took time to learn the same language, simply put.

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Through the collaboration, we not only gained deeper insight into climate and urban development, but also a stronger sense of community across disciplines and geography.

### KlimaNaust – Group 1

#### Culture-based solutions mean:

Ongoing city- and community-specific practices that solve challenges by incorporating past practices, the state of the present, and expectations for the future

#### The problem we are solving is:

Boathouses are being lost to rising seas and are not being cared for. Protecting boathouses is about more than saving the physical structures; these boathouses also embody traditional lifestyles, craft skills, construction techniques and a sense of community identity, all of which risk being lost if boathouses disappear from the coastal landscape.

Preservation is challenged by the conflict between modern safety regulations (TEK17), which see the coastal location of boathouses as unsuitable for most purposes beyond storage. Legislation on cultural heritage restricts the raising or relocation of the structures. Without intervention, many boathouses will eventually succumb to sea level rise. Our goal is clear: to maximise their heritage potential and functional relevance by keeping them in use for as long as possible.

#### Our solution is:

To preserve the cultural heritage of boathouses in the face of sea level rise. This will require collaboration between the Directorate for Building Quality and the National Heritage Board to explore possible planning exemptions and creative solutions for individual boathouses. By allowing new and adaptive uses, these structures can be transformed into living laboratories for traditional craftsmanship and ecological building practices. Their restoration can open doors to educational programmes, apprenticeships and community engagement, while addressing climate adaptation and carbon sequestration.

Highlighting the vulnerability of boathouses to the effects of sea level rise and climate change can inspire changes towards a more sustainable lifestyle. As silent witnesses to a changing climate, boathouses are a reminder of what's at stake; even when the sea eventually takes them, their presence - and loss - stands as a stark reminder of the urgent need for action.



### «Nail soup» - Group 2

#### Culture-based solutions mean:

The transfer of traditional, tangible, and intangible knowledge, values, and mindsets to adapt to and mitigate climate change, balancing human and natural well-being, in combination with up-to-date scientific knowledge

#### The problem we need to solve is:

Communication. Science already has a great deal of knowledge, much of the necessary technology is already available, and political tools are in place to achieve the desired results in terms of both the fight against climate change and the implementation of necessary climate adaptation. But the necessary climate action and climate adaptation are still not being implemented. How can we communicate the knowledge and seriousness of the situation to politicians, administrators, businesspeople, the young, the old, the poor, the rich, the educated, the uneducated, and so on?

#### Our solution is:

In order to bring about the necessary change in society, we must get everyone on board. All walks of life and stakeholders must be involved in making these changes happen, otherwise it will be difficult to achieve the necessary societal transformation. Society, both locally, nationally and globally, is made up of different cultures (both historically and demographically). In order to use different communication and outreach methods, we need to break down the big picture into specific examples, actions and situations adapted to individuals from all kinds of cultures and walks of life.

#### The analogy with the nail soup:

The folk tale of the man who had no food and sat down in the town square with a pot of water and a nail. He told people who came up to him that they could have some of the "soup" if they could contribute a small ingredient. And many people, who didn't have enough ingredients for a full meal themselves, came and contributed what they had, and in the end it became a complete soup consisting of many different ingredients that together formed a full meal that everyone could share. This can be translated into communication and solutions, so that the soup becomes a kind of "soup of solutions", where none of us can solve these major societal challenges alone, but if everyone can contribute their own ingredient, then together as a culture and a society we can achieve a lot, both in terms of climate adaptation and climate change.



## Travelling along or in the sea? - Group 3

#### Culture-based solutions mean:

Utilising historically acquired knowledge and practices to strengthen sustainable community development in the face of climate change.

#### The problem we are solving is:

To reduce the vulnerability of coastal livelihoods.

#### Our solution is:

To identify key threats such as climate change, lack of knowledge, inadequate legislation and regulations, attitudes and disclaimers, use of resources, management practices, lack of education, and lack of interdisciplinary knowledge base.

Of these, the most important is to improve the knowledge base. This means initiating interdisciplinary collaboration for risk and vulnerability analyses as well as mapping possible measures based on intangible and tangible cultural heritage. For example, basements that can be flooded and salt-impregnated wood are old traditions along the coast of Norway. Some buildings can be moved or their location can be customised.

This knowledge must be disseminated to the population and decision-makers so that they adapt legislation and establish meeting places for dialogue.

Our motto is WORK TOGETHER - BUILD BRIDGES!



## The climate city Haugesund a good place to live - Group 4

#### Culture-based solutions mean:

Collective climate care for Haugesund.

#### The problem we need to solve is:

The "grey corner" is a prominent space at the Edda cinema in the middle of the film city of Haugesund. Edda Cinema has been a cultural landmark in Haugesund since it opened in 1978. Haugesund is known as Norway's film city, and has hosted the Norwegian Film Festival since 1973. This corner with grey concrete walls and gravel is located in the same quarter. This little "grey corner" is strategically located in what will eventually become the city's cultural quarter. "The grey corner" will be given a boost by focusing on climate, environment and social community, and has been given the name "Pusterom".

#### Our solution is:

A climate scavenger hunt as an awareness-raising climate activity in the city centre. We want to inspire children and families to take new and more responsible actions and thus develop both young and old environmental agents. In this way, the solution can help to build identity and a sense of responsibility for the climate city of Haugesund. Assignments will build and provide knowledge about the challenges posed by climate change and inspire people to make good choices for our environment and climate. Everyone who completes the climate scavenger hunt will be recognised as having become an Environmental Agent/Climate Agent. By using the municipality's already well-established locations, the climate scavenger hunt and the posts are strategically placed in the centre of Haugesund:

Haugesund Public Library -with the theme Biodiversity.

Dokken Museum- with theme sea-level rise.

Gamle Slaktehuset- the city's cultural centre with the theme of food waste.

Byparken - with the themes reuse/recycling.

Rådhusplassen - with the theme community.

**Bicycle counter** - with the theme environmentally friendly transport.

Wrangelhagen- with the theme of climate-adapted buildings.

E- verket- theme energy.



## Opportunity arena for culture-based solutions to climate adaptation - Group 5

#### Culture-based solutions mean:

Solving climate adaptation based on local engagement, local knowledge and traditions.

#### The problem we need to solve is:

Many of today's and tomorrow's solutions are rooted in past practices and knowledge, making it even more important to build bridges between the past and the future. In areas where there may have been good solutions to climate challenges in the past, some of this knowledge is now being lost. How can we get in touch with this silent traditional knowledge?

#### Our solution is:

To mobilise people with resources, tradition bearers, and other stakeholders to create dialogue, and disseminate and transfer knowledge about climate adaptation. Such an arena will help put different actors in contact with each other so that they can work together. The "Opportunity Arena" network should have its own staff member, with dedicated contact persons in the municipalities and in the county. The owners of the network should primarily be municipalities, but also the county, museums, government agencies and various relevant teams, organisations and foundations. The opportunity arena should be funded by public grants, project funds and resources from the partners.



## From landfill to Flot(t)myr? - Group 6

#### Culture-based solutions mean:

Culture-based solutions are solutions based on community. It's about building community, and it's about building knowledge.

#### The problem we need to solve is:

Flotmyr is a district in Haugesund that today is a crater, emptied of buildings and contents, and made ready to locate a new urban development. In earlier times it was a rubbish dump, before it became the city's bus station and car park for the city's buses. In the long term, the district will house a swimming pool and many new housing estates, but this is a long time coming. Political decisions have meant that all development has been put on hold. This neighbourhood has a raw potential that we can unleash.

The weight of man-made things now outweighs all living things on earth. What if an old landfill became the solution? What if Flotmyr became a neighbourhood where old knowledge met new ideas?

#### Our solution is:

If we as a society can agree that the goal is to build a city and a society where there is room for everyone, where we take climate and the environment into account in all decision-making processes, where we learn from history, and reuse rather than produce - then this landfill could be the solution.

The crater at Flotmyr can be used to bring people together, build knowledge, build commitment to climate change, and build a city in the process. The project addresses issues related to overconsumption, food security, throwaway culture, social exclusion, sustainability fatigue, inclusion, and the need for practical knowledge. Welcome to Flotmyr!



### Taco without the tortillas? - Group 7

#### Culture-based solutions mean:

Solutions that are inspired by cultural and historical knowledge and local traditions, and that contribute to a more climate-resilient society.

#### The problem we need to solve is:

We are extremely vulnerable in a global food crisis, where Norway as a small country will not have access to the food resources we normally import for animal feed or direct consumption. It's not a question of if it will happen, it's a question of when it will happen.

#### Our solution is:

Own production and diversity. We must act quickly to increase diverse local self-production and ensure preparedness. We need to mobilise locally in all municipalities/regions. We must build up local co-operation and increase local knowledge. Collaboration is the most important keyword, and mobilisation must take place in a three-step process in which we first invite a broad audience to discuss needs and opportunities. Then we must quickly start testing possible solutions before they are implemented on a large scale. This will be an ongoing process.

All possible cultivated areas and all cultural landscapes must be maintained. Diversity in food production is needed to make us less vulnerable in a changing climate. We must utilise and disseminate both old and new knowledge to find solutions for future local climate-resilient food production.

A prerequisite for achieving this is that we move away from the rigid national standardisation that permeates Norwegian food production. There is a need for a more flexible system that removes barriers to small-scale food production throughout the country.



### Immortal building – Group 8

#### Culture-based solutions mean:

Using knowledge from our cultural heritage to solve challenges caused by climate change.

#### The problem we need to solve is:

- 1. The short lifespan of buildings due to, among other things, standardised solutions that are not locally adapted and climate-resistant.
- 2. Overuse of space and building materials. The construction industry accounts for forty percent of emissions, waste and energy consumption globally.

#### Our solution is:

Rooted in ongoing, city- and community-specific practices that address challenges by integrating past traditions, current realities and future projections. We will:

- 1. Create and strengthen material banks that help preserve existing buildings
- 2. Use traditional materials that have high material quality and follow traditional landscape adaptation
- 3. Contribute to the circular economy through economic tools and updated legislation
- 4. Tradition-based innovation through strengthened training and knowledge transfer
- 5. Ensure a long-term perspective that builds new in order to dismantle



## If you are a freak like me, wave your flag! – Group 9

Culture-based solutions suggest: Communal practices in balance with nature.

The problem we need to solve is: With today's many "symptoms" of a society out of balance with nature and the ecosystem we are a part of (climate crisis, loss of nature, resource scarcity and depletion, and so on), there are major consequences that are invisible to most of us in our daily lives.

Our solution is: If you are a freak like me, wave your flag (abbreviated FF = Freak + Flag). We will help to raise awareness and activate the values and attitudes of individuals, and change the actions of the community.

- 1. he cornerstone of the FF pilot project is a municipal, low-threshold "fund" where citizens can apply for NOK 5,000-1,000,000 in funding to realise an idea. The only requirements are
  - The supported activity must be open to everyone.
  - The activity must contribute to strengthening our "common practice in balance with nature"
- 2. When more people become aware of the effects of biodiversity loss, the risks of reduced or vulnerable food security, the weakened resilience and adaptability through the loss of traditional knowledge, and the consequences of climate change, they can also become more creative and find new solutions. This creativity can be brought to life through the low-threshold "fund" (mentioned above).
- 3. Necessary changes in laws, regulations and practices. For example, does the municipality need to be able to accept applications without an organisation number, reports that don't fit the usual template, or trust that citizens can borrow a key and take responsibility for an event on municipal premises?
- 4. In transformative periods like this, there will always be people, organisations and businesses that take the lead, show the way and take greater personal risk than others by being "different". What strategies do we have to recognise and identify the frontrunners? And how do we publicly support them and share their burden? What looks strange today will be commonplace in a decade or two.

By working strategically and purposefully with neighbouring, but nonetheless crucial, "cogs" to bring about change, knowledge and awareness will increase, the climate for change will mature, and those who go first and pave the way for the rest of us will be supported. All in all, we believe this is a project that should be tested in municipalities and communities across the country.





## Summary

#### By Siri Veland

The nine Klimathon groups draw on both cultural heritage and contemporary culture, both in the formulation of problems and in the solutions they propose. Three of the groups looked at how buildings and businesses could become more environmentally friendly by adapting or relocating the building, establishing warehouses with spare parts, and designing new buildings that can be reused (groups 1, 3, 8). Two groups asked how empty urban spaces could be used to create and strengthen local commitment to climate, environment and culture (groups 4 and 6). Four groups considered the challenges around communication and collaboration to strengthen knowledge, innovation and change for sustainability (groups 2, 4, 5, 9). Two groups focussed on food safety and what is required to take care of food and ensure more local and sustainable food (groups 6, 7).

What all the solutions in the projects have in common is that they build on local commitment based on shared values. They all emphasise that the solutions are to be found in the meeting between new knowledge and practice and inherited knowledge, skills, buildings, cultural landscapes and ways of working. The goal is happiness and health through building community, sharing knowledge and utilising cultural heritage to find climate-adapted solutions.

Overall, Klimathon2024 has concluded that culture-based solutions to climate adaptation combine local tradition, cultural heritage, and knowledge to visualise and support community-based, sustainable solutions that balance human and natural health and well-being.

Culture also follows certain evolutionary principles, which both develop and adapt over generations. We have developed rich solutions to challenges, often related to typical weather phenomena. Throughout the gathering, it became increasingly clear to the participants that in order to deal with the climate challenges ahead of us, we need to rely more on our past experiences.



Word cloud of the nine definitions of culturebased solutions





## Heather-burning as a culture-based solution

#### By Siri Veland

On Day 3 of Klimathon, a small group of participants were invited to a seminar on controlled heather-burning as a culture-based solution. Ryvarden Lighthouse in Sveio on Haugalandet was the host, a place that was once probably Norway's largest area of coastal heathland<sup>15</sup>. Ryvarden, in the sea gap in the very south of Vestland on the border with Rogaland, is a cultural monument in its own right. The hosts tell us that according to legend, it was the Viking Ramnaflóke who first laid down a cairn here before setting out on his journey to Iceland 1100 years ago. At that time, heather-burning was already a 4,000-year-old tradition in Norway. The tradition stretched from Norway all the way down the Atlantic coast of Europe. The name Sveio bears witness to this. From Old Norse, Sveio means 'scorched place'.

Heather-burning formed part of the inspiration for developing the concept of culture-based solutions. Coastal heathland is part of our tangible cultural heritage, while heather-burning is an intangible cultural heritage. While in earlier times the practice was intended to create pasture, today it helps to reduce the risk of wildfires through the reduction of dead and dry vegetation, and through new and fresh growth. Heather burning also eliminates ticks, provides good grazing for sheep, goats, and cattle, promotes pollinating insects, protects carbon-rich peat, and prevents the overgrowth of a protected landscape. The practice is therefore similar to nature-based solutions, in that it uses nature to tackle natural hazards and preserve biodiversity. What differs from other NbS is that this solution requires a culture and organization in order to be done gently and safely.



Coastal heathland is now an endangered habitat type. At the same time, climate change promises drier, warmer and wilder weather. As the vegetation grows, the risk of wildfires increases even further, and the fire service is now looking towards heather burning as a solution. It is a solution that requires the culture of burning to return to the coast. A culture-based solution is needed here.

On the following pages, we give an overview of the presentations from the Lynghei Centre, University of Bergen, Sveio Fire Department, a landowner from Ryvarden, as well as from the Wildfire Interdisciplinary Research Center at SJSU and the Central Coast Prescribed Burn Association in California. Participants were from NORCE, Vestland and Rogaland county councils, Haugesund municipality, and others.

#### **Contributions from participants**

Torbjørn Larsen, landowner of Rydalsmarka, says that renewal is needed for the animals to graze on the heather in winter. When he started burning in 2018, the coastal heath had not been managed since the 1980s. To get started with the burning, a survey of the coastal heathlands began in 2005, and a preliminary project started in 2012. The project was completed in 2017, and the grazing association was registered in Brønnøysund in 2018. The team has four members and manages 4,500 acres of fenced pasture.

When they burn, it is in winter when the ground is frozen and does not catch fire. The burning is carried out in collaboration with Haugaland Fire and Rescue Service, with help from neighbours. They are using a drip torch with a mixture of diesel and petrol as an ignition source, as well as leaf blowers to control the fire.

He also explains that it is an effort to familiarise hikers with the area. The trails are heavily used, and tourists need to learn about fire, grazing animals, and other access for conservation in order to travel safely.



Controlled burning of coastal heathland is an important part of this landscape. Photo: Torbjørn Larsen



#### Fire Haugaland and Rescue Service

Chief of Staff Tore Johann Enerstvedt talked about the major fire on 28 May 2012 as a turning point for the management of coastal heathland on Haugalandet. The fire affected 11 properties covering up to 3,000 acres of heather, scrub, forest and land. The fire occurred during a warm period in the spring when the terrain was very dry. Such wildfires in hot weather mean that the peat under the heather also catches fire. The peat can smoulder for a long time, and under the right conditions the fire can flare up again. Such fires are therefore demanding to extinguish.

Today, Haugalandet Fire and Rescue Service operates protective fire drills in winter in co-operation with landowners. This is a good opportunity for the fire brigade to train crews in extinguishing and managing fires. "The fires are realistic in size, around 150-300 acres, and thus resemble wildfires," says Enerstvedt. "It's also useful for the landowner because it removes dead and dry biomass and makes room for new and nutritious growth. Heatherburning takes place after careful planning, where the pattern follows conditions in the weather, vegetation and terrain.

It is much more difficult to ignite vegetation in areas that have recently burned. But much remains to be burned along the entire coast. In the future, the aim is to burn in a mosaic pattern as has been done in Scotland, but today there is a lot of old, overgrown and flammable vegetation that requires work before heather-burning can be incorporated.



#### Wildfire Interdisciplinary Research Center (WIRC)

Jannike Allen, a master's student from San José State University, talked about her work in California to monitor fire's effects on the landscape. California was routinely burned by Indigenous people for thousands of years before settlers outlawed it, and currently both prescribed fire and cultural fire are used far less than in the past. The region has a fire deficit so recent wildfires have become increasingly destructive. She has worked with residents who are adapting in order to live safely in ecosystems that have been affected by severe wildfires in recent years. As part of efforts to bring good fire back, Allen carefully examines the types of fires that are ecologically beneficial.

Since the landscape has changed a lot in the absence of fire, sometimes additional tools are needed to restore ecosystems, such as mastication of vegetation, which breaks it down mechanically. Mastication may not help plants that are fire adapted and need heat and smoke, but it can often be used as a step towards burning. Allen works in the Wilkin Lab using a variety of monitoring techniques to assess restoration effectiveness, to help land managers prioritize projects that are likely to have the most benefit.

#### **Central Coast Prescribed Burn Association**

The wildfires in California over recent years are well known around the world. There is growing recognition in California that the catastrophic scale of these fires is the result of decades of barriers to controlled burning, or 'fire suppression'. Policymakers, organisations and communities are now looking for ways to reduce wildfire risk and increase adaptive capacity. Spencer Klinefelter from the Central Coast Prescribed Burn Association (CCPBA) in California talked about the motivation for 'Prescribed Burn Associations,' and how their work supports ecology through cultural work. PBAs are prescriptive burn associations organised into regional associations made up of landowners and other local residents.

The prescribed burn association framework started in the 1990s as a collaboration between ranchers in Great Plains, USA, as a measure to prevent the overgrowth of grasslands. Such organisations can be small informal networks, voluntary organisations, or through larger government organisations such as the US Fire Service. The CCPBA provides training for volunteers, farmers, forestry and indigenous representatives, and other interested parties.







Siri Haugum talks about the coastal heathlands outside Ryvarden Lighthouse. Photo: Idun Husabø

#### The Heathland Centre

Two participants from the Lyngheisenteret (Heathland Centre) at Lygra north of Bergen took participants on a tour of the ecology of the coastal heathland, and on a walk through the historical management of this rugged landscape.

Siri Haugum took the participants out into the coastal heathlands outside Ryvarden Lighthouse to showcase the ecosystem. The coastal heathland is a cultural landscape managed by humans for 5,000 years. Common heather, bell heather, and cross-leaved heath are the most common heather species, growing alongside crowberry, peat moss, fragile fern, juniper, and more. Common heather has adapted to human burning practices and responds to smoke by increasing its germination speed. Peat moss is a species that grows very slowly, only about one millimeter per year. The plant retains large amounts of water and creates an anaerobic environment, turning the peat into a sort of calendar where 50 centimeters of peat represent 5,000 years of growth. It also causes the soil in the coastal heathlands to differ from other soils, as it contains exceptionally high amounts of carbon. By comparison, spruce forests store far less carbon per area, an important distinction for carbon accounting for climate mitigation.







Overview of Lyngheisenteret at Lygra. Photo: Lyngheisenteret.



Map of the coastal heath's former distribution. Illustration: Lyngheisenteret (heather centre)

The soil in the coastal heathland is particularly rich in carbon. Photo: Siri Veland

We learnt that Norwegian Institute of Bioeconomy Research's (Nibio)' overview of carbon storage in Norway does not include the carbon-rich coastal heathland and thus misses out on a particularly important ecosystem in its accounts. It is important to conduct more research in coastal heathlands to understand their role.

When the landscape isn't burned over time, the heather grows thick and dry, while the junipers grow large. This creates a highly flammable landscape. Once it ignites, the peat burns readily, and the entire soil layer can disappear as the carbon is released into the atmosphere. There are many important reasons to preserve this type of nature, and both burning and grazing are needed!

Torhild Kvingedal, manager at the Lyngheisenteret, explained that coastal heather has historically covered the Atlantic coast from Portugal to Lofoten in Norway. Today, ninety per cent of the area has disappeared due to overgrowth, more intensive agriculture or development. The Heathland Centre aims to safeguard the surviving coastal heather, knowledge and resources for the future.

In Nordhordland, heather-burning started 2800 years BC and is today an important intangible cultural heritage. The practice was part of the fishermen's way of life, in combination with grazing and fishing. The fields were fenced in and the farm gathered resources from the grassland, the coastal heath, the sea and the peat for food security, clothing and equipment.

The practice is a self-sustaining system when the ecosystem is in balance, but as soon as the practice ceases and little or no grazing and burning occur, the balance is broken and the forest takes over. On Lygra, this happened during the land redistribution in 1890, when cluster farms were broken up in favor of individual holdings. This made it easier to practice modern agriculture.



An example of traditional farming in the coastal heathland. Illustration: Lyngheisenteret







Over: Vær- og Bulandet Lyngbrennarlag's logo. Under: Lynx felling on Værlandet near Alden. Photo: Anders Braanaas The last coastal heather farmers stopped farming in the 1970s. The Heathland Centre was established in 1999 to preserve this important cultural heritage. Today, the centre provides training through a series of events throughout the year. Participants learn traditional building techniques, ecology, mowing, animal husbandry, spinning, cultivation, cooking and much more. The Lyngheisenteret is part of the Nordhordaland Biosphere Reserve and collaborates with a number of national and international organisations on safeguarding cultural heritage.

#### Sørværet Wild Sheep

From Værlandet in Askvoll, Hilde Buer talked about their wild sheep farm. Together with Anders Braanaas, the farm manages 5,000 acres of land, where 300 wild sheep graze. The wild sheep go out all year round and graze on heather and some additional fodder in harsh winters. Together with other permanent residents in Værlandet and the surrounding area, they have formed Vêr- og Bulandet Lyngbrennarlag. The heather burners co-operate to keep the fire going and secure infrastructure that cannot tolerate fire. Immediately after the burning, the landscape doesn't look so pretty, but germination takes place soon afterwards and provides sheep and other species with nutritious food.

Buer says that burning only has advantages. "It reduces the risk of wildfires, provides easier terrain to move around in, more diversity of species and landscapes, better grazing, fewer ticks and gnats, and a more beautiful landscape.



## Culture-based solutions to the climate crisis

#### By Siri Veland and Carlo Aall

The motivation for organising Klimathon2024 on the theme of culture-based solutions was that this could be a useful framework for climate adaptation in Norway and elsewhere. While the researchers in the group have their own views on what culture-based solutions can be, they agree that such solutions must necessarily be rooted in society. In the same way that nature-based solutions do not reinvent nature, but use nature's solutions for climate adaptation, culture-based solutions should not reinvent culture, but show how culture is involved and contributes. It was therefore appropriate to organise a Klimathon on the topic before the researchers had had the opportunity to give their definition.

Each group at Klimathon2024 had a discussion about the fact that this is about more than preserving old cultural heritage for its own sake. All of the groups agreed that this is about using cultural heritage for something active that can help climate adaptation more generally, and on a larger scale. This is an important point for communicating what culture-based solutions can offer.

These views are shared by the UN's Intergovernmental Panel on Climate Change, the World Conservation Union and the Intergovernmental Panel on Climate Change (IPCC). For example, the IPBES states, "Local communities often contribute to conserving and enhancing biodiversity and reducing habitat loss, including in areas of significantly high biodiversity."<sup>16</sup> The International Union for Conservation of Nature states, "Global biodiversity targets cannot be achieved without the full inclusion of indigenous peoples and local communities."<sup>17</sup> Similarly, the UN's Intergovernmental Panel on Climate Change states that local and indigenous communities "... can contribute to overcoming the combined challenges of climate change, food security, biodiversity conservation, and combating desertification and land degradation (high trust)."<sup>10</sup> The discussion in the group developed quite naturally with the help of the outlined work steps. All participants were very competent and engaged in the topic.



Although thoughts often turn to more exotic places and cultures than our own, there is much that can be done in Norway and other countries to meet the demands of these international organisations. For example, the management of coastal heathland dates back to the Neolithic period, a practice that has co-created ecosystems and species that are adapted to this particular practice. This legacy is shared with communities around the world. In Australia, burning is a key part of 'Caring for Country,' a land management system that integrates heritage and cultural practices, biodiversity conservation, natural hazard mitigation, and combating land degradation.

In California, 'Land Stewardship' and 'Cultural Burns' are approaches to taking a more active role in safeguarding biodiversity that also reduce natural hazards in collaboration between professional and voluntary actors. In Norwegian, the word 'skjøtsel' has a similar function in that it refers to an active role in safeguarding the landscape and species with effects on food security, reducing natural hazards and land degradation. The Sami 'Meahcci' has a similar function, as practical places that are created in connection with precarious but productive social relationships where there is no divide between nature and culture. None of us can solve these major societal challenges alone, but if everyone can contribute their ingredient, then together as a culture and a society we can achieve a lot.

Culture-based solutions "are rooted in ongoing, place- and community- specific practices that address challenges by integrating past traditions, present realities and future forecasts. At the same time, the international organisations point to more than cultural heritage when they talk about local and indigenous communities. The contemporary culture of local communities can be both a hindrance and a help, and cultural change is an important element in the transition to sustainable societies. The culture-based solutions from Klimathon2024 emphasise that culture is a living phenomenon that is always changing. Culture is an arena where people can actively demonstrate opportunities and create commitment for action in the local environment, with contributions to climate adaptation, climate action, and safeguarding biodiversity and food security as outcomes.

The participants at Klimathon2024 took a path from a little uncertainty, to being about how society should adapt to climate through culture. The participants say this is about building culture, building on old cultural expressions, or taking elements from something traditional and old and turning them into modern and forward-looking arenas for action. For example, participants could initially talk about more traditional issues about how to adapt listed buildings, to conversations about what we can learn from these buildings in the work on climate adaptation. In this sense, the event was a success, contributing to new ways of thinking about climate adaptation.



We must adapt to a world where climate change is creating wetter, wilder and drier weather, at the same time as we are seeing major changes in land use, construction techniques and building materials. The countryside is becoming overgrown, farms are being closed down, and new buildings in peri-urban areas often follow fashion rather than reason in the face of local conditions. Land in Norway is being reduced at a rapid pace, with 79 square metres of nature lost every minute. In part, this destruction can continue because we as a society have retreated from our caring role, or from the management of nature. Nature has taken on the role of a wilderness where humans visit. Participants at Klimathon2024 told of neighbours who protested against burning and grazing animals as a nuisance or even as vandalism. By strengthening existing conservation practices and creating new cultural arenas for sustainable land use, culture-based solutions can help to break down the divide between nature and culture, and make visible the impact of human presence and absence on biodiversity, natural hazards, food security and land degradation. The idea of culture-based solutions stems from the need for nature-based solutions. The idea is to expand the role of cultural heritage in climate work from, on the one hand, defending against the negative effects of emission-reducing measures and, on the other hand, implementing measures to protect cultural heritage against the negative consequences of climate change. Solutions lie in searching for ways to utilise knowledge and tangible and intangible resources related to cultural heritage as a positive contribution to climate work. As the event is about climate change adaptation, the attention during Klimathon2024 is directed towards the adaptation part of the climate work.

Culture-based solutions can be a leap from naturebased solutions, just as nature-based solutions were a leap from the 'grey solutions' of the previous century. Nature-based solutions are defined in government planning guidelines as "Conservation, restoration or establishment of nature-based solutions (such as existing wetlands and natural streams or new green roofs and walls, artificial streams and pools, etc.) should be considered." In other words, the idea is that 'culture' can be used as inspiration in the same way as 'nature.'

The Norwegian Environment Agency's guide to naturebased solutions presents three levels (hierarchy) of measures, where the top level is ranked as "most important." Preservation should be the first priority, but if necessary it is important to restore, and finally establish in some cases. The idea behind nature-based solutions is to learn from nature and endeavour to preserve, restore or recreate nature in order to contribute to climate adaptation efforts.

#### Tre hovedkategorier

Naturbaserte løsninger for klimatilpasning kan deles inn i et hierarki som gir en retning på hva som bør prioriteres.

+ 1. Bevare
+ 2. Restaurere
+ 3. Etablere

+ Figur 1: Hierarki av kategorier av naturbaserte løsninger.



Hierarchy of nature-based solutions (Source: Norwegian Environment Agency)

Establish	Restore	Preserve
Artificial streams, rainwater pits, rain gardens, infiltration basins, permeable covers, sprig ponds, etc. Green roofs and walls Building earth/clay dikes against storm surges/landslides Establish protective forests against landslides	Critical ecosystems (formerly closed/meandering watercourses, wetlands, marshes, edge vegetation, sand dunes, etc.)	Existing untouched critical ecosystems (open lakes and watercourses, natural forests in steep terrain, wetlands, seabed near the intertidal zone, etc.)

The table illustrates a possible broad typology that encompasses all these extremes, with examples of cultural elements that could serve as potential contributors in climate adaptation efforts.





The same starting point can be taken for the development of culture-based solutions and explore whether this approach also makes sense in the cultural field. The first step must be to explore what the concept of 'culture' means in this context. Should we distinguish between tangible and intangible culture, and is it only 'old' culture or also 'new' culture perhaps from other places and countries that should be explored?

Nature-based solutions are based on nature conservation, but add an additional function to the original objectives of conservation in the form of helping to reduce the negative consequences of climate change - a different kind of ecosystem service. This suggests that protection as understood in climate adaptation may involve other forms of protection than from the classic perspective of nature conservation. In many environmental areas, there is a tripartite division such as for nature-based solutions where the top level is presented as the most important. In waste policy, for example, we have the 'waste hierarchy,' which is i) avoid waste, ii) recycle waste, and iii) treat residual waste responsibly. The Climate Committee 2050 launched a similar, more general hierarchy under the abbreviation UFF (avoid, shift and improve). What they have in common is that the rumours about implemented policies do not always correspond to reality.

So what can culture be in the context of climate adaptation? It is important to extend culture-based measures to something more than adapting cultural objects to climate change. The parallel to nature-based solutions is to do more than adapt untouched nature to climate change, such as adjusting conservation boundaries or managing landscape conservation areas). A suggested typology for culture-based solutions is degrees of expansion from 'narrow' to 'broad' understanding, along two axes: understanding of culture (from hard to soft), and choice of reference point (time versus space).

	Culture from other times ("old days")	Culture from other places (in Norway, in other countries)
<u>'Hard ' culture</u> (e.g. building technology)	For example, resuming the tradition of "open" floors in new rental cabins in Lofoten to make the buildings tolerate storm surges.	For example, using horizontal siding on houses in Eastern Norway (learnt from Western Norway) to prevent rot damage.
'Tender ' culture (e.g. management of the cultural landscape)	For example, resume the tradition of burning heather in Western Norway to prevent forest fires, among other things.	For example, teach Norwegians to grow grapes (!)
<u>Soft culture</u> (e.g. attitudes and values)	For example, addressing the previous attitude that no one should drive along landslide- prone roads during extreme weather to prevent damage.	For example, integrating attitudes about getting by with less living space per person and thus reducing pressure on new housing construction in areas prone to flooding and landslides.

The broadest possible understanding of culture-based solutions, covering all six fields above, will open up the widest possible range of new work areas in climate adaptation.

## Conclusion

Klimathon2024 in Haugesund was the fifth event, and built on previous experiences and lessons learnt. Culture was a topic that attracted the participants in a personal way that created a unique engagement. It shows that culture-based solutions can make a strong contribution to climate adaptation by creating an arena for action close to what people care about and have the power and influence to affect.

Several of the participants have already started working on their projects, and others are about to be realised. Some projects are local, others have national objectives. All participants enjoyed the event and the Klimathon method. They reported that it could sometimes be both frustrating and challenging at this intersection of complex issues, new collaborations, and unfamiliar knowledge. At the same time, they talked about new insights into problems, exciting new collaborations and solutions they hadn't thought of before.

Haugesund Public Library was an ideal meeting place. Participants socialised with local visitors and other local events took place at the same time. This listed building is a cultural heritage in its own right, bringing together people in Haugesund and the surrounding area and creating contemporary culture in the meeting between older traditions, new generations and new compatriots.

Culture-based solutions promise a new concept for climate adaptation. Klimathon2024 has been a first step towards recognising culture - both old and new - as a critically important part of climate adaptation and the transition to clean energy.

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We are already looking forward to the next Klimathon!

## Participants

Carlo Aall Jannike Allen **Elisabeth Angell** Hege Agathe Bakke-Alisøy Siw Irene Bogshamn Hilde Buer Sahra Campbell **Bjørg Miriam Dahle Cathy Daly** Ineke de Rezende Tore Dolvik Ingrid Ebne Mathies Ekelund Erlandsen Johannes Ellingsen Stine Lise Espeland **Gry Evensen** Marit Sætre Færevåg **Cecilie Flyen** Peter Forrás Britta Goldberg **Tina Desiree Haddeland** Magnus T. Hauge Ingvild Haugen Anne Mette Haugen Siri Haugum Gaute Widerøe Hennig Madli Hjermann **Berit Alise Høivik** Idun Husabø Kjersti Isdal

Vestlandsforsking (Western Norway Research Institute) Wildfire Interdisciplinary Research Center (SJSU, California) NORCE, Norwegian Research Centre City of Bergen/World Heritage Site Bryggen Landbruksforvalter Sørværet Villsau Bonde Museumstjenestene i Rogaland Sola Kommune University of Lincoln & Carrig Conservation Ltd Norconsult Norge As Kvam herad Rogaland fylkeskommune Museum Stavanger Universitetet i Stavanger Sveio kommune-/Eining for Samfunnsutvikling Statsforvalteren i Rogaland Edda kino / Haugesund kino og konserthus KF Norsk institutt for kulturminneforskning Vestland fylkeskommune Museum Stavanger Haugesund kommune Haugesund kommune Haugaland Vekst IKS Rogaland Fylkeskommune Lyngheisenteret Vindafjord kommune Haugalandmuseet Vestland fylkeskommune Vestlandsforsking (Noradapt) **Region Nordhordland IKS** 

Bente Marie Johansen Poppy Kalesi Spencer Klineefelter Kjersti Konstali **Torhild Kvingedal** Lu Li Johanne Lomheim Lene Røkke Mathisen Stephanie Mayer Tom Melkevik Victoria Miles Marie Pontoppidan Anette Morvik Robberstad **Mathilde Engum Rolland** Annette Sæther Maria Salem Jakub Stasiak Ane Steingildra Alvestad **Mathew Stiller-Reeve** Katrine Strand Sæter bø Ketil Thu Irmelin Sangolt Tjelflaat Ellen Urheim Tveit **Agnes Tvinnereim** Elin Valand **Kristian Valen** Siri Veland Kjersti Vevatne Grethe Paulsen Vie Marte Lange Vik Siri Vikse Snorre Waage Jan Windsholt Martin Worts 

#### Sveio kommune Rogaland fylkeskommune Central Coast Prescribed Burn Association Universitetet i Bergen Museumssenteret i Hordaland NORCE Norwegian Research Centre Rogaland fylkeskommune - Samferdsel Haugesund kommune NORCE Norwegian Research Centre Kringsjås venner Nansen Center NORCE Norwegian Research Centre Riksantikvaren Haugalandmuseet Haugesund kommune Ryfylkemuseet Masterstudent Byplanlegging UiS Rogaland fylkeskommune Village Green Bømlo kommune Engøyholmen Kystkultursenter/Fortidsminneforeningen Sola kommune Sveio Kommune/KIK Sunnhordland Vill Mer/Bærekraftige liv Rogaland fylkeskommune Rogaland fylkeskommune NORCE, SJSU Asplan Viak as Haugalandmuseet Høgskulen på Vestlandet Haugesund folkebibliotek Vestland fylkeskommune Rogaland fylkeskommune Hå gamle prestegard / Hå kommune

