Interreg
North Sea Region
FRAMES
European Regional Development Fund

EUROPEAN UNION

Policy Recommendations for an integrated approach to flood management

MARCH 2020

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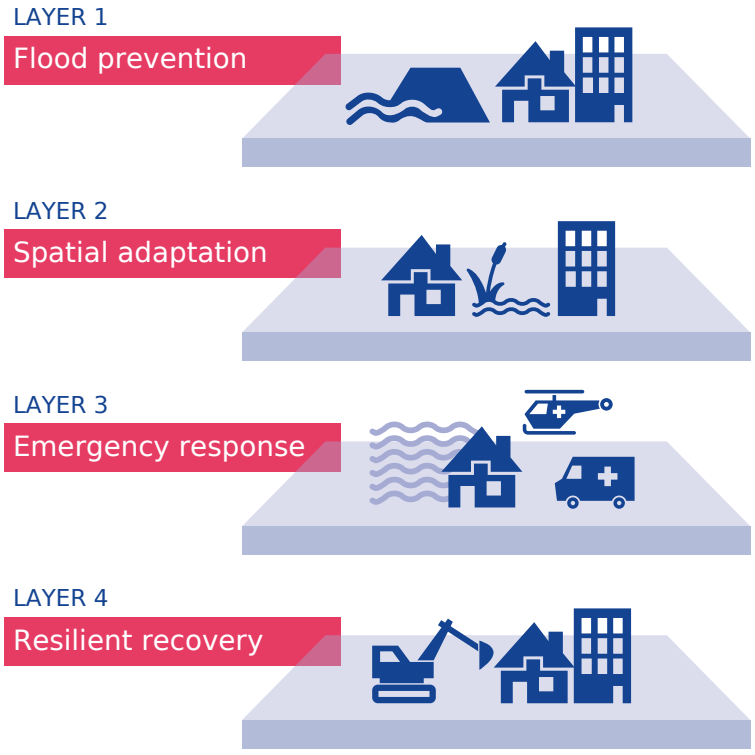
1. Interreg North Sea Region Project FRAMES

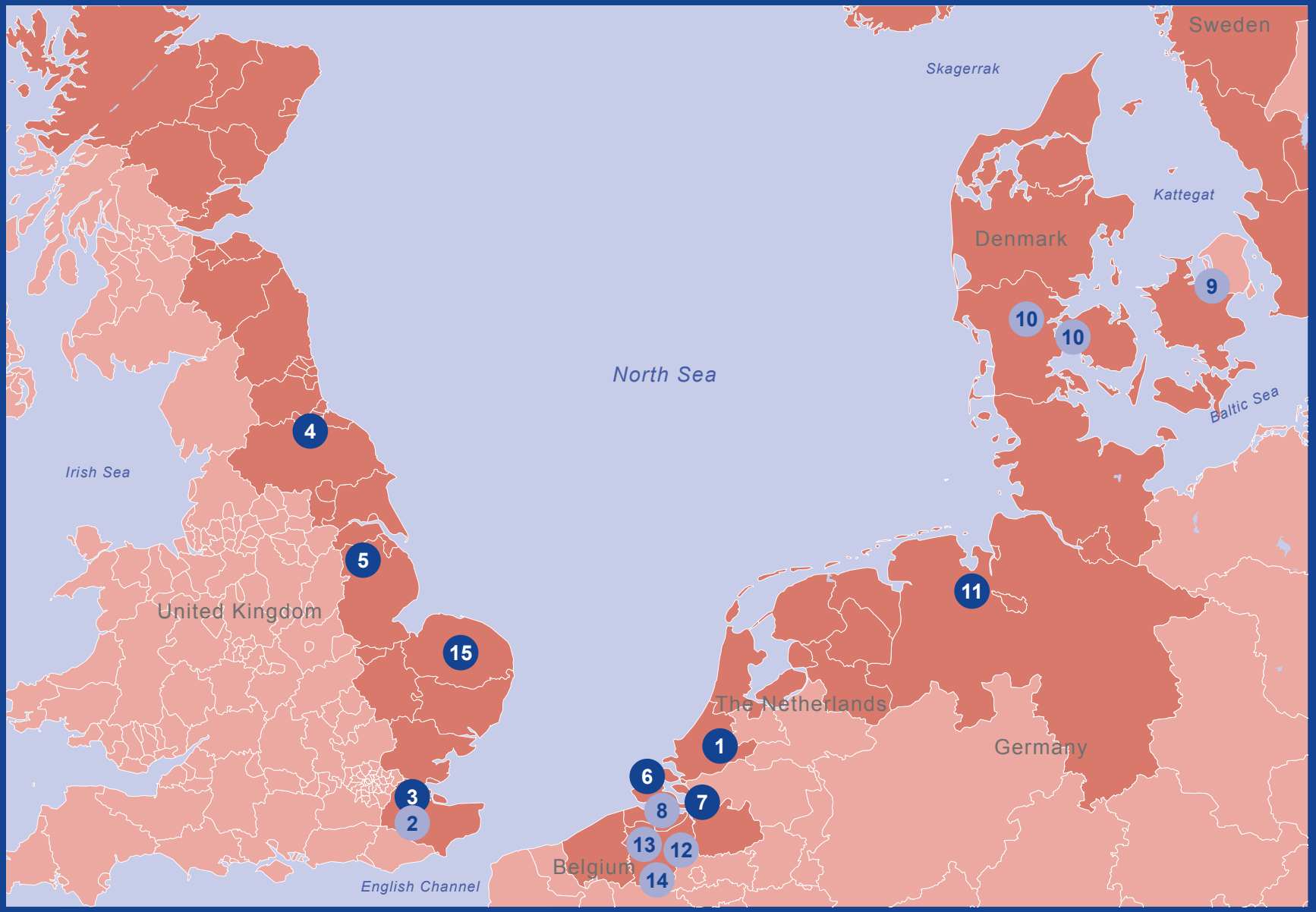
The impacts of climate change are being felt across the North Sea Region. The Interreg project FRAMES (Flood Resilience by Multi-LayerEd Safety) addressed the shared territorial challenge that on-going climate change will result in increasing sea levels and changes in rainfall patterns in the North Sea Region. Climate change is likely to mean warmer, wetter winters with more extreme rainfall events as well as sea level rise of up to 0.8m by 2080. The physical, economic and social effects of floods are likely to increase further. Focussing on only one type of measure, such as traditional flood protection (physical infrastructure), may not be sufficiently sustainable for the future. As we face uncertainties in future scenarios, we need to be aware of and be prepared for diversification and integration of strategies: multi-layered safety approach.

Multi Layered Safety strategy

No one organisation or member state has the knowledge to develop sustainable solutions for these challenges alone. For this, we use the Multi-LayerEd Safety (MLS) concept as a starting point. The MLS concept is a policy strategy that integrates measures for: protection, prevention, preparedness and recovery. These layers are traditionally managed by different authorities and sectors, but through MLS, the barriers can be lifted if the actors jointly apply the most effective combination of solutions across the layers.



FRAMES pilots



Interreg North Sea Region FRAMES
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Pilots

- WP3
- WP4

1. **Alblasserwaard (NL)** Provincie Zuid-Holland
2. **Kent (UK)** Kent County Council
3. **Medway Catchment (UK)** The Rivers Trust, National Flood Forum
4. **Lustrum Beck (UK)** The Rivers Trust, National Flood Forum
5. **Southwell (UK)** The Rivers Trust, National Flood Forum
6. **Floodproof electricity grid Zeeland (NL)** Provincie Zeeland
7. **Reimerswaal (NL)** Provincie Zeeland, Rijkswaterstaat
8. **Sloegebied (NL)** Provincie Zeeland
9. **Roskilde (DK)** Danish Coastal Authority
10. **Vejle & Assens (DK)** Danish Coastal Authority
11. **Wesermarch (DE)** Jade Hochschule, Oldenburgisch-Ostfriesischer Wasserverband
12. **Ninove South - Burchtdam (BE)** Provincie Oost Vlaanderen
13. **Denderleeuw (BE)** Universiteit Gent
14. **Geraardsbergen (BE)** Provincie Oost Vlaanderen, Universiteit Gent
15. **Butt Green Shield (UK)** National Flood Forum

2. FRAMES lessons learnt

The MLS principles are being acknowledged by more and more authorities and practitioners across the NSR, but have thus far not been developed transnationally. The FRAMES partners have been and still are experimenting with MLS related concepts and will build on this experience to realise sustainable strategies and improve the capacity of authorities and society to cope with flooding.

The FRAMES partners have been testing the application of MLS in 15 pilot projects across the NSR since 2017, and through this experience have learnt how best to apply each layer of MLS in order to achieve maximum benefits. In this paragraph we will sum up the most important lessons learnt from the FRAMES pilot projects . These lessons learnt can be evidenced with experiences from the pilot projects and form the basis of the policy recommendations in the next chapter.

The lessons learnt from the different pilots are as follows:

1. **Most authorities still focus on one basic strategy (e.g. in the Netherlands building dykes). A combination of flood effect reducing measures are becoming more and more important to create flood resilience. Implementation of MLS measures requires a combination of protective measures, measures for reducing the effects of flooding (e.g. smart spatial planning), measures for increasing emergency response and measures taken now to benefit recovery when flooding actually occurs.**

> *"It is beneficial to work with long term planning and include measures from each of the 4 layers. That will make the planning more robust, more strong… try to combine the measures, look not only at prevention but also at spatial planning and also consider where recovery will fit in to your long term planning. …have a clear vision on how you would like your community area, city, country….measures…don't clash…. "* **Mie Thomsen, Danish Coastal Authority, pilot manager for Vejle, Assens and Roskilde, Denmark**

2. **Make sure all factors (infrastructure, landscape and social structure) are accounted for in an area when making an area more flood resilient.**

> *Integration in itself:…" you need integration of different topics. We are not used in Germany to manage risk, we like to manage safety. So we have to assume that 100% doesn't exist and how to deal with this remaining risk due to floods…. for this purpose we need spatial measures, we need emergency measures and … bring people together who work on these different topics".* **Helge Bormann Jade University, pilot manager for the Wesermarsch, Germany, 23/01/2019**

3. **Identify what you can combine or add to the different flood resilience measures already taken in the different layers. And make smart links with other opportunities and needs in the area. This is likely to be more (cost) effective, and gives a clearer view on which new MLS measures have to be implemented in the longer term. Besides that, it creates political support at local or regional level for the investments that are needed.**

> *"Combine already existing regional/ water defenses with evacuation roads when planning infrastructure.* **Ruben Akkermans, project leader Pilot Sloe Area, province Zeeland, the Netherlands**
>
> *"Active involvement of all stakeholders as regional Flood Awareness Day proved that investing in emergency management provides an added value although dike nowadays are safer than ever."* **Helge Borman Jade University, pilot manager for the Wesermarsch, Germany**

4. **Difference in sense of urgency (perceived risk) determines the choice of MLS measures taken. In FRAMES we see the differences are related to local context of the area: governance system, culture, geography, and also the frequency and scale of floods occurring.**

> *"Awareness raising of governments for example. This will lead to implementing MLS in the future. Each in their own tempo. Take time because awareness and feeling a sense of urgency takes time. People also need time to get aware that they are part of the solution."* **Lucy Smeets, Province of Zuid-Holland, Pilot manager for the Alblasserwaard Vijfheerenlanden, The Netherlands**

5. **Identify local and regional stakeholders, involve them and make clear what is expected from them. This is essential for MLS implementation and for creating a support base amongst professional actors and citizens (which can help drive political engagement). Get connected with the risk culture and planning methods of business and asset managers of critical infrastructure. Find out which information is needed by citizens and how to increase awareness for flood risk. Base your participation strategy to specifics of the community.**

> *"Behaviours, cultures of organisations are just as important as the commitment of a community. The methodology for creating Flood Action Groups always involves all relevant stakeholders. Otherwise you leave out results.*
> **Paul Cobbing, Chief Executive National Flood Forum, UK**
>
> *"We worked with and through the Medway Flood Action Group. We also identified landowners (enterprises) communities, other individuals and NGO's throughout the project.* **Bella Davies, Trust Director at The South East Rivers Trust, UK**

6. **At the start of a policy development process for creating a flood resilient area, use instruments (like the ones in the FRAMES Toolkit: e.g. Flood Resilience Rose and the Decision Support System) to demonstrate the need to take action, and survey specific stakeholders. In this way you can compare the degree of flood resilience of an area before and after implementing (MLS) measures. This helps create a valuable support base for the measures taken.**

> *"Monitoring is very important, especially for NFM catchment measures...We need to pass this knowledge to other stakeholders, to other organizations and other projects if we want to leave a lasting legacy. The more we can monitor, the more we can document, the more we can pass on that knowledge."*
> **Ben Lamb, Tees Rivers Trust, pilot manager in Lustrum Beck, UK**
>
> *"Borrow and steal from what already exists: we used several tools from other Interreg projects, for example:*
> *• SWIMS- real data to support decision.*
> *• Climate Just= communities in need.*
> *• Shape Atlas – vulnerable population.*
> *• Adaptation Catalyst."*
> **Christine Wissink, Kent County Council, pilot manager, UK**

7. **Establish a transnational exchange of experts. FRAMES proved that pilots in one region can profit from the experiences in another region. Transnational exchange can help broadening minds and help experts to open up for innovative concepts from other parts of the NSR.**

> *• Geraardsbergen and KCC: Exchange of ideas and publication together: study trip to England; FR Community Handbook.*
> *• Sloegebied/provincie Zeeland: Seeing the viewer in Denmark inspired Zeeland to also develop a 3D viewer for flood risks in Zeeland.*
> *• Wesermarsch: German stakeholders regularly reflect impressions from their excursion to the Netherlands in the regional forum.*
> *• Alblasserwaard: Jade visited the area with stakeholders and met with the stakeholders in Alblasserwaard 5 Heerenlande. This led to broadening horizons of the stakeholders in A5H. Research and spontaneous help: interviews with Frames partners, which helped identify the key principles.*
> *• Compared to the flood occurrence eg UK vs Netherlands, the flood awareness is low. Transnational exchange improves the understanding and helps to put the flood risk on the EU agenda.*

3. Policy recommendations

The lessons learnt through implementing the FRAMES project can be clustered into four categories of policy recommendations. These clusters are based upon the goals set in the FRAMES project plan, drawn up by all partners. This paragraph sums up concrete policy recommendations which can be adopted by authorities on different levels.

3.1 MLS Strategy

The Multi-Layered Safety (MLS) is a Dutch risk-based approach to manage the consequences and probability of a flood. The multi-layered safety approach focuses on flood risk reduction through three types of measures: (1) prevention through dikes, levees and dams, (2) a flood resilient spatial planning and (3) an adequate crisis management. The MLS approach has been proven in Dordrecht to be a useful approach to broaden FRM plans. Before FRAMES it had not been applied in other EU countries. In FRAMES we added one extra layer: recovery.

The policy recommendations from the FRAMES pilot projects concerning MLS:

- Be aware about which (parts of) MLS strategies you already are using and which not. And you have to understand this in its own context (how did we come to this strategy?). Next you can see which layers need improving based on current and future challenges.
- Raise awareness for all layers. Especially about self-preparedness, emergency planning and evacuation, vulnerability to critical infrastructure, flood recovery (layers 2,3 and 4). Clarify responsibilities for different layers.
- Foster and maintain activities in all layers to arrive at a good balance. And raise awareness for them being interdependent.
- Assess vulnerability of critical infrastructure and cascades to gain insights in the functioning of a society after a flood.
- Make regional authorities responsible for the FRM coordination on execution to ensure implementation of MLS measures for the longer term.
- Develop training programmes for each authority level and the stakeholders involved to enhance expertise (and awareness) about the MLS strategy.
- Create a sense of urgency for both authorities and citizens.

3.2 Tools & instruments

Within FRAMES the partners developed and used different tools and instruments to increase the success rate of the pilot projects.

The policy recommendations from the FRAMES pilot projects concerning Tools & Instruments:

- Community engagement rises when using the right tools: make it visible! 3D overview, maps, models, gamification, etc.
- Make sure data is accurate and on the right scale to create real impact.
- Consider long term planning tools such as adaptive planning in the development of the pilot goal and pilot activities.
- Make sure you can show progress of your project by monitoring. E.g. distribute surveys amongst project partners (baseline/ end assessment)
- Design an ongoing (stakeholder) process with concrete milestones, make sure all actors know what is expected from them and give honest and clear guidance in the process.

3.3 Policies & Programmes

There are several things to take into consideration when formulating policies and programmes around flood risk management.

The policy recommendations from the FRAMES pilot projects concerning Policies & Programmes:

- Create long term vision on land use with the local stakeholders. Look at economic and social perspective on the long term for goal of the area (integrative view). Consider change of area development. And facilitate farmers/ inhabitants to be able to participate in this.
- Balance enforcing of the government and self-realization of citizens and companies.
- FRM has no boundaries: check your neighbours policies and cooperate.
- Think about learning ambitions of your pilot and how it will result in policies and programmes (improvement of current practices, new frames on flood risk management, transformation to new strategies).
- Design pilots without an end. Design a process instead of a project. The pilot process is more than working towards the outcomes, but also a process of capacity development for your organizations and local/regional network
- Make a pilot sustainable. Shift leadership to parties who can continue MLS after your (Interreg) project finishes.
- Include transnational learning: collaboration in NSR projects helps to find out about best practices in other areas. Don’t copy and paste, but find out why it works in its context and what can be learnt from their struggles and successes.
- Keep it simple, but realistic in the pilot phase. Make sure everybody knows their responsibilities. Set up a simple project structure.
- Provide funding schemes for FRM/CCA, including opportunities for transnational learning.

- Planning must (ideally) break away from political time scale.
- Involve the people who are capable of saving themselves (in case of a flood) to help the less capable.

3.4 Stakeholder involvement & Support

No project can succeed without the support of stakeholders involved.

The policy recommendations from the FRAMES pilot projects concerning stakeholder involvement & Support:

- Bring all stakeholders together to share experience and knowledge: municipalities, entrepreneurs, farmers, water managers, nature conservationists, politicians, planners etc. And make them complementary (varied in profession, age, gender etc).
- Assign representatives of involved actors from all relevant disciplines and stakes of the future implementation arena and assign them responsibilities.
- Have the mayor(s) involved! Or/and other local politicians (of the right level).
- Carry out a stakeholder analysis at the start of a project, involve all actors from the beginning as well and be transparent about the level of participation for each stakeholder (information, consultation, collaboration or control) and create sustainable ownership and commitment at the beginning of the project.
- Analysis of what stakeholders can do themselves when flood occurs.
- Honest and transparent communication – this helps to foster trust and good relationships. 4x Make info about FRM available and understandable for everyone. Find out what your target groups need, where the information needs to be and how they can use it. For instance: site visits build trust and awareness of what everybody invests.
- Political participation is as important as citizen participation. Invest enough time in informing/engaging the politicians of involved governmental levels (and not only their administration).
- Talk about human responsibility versus government responsibility to avoid citizens being totally dependent on government measures.

4. Top Ten policy recommendations

The table below shows the recommendations which were mentioned the most by the FRAMES partners. In the last columns you will find to which level of authority the recommendation applies.

1	Assign representatives of involved actors from all relevant disciplines and stakes of the future implementation arena and assign them responsibilities.
2	Bring all stakeholders together to share experience and knowledge: municipalities, entrepreneurs, farmers, water managers, nature conservationists, politicians, planners etc. And make them complementary (varied in profession, age, gender etc).
3	Honest and transparent communication – this helps to foster trust and good relationships. Make info about FRM available and understandable for everyone. Find out what your target groups need, where the information needs to be and how they can use it. For instance: site visits build trust and awareness of what everybody invests.
4	Community engagement rises when using the right tools: make it visible! 3D overview, maps, models, gamification, etc.
5	Assess vulnerability of critical infrastructure and cascades to gain insights in the functioning of a society after a flood.
6	Design an ongoing (stakeholder) process with concrete milestones, make sure all actors know what is expected from them and give honest and clear guidance in the process.
7	Create long term vision on land use with the local stakeholders. Look at economic and social perspective on the long term for goal of the area (integrative view). Consider change of area development. And facilitate farmers/ inhabitants to be able to participate in this.
8	Make a pilot sustainable. Shift leadership to parties who can continue MLS after your (Interreg) project finishes.
9	Make regional authorities responsible for the FRM coordination on execution to ensure implementation of MLS measures for the longer term.
10	Include transnational learning: collaboration in NSR projects helps to find out about best practices in other areas. Don’t copy and paste, but find out why it works in its context and what can be learnt from their struggles and successes.

Colophon

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More information about FRAMES
On www.frameswiki.eu you can find all information about the project and pilots involved.

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