



O5 Country report – Contributions to the guidance note with case studies and good practices on implementing local adaptation strategies

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1 Top tips.

1. Quantify current and future climate related risks in your area

Develop in depth diagnosis of climate related risks, based on scientific data and monitoring. This requires identifying natural hazards in your area and their quantification based on numerical modelling, the assessment of vulnerability of different dimensions of the coastal built environment and analysing the resulting risk at present and future scenarios. For that, establish the most appropriate climate change scenario(s) and horizon year to be analysed, in line with other plans and strategies in your area. The risk results constitute the baseline information to design site-specific climate change adaptation measures and elaborate a climate change adaptation plan.

2. Design comprehensive climate change adaptation plans

Based on the deep understanding of climate related risks, elaborate comprehensive climate change adaptation plans to define and select climate change adaptation measures and a roadmap for their implementation. The plan will also define monitoring and evaluation tools to assess the implementation process and the effect of the measures on the coastal built environment.

3. Apply an adaptive management approach

Promote flexible adaptive management to reduce the uncertainty of climate change scenarios in decision-making through system monitoring and regularly update your climate change adaptation plans. Use monitoring and last-generation data and methodologies to update the assessment of climate related risks and innovative techniques to design climate change adaptation measures.

4. Consider coastal complexities

Apply a holistic approach and follow Integrated Coastal Zone Management (ICZM) principles for coastal planning, as climate change adaptation and ICZM are fully embraced. In this regard, consider interaction among the components of the coastal built environment (physical, economic, social, environmental and



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governance), among sectors (tourism, financial, fisheries, agriculture, transportation and navigation, urban, etc.) and among levels of administration (neighbourhoods, local, national, etc.). Address all these coastal aspects in a balanced manner for a sustainable development.

5. Capitalise previous efforts and initiatives

Analyse previous initiatives developed in your area to build on existing climate change adaptation activities and incorporate climate change adaptation approaches in those initiatives that can be improved. Additionally, explore synergies between climate change adaptation and mitigation measures.

6. Work with local planning authorities and key agencies

Involve local authorities and create coordination mechanisms for local climate change adaptation. This will help to identify previous efforts and initiatives, identify potential opportunities from climate change, avoid conflict and overlapping competences and design cross-sectoral climate change adaptation measures that benefit a range of components and sectors of the coastal built environment.

7. Involve local community

Promote the involvement of key local stakeholders including community members, civil organizations, local professional organizations and research entities and private sector into the process of climate change adaptation decision-making.

8. Explore available funding for climate change adaptation

Contact local and national climate change adaptation offices to explore funding opportunities available in your area. In addition, search for international and regional funding for climate change adaptation, as the European Commission programs, the Green Climate Fund, United Nations and development banks funds, among others. Research centres, universities and private innovation companies can support you in applying for international and regional funding.



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9. Collaborate across borders

Make sure to collaborate on adaptation measures across borders, both geographical and administrative. To work efficiently we must be better at collaborating with all actors affected by the adaptation measures we want to introduce.

10. Utilize Nature-based solutions (NbS)

We should explore NbS more actively and make necessary systemic changes to promote NbS. Many NbS solutions have multipurpose functions and can not only help with adaptation, but also contribute to a more resilient ecosystem, promote more biodiversity, work towards mitigation goals, etc.

11. Have a dynamic approach to adaptation

Climate change adaptation is not only about large-scale engineering solutions, or thousand-page adaptation plans, it is also, maybe even more, about the small-scale efforts by individuals, communities, and cities. We should utilize pre-existing natural processes as our starting point and then enhance these, and not work against them. We must also be flexible to change plans, reflect on ideas, and not get stuck into an expensive large-scale plan/measure.

12. Broaden the focus to include more than water management

Even though water management is key for climate adaptation, it receives nearly all focus from academia, policymakers, and media. There are a multitude of other problems that need focus, such as heatwaves and ecosystem services. These issues are currently barely addressed in plans.

2 Instruments available to support local adaptation to climate change.

2.1 REGULATORY INSTRUMENTS (E.G. LAWS, ACTS...):

- [Plan and building act \(Plan- och bygglagen, Förordning 2010:900\)](#)
 - Regulates who is allowed to build and how that may be done. The key part is that only the municipality has the power to start a building process.
- [The environmental charter \(Miljöbalken, Förordning 1998:808\)](#)
 - Promotes sustainable development and is construed to protect certain key areas such as biodiversity, human health, natural and cultural environments etc.
- [Ordinance of governmental agencies climate adaptation work \(Förordning om myndigheters klimatanpassningsarbete, Förordning 2018:1428\)](#)
 - Lays out the broad overall strategy of Sweden's climate adaptation efforts on a national scale. It specifically dictates which governmental agencies that must work with climate adaptation.

2.2 FINANCIAL INSTRUMENTS:

- [MSB \(Swedish Civil Contingencies Agency\) fund for natural accidents](#)
 - Municipalities can apply for money from this fund to reduce the impacts of a natural disaster, although criticized in multiple way this fund has grown a lot in recent years.
- [Municipalities can introduce a tax, or a fee](#), to raise money for climate adaptation efforts. Although, no one has this yet, and it is a legal grey zone for what that money can be spent on (Von Bahr and Ivarsson, 2020)

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- [Beyond these two there are no major ways to finance](#) besides letting the property owner do it themselves or apply for funds on an EU-level. SMHI has a webpage dedicated to help with where you can find funds, see references.

2.3 NATIONAL STRATEGIES AND PLANS:

- [The expert council of climate adaptation first report released in February of 2022.](#)
 - The expert councils' reports attempt to guide actors on what to do. They included 168 suggestions for how to increase the resilience of Sweden towards climate change.

2.4 AVAILABLE DATABASES:

- [Swedish meteorological institute's \(SMHI\) climate adaptation portal.](#)
 - This portal has helpful information regarding financing, examples, top tips, etc. from all over Sweden.
- [Flooding portal from the Swedish Civil Contingencies Agency \(MSB\).](#)
 - This portal contains information and tips for flooding along rivers in Sweden, mainly focusing on the larger rivers (Myndigheten för samhällsskydd och beredskap, n.d.)
- [Map-tool for erosion and landslides developed by a coalition of governmental agencies](#)
 - This highlights risky areas when it comes to land and soil stability, it also contains guidance of how to treat these risks and how to interpret the maps.

2.5 AVAILABLE GUIDELINES:

- [Flooding directive from the EU, which informs work done by MSB and the water and sea authority.](#)

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- This directive aims to synchronize how member-states work with flooding issues across the EU (European Union, 2007).
- [The housing authority's \(Boverket\) guidelines for climate adaptation in the planning process.](#)
 - This guidance is used by most municipal and regional planners as a knowledge bank for how to interpret situations within the planning process.
- [Swedish water's guidelines for downpour calculations \(Svenskt vatten\)](#)
 - These guidelines inform officers in the field of how to plan for downpours, and by what magnitude future climate effects should be taken into account. Their recommendation of a 'climate factor', multiplying historical downpour accounts by 1.2-1.4, is praxis in the field (Svenskt vatten, 2020).

2.6 SOFTWARE/HARDWARE/SCIENTIFIC FACILITIES:

- [GIS \(Geographic information systems\)](#) is the most important mapping tool for climate adaptation officers. It is mainly used as input for adaptation efforts.
- [Scalgo](#) is another mapping tool that specializes in rainfall and downpour. One interviewee described it as being a good, and user-friendly, visualization tool for downpour.

2.7 OTHERS:

- For people working with climate adaptation the broader plans, such as oversight plans or regional development strategies, are key pieces of documentation for involving climate adaptation plans to regional development.
- Collaboration forms, although largely lacking in the Swedish context, is something that many interviewees highlighted as a key strategy to overcome resource- and knowledge deficits. The most talked about include RKS (Regional coastal collaboration), Erosionskadecentrum (Erosion damage centre), Göteborgsregionen kommunalförbund (Gothenburg region municipal alliance).



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- EU taxonomy is an essential incentive for the private sector to become more aware of their environmental impact. Although this is mainly for mitigation purposes, it can also contribute to a general awareness of climate dangers and adaptation strategies for combatting these.

3 Selection of country-level most suitable case studies.

Climate adaptation measures that were favoured by the interviewees has mostly to do with one of two broader categories, either technical engineering solutions or collaboration efforts. In the former category there are solutions such as changing surfaces to permeable to deal with rainwater (Malmö/Lund), building walls to protect from flooding (Uddevalla), or building recreational spaces that are also working as 'delay dams' (i.e. Getinge in Halland). In the latter category there are fewer examples, something that interviewees highlighted as well, but a few success stories, especially climate adaptation network (Gothenburg) and Regional coastal collaboration (Skåne).

Besides the obvious impact these adaptation measures had/has they also reveal some key strategies when working with adaptation. In Uddevalla, the project is about building a wall to protect from floods, but they focused on more creative ways of involving the public into this process. They did so through artists visualizing how Uddevalla could look in the future and embracing the public's opinions on this. Such a way of working creates ownership of the problem, and solution, and is therefore more likely to succeed over time.

In Malmö/Lund, they revealed a multitude of small-scale actions that can be taken by individuals to reduce the stress of the citywide sewage system. They did so through, seminars, funding of certain measures, information campaigns, etc. One of the key outputs of this project is to change people's perception on who is responsible for water management in the city, and to change people's behaviour and view of water.

Beyond these two most popular categories, there are software tools that many, if not all, climate adaptation officers work with daily. These are not adaptation measures themselves but are in many cases prerequisites for successful adaptation strategies. The software programs most utilized seem to be Geographic Information Systems (GIS), Scalgo, Green area factor as a planning tool, and other mapping tools. In Sweden, these systems are key for consultants, which probably is the key group for developing material, forecasts, and possible solutions that public admin workers or politicians then utilize to adapt to climate change.

There is also work with nature-based solutions (NbS) in a few places in Sweden. One EU Life project takes place in Skåne along the coast. This is a pilot project with NbS which seems possible to do in Sweden. Although, one interviewee with insight complained about the financing regulations which makes NbS less attractive. NbS is currently not the most suitable adaptation strategy, not because it does not work, but because the system favours more engineering 'hard' solutions. This makes NbS more expensive and difficult to argue for.

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The stakeholders could not respond to the adequacy of certain measures. This was partly because the examples provided require extensive contextual knowledge about these projects to explain the key features and why it worked. Depending on which interviewee, how each different category was understood differed significantly, and due to time-constraints it was not possible to explain everything at length. Moreover, what the different levels of unsuitable, moderate, or very adequate meant was different for each interviewee. Therefore, there are no answers from the stakeholders on the adequacy of adaptation measures.

Attempting to remedy this issue, the excel sheet is filled in by the interviewer with information from all other questions in the interview template. This summary of the interviews still provides a good picture of what the different stakeholders focused on in the interviews.

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Stakeholder 6: ANONYMOUS, National housing agency

Stakeholder 7: Anna Pettersson Skoog, Research Institute Sweden, governmental Academic body

Stakeholder 8: Helena Björn, Lomma municipality, municipal actor

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