



Second Open Tender for Innovations

Case Study #8: Torbay and Devon County

[Supplementary information](#)

Date: 20.11.2023



This project has received funding from the European Union's Horizon 2020 innovation action programme under grant agreement 101037424.

The Case Study “Torbay”

Torbay is located in South Devon (UK) and covers an area of approximately 62 km². The area has suffered from flooding over many years from a number of different sources, including surface water run-off, highway flooding, sewer flooding, main river and ordinary watercourse flooding during intense rainfall events. In addition, the coastal areas of Torbay suffer coastal flooding due to overtopping of the sea defences during high tides that coincide with easterly winds. It should be noted that the surface water, highway, sewer, main river and watercourse flooding is exacerbated in the low-lying areas around the coast of Torquay, Paignton and Brixham during high tidal cycles when the capacity of the surface water outfalls discharging to coastal waters is impeded. In addition to the property flooding, during all of these flood events numerous roads have flooded to some extent, with some of the roads having to be closed to traffic until the flood water has subsided. As sea level is predicted to rise by over 1 m in Torbay over the next 100 years, the frequency and impact of overtopping of the sea defences will increase, resulting in more infrastructure and properties being affected by flooding.

The Living Lab “Torbay”

The inclusion of a diverse set of stakeholders from Torbay in the project is a key element of ARSINOE and the case study. Stakeholders came from the University of Exeter, Torbay local council, Westcountry River’s Trust, South West Water, and Torbay & South Devon NHS Foundation Trust and Torbay Community Development Trust amongst others. The results of the discussions in the Living Lab informs our understanding of the region and the innovations we seek with this tender for innovations.

Flooding was identified as a key problem for Torbay and the participants looked at how infrastructure and organisations could learn from past flooding events in the area, as well as help communities to become more resilient; sea levels for the area are estimated to rise by over 1m in the next 100 years.

Key themes developed around the issue of flooding, including health, infrastructure, communities, and biodiversity.

The living lab imagined what a climate-resilient future in the region might be like in 2050 and we formulated a vision for the region. In this tender for innovations, we want to contribute to solving the identified problems and to making the vision a reality. The key challenge describes what we focus on in this first tender for innovations.

The Problem Statement by Stakeholders

Climate change poses challenges in the region and is likely to exacerbate flooding in the Torbay area. Here is the problem statement that was developed during the living lab sessions:

How can Torbay identify the extent of future flooding (of all types) and reduce the wide-ranging impacts?

This problem statement is within the current context of:

- Risk Management Authorities (RMAs) staff, this includes the District and Borough Councils, Environment Agency, Water and sewerage companies etc., have high workloads with limited capacity to plan for the future, which results in structured reactive responses to flood events
- There is a silo work culture and lack of collaborative planning between the RMAs which has exacerbated since the pandemic
- There is a lack of skills and capacity (financial and time) in RMAs to communicate and engage with local communities
- Lack of inclusion of data and people in solutions in real-time
- Limited current capacity in systems to cope with predicted future weather events
- Lack of mechanisms to join up plans, agencies, sectors and systems across the longer-term

The Vision of a climate-resilient Future

Climate change impacts are accepted and planned for and Torbay is focused on rewilding, greening and water-sensitive urban planning, design and infrastructure (including of buildings, roads, hotels etc) to achieve multiple goals, whilst maintaining Torquay, Paignton, and Brixham's separate identities.

Connection to nature and interconnectedness amongst stakeholders is key, as is shared finance for interventions and access to health services.

Communities are educated and engaged, with decisions being made collaboratively and through co-creation, focused on early-warning, preparedness and protection, particularly of the vulnerable.

Torbay is a Centre of Innovation, not just technological but also financial, economic (e.g. circular economy), social and cultural. Everyone is empowered to play a part and water is loved!

The Key Challenge for the second Tender for Innovations

The key challenge for the second tender for innovations is focusing on Advancing Flood Preparedness and Resilience.

Torbay, in its pursuit of comprehensive flood preparedness and resilience, is seeking innovative solutions that align with the disaster emergency preparedness cycle for flooding, encompassing five critical phases: mitigation, preparedness, prevention, response, and recovery.

We invite proposals for innovations that span a spectrum of domains, including social, governance, and technical spheres. During our collaborative sessions with stakeholders in the living lab, the following potential solution categories emerged:

- **Flood Focused Digital Solutions:** Use existing data and machine learning for flood and asset warnings, along with resource allocation during floods.
- **Flood Focused Infrastructure and People Solutions:** Develop flood barriers for harbours and high-risk roads, and enhance communication for coordinated responses.
- **Engagement and Co-Creation Initiatives:** Empower communities through initiatives addressing the climate crisis, co-design projects, and micro-funding opportunities.
- **Education and School-Focused Innovations:** Create curriculum packages for climate change education in schools and promote local environmental awareness.
- **Water Reuse and Rainwater Management:** Explore community rainwater sharing, sustainable water use, and green/blue space strategies.
- **Finance and Insurance Planning:** Investigate sustainable financial models like a roof tax and community insurance.
- **Health:** Implement accessible health programs addressing climate impacts and mapping health inequalities.

We seek innovative ideas that can bolster Torbay's flood resilience across these diverse dimensions, ultimately ensuring the safety, security, and well-being of its residents and the preservation of its natural environment.