

# BRIC MODELL GUIDE

A USER MANUAL  
TO HELP BUILD  
RESILIENCE  
IN COMMUNITIES

## **BUILDING RESILIENCE IN COMMUNITIES PROJECT (BRIC)**

BRIC is an exciting 2-year, €3.4m project which has secured 70% European Regional Development Fund (ERDF) funding from the Interreg France-Channel-England programme. Rather than being an environmental project, it is addressing the issue of flood management from a social innovation perspective.







**Interreg**   
France (Channel Manche) England  
**BRIC**  
European Regional Development Fund

 **BUILDING  
RESILIENCE  
IN  
COMMUNITIES**

  
EUROPEAN UNION



**DESIGNED BY PLYMOUTH DESIGN**

# ACKNOWLEDGEMENTS

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The Building Resilience in Communities (BRIC) Model Guide would not have been possible without the collaboration of our cross channel partnership:

- Plymouth City Council (PCC)
- Centre d'études et d'expertise sur le Risques, l'environnement, la mobilité et l'aménagement (Cerema)
- National Flood Forum (NFF)
- Centre Permanent d'initiatives pour l'environnement Vale d'Authie (CPIE)
- Dorset Coast Forum (DCF)
- Agence d'Urbanisme et de Développement de la Vallée de l'Oise (OLV)
- Thames 21
- Ogoxe

The partnership looks forward to continuing to develop and deliver the social innovation activities and tools they have created, tried and tested.

We would also like to thank our stakeholders and communities. Without their support, BRIC would not have enjoyed the success it has over the last two years.



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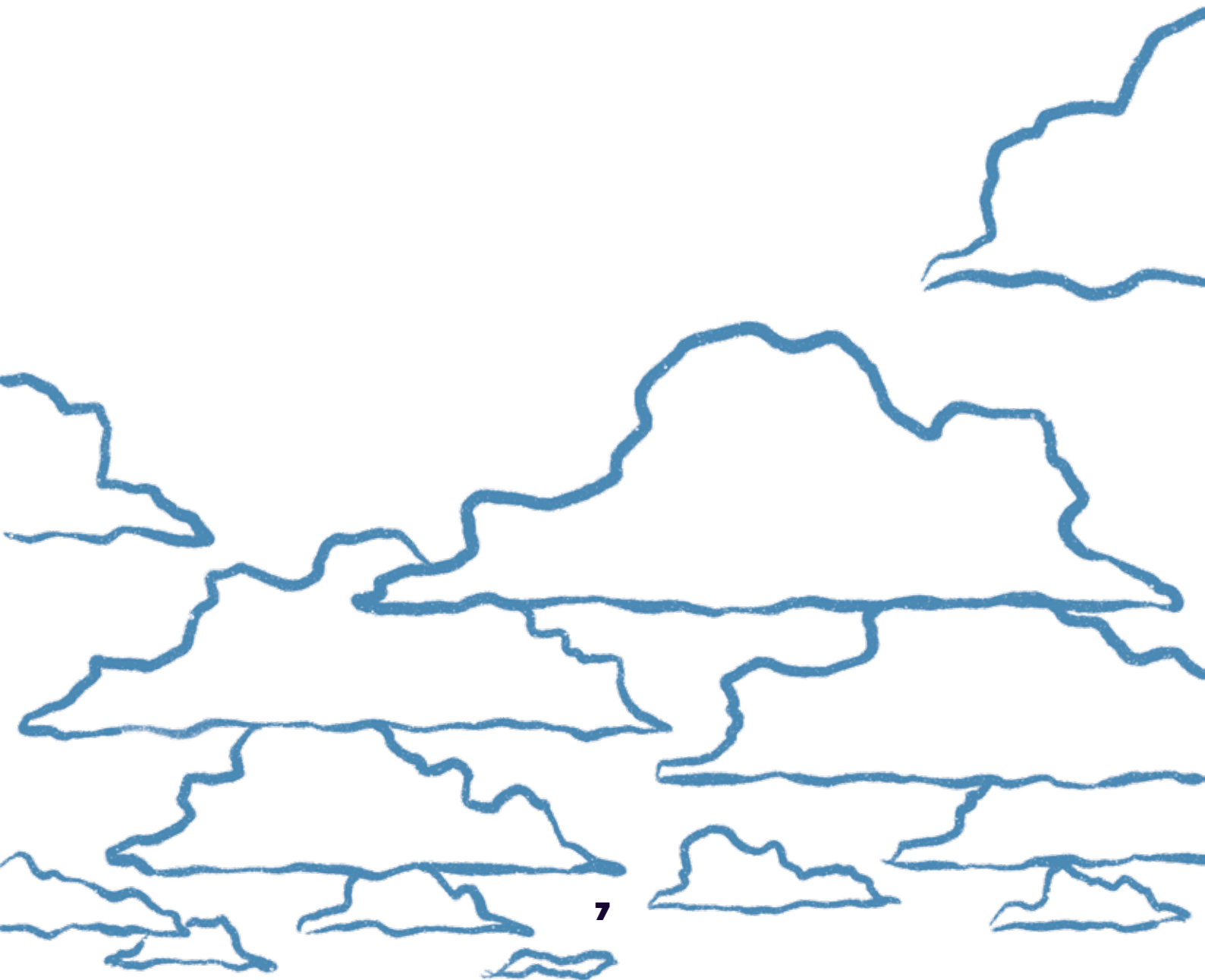
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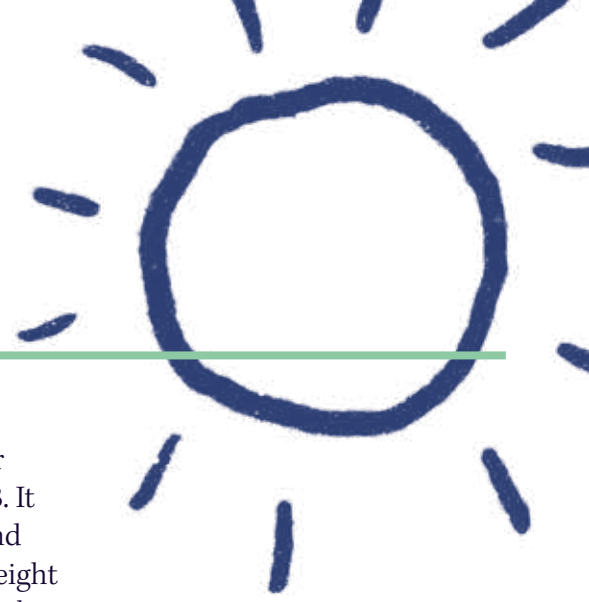
# SUMMARY

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# AIM

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Building Resilience in Communities (BRIC) is a two-year cross-channel project funded by Interreg until June 2023. It brings together eight project partners ( four from England and four from France) to build community resilience in eight pilot sites at risk from flooding. The project aims to help these communities to prepare themselves, to know how to act quickly during a flood, and to recover well after a crisis.

BRIC is a social innovation project that has tested multiple new tools and activities. Through community engagement, awareness raising and training, the project teams have encouraged the creation of new flood action groups and the development of local community resilience networks.



# KEY FINDINGS

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- At the start of the project, water risk awareness within all the pilot sites was low, with an overall average flood preparedness score of 2.2 (1 = not prepared at all; 5 = very prepared).
- Appreciative Inquiry is a powerful tool, and community engagement was more effective because of it.
- Two years is too short to form self-sustaining resilience networks; changing behaviours takes time and requires a sustained amount of effort and engagement.
- Two years is also not long enough to develop fully effective partnerships with gateway organisations; these partnerships are vital to reaching a broader, more diverse audience, thereby maximising attendance at events and ensuring that flood resilience networks accurately reflect their communities.
- People are hard to reach and engage about flooding: many residents are reluctant to admit that they live in a flood-prone area. Others see it as the government's responsibility to solve flood risk issues and are therefore not interested.
- Everyone at risk of flooding is vulnerable, regardless of their economic situation or age: raising flood awareness should be approached as a community-wide issue, aimed as much at those indirectly affected or spared from flooding as those directly at risk.

- 
- BRIC's interventions have increased community flood resilience within its pilot sites; the use of social innovation tools has brought people together to discuss flooding, and their flood risk awareness has improved.
  - BRIC's interventions have also increased collaboration, trust and the connection between communities and risk management authorities.
  - There is no "one size fits all" in community engagement, so it is beneficial to have many tools to choose from.
  - Creative activities that are not directly focused on flooding are the most effective tools for community engagement because they allow conversation about flood risk to evolve naturally.
  - A project with social innovation will produce better results, with broader and better quality community engagement.





# 1. INTRODUCTION



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# THE BRIC PROJECT

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## WHAT IS THE BRIC PROJECT?

Building Resilience in Communities (BRIC) is a two-year cross-channel project funded by Interreg until June 2023. The main aim of the eight project teams has been to build resilience in communities at risk of flooding.

As a social innovation project, BRIC has been testing new tools and activities to interact with local people - from having meaningful conversations in the street using appreciative enquiry to installing new flood awareness technologies.

The BRIC project is aligned with nine of the UN's Sustainable Development Goals. These goals are a call to action for all, addressing various social needs while combating climate change and protecting the environment.

## OUR MISSION

BRIC has created eight resilience networks and implementation programmes. The project teams have used technological and social mechanisms to enable local people, businesses and organisations to work with flood management authorities to reduce the social and economic impacts of flooding.

## OBJECTIVES

The BRIC project aims, through collaborative working, to help communities plan and know how to act quickly in the event of a flood, as well as how to recover well after a flood. Through training, awareness raising and community engagement, the project teams have encouraged the creation of new flood action groups and the development of local community resilience networks.

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## PROJECT OUTCOMES

The main outcomes of the BRIC project are:



### **8 RESILIENCE NETWORKS**

Creating eight resilience networks in pilot areas. If these focus on flooding first, they will be flexible enough to respond to other local issues that will benefit from social innovation.



### **8 NEW INNOVATIVE SERVICES:**

Redesigning eight resilience services and establishing multi-governance agreements to transform flood risk management services thanks to the co-creation of the new BRIC resilience model.



### **WEB PLATFORM:**

Creating a web platform to leave a lasting legacy to help communities and other networks to improve their resilience. This platform will host training courses, tips and guidance, case studies, innovation and technology tool reviews, and project reports.



### **RESILIENCE TOOLKIT FOR BEST PRACTICES:**

Bringing together the science behind resilience, social innovation theory and appreciative inquiry, BRIC's resilience toolkit will be a new model for social innovation, introducing best practices and new ways of thinking.

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## TARGET AUDIENCE

The BRIC project is targeted at people who are vulnerable, elderly and out of the labour market since these populations rarely benefit from specific campaigns and are less involved in risk prevention and management in their daily lives. The BRIC project experiments with various tools and activities to reach this target audience and improve their resilience.



# THE PARTNERS

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The BRIC partnership brings together eight French and English partners. The collaboration provides expertise in different areas linked to flood risk management, climate change, new technologies and innovative methods of engagement.



## **PLYMOUTH CITY COUNCIL (PCC)**

Plymouth City Council (PCC) is the local statutory authority for planning and risk management. As the lead local flood authority, it oversees the city's flood risk management strategy.

PCC's primary responsibilities include managing green spaces, emergency planning and public health, which are all relevant to flood risk management. As a community leader, PCC undertakes a wide range of projects aimed at innovating public services, such as water (flood) resilient cities and Green Minds (green space management), financed by the European Regional Development Fund (ERDF). Through its public health department, PCC has launched an appreciative inquiry and has extended it to other services, such as green space management.



## **OGOXE**

Ogoxe is a French SME offering a range of products designed to forecast, inform and alert in case of flood danger. The solutions created are highly resilient, intelligent and autonomous. Its strengths in IoT (internet of things), AI (artificial intelligence) and innovative telecommunications technologies enable its solutions to use real-time data and transmit continuous alerts, even during power outages and 3G/4G failures.

Ogoxe's expertise includes designing and developing applications with an approach centred on communities exposed to flood risks (OgoxeApp) to limit the impact of a flood event on the population and their property. The application, together with the use of connected objects, data recovery and their dissemination, make it possible to apply preventive measures to help better manage risks. For the BRIC project, Ogoxe used its expertise to create the BRIC Resilience web platform, a key element for the BRIC legacy plan. It also supports the development of data management and visualization tools, integrating pilot site activities into the BRIC web platform via the individual BRIC network sites managed by the BRIC partners.







## **CEREMA**

Cerema is a French public agency. It helps the French government define national methodological recommendations for planning, mobility, risk prevention, etc. It also supports devolved public services and regional authorities in implementing their policies. It supports local authorities in developing their local flood management strategies and implementing risk prevention measures. Cerema uses and develops hydrological and hydraulic models to respond to hazards. It also develops cartography tools relevant to understanding flood risk issues and vulnerabilities. Finally, invested in the subject of risk culture, it develops methodological documents to help communities carry out strategies and projects to engage populations.



## **NATIONAL FLOOD FORUM**

The National Flood Forum (NFF) is a British charity founded in Bewdley, Worcestershire, in 2002 to support people at risk of flooding. It has years of experience working with these communities and has developed methodologies and tools to help them. As an independent charity, the NFF takes time to listen to the challenges that individuals and communities face. Their priority is to enable people to control their flooding problems and help them recover after a flood. They do this by supporting and listening to the communities so they feel prepared. They also represent them at both a local and national level.

The NFF supports the creation of local flood action groups, whose role is to engage with authorities that manage flood risk. They aim to raise awareness of local concerns and issues about being better prepared for floods and to provide them with local expertise. They support a growing network of local groups and represent them when dealing with the government and its agencies.



## **THAMES21**

Thames21 connects people to their local waterways by putting healthy rivers back at the heart of daily life within the Thames Basin (and tributaries). They improve and restore rivers, educate and empower communities, and campaign for positive change for the well-being of people and the environment.

With their vast experience of working hand in hand with local communities, Thames21's community modelling projects empower these communities to protect their local rivers. Working with specialist modelling software usually used by experts, they help local populations increase their awareness of pollution and flooding issues and invite them to shape future river plans. Through these projects, volunteers are finding out how nature-based solutions such as wetlands and SuDS (Sustainable Drainage Systems) can reduce pollution and flooding risk, as well as how to influence local planning decisions.



## **CPIE CANCHE AND AUTHIE VALLEYS**

CPIE (Permanent Centre for Environmental Initiatives) supports sustainable development and the protection of the area's natural resources by offering training and education about the environment and sustainable development. It also helps local stakeholders implement projects, particularly those related to public policy.

CPIE wants to develop and strengthen its territorial partnerships concerning flooding, gain new skills and, over time, be able to roll out new activities for the Authie Valley population. In particular, CPIE wants to see what role it could play in supporting training and activities in local resilience networks.



## **DORSET COAST FORUM**

Dorset Coast Forum (DCF) is a partnership of local organisations and community representatives with a core professional team hosted by Dorset Council. Its role is to engage all stakeholders in a dialogue about the environmental management issues facing the Dorset coast.

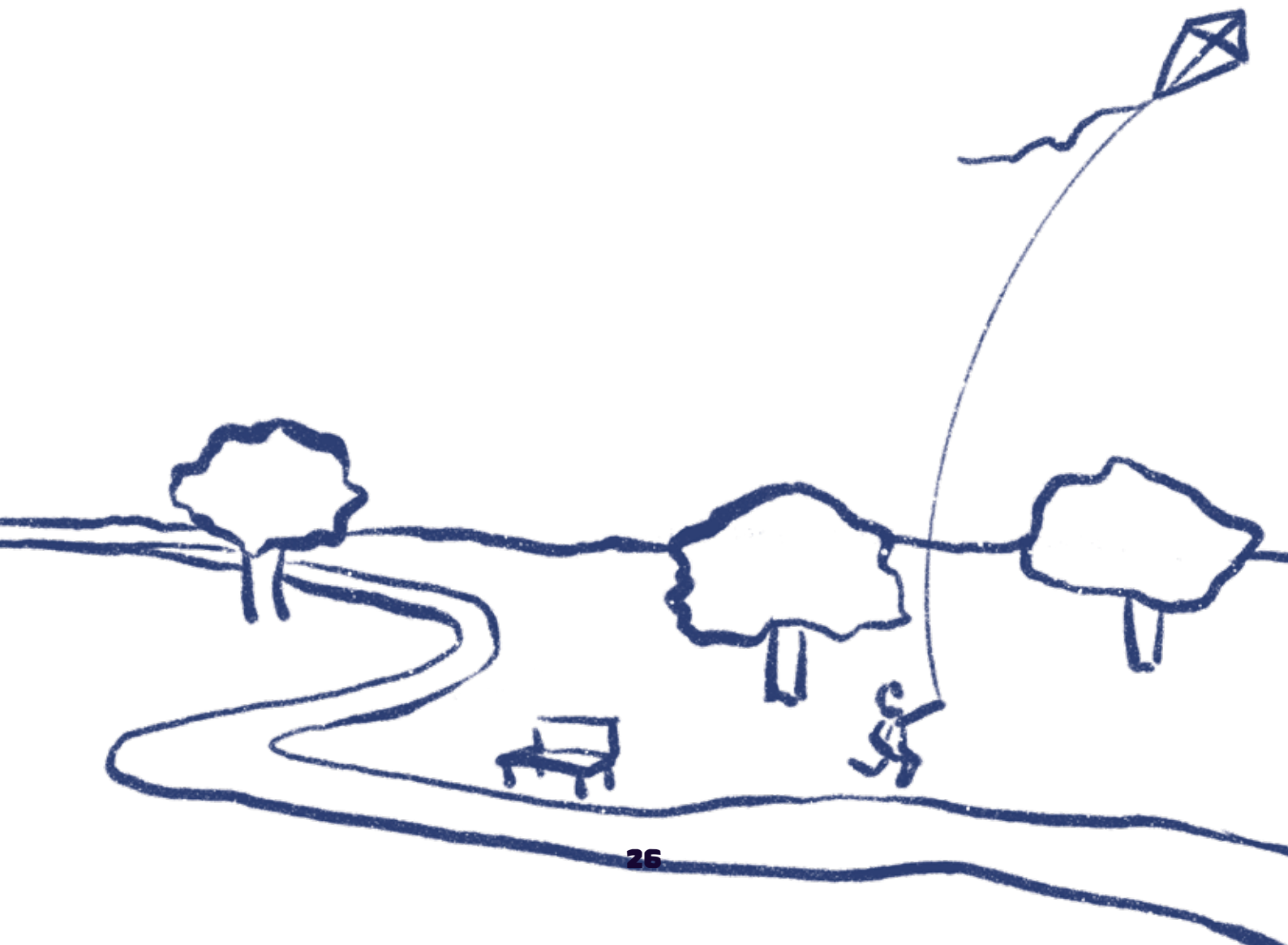
DCF has 25 years of experience working with local communities to arm them with knowledge and support them on coastal and marine issues. It organises and facilitates meetings, consultations and events to open a dialogue with local communities and develop bottom-up approaches for finding solutions to their problems. It has experienced project managers and carries out projects with an environmental, social or economic benefit to the Dorset coast and the surrounding sea.



## **OISE-LES-VALLÉES URBAN PLANNING AGENCY**

The Oise-les-Vallées urban planning agency is aware of the issues regarding local flood risks. It has been engaged for several years in different approaches to flooding, involving the government and communities. Its cross-functional view of the territory's planning issues enables it to play a key role in advising and mediating to ensure planning policies factor in risks more effectively.

Its involvement in the BRIC project will enable it to share its expertise regarding the risks involved and use this to work on the social element as a lever to meet the needs of the residents, particularly vulnerable populations.



# THE PILOT SITES

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The eight pilot sites, four in England and four in France, have been trying out different activities and tools.



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## PLYMOUTH

The city of Plymouth has a population of about 260,000 and the highest unemployment rate in the UK's South West region. The Plymouth BRIC team is working with two communities in the City: Lipson Vale / Trefusis Park and St Levan, which are similar in many respects. They both:

- were historically tidal creeks, which were filled in and developed as Plymouth grew
- are heavily urbanised with steep-sided streets that drain to low-lying areas
- have a Victorian combined sewerage system, carrying both wastewater and surface water, which is subject to tidal locking and often works at full capacity
- frequently suffer from surface water flooding, which impacts the road network and creates flood risk to homes, businesses and schools

St Levan Park often becomes a lake, as seen in the picture below! Residents have also reported that raw sewage can be found in the park after heavy rainfall, which is dangerous and unpleasant.



*Flooding in Lipson Vale © Plymouth City Council*



*Flooding in St Levan © Plymouth City Council*



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### ***Main actions on the pilot site***

- Organising flood awareness events and activities to enable individuals and communities to build flood resilience to flooding
- Forming new flood action groups and encouraging local volunteers to become flood wardens, and providing training to support those individuals
- Providing a weather monitoring station in Lipson Vale to provide flood alerts to the flood action group and PCC's highways and emergency response teams, plus a live data link to the local school to support learning about flood risk and climate change
- Creating a place story map with each community, detailing its flood and social history, plus stories of local heroes and resilience champions
- Working with risk management agencies on capital programmes to provide Sustainable Drainage Systems in the parks to 'slow the flow' of water and reduce the risk of surface water flooding



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## CANVEY ISLAND

Canvey Island is located on the South East coast of Essex in the Thames estuary. The island was originally a salt marsh before being reclaimed by sea waters in the 7th century. It covers an area of 7.12 square miles (18.44 km<sup>2</sup>) and has a population of 40,000 (around 16,000 homes). In the first half of the 20th century, it was the fastest-growing sea resort in the UK but was devastated by floods in 1953. The area is mainly urbanised and includes some wards ranked among the most deprived areas in England in terms of academic achievement, income and health.

The BRIC project chose Canvey Island as one of its eight pilot areas because it is highly vulnerable to sea and surface water flooding. The island is protected from tidal surges by its sea wall. The Canvey Island southern shoreline revetment project, beginning in March 2023, will maintain the current high level of tidal flood risk protection. Canvey Island has suffered from extensive surface water flooding in recent years.



*Community interaction on Canvey Island*  
© Thames21

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Thames21 has been working to create a new resilience network, facilitating the integration of community-led action with various stakeholders (Anglian Water, Castle Point Borough Council, Essex County Council and the Environment Agency). Arrangements to deliver new services, training, and community mapping will empower neighbourhoods to take action to protect themselves, become flood resilience ambassadors in their community and work with authorities on solutions.

***Main actions on the pilot site***

- Creating a local flood resilience network
- Co-creating a flood resilience action plan
- Creating accredited training courses
- Delivering practical engagement events to build understanding within the community
- Working with communities to map flood issues and potential solutions
- Creating the Canvey Island flood resilience story map



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## WEYMOUTH

Weymouth has a population of around 53,000 and is a traditional seaside resort heavily dependent on tourism and seasonal employment. The city has a long history of flooding; some of the worst flood events occurred in the 1950s and 1960s; the most recent flooding occurred in 2014 during repeated coastal storms. In Weymouth, there are four main areas of flood risk:

- tidal flooding via Weymouth Harbour
- river flooding via the Wey River
- surface water flooding due to precipitation (exacerbated by tidal blockages)
- wave overtopping of the seafront

With climate change's impact on rising sea levels and an increase in the number and intensity of storms, the risk of flooding in Weymouth will increase significantly. Sea levels in Weymouth are predicted to rise another 1.3m in the next 100 years. The existing harbour walls are already too low to protect Weymouth from significant flooding and current sea levels.

Weymouth includes areas among the 10% most deprived in England, with high levels of low-income people, multi-occupancy households, transient populations (people who stay for short periods) and people living with a disability or long-term illness. This deprivation can influence how the Weymouth community responds to flooding in terms of awareness, preparedness, and adaptation.

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### ***Main actions on the pilot site***

Weymouth has many existing and long-established support networks and a strong sense of community. The project team has worked alongside what is already in place to respond to the community's wishes and needs by:

- engaging communities in flood risk and flood resilience using a joint approach, linking local communities, experts and policymakers
- raising awareness by working with community networks to develop flood champions trained in safety measures and incident reporting
- using new approaches, such as a public information totem, providing up-to-date community information on flooding
- working with partners to develop an interactive web platform to provide local data and information as well as tips, best practices and educational materials to support city-wide flood risk management



## KENT

Kent has a population of approximately 1.6 million people. It has a highly varied landscape and a long coastline, which results in very diverse communities. Some coastal towns have high levels of deprivation, and many areas are experiencing increased flooding, which is expected to worsen due to rising sea levels and climate change. The coastal areas of Kent are at significant risk of flooding, as well as the floodplains of the Rivers Medway, Stour and Darent. There are approximately 64,000 properties estimated to be at risk of flooding from rivers and the sea. Also, 24,000 properties, especially in urban areas, are estimated to be at risk of flooding from surface runoff, one of the highest risks of any Lead Local Flood Authority in England. Ordinary watercourses are also a significant source of flood risk in Kent.



*Folkestone in flood, 1997*  
© National Flood Forum

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### ***Main actions on the pilot site***

- Building upon the flood action groups created by the National Flood Forum to pilot climate change adaptation approaches
- Setting up flood action groups and flood awareness events in deprived coastal areas using innovative methodologies
- Creating a resilience network from existing flood action groups to provide a platform for flooded communities to exchange knowledge and experience with flood risk management authorities (RMAs)
- Running a citizen-led interactive mapping pilot to gather local flood risk evidence to help reduce flood risk and adapt to climate change

### ***Main Outputs***

- Establishing and building upon relationships with communities and RMAs
- Setting up and ensuring the sustainability of flood action groups in coastal areas
- Building a Community Resilience Network
- Using community-led maps to add to the existing local risk maps and flood action plans used by the community to improve decision making
- Contributing, sharing, and learning with the project partners to develop new and better approaches for community-led approaches to flood risk management

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## **AULNE VALLEY**

The Aulne Valley in Brittany is an incised valley with numerous twists and turns. The downstream section of the Aulne is canalised and forms the west part of the Nantes-to-Brest canal. The Aulne is a strong feature in the landscape and environment and gives the territory its identity. The valley's communes are often flooded and were particularly severely affected in 1995 and 2000. The lower part of the valley has a flood risk prevention plan. The river basin also has a flood prevention action plan in place.

Cerema hopes the Interreg-BRIC project will bring a positive and united vision to the Aulne valley. This approach seems more effective than just sending out communications about flooding. It examines the presence of water, its uses, the relationship communities have with the river and their perception of water-associated risks. The overall aim of the project here is to organise an event that brings everyone together and raises awareness: an Aulne festival. This festival unites the territory's stakeholders, who are suggesting different activities (exhibitions, art walks, entertainment, food, etc.). The event follows a series of preparatory activities carried out in 2021 and 2022.





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### ***Main actions on the pilot site***

Cerema is developing a range of activities to bring the Aulne valley together:

- surveys to understand how local people connect with the Aulne
- artistic workshops to offer a different perspective of the river
- discussion workshops on the role the Aulne plays in local projects
- festive events to get people together and raise awareness of flooding

With different final deliverables:

- an audio report on the valley in transition (by La Traverse)
- a collaborative map showing the Aulne floods
- a journey in pictures entitled “Explore the waters of the Aulne” (by La Folie Kilomètre)
- a blog (story map) on the Aulne valley, its history, its unique features and its prospects
- an exhibition on floods of the past
- “Along the Aulne” festival, open to everybody, which took place on 24 and 25 September 2022



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## OISE VALLEYS

Formed by the main river and floodplains, the Oise valleys cross the territory from the northeast and west and meet the Seine basin downstream of Paris at Conflans-Sainte-Honorine. These valleys have been urbanised over the centuries and nowadays are notorious for their flood risk. Whether it is rivers bursting their banks, rainwater runoff or rising waters, these risks often occur and are likely to increase with climate change, resulting in more damage to humans and properties.

Awareness of flood risk in the Oise valleys has greatly increased in recent years regarding hazards and the issues at stake. Likewise, the vulnerability of buildings, infrastructure and operating platforms is increasingly being considered. However, local stakeholders still do not fully understand the weaknesses linked to people's vulnerability and the direct and indirect consequences that come from these.



*Aerial view of the Oise valley at  
Jaux and Compiègne  
©Oise-les-Vallées*

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Through its participation in the INTERREG BRIC project, Oise-les-Vallées has undertaken several pieces of work to consolidate its knowledge:

1. Drawing up an overview of the territory, showing vulnerable populations and an understanding of the aggravating factors
2. Working together with BRIC partners and local stakeholders to establish a strategy aimed at reducing the vulnerability of the communities identified through outreach and cultural integration
3. Organising a series of working groups, outreach workshops and meetings with experts and residents
4. Calling on the expertise of Ogoxe to test the flood risk awareness measures



*Overflow of the Aisne at Choisy  
au Bac on 15 March 2020 ©Oise-  
les-Vallées*

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## **AUTHIE VALLEY**

A strong symbol of local identity, the Authie is a coastal river that marks the border between the Pas-de-Calais and Somme territories. It runs parallel to the river Canche and the lower bed of the river Somme. The valley is about 100 km long but not very wide. The river's source lies at an altitude of 100 m at Coigneux and it flows into the English Channel at the Baie d'Authie. In the upper valley, between the source and the commune of Outrebois, the bottom of the Authie is narrow, the riverbed is well-marked, and the gradients are relatively steep. The middle valley, which flows towards Dompierre sur Authie, widens at the bottom. Until Falaise Morte near Colline-Beaumont, the lower valley crosses important marshland, where the plateaux are low. Upon approaching the Baie d'Authie, the gradients reduce and eventually disappear so that the low area is almost at sea level.

In the Authie valley, like everywhere else, floods are becoming more and more frequent and severe. With the flash floods in 2001 and the summer of 2016, which caused the death of a motorist, and more recently, the mudslides of 2021, the Authie valley is particularly vulnerable to floods due to the territory's topography and geology. There are different types of floods: flooding caused by runoff, marine submersion, rising groundwater and overflowing rivers. The morphology of the Authie territory makes it more prone to flooding from runoff.



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### ***Main actions on the pilot site***

Through its involvement with the Interreg BRIC project, CPIE Canche and Authie Valleys wants to educate the valley's inhabitants about the flood risks, particularly the risk of runoff. Because of this, several initiatives have been carried out in partnership with Cerema:

- surveys to understand how local people connect to the Authie and their perception of flooding
- outreach workshops with the territory's inhabitants
- organising a resilience festival
- podcasts made with the valley's inhabitants
- an online story map presenting the history of the territory and its vulnerability to flooding
- installing connected measuring and warning devices



***Flooding in Occoches, 2016***  
© CPIE Authie and Canche  
Valleys

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## RISLE VALLEY

At 150 km long, the Risle's source lies in the Orne territory and it flows into the Seine upstream of Honfleur. It is a wide valley measuring 2500 km<sup>2</sup> with a flat bottom, mostly comprising bocage grasslands (mixed forests and pastures). Its environmental riches are recognised through numerous inventories and protected zones (Marais Vernier, for example). The town of Pont-Audemer, mid-way between Caen and Rouen, is nicknamed the "little Venice" of Normandy because of the town's canals. The river is also linked to industry, such as the now-abandoned COSTIL tannery. The valley is frequently affected by floods, the worst of which were in 1995, 1999 and 2001. These are primarily slow winter floods linked to prolonged rainfall over the whole river basin, sometimes associated with high tides, which slow the water flow.



*The Risle and Pont-Audemer*  
© Cerema



### ***Main actions on the pilot site***

In this area, Cerema wants to develop a risk culture by fostering the presence of water. On the one hand, they will rely on existing stakeholder networks to find new ways of addressing the subject of floods. They will also look to test crisis management awareness and preparedness tools:

- “flood” safety plans showing the instructions to follow should homes be flooded, like fire safety plans
- virtual reality tools
- rapid flood modelling tools, detection of openings in buildings in case of flooding
- signs to raise awareness, created by staff from the “Être et Boulot” association
- workshops with councillors and inhabitants looking at virtual reality modelling on Pont-Audemer and Manneville-sur-Risle
- a story map that pinpoints the importance of the Risle (through historical, patrimonial and environmental features) and that emphasises the valley’s flood risks



***The Annick boat at  
Berville-sur-Mer  
© Cerema***

# KEY TERMS

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## SOCIAL INNOVATION

Social innovation is developing and implementing new solutions to systemic and complex social and environmental issues. These solutions are intended to be more effective, just and sustainable than existing solutions, which have failed to result in significant and long-term change. They are created by the active collaboration of government, business, and the non-profit sectors and are continually evaluated to determine their success. These innovative techniques are intended to improve the welfare and well-being of individuals and communities, with the ultimate goal of having a long-term impact at a large scale, diffusing new practices into systems change. Social innovation can be achieved through direct forms of engagement, such as Appreciative Inquiry and community flood mapping events, and indirect forms of engagement, such as Storymaps.



*Community mapping activity,  
Canvey Island  
© Thames21*





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## **RESILIENCE**

Originally used to refer to materials' resistance to shocks, the term resilience has increasingly been applied to social sciences. An individual, a community or even a territory can be considered resilient. In other words, they have the capacity and resources to organise themselves to respond to shocks. Resilience requires anticipating disruptions, an ability to mitigate and absorb their impact and the capacity to recover after events.

In terms of natural risk management, developing the resistance of a population and territory consists partly of emphasising risk prevention and reduction. How a territory is governed plays a key role here. It must involve as many stakeholders as possible. A territory's resilience in the face of environmental events such as flooding can only be collective, systemic and based on that territory.

## **COMMUNITY, POPULATION AND TERRITORIES**

Communities are social groups of people who share characteristics, such as their location, or other demographics, such as age, race, religion or orientation. Communities may go through shared experiences together, such as flood events. Communities may also participate in joint actions or activities and share common interests.

Populations are the total number of people who live in a location. The population may comprise several different communities and demographics facing various issues.

Territories are the areas of land in which people live, governed by different governments or councils. Therefore, territories may implement differing flood risk management policies and strategies.



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## **ENGAGEMENT**

The Collins English Dictionary defines “engagement” as: “The act of engaging. A promise, obligation or other condition that binds. An appointment or arrangement. A period of employment, especially a limited period.”

Regarding the BRIC project, this term applies to community engagement. In other words, the involvement of relevant populations in the fight against flooding. This social innovation approach aims to strengthen the capacity of engaged local members (through training and workshops) to help make the most vulnerable populations more resilient. The involved members can play several roles, including mediating between local people and the competent authorities, educating communities and monitoring activities on a local scale.

## **FLOOD ACTION GROUPS**

Flood action groups comprise dedicated individuals who usually flood themselves and who commit their time and energy to forwarding their community to a situation where the flood risk is reduced, and they are more aware and prepared. Flood action groups are a representative voice for their community and aim to work in partnership with risk management agencies and authorities. The formation of community-based flood action groups to work on behalf of the whole community to find ways to reduce flood risk has proved very effective in England and Wales.

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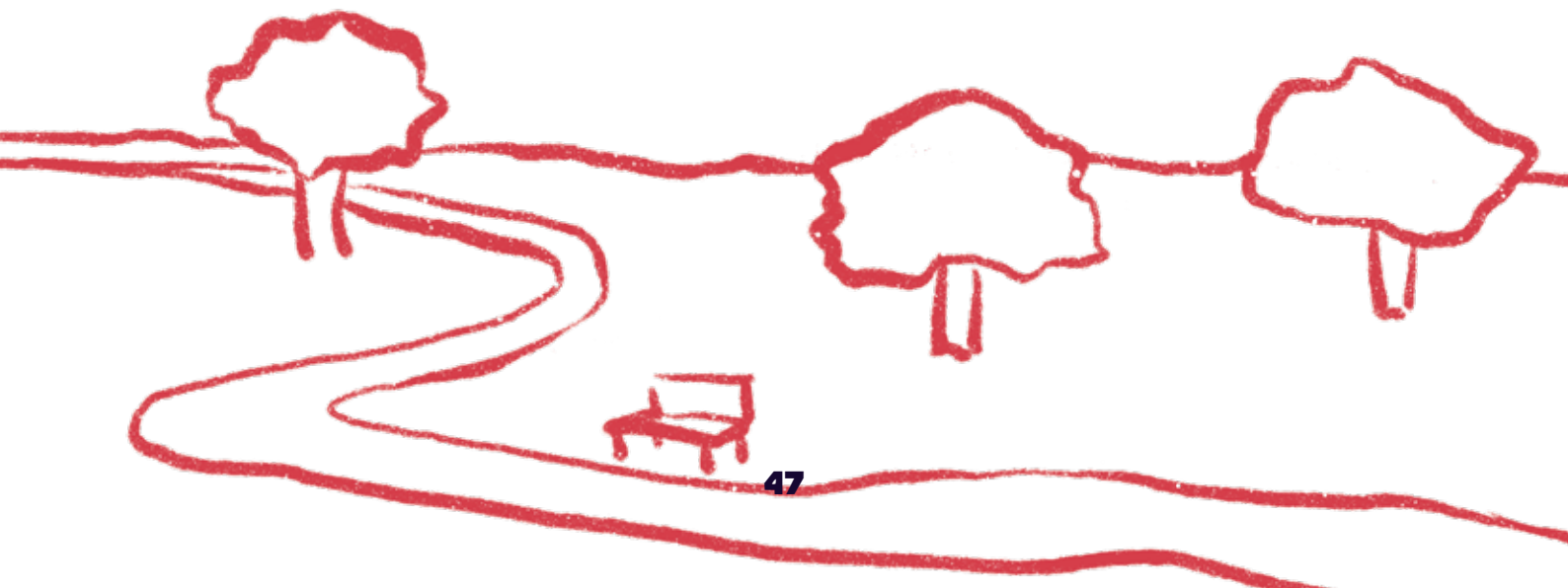
## FLOOD WARDENS

Flood wardens are volunteers who act as the eyes and ears of the community. Flood wardens can undertake roles such as :

- assisting with the creation and maintenance of Community Flood Plans
- monitoring the condition of local drains, brooks and other watercourses and reporting any issues to the appropriate agency
- distributing flood-related information to the public, encouraging individuals to sign up for the government's free flood warning service
- calling for assistance on behalf of people who are struggling to carry out essential actions to safeguard themselves or their property
- liaising with risk management authorities on local conditions and needs
- noting and reporting local flood event details
- setting up local patrols to monitor the situation

## RESILIENCE NETWORKS

The purpose of resilience networks is to enable communities and public authorities to work together to reduce the socio-economic impact of floods on these communities, making them more self-sufficient and resilient in the face of risks. The aim is to ensure a long-lasting collaboration that guarantees that the actions undertaken are sustainable.



# 2. BEHAVIOUR CHANGE MODEL



**50 INTRODUCTION**

**51 THE AI CYCLE**

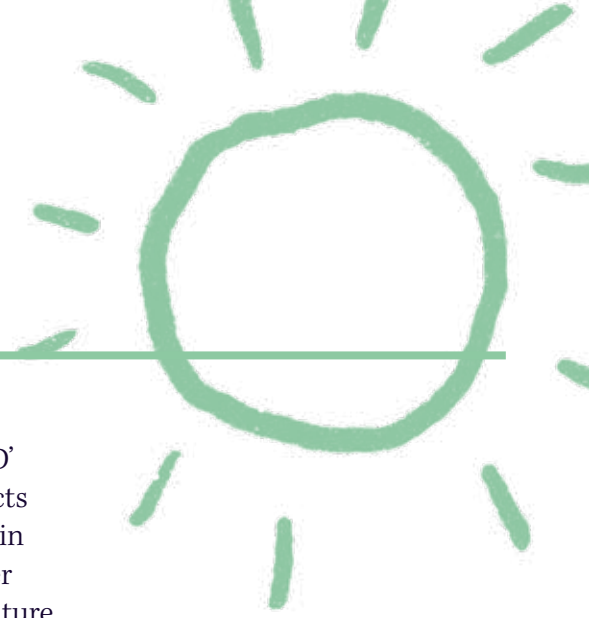
**52 AI - A BEHAVIOUR CHANGE MODEL IN PRACTICE**

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# INTRODUCTION

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Appreciative Inquiry (AI) is a cyclical tool following a '4D' process (Discover, Dream, Design and Deliver), which acts as a learning loop. AI can help facilitate positive change in community settings by involving people at risk and other stakeholders. In BRIC's case, the risk is the increase in future flooding incidents.

The BRIC teams implemented the AI process in each pilot site at the beginning of the project to ensure that planned BRIC activities and events embedded themselves within the strengths of the communities and could be used to influence positive decisions and actions.



# THE AI CYCLE

AI starts from a motivating feeling of enthusiasm and hope rather than from the 'issue or problem' itself. It has four stages:

## DISCOVER

Identifies the community's current situation, i.e. where do they feel they are now?

## DREAM

Uses the baseline data from the discovery stage and allows those using the AI process to imagine what the community could look like in the future

## DESIGN

Uses the collected information and data to form an implementation plan of events and activities

## DELIVER

Events and activities are delivered to bring about change



*Stavros, J. M. (2008). Appreciative Inquiry Handbook for Leaders of Change (2nd ed.). Brunswick, USA: Crown Custom Publishing.*





# AI - A BEHAVIOUR CHANGE MODEL IN PRACTICE

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This guidance uses the Plymouth City Council (PCC) Lipson and Trefusis Park pilot area to illustrate how AI works as a behaviour change model.

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## DISCOVER STAGE

PCC conducted AI in this area via face-to-face interviews, public consultation surveys and a Google form (accessed via a QR code in a newsletter). In total, the team collected 105 responses.

The AI questions table shows the questions asked. The team started with neutral questions to encourage a person to talk (questions 1 and 2). A topical question relevant to resilience was then raised: for this, PCC asked about climate change (question 3). Having built rapport, the person was then asked about their flood preparedness (questions 4 and 5).

- 1 WHAT DO YOU LIKE ABOUT THIS AREA?**
- 2 HOW COULD THINGS IMPROVE HERE?**
- 3 WHAT ARE YOUR THOUGHTS ON CLIMATE CHANGE?**
- 4 ON A SCALE OF 1 TO 5 (1 = NOT PREPARED AT ALL; 5 = VERY PREPARED), IF YOU WERE FLOODED TOMORROW, HOW PREPARED DO YOU FEEL YOU WOULD BE?**
- 5 WHY HAVE YOU GIVEN THIS SCORE?**



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The BRIC team conducted the AI interviews in pairs so one person could talk and be attentive to the interviewee and the other could write down what they said. All responses were recorded anonymously, in the first person and as close to the actual words spoken as possible.



Sessions were carried out on different days of the week, at differing times and in different parts of the area, so that a wide range of people were consulted. The team were pleased to find that most people were willing to stop and share their stories.

*AI session in Trefusis Park*  
© Plymouth City Council

AI data is collected anonymously to encourage people to speak freely. Therefore, the limited demographic data of gender and age gathered was by observation only and could be considered subjective. However, monitoring this data helped the team to reach a broad audience.

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## DREAM STAGE

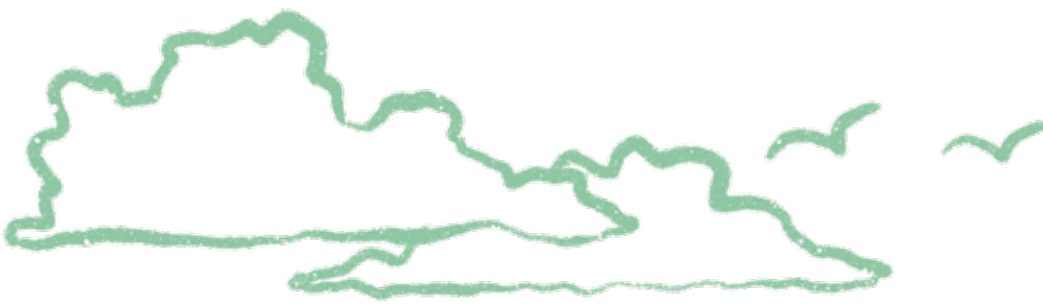
To learn from the Discovery stage, PCC held four AI listening events. They invited various stakeholders, including the Environment Agency, South West Water Services Limited (SWW) and the emergency services. They also included other PCC departments and community groups interested in flood risk management, the Lipson community and Trefusis Park.

The listening events allowed participants to look deeper at the stories collected and to imagine what the community could look like with future interventions. Including local stakeholders not only added to the depth of the BRIC Team's understanding but also provided those stakeholders with opportunities to learn from the community engagement.

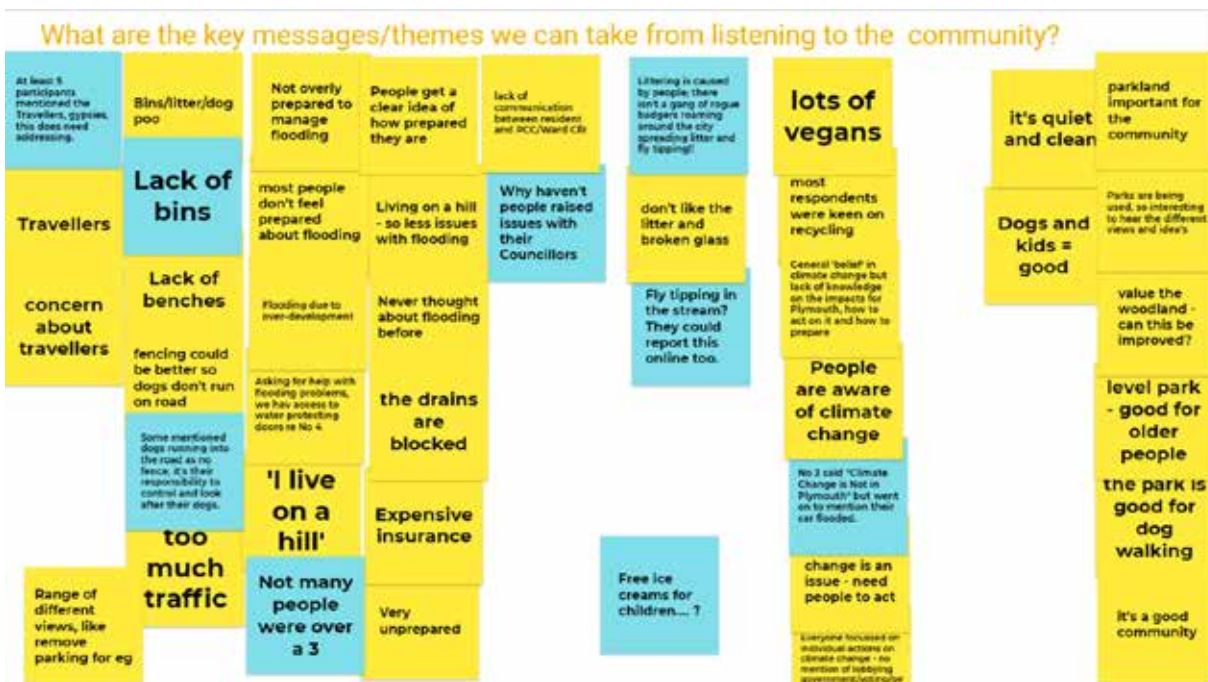
During each event, the AI responses were shared in the first person, keeping the answers as close to the actual words spoken as possible, including swear words. This approach was to enable the event participants to imagine they were listening to the community speaking directly to them.

While the team read the stories aloud, participants were asked to listen and note any key and common themes that emerged. A Google Jamboard was then used to collect those key themes and facilitate discussions about how stakeholders could use the information in their work or projects to inform future activities or plans.





The Google Jamboard image shows the key themes and concerns identified and discussed at the first listening event held with the Lipson Vale area stakeholders.



**POSITIVES:**

- residents are generally aware of climate change and are taking action, such as recycling and eating less meat
- residents like the park and value their green space: it is mostly used by dog walkers
- during COVID-19 restrictions, the park had become an essential place for exercise and social contact



**NEGATIVES:**

- some travellers encamped in Trefusis Park, which resulted in the community feeling worried for their safety
- there were many comments about the lack of bins and dog mess
- fly tipping in the stream was also raised as a concern

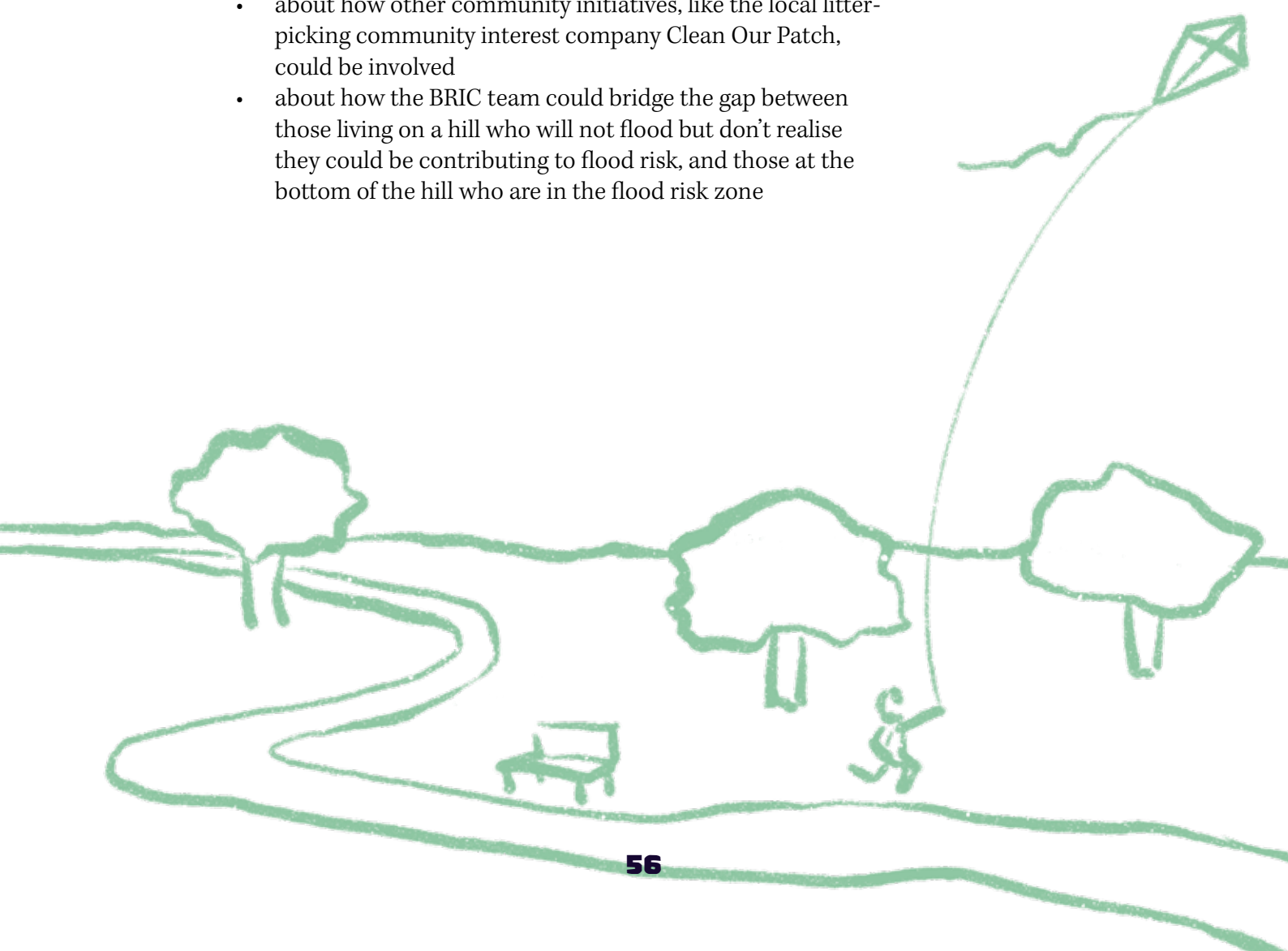
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## FLOOD PREPAREDNESS:

- people were generally not prepared for flooding: some reasons identified were that residents had not thought about flooding before or they felt they were unlikely to flood because they live on a hill

The stakeholders were also asked to identify ways that the key themes could inform their work and that of the BRIC Team. In summary, they thought:

- wider improvements could be made in the park, such as seating and information boards
- outreach work with young people who use the park would be beneficial
- about how other community initiatives, like the local litter-picking community interest company Clean Our Patch, could be involved
- about how the BRIC team could bridge the gap between those living on a hill who will not flood but don't realise they could be contributing to flood risk, and those at the bottom of the hill who are in the flood risk zone



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Hosting the listening events enabled the PCC BRIC team to engage stakeholders about their plans. It also resulted in additional stakeholder engagement that would not have happened without the events. For example:

- stronger relationships have been built with councillors, who do not often hear the direct voice of their communities
- the team attended Efford Youth Club to gauge the young people's views about a particular area within Trefusis Park – this has resulted in plans for a half-size basketball pitch, which did not appear in the original plans
- close collaboration with SWW has resulted in them donating water butts for PCC's "Make a Pledge to Slow the Flow" competition

---

## DESIGN STAGE

The Plymouth BRIC team used the AI results to develop an implementation strategy for a public consultation. That consultation was for a planned capital flood relief scheme for Trefusis Park. The information from AI had shown that:

- as the park is regularly used, there was likely to be significant interest in the scheme
- people had been so willing to engage that it was clear that face-to-face events would be helpful to increase the volume and quality of feedback
- events should be scheduled on different days (including at the weekend) and at differing times to maximise the number of attendees

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The team asked themselves how they could increase residents' responses while raising flood risk awareness. In answer to this question, they designed more face-to-face engagement activities than is the norm for public consultations. They also planned other activities such as:

- community newsletters
- slow the flow activities
- mini pop-up events in Trefusis Park
- presentations
- attendance at external events and volunteer meetings

The BRIC team paid careful attention to the public consultation survey to ensure that the questions were relevant to the design team and properly reflected people's views about what they like about the park and what they would like to see improved. Flood preparedness questions were included to gather more information about peoples' knowledge and experience of flooding in the area.

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## DELIVER STAGE

Following the first three stages of the AI loop, the interventions detailed below were carried out by the Plymouth BRIC Team in the Lipson Vale and Trefusis Park area. The aim was to explain PCC's two design options for the Trefusis Park SuDS scheme and to gather support and comments about the plans:

- The team sent 3700 letters and leaflets to residents within a 500-metre buffer zone around Trefusis Park
- Six consultation events were held in various locations and at differing times of the day/week, including:
  - » a Saturday morning event in a local church hall – 10 attendees
  - » two outdoor events in Trefusis Park – 31 attendees
  - » one event in a local public house – 12 attendees
  - » one event in a local primary school – 6 attendees
  - » one online event – 1 attendee

The team spoke to 60 residents, and 50 survey forms were returned.



### How can I find out more?

Come along to one of our events where we can talk you through the proposals and answer your questions:

Date	Time	Location	Address
13/11/21	10am to 2pm	Mutley Baptist Church	Mutley Plain, Mutley PL4 6LB
22/11/21	10am to 2pm	The Penguin Public House	Ashford Crescent, Mannamead PL3 5AA
01/12/21	7pm to 8pm	Online Consultation	See website for details
02/12/21	3.30pm to 5pm	Lipson Vale Primary School	Bernice Terrace, Lipson PL4 7HW

If you would prefer to chat to us in a more informal setting then we will also be in Trefusis Park PL3 6BB on:

Date	Time
21/11/21	2pm to 4pm
30/11/21	10am to 12pm

Further information is also available at: [www.plymouth.gov.uk/trefusisparkfloodreliefscheme](http://www.plymouth.gov.uk/trefusisparkfloodreliefscheme)

#### Take part by:

- Completing our online survey
- Attending one of our events
- Emailing [bric@plymouth.gov.uk](mailto:bric@plymouth.gov.uk)
- Writing to: BRIC Team, Plymouth City Council, Ballard House, West Hoe Road, Plymouth PL1 3BJ (Please quote ref: Trefusis Park)

### Additional Support

Do you know someone who has suffered from flooding, or would you like to help others in your local area who have?

Plymouth City Council's Building Resilience in Communities (BRIC) Team are providing a range of opportunities to enable local people to get involved, including:

- setting up a Community Flood Action Group
- running flood risk awareness sessions
- learning and creative activities to explore our relationship with water and the challenges of climate change on our local landscape

For more information contact us at: [bric@plymouth.gov.uk](mailto:bric@plymouth.gov.uk)

Consultation closing date  
5 December 2021

**Interreg** **France ( Channel ) England**  
BRIC  
European Regional Development Fund

**Environment Agency** **South West Water**

# TREFUSIS PARK FLOOD RELIEF SCHEME

## PUBLIC CONSULTATION

### Have your say

ROAD  
KOV5  
Strategic Planning and Infrastructure

### Overview

Plymouth City Council, working in partnership with the Environment Agency and South West Water Limited, has secured funding to deliver changes to the park that will:

- reduce the risk of flooding to homes and businesses in the local area by safely storing water in the park during heavy rainfall, enabling the drainage system downstream of the park to be able to cope better
- create wildlife-rich habitats through new seasonal wetland features, trees and plants
- improve access for all with new paths and seating, whilst maintaining areas of open space

### The design

The proposed designs have been informed by:

- detailed surveys, modelling and ground investigations to determine the size of the water storage area required to minimise flooding
- on-site consultation with local park users to better understand how people use the area and what improvements they would like to see

### Have your say

We would like to hear your views on:

- which park layout you prefer (see options in the Survey)
- what you like about the proposals and any concerns you may have
- any other ideas for improvements
- how you would like to get involved

### Flooding and the local area

Why does the Lipson Vale area flood?

- It is a rapid response catchment with very steep sided streets that funnel the water to vulnerable streets
- An increase in heavy intense rainfall
- Run-off water volume exceeds the capacity of the sewer systems
- Tidal challenges - if heavy rainfall coincides with a high tide, the water exits can become 'tide-locked', causing a back-up in the drainage system

### Why is this flooding an issue?

- The impact upon people's homes and lives with increased mental health issues around the disruption to family life
- Fully drying out, repairing and restoring a home costs on average £20,000 to £45,000 damage per household
- Road closures and disruption to local businesses

### How will the works improve the lives of people in the local area?

- Less likelihood of flooded properties in vulnerable streets, so residents at risk will feel safer



- Roads and pavements less likely to be closed because of flood water
- An improved local park with new trees and plants, creating a richer habitat for wildlife and more opportunities to connect with nature



# BACK AROUND THE AI LOOP

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Now that PCC has completed lots of activities and events, both during the public consultation and since, it is time to think about the lessons learned and ask:

‘What needs to be done to continue changing the behaviours and mindset within the targeted communities so they can become truly resilient when it comes to flooding?’

This question will require PCC to re-visit parts of the AI 4D cycle. As BRIC was only a two-year project, it was impractical to carry out another set of AI interviews in the community. Therefore, the team chose to take a more targeted approach and work with residents who had given their contact details and indicated a desire to become involved as volunteers.

# CONCLUSIONS AND RECOMMENDATIONS

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- AI has proven to be a powerful tool to show the similarities and differences within communities
- PCC are sure that their engagement was more effective than if they had not gone through the AI cycle
- It avoided assumptions being made about the community – their level of knowledge and what is important to them
- AI builds understanding (because it is carried out together with our community and stakeholders)
- It builds empathy (because it is carried out together)
- It builds trust (because it is carried out together)
- It gives legitimacy (because it gives an opportunity to talk to lots of people)





# 3. TOOLS FOR BUILDING COMMUNITY RESILIENCE TO FLOODS



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**67 ASSESSING VULNERABILITY TO FLOODING**

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# INTRODUCTION

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Building communities' resilience requires different measures to be put in place, using various tools that can be combined according to the goal, the target audience, the resources available and the site history.

The BRIC project has allowed a wide variety of diagnostic and visual communication tools to be tested to help communities understand flood risks. Several pilot sites have tried these tools. This chapter presents feedback about these different actions, focusing primarily on the lessons learned, good practices, and challenges. The aim is to share knowledge with other interested parties who wish to use these tools in their territories.

# ASSESSING VULNERABILITY TO FLOODING



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In general, before engaging in a resilience strategy for a territory, it is useful to characterise that territory. Even if the hazards and issues are often well-known, the same is not true of the territory's actual vulnerability. Also, the representation of risks by the stakeholders and inhabitants remains unknown data, as do the existing links between the various stakeholders and policies. Finally, the level of risk perception and population involvement can be interesting data to gather to establish a baseline and then to evaluate the benefits of the implemented actions.

This diagnosis can take different forms, particularly quantitative, with figures and maps as deliverables. In the case of the BRIC project, the partners have prioritised a qualitative and forward-looking approach to take the territory's "pulse" regarding its ownership of its flood risk. So, the partners tested two primary tools for assessing vulnerability on the pilot sites in both countries. First was Appreciative Inquiry to determine flood preparedness. The second was the semi-structured interviews set up in the Aulne Valley by the French partners at the start of the project.





# APPRECIATIVE INQUIRY

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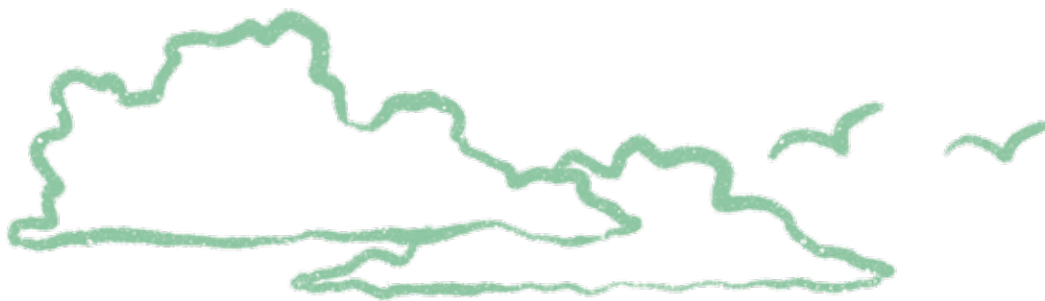
As explained in Chapter 2, during the Appreciative Inquiry interviews, the project teams collected data about people's preparedness for flooding via a rudimentary scale. They were asked on a scale of 1 to 5 (1 = not prepared at all; 5 = very prepared) how prepared they would be if they flooded tomorrow. They were then asked why they had given that score.

In the Plymouth, Weymouth and Authie Valley pilot sites, the teams collected additional data via paper and online questionnaires:

- in Plymouth, the flood preparedness questions were included within the online and written surveys for two public consultations, and the team collected further data via a Google form
- in Weymouth, the team collected written responses at several awareness-raising drop-in events
- in Authie Valley, a newsletter was circulated with a link to a Google form

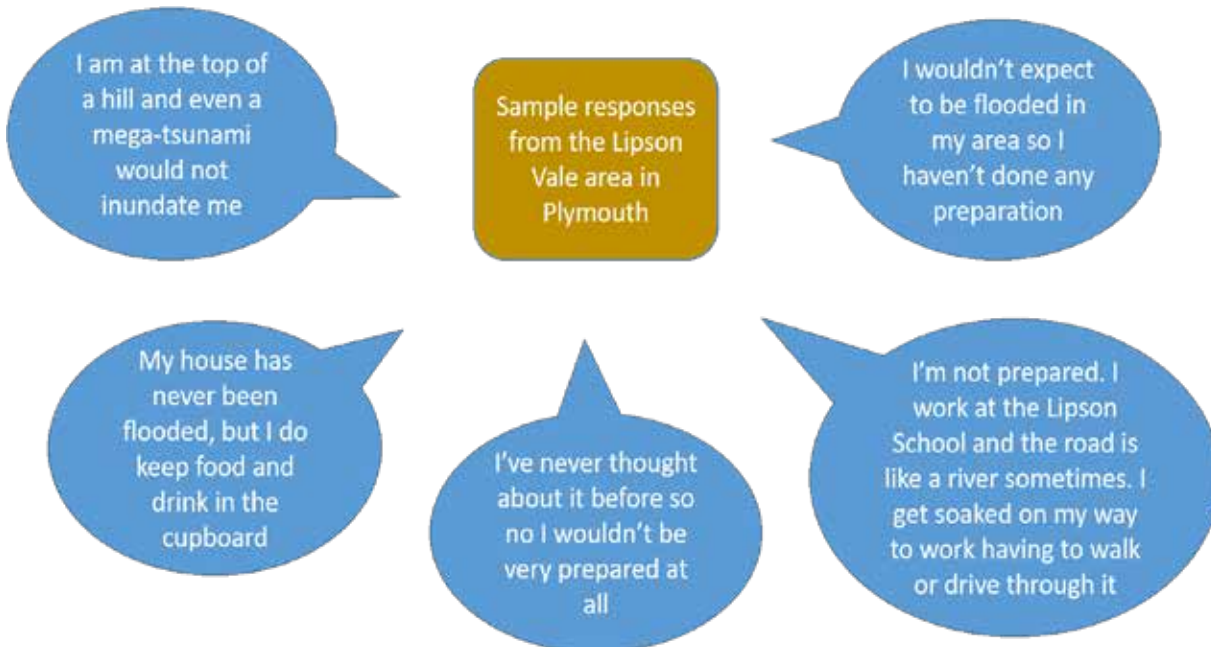
The data was taken as the baseline scores for each community's water risk awareness and flood preparedness. This information helped the project teams to understand their communities' knowledge of flood risk and to plan appropriate interventions to increase their scores.





The summary table shows that across the BRIC partnership, flood preparedness scores were low, ranging from 1.9 in Weymouth to 2.7 in Kent. The average score across the eight pilot sites was 2.2.

PILOT SITES	NO. OF FACE-TO-FACE INTERVIEW RESPONSES	NO. OF RESPONSES VIA PAPER OR ONLINE QUESTIONNAIRE	AVERAGE FLOOD PREPAREDNESS SCORE
<b>Plymouth, England</b>	75	109	2.2
<b>Weymouth, England</b>	32	18	1.9
<b>Canvey Island, England</b>	38	0	2.1
<b>Kent, England</b>	26	0	2.7
<b>Risle Valley, France</b>	30	0	2.6
<b>Authie Valley, France</b>	0	10	2.0
<b>Aulne Valley, France</b>	76	0	2.2
<b>Oise Valleys, France</b>	41	0	2.1



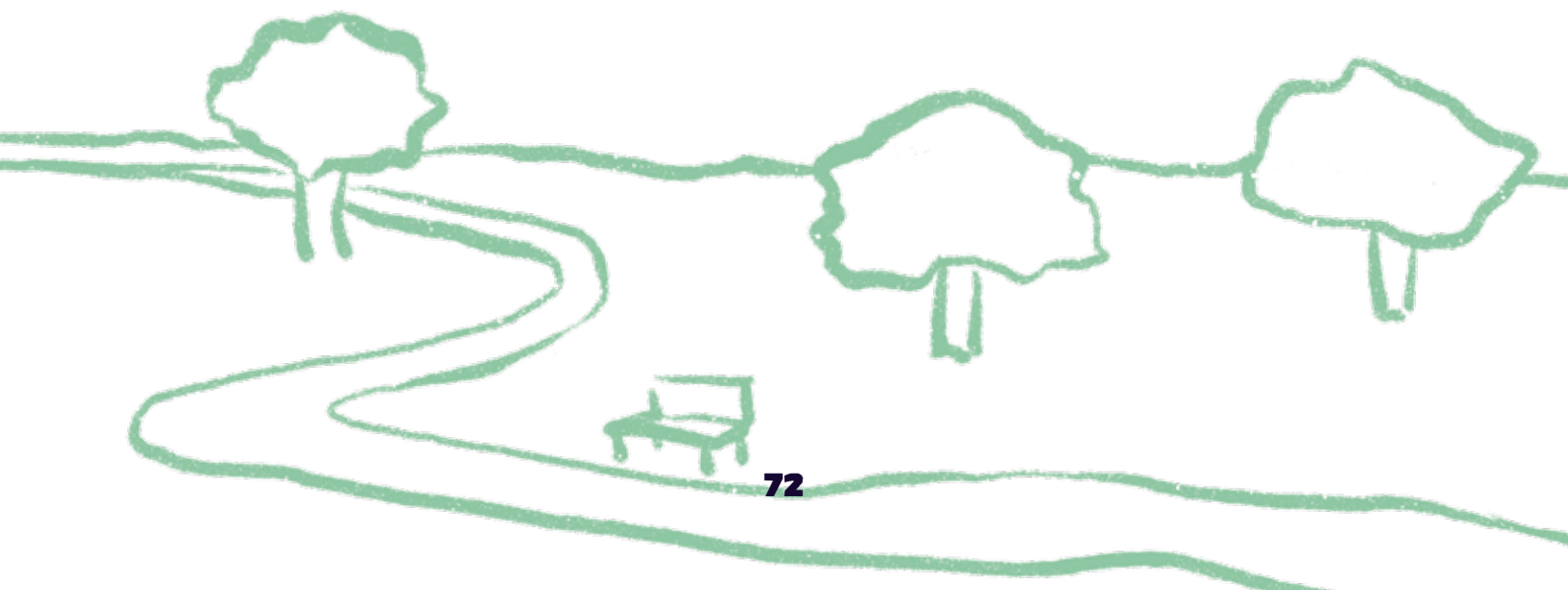
***Plymouth pilot site: Sample flood preparedness responses – Lipson Vale area***

In the Authie Valley, 76 people were surveyed, 42% of whom were retired people over 60, who comprise part of the BRIC project's target audience. During the debrief, the responses to the Appreciative Inquiry made it easy to have conversations with the inhabitants. They felt involved and included and did not hesitate to give their own opinions on the results.



*Debrief of the Appreciative Inquiry in a workshop during the Aulne Festival - residents wrote their thoughts on post-it notes around the stand (Châteaulin, 24 September 2022 © Cerema)*

**THIS DATA SHOWED THAT WATER RISK AWARENESS WITHIN ALL PILOT SITES WAS LOW, EVEN THOUGH MANY OF THEM SUFFER FROM REGULAR FLOODING.**



# SEMI-STRUCTURED INTERVIEWS

## AULNE VALLEY

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### SPECIFIC OBJECTIVES

The semi-structured interviews aimed to:

- record the interviewee's view on the territory and their connection to the Aulne
- identify the mechanisms that could reduce the inhabitants' vulnerability to floods
- present the planned activities within the BRIC project framework and identify possible partnerships

### TARGET AUDIENCE

The semi-structured interviews were carried out with corporate stakeholders involved in flood risk management, planning and the social sector.

### PLACE OF USE

The interviews were carried out with 16 people working in 11 different organisations.

### DEVELOPMENT METHOD

The interviews were based on a guide consisting of open-ended questions. It addressed four themes: the local context, flood prevention, actions considered within the BRIC project framework and miscellaneous questions.

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## EVALUATION

### **Level of public interest**

The people who were interviewed seemed very interested in the project.

### **What worked well?**

The goals were achieved. More specifically, these interviews enabled the project team to understand the expectations of the stakeholders and the public, to create an exhibition of photographs showing the flooding and to organise an Aulne-based event, which have all been carried out. The interviews also allowed the team to form partnerships, which lasted throughout the project.

### **Was it worthwhile for this target audience?**

This method enables face-to-face dialogue with various corporate stakeholders. The discussion is open and does not limit what the respondent has to say. The semi-structured interviews strongly and positively influenced the actions carried out within the project's framework.



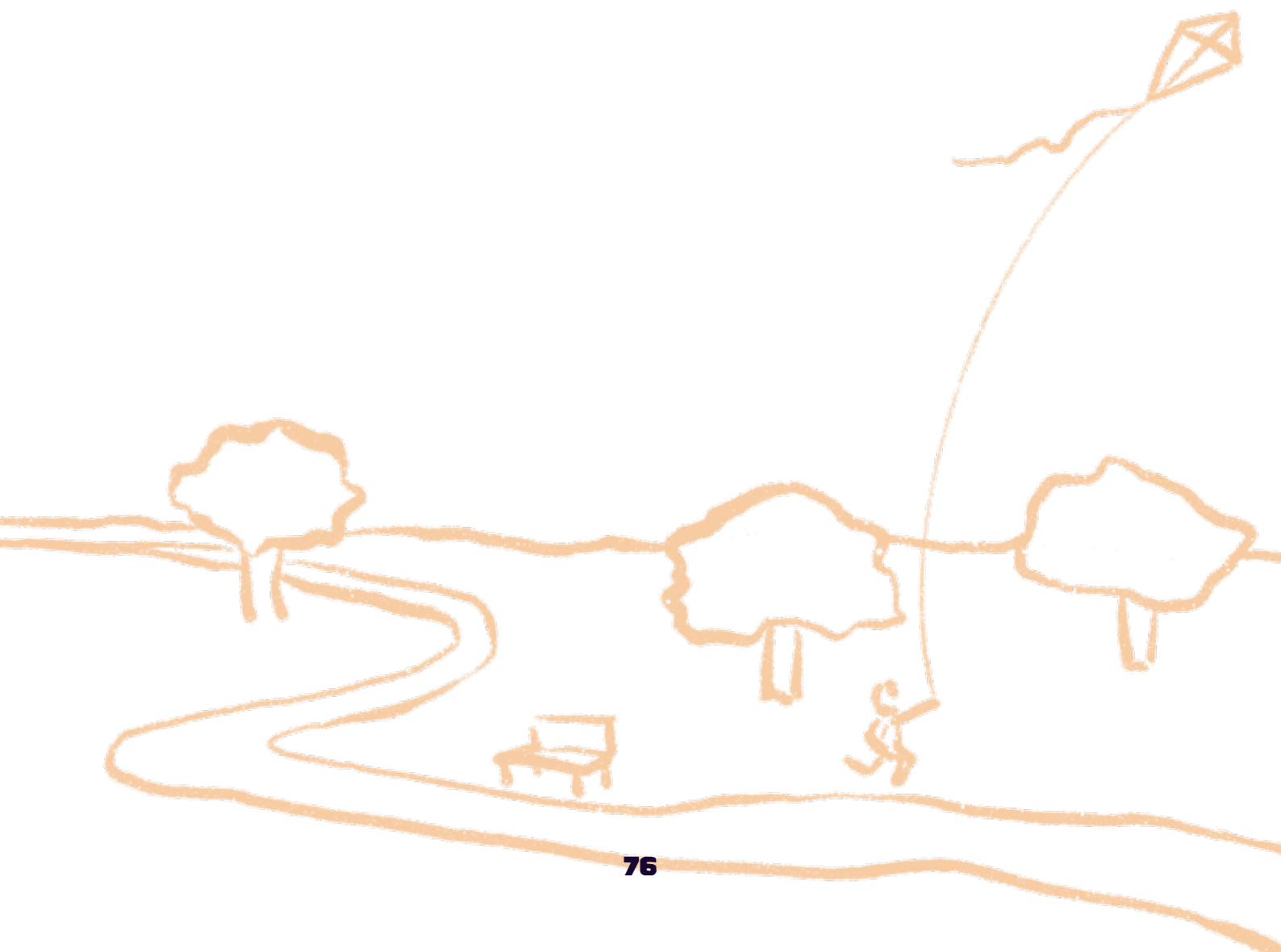
# RAISING AWARENESS OF FLOOD RISKS



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In this section, the different tools introduced serve as a basis for the involvement and engagement of local communities. Raising public awareness should not only be done top-down; many approaches should be used. The BRIC project will present different activities carried out with the communities on the pilot sites, the tools used for communicating the targeted information, and finally, the online support for community engagement.

In summary, these are the different tools, arranged by type:





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## ENGAGING LOCAL COMMUNITIES

One of the best ways of raising public awareness and boosting future engagement is to involve people in activities directly. Because of this, the pilot sites have developed several experiments using different methods to get people involved.

First, large-scale events with a multi-themed introduction enabled the project teams to talk about flood risk in a broader context that is often less anxiety-inducing. Here, the project teams introduced the risk in relation to protecting the environment, discovering biodiversity, water sports activities and festive events. All these events encouraged discovery, friendly relations and solidarity.

Then, the project teams led various activities with communities. Photographic exhibitions, public meetings and collective reflection workshops were other ways of connecting with communities, allowing them to look at where they live from a fresh perspective.

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Another important element was using art. This particularly popular method allowed the project teams to approach risk from an angle other than an institutional one. Art walks, painted murals, plays, and photography helped introduce scientific information about flood risk, often without communities realising it.

Fun and educational activities were also a good way of discussing flood risk. They provided an accessible and light-hearted introduction for all generations, especially children, who are particularly receptive to them.

Finally, experiences that use new technologies, such as virtual reality, helped raise public awareness since these immersive experiences allowed risks to be better represented.

Below is a summary of the events held:

- **Large-scale events:**
  - » Litter-picking campaign in England
  - » Resilience festival in France
- **Exhibitions** in France
- **Public consultations** in England
- Using **artistic methods** with a site in each country
- Running **awareness-raising campaigns** with fun activities in England
- Sharing **visualisation systems** with augmented reality in France

---

## PROVISION OF SPECIFIC TOOLS

It can sometimes be helpful to provide targeted responses to local expectations regarding risk. As a result, the BRIC project teams have developed specific tools, some of them innovative, for two English sites and one French site:

- **Homeowner guide** in England
- **Flood safety plans** in social housing blocks in France
- **Newsletters** for targeted communities in England

## ONLINE ENGAGEMENT TOOLS

With the world becoming ever more connected, it is vital to use new communication methods to develop a risk culture and reach as many populations as possible, including the youngest generations.

To do this, all the pilot sites have developed an online app to enable communities to discover their local area and its features, including flood risk, in a connected and interactive way.

One French site also recorded podcasts about local people's perceptions of floods, life with risks, and activities linked to the river. These were uploaded onto the internet and social media.

- **Story Maps** developed on several sites in both countries
- **Podcasts** made on a French site



# ENGAGING LOCAL COMMUNITIES

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# LITTER PICKS CANVEY ISLAND

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## SPECIFIC OBJECTIVES

Throughout the project, Thames21 conducted monthly litter picks around the urban waterways on Canvey Island (dykes, ditches, and the retention pond). These litter picks demonstrated a simple action the community could take to reduce local flood risk by cleaning up water retention areas. It also created a space in which they share their opinions on flooding, ask questions, and receive information from Thames21 staff.

As take-up for these litter picks was low, Thames21 instead devised a schedule of more engaging litter pick events: litter picks with resilience walks. These walks were designed to:

- make the litter picks a more discussion-based activity
- enable volunteers to share their knowledge about flooding
- allow Thames21 to share information about the BRIC project and to suggest how volunteers could increase their flood resilience

## PLACE OF USE

Canvey Island.



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## DEVELOPMENT METHOD

The events were widely advertised, using both posters and social media.

The posters were displayed in key community locations, including the council offices, the town library, supermarkets, and local churches to have a large community reach. This form of advertisement was important due to the lack of technology uptake among older Canvey Island residents.

Thames21 also advertised the litter picks online through their Facebook page and through posts created and shared on eight different Canvey Island dedicated Facebook pages, which have a total reach of a thousand residents across Canvey Island. Online advertisement has been a successful mode of engagement to reach the large proportion of adult residents who have access to some form of social media. Social media enabled Thames21 to expand the reach of litter pick advertisements and to raise awareness of the BRIC project across the island.

## RESULTS

The litter picks and resilience walks had a low uptake. Possible reasons for this are:

- event sites were often 1.5 to 2 miles away from the targeted community members and, therefore, not local enough for residents to feel connected to the site or for them to understand how the activity related to protecting their homes
- residents' lack of past flood experiences and their lack of understanding of flood risk on Canvey Island, meaning that flood risk is not a priority
- other residents' reluctance to engage because of an unwillingness to accept their vulnerability to flooding
- the socioeconomic status of people on Canvey Island, in that it is not populated by "active elderly people"
- the effect of COVID-19 on the volunteering sector

---

## EVALUATION

Residents' attitudes towards flooding have presented a significant challenge to Thames21. There is an urgent need to inform residents about flood risk and how they can build their resilience, but there is also a need to ensure that residents are not left feeling helpless. Thus, it is important to ensure that events are advertised and conducted in a way that allows for productive conversations and constructive proposals for building community flood resilience.

As the uptake for the litter picks and resilience walks was low, Thames21 has now planned to combine future activities with those arranged by other organisations. This collaboration will benefit from increased advertising and multiple activities to appeal to a broader audience. The team have planned nature identifier walks at Canvey Wick with "Buglife" in March 2023. These walks aim to introduce community members to the BRIC project and to expand the flood resilience network. Thames21 hopes these events will be more successful than the litter picks because they are not directly centred on flooding, allowing conversations about flood risk to evolve more informally.

# RESILIENCE FESTIVAL - ALONG THE AULNE AULNE VALLEY

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## SPECIFIC OBJECTIVES

The goals of the “Along the Aulne” festival were to:

- showcase the natural heritage of the Aulne Valley
- raise awareness of the environment through different themes (the characteristics of aquatic environments, biodiversity, floods and adapting to climate change)
- encourage networking between local stakeholders and residents

## TARGET AUDIENCE

This event was open to everyone, with free entry.

## PLACE OF USE

“Along the Aulne” took place over the weekend of 24 and 25 September 2022, at Châteaulin, Saint Coulitz and Port-Launay.





## DEVELOPMENT METHOD

The “Along the Aulne” festival was put together by an organising committee comprised of Cerema and local organisations: the communes of Châteaulin, Port-Launay and Saint-Coulitz, EPAGA (public organisation for the planning and management of the Aulne riverbed) and the non-profit association Polysonnance. The actions proposed by Cerema within the BRIC project framework have formed a foundation which links local organisations with the Aulne. They have been invited to suggest their own activities. The event offered educational stands, exhibitions, performances, artistic activities and a friendly atmosphere. The themes addressed were flooding, biodiversity, water management and fishing.

*Stand at “Along the Aulne”  
(Châteaulin and Port-Launay, 24  
and 25 September 2022  
© Cerema)*

## RESULTS

The event brought together more than 250 people of mixed ages.



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## EVALUATION

### Level of public interest

The public were very interested and the conversations were extremely positive.

### What worked well?

Setting up the organising committee meant local organisations could use this event. This committee is currently considering keeping the event going after the BRIC project.

The public liked the light-hearted approach to environmental issues offered by some stands. The inhabitants were moved by the photographic exhibition on flooding since it was about their town. The performances and food offered by the local festival committees went down very well. They brought people together who might not have come if the event had only been about flooding.



*Vigicrues aperitifs at "Along the Aulne" (Port-Launay, 25 September 2022 © Cerema)*

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## Challenges faced

On an organisational level, the project dates did not fit in with the local authorities' schedule, particularly around voting on budgets. Therefore, it was a challenge for the communes to be able to contribute financially to the event.

During the event, getting the public to come on a Saturday afternoon was difficult. The event took place far from the centre, and the timings could have been more convenient.



## Lessons learned

- The partnership with the non-profit association Polysonnance was very beneficial: this organisation works closely with and knows the population of Châteaulin and the surrounding areas, who were the target audience.
- Employing the services of an entertainment professional (e.g. stage manager) could greatly help the organisation.
- The food and performances on offer are important features for encouraging the public to come.
- As expected, only talking about flooding does not entice people to attend. It is better to raise awareness indirectly, linking to other themes associated with the river.

## Was it worthwhile for this target audience?

This event was very much appreciated by the community. The organising partners would like to keep it going.



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### **Cost, schedule (implementation time, etc.)**

It is hard to assess the time spent organising this event since many people from different organisations were involved, and the workload varied over time. In addition, some activities were carried out separately from the Aulne festival and were repeated at the event.

Organising the event was undoubtedly equivalent to 12 months of work. More specifically, a meeting by the organising committee was held once a month between February 2022 and July 2022. Meetings were proposed with each potential contributor.

The general activities were free to the public, except for the food organised by the festival committees. The festival as a whole (with all the provisions offered) cost approximately €20,500.

*Show by Armodo during “Along the Aulne” (Port-Launay, 25 September 2022 © Cerema)*



# PHOTOGRAPHIC EXHIBITION ON FLOODING AULNE VALLEY

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## SPECIFIC OBJECTIVES

The photographic exhibition on past floods aimed to:

- raise awareness of flooding
- create a collective memory of the risk
- showcase the residents' experience

## TARGET AUDIENCE

Anybody, in particular the inhabitants of the Aulne Valley.

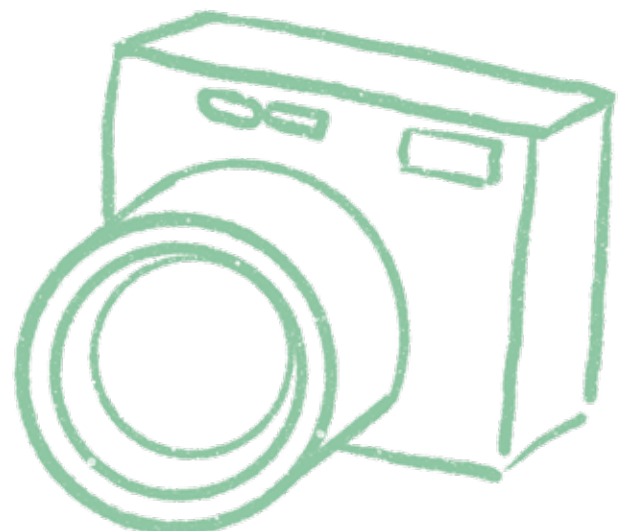
## PLACE OF USE

The photographic exhibition was open to the public before the “Along the Aulne” festival (19 to 23 September 2022 at Polysonnance) and during the event (from 2-5pm on 24 September 2022 at the Aulne festival site).

## DEVELOPMENT METHOD

The exhibition consisted of 12 panels showing 82 photographs. It was organised into themes to show the different elements of flooding or the sequence of events. The themes were:

- “Everyone together”
- “Recurring floods”
- “A few hours to prepare”
- “Isolation”
- “Living with”
- “Cleaning up”
- “Acknowledgements”



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## RESULTS

The project team did not count visitor numbers while the exhibition was at Polysonnance. This exhibition allowed the project team to reach people who had not come specifically to see it. Around 40 people visited the show at the Aulne festival.

## EVALUATION

### **Level of public interest**

Responses were very positive. The exhibition encouraged conversations amongst the public, with all ages represented. Different generations shared their experiences.

### **What worked well?**

Using photographs of places known to local residents was very powerful.

### **Challenges faced**

While putting the exhibition together, getting authorisation to use the photographs was difficult. Creating usage agreements took time.

### **Was it worthwhile for this target audience?**

The exhibition was very well received and effective.

### **Cost, schedule (implementation time, etc.)**

The cost of putting on the exhibition was €4,000. It was put together in the space of 6 months. This amount also includes agreements to obtain photo rights, printing and purchase of materials.



*Photographic exhibition on flooding at Châteaulin (24 September 2022, © Cerema)*

# PUBLIC CONSULTATIONS PLYMOUTH

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## SPECIFIC OBJECTIVES

The PCC BRIC team designed and led two public consultations for the council about planned capital projects: the Trefusis Park Flood Relief Scheme (Lipson area) and the St Levan Park Flood Relief Scheme.

The purpose of these public consultations was to:

- seek people's views about the parks and how they could be improved, both in terms of amenity and biodiversity
- obtain information about people's flood preparedness
- find volunteers to form flood action groups and assist with the creation of story maps

For the Trefusis Park consultation, people were asked to select their preferred design option for seasonal wetland basins.

For the St Levan Park consultation, people were asked to share their experiences of flooding. This was to gather local flood data for a business case for Flood Defence Grant in Aid funding.

## TARGET AUDIENCE

The public consultations were aimed at residents living close to the parks. The two central communities that PCC works with are areas with high levels of deprivation and vulnerable residents, such as the elderly.



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## PLACE OF USE

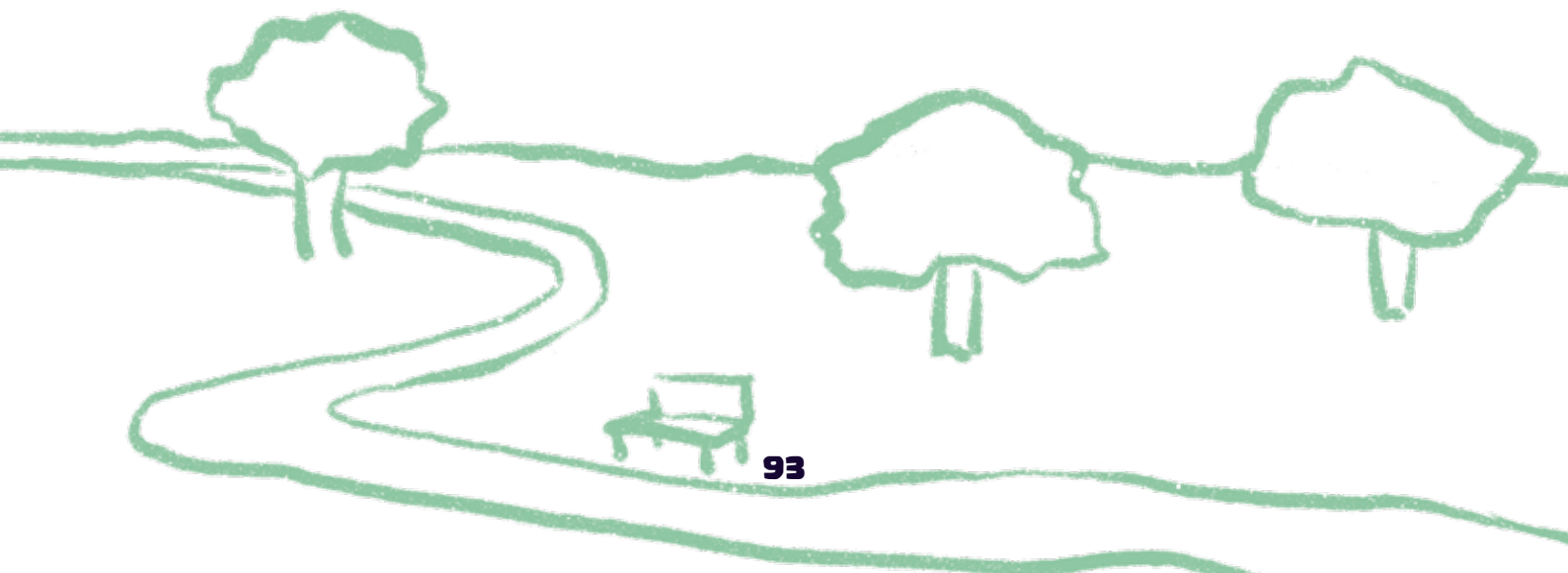
The consultation zones were set at 500m around the boundary of each park. A letter and leaflet were delivered to every property within those zones (over 8,500 homes).

## DEVELOPMENT METHOD

PCC used its Appreciative Inquiry (AI) results to design the public consultations ( for more details about the AI process, see Chapter 2). Because of the AI findings, the team held more face-to-face events than would typically be run during a public consultation:

- Trefusis Park: Six consultation events in various locations and at different times of the day/week
- St Levan: Five consultation events, including a Family Fun Fact Day, which was a collaboration with Interreg-funded Preventing Plastic Pollution, Green Minds (EU funded), Girl Guides, Pollenize (a local Community Interest Company) and a colouring wall artist

In addition to discussing matters relevant to the public consultations, the PCC BRIC team displayed “Slow the Flow” graphics to facilitate conversations about flood risk awareness and surface water run-off.



*Public Consultation Events hosted by  
Plymouth City Council BRIC Team  
© Plymouth City Council*



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Consultation surveys were carefully drafted to ensure they were relevant to the design team and properly reflected people’s views about what they like about the parks and what they would like to see improved.

## RESULTS

Events for both schemes were well attended, apart from the online consultation sessions. A summary of the attendance rates and responses is set out in the table below.

FLOOD RELIEF SCHEME	EVENT ATTENDEES	COMPLETED SURVEYS	ADDITIONAL USEABLE COMMENTS
<b>Trefusis Park</b>	<b>63</b>	<b>50</b>	<b>50</b>
<b>St Levan Park</b>	<b>96</b>	<b>61</b>	<b>34</b>

Everyone who completed a survey answered the flood preparedness questions. For more details about these findings, see Chapter 2 and Chapter 3 – Assessing vulnerability to flooding.

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## EVALUATION

The PCC BRIC team consider that both public consultations successfully achieved their objectives whilst raising flood risk awareness within the two pilot communities. Both schemes were generally well-received. Many people were enthusiastic about them, not only from a flood risk reduction perspective but also because of the opportunities for improved amenities and biodiversity within the parks.

For the Trefusis Park scheme, the information gathered has resulted in inclusions within the design for pathway creation, signage and seating that would not have occurred without the community's feedback. It has also informed choices made: for example, people advised against installing formal seating because of vandalism issues, so tree trunks will now be used instead.

Because of people sharing their experiences of flooding within the St Levan Park scheme survey, the design team now has excellent "on the ground" data about specific flooding and drainage issues in the roads surrounding the park. This data will help to inform the required flood alleviation works.

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The public consultations were initially successful in identifying people who were interested in volunteering activities (Trefusis Park scheme – 28 people; St Levan Park scheme – 26). Such activities included park improvements, litter picking, collecting history about the area and joining a flood action group. However, converting those people into engaged volunteers has proven to be more difficult, particularly in the Lipson Vale / Trefusis Park area, where engagement was adversely affected by COVID-19 restrictions. The UK returned to lockdown shortly after the public consultation finished, meaning in-person activities were impossible, and the team lost the traction created through the consultation process.

Volunteer engagement has been more successful in the St Levan area, with ten of the 26 volunteers actively involved with the newly created flood action group.



# PARTICIPATORY PHOTOGRAPHY WORKSHOPS CANVEY ISLAND

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## SPECIFIC OBJECTIVES

Participatory photography workshops are a creative form of engagement, using imagery to address the issue of flooding. Thames21 teamed up with professional photographer Jack Delmonte to run a series of community participation photography workshops on Canvey Island. The aim was to bring the creativity of photography and the power of the image to raise awareness of flooding issues on Canvey Island and what it is like to live in and surrounded by a wetland.

## PLACE OF USE

Three workshops were hosted on Saturday mornings and four editing sessions on Thursday evenings from October to November 2022 at a local community hub, 'The Yellow Door'.

## DEVELOPMENT METHOD

Participants were provided with a brief, 'Life Below the Wrack Line', which refers to the line of natural and unnatural debris material left behind on the shore at high tide. This title was designed to make participants consider the relationship between the community on Canvey Island and water. It was suggested to participants that they could consider the following:

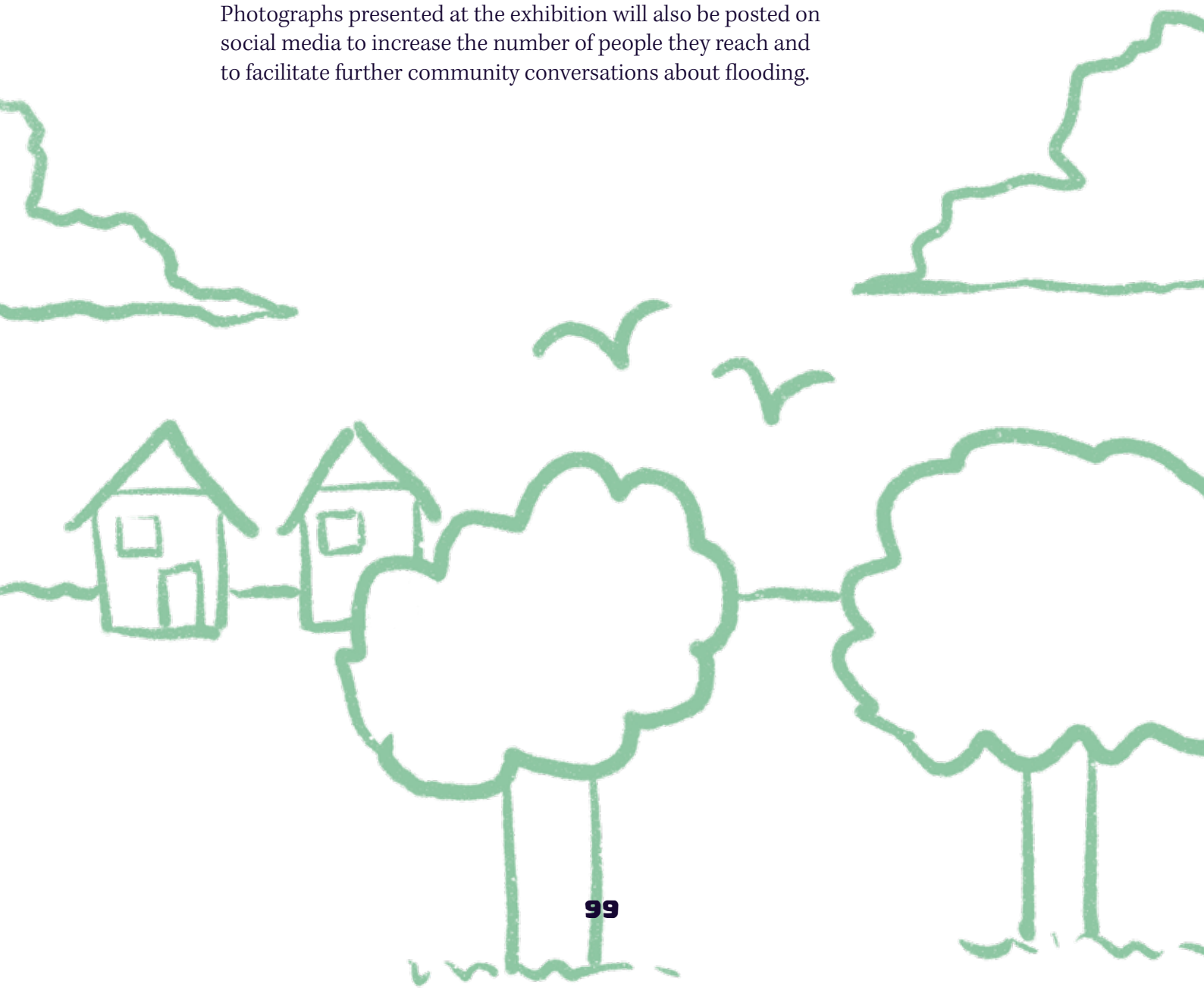
1. Living below high tide sea level; Canvey's "submarine mentality" (Wilko Johnson)
2. Things that are left behind - what, why, where, who, how?
3. The intermingling of natural and unnatural, transcending boundaries and borders
4. Wet-Land. Flood Risk – Flood Beauty. Natural landscape – Managed landscape

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These prompts were designed to help participants consider the complexities of the natural and unnatural and how that intermingles with flooding on Canvey Island. Participants then took a wide variety of photographs based on their creative interpretation of the brief.

An exhibition presenting the photographs was held in January 2023, around the 70th anniversary of the devastating 1953 floods on Canvey Island. The team held the event in the War Memorial Hall, which was built just after the floods and is now a central hub for the community, so it has symbolic significance.

Photographs presented at the exhibition will also be posted on social media to increase the number of people they reach and to facilitate further community conversations about flooding.



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## EVALUATION

Thames21 had hoped for more participants at the participatory photography workshops, but encouraging community members to come to events has been challenging (for further comment, see Chapter 6). However, the workshops were a valuable engagement strategy for those who attended because they opened up conversations about flooding through indirect means. Using indirect, creative means is beneficial when addressing personal and emotional issues. It can make people more willing to talk than they might have been when directly asked about flooding issues.



*Canvey Way © Jack Delmonte*



## SPECIFIC OBJECTIVES

The aims of the artistic activities were to:

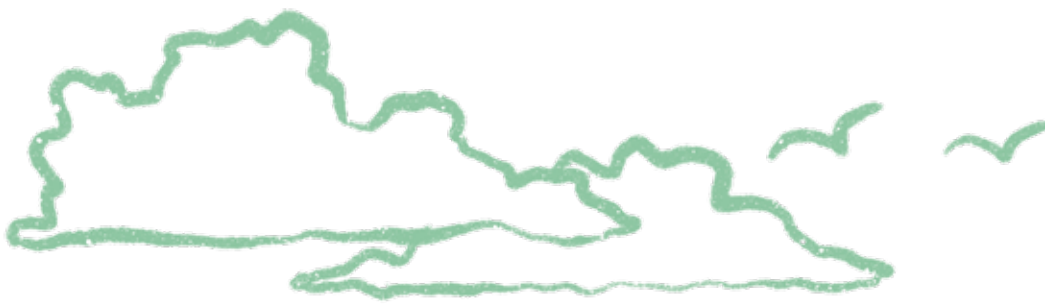
- raise awareness and keep the collective memory of flooding alive by sharing inhabitants' experiences
- share knowledge related to floods and good practices in reducing vulnerability to flooding
- reach a broad audience, which is rarely involved in actions to reduce vulnerability

The group La Folie Kilomètre organised creative workshops and a sensory walk along the Aulne. The creative workshops aimed to record what the inhabitants said and encourage them to share their experiences, stories and ideas. The workshop results allowed the project team to devise the walk route and the features along the walk and to put together a group of “accomplice” inhabitants who intervened during the walk.

As part of its activities, La Folie Kilomètre created three products that were used during the walks:

- a clickable map (used to support the walk)
- a model of the Aulne Valley (shown at the start of the route) and
- a historical frieze about the floods (shown along the route).

These creations were given to a local partner (EPAGA) for other uses.



## TARGET AUDIENCE

There were activities for:

- the general public
- children, with the participation of schools
- families with a link to the non-profit association Polysonnance



*Creative workshop by La Folie Kilomètre with Port-Launay school (Port-Launay, 4 March 2022, © Cerema)*



*Sensory walk with school children by La Folie Kilomètre (Châteaulin, 8 April 2022 © Cerema)*

## PLACE OF USE

The project team put each walk together based on the workshops with the public:

- children from two primary schools carried out three workshops for a walk in April 2022
- the wider public carried out five workshops (three of which were with people in a cultural and social centre) for three walks in April plus one in September during the Aulne festival

The walk started and ended at Port-Launay; the pedestrian stretch of the walk was in Châteaulin. A bus ride joined Port-Launay and Châteaulin.



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## DEVELOPMENT METHOD

The workshops lasted one to two hours, depending on the audience. They were adapted for around ten people or twenty schoolchildren. These workshops suggested several activities:

- discussion around a map of the flood risk prevention plan to create a clickable map using anecdotes
- making images, a creation or a collage
- simulating and anticipating behaviour during a flood
- telling stories about the river

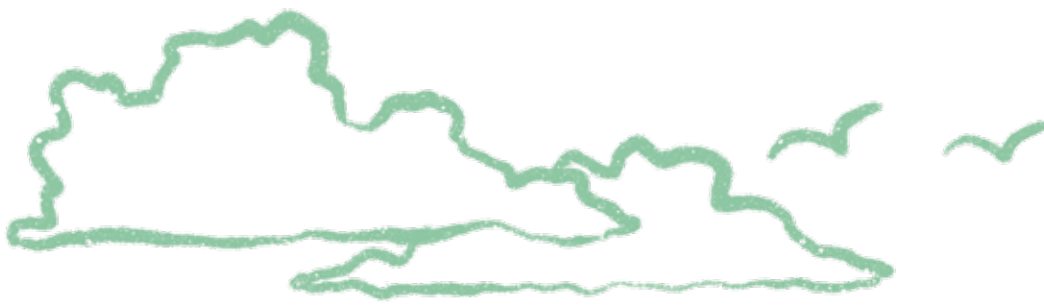


*Creative workshop by La Folie  
Kilomètre at Polysonnance  
(Châteaulin, 4 March 2022, ©  
Cerema)*

## RESULTS

The workshops brought together 244 people, 60 of whom were schoolchildren.

The sensory walk brought together 111 people, 60 of whom were schoolchildren.



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## EVALUATION

### **Level of public interest**

The schoolchildren and adults who attended were very interested. Some adults attended more than once. This commitment is proof of their interest.

### **What worked well?**

The workshops and walks allowed different generations to share their thoughts about flooding in the Aulne Valley, using a sensitive yet non-dramatic approach. Conversations during the workshops were stimulated by a map of their homes and the idea of sharing their memories from photographs or on the ground. This fun approach went down very well with the children. Ice-breaker activities from the entertainment world were effective in the workshops with adults. During the walk, the theatrical sketches were very popular.

### **Challenges faced**

Despite lots of advertising, the project team found it difficult to get residents to come to the public workshops.

### **Lessons learned**

The project team has taken two main lessons away from these activities:

- They confirmed that the public appreciates a sensitive and artistic approach to addressing the subject of floods.
- Linking up with a local organisation embedded in the territory and with its own network is vital for effectively communicating the proposed activities to the inhabitants.

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### **Was it worthwhile for this target audience?**

This method, particularly the sensory walk, has the benefit of reaching all age groups and overcoming social barriers.

### **Cost, schedule (implementation time etc)**

The involvement of three people from the La Folie Kilomètre group cost €24,000, excluding tax (VAT does not apply). All activities, preparation and administrative components were spread over a year. On Cerema's part, this took four months of full-time work.



*Sensory walk for all ages by La Folie Kilomètre  
(Châteaulin, 9 April 2022 © Cerema)*

# SLOW THE FLOW CAMPAIGN PLYMOUTH

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## SPECIFIC OBJECTIVES

- To raise awareness of flood issues with residents living at the top of the hill who do not feel they will flood
- To bridge the disconnect in flood knowledge between those residents and communities in low-lying areas

Both pilot areas in Plymouth have steep-sided streets, meaning that surface water run-off during heavy rainfall quickly collects in the low-lying areas at the bottom of the hill, sometimes causing flooding. Appreciative Inquiry results highlighted a definite and important disconnect between people who live at the top of the hill (who said they do not need to worry about flooding) and those who live at the bottom in the flood risk areas. The PCC team have been using the “Slow the Flow” campaign as their primary community engagement tool to bridge this gap.

## TARGET AUDIENCE

The team have principally targeted the diverse communities in Plymouth’s pilot areas – Trefusis Park / Lipson Vale and St Levan. However, the PCC team have also attended citywide events.

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## PLACE OF USE

Events attended include:

- public consultation events for the Trefusis Park and St Levan Park Flood Relief Schemes
- a Pop-up event in Trefusis Park
- the St Levan Park family fun day
- a Climate Change event in the city's main library
- a Fit and Fed session (part of a citywide holiday activity and food programme to support families with children who receive benefit-related free school meals)

The team have also included information in a newsletter distributed to the Trefusis Park / Lipson Vale and St Levan areas.



*Fit and Fed  
session ©  
Plymouth City  
Council*

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## DEVELOPMENT METHOD

With the help of graphics and ideas from the Slow the Flow charity, the PCC team have been spreading the message that wherever you live, you can make a difference.

The team have displayed the following:

- SuDS graphics (visit the Resources section of the PCC online Resilience Network: Bric Network - Dashboard ([plymouth.bric-network.com](http://plymouth.bric-network.com)) to show how urbanisation affects the speed and quantity of surface water run-off
- raindrop-shaped thought bubbles with suggested minor changes that can help, for example, not using the shower or washing machine during a storm or installing a water butt
- surface water flood risk map so that people can gain an understanding of problem areas within the city

PCC organised a mini water butt activity: children are encouraged to decorate an empty upturned plastic container with its lid still on but its bottom cut off. This container is hung up outside to catch rainwater.

PCC has also used a mini flood tank filled with tea-stained water as a conversation starter. People have been asked to guess why the water is so brown.

Newsletters have included the SuDS graphics, suggestions for slowing the flow and a “Make a Pledge to Slow the Flow” competition to win a water butt, sponsored by South West Water (for further details, see “Newsletters” section).



*Slow the Flow charity logo*



*Mini water butt activity and  
mini flood tank  
© Plymouth City Council*





## RESULTS

As a result of the above initiatives, the PCC team have spread the “Slow the Flow” message to the following number of people:

- Public consultation events – 159
- Other events – 285, including 143 children
- Newsletters – 8,535

## EVALUATION

“Slow the Flow” has been a successful community engagement tool to raise awareness of surface water flood risk within Plymouth.

The mini water butt activity has proved very popular. The PCC team have been delighted to receive photographs of the decorated versions “out in the wild”, capturing rainwater. It has also facilitated quality conversations with parents about slowing the flow while their children were busy with the task.

The colour of the water in the flood tank has drawn people to PCC’s exhibition stands and prompted some interesting discussions, also allowing the team to explain the dangers of flood water to children (and their parents).



*Plymouth City Council BRIC Team  
Slow the Flow event set up  
© Plymouth City Council*

# AUGMENTED REALITY RISLE VALLEY

## SPECIFIC OBJECTIVES

The goal was to create flood simulations by using immersive 3D at two test sites:

- Quai de la Ruelle in Pont-Audemer; and
- the Baquets district in Manneville-sur-Risle.

## TARGET AUDIENCE

The target audience was split into two categories:

- councillors and technicians
- general public: residents of these areas (with a significant number of people classed as vulnerable), but can also be used for everyone

## PLACE OF USE

The team introduced the tool to the Pont-Audemer and Manneville-sur-Risle councillors on 22 November 2022 and later at a public meeting in the Baquets quarter on 7 January 2023.



*Presentation of the BRIC project achievements to the elected representatives of Manneville-sur-Risle (left with the virtual reality helmet) and Pont-Audemer (right) (© Cerema)*

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## DEVELOPMENT METHOD

The project team outsourced the web development of the virtual reality app to the company Marelle Studio. The app will be hosted on the BRIC project site.

The tool can be used with a virtual reality headset or a smartphone with a cardboard projector. Virtual reality makes it possible to see the waters rising at a given location in the Baquets district or the Quai de la Ruelle in Pont-Audemer. Users can view two scenarios:

1. the historic flood of 2001
2. a very unusual and severe flood (probability of 1/500)

A welcome portal lets the user choose the site and scenario. The simulation allows the user to test the app on the relevant site and move around while seeing the waters rising. They can also visualise what happens on either site and move around the virtual district from viewpoint to viewpoint. The user is immersed in a virtual atmosphere, including details of the buildings and trees in 3D models, and ambient sounds.



*Screenshots of the virtual reality app during a simulation (© Cerema)*

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## EVALUATION

### **Level of public interest**

The councillors showed high levels of interest when they could make a link with features of the local area, less so when they could not.

### **What worked well?**

Above all, testing the headset together with projections on the table to be able to explain in real-time, and the most realistic representation of the areas studied.

### **Challenges faced**

The main issue was finding the right angle for the tool to be seen as beneficial.

### **Lessons learned**

Virtual reality is a tool that, like any tool, depends on the context in which it is applied.

### **Was it worthwhile for this target audience?**

Using this tool was beneficial for the councillors. It has sparked the desire to have conversations with the public, which took place in January 2023 and aimed to go beyond the tool alone (drawing up a Communal Safeguard plan, for instance).

### **Cost, schedule (implementation time, etc.)**

The app took seven months to develop and cost €25,000.

# PROVISION OF SPECIFIC TOOLS

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# HOMEOWNER GUIDE WEYMOUTH

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## SPECIFIC OBJECTIVES

The objective of creating a householder guide to flooding in Weymouth was to provide residents with an easy-to-digest guide about how to prepare for, respond to and recover from flooding. In England, there are many places online to access flood resilience guidance, but nothing tailored to specific areas. The guide is a simple booklet with key information and links to available resources.

## TARGET AUDIENCE

The booklet was aimed at residents and businesses in the BRIC project area in Weymouth. The project team found that people respond better when a guide has information specific to their localised area. The vicinity has high levels of deprivation and a high turnover of people. Therefore, the guide needed to be simple to use, without jargon.



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## DEVELOPMENT METHOD

The production of the householder guide has been time-consuming and challenging but productive. The process was:

1. Collect existing resources and previously produced guides
2. Collect community feedback on the proposed content of the guide through online and in-person surveys
3. Collect stakeholder feedback on proposed content, tone, layout and distribution through an in-person workshop and email exchanges
4. Analyse the desired content, tone, layout and distribution
5. Write the first draft of the content and send it to stakeholders for consultation and comment
6. Work with the graphic designer on the final draft
7. Send to stakeholders for approval
8. Print and distribute to the community

The project team wanted to ensure that the community and stakeholders got a say in the guide's content. The challenge was to include all relevant information while keeping it simple and concise. It worked well by getting community feedback and then obtaining stakeholder input. Stakeholders included the Environment Agency, water companies, lead local flood authorities, and town councils.



*Stakeholder workshop to collect feedback on content, style, layout, and distribution of the guide.*  
© Dorset Coast Forum



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## RESULTS

The Householder Guide has just been issued. The results will be published on the Web Platform Resilience Network.

## EVALUATION

The level of interest has been high, with very few negative comments from stakeholders and residents.

The main costs of the tool include staffing, graphic design, and printing and distribution. These should not be underestimated.

### **Challenges:**

- The time it takes to develop a resource like this should not be underestimated. The collating of information and editing takes a long time, particularly when waiting for feedback from multiple stakeholders.
- Including the relevant information while keeping the document short and straightforward is difficult. The editing should include people from various backgrounds and expertise, including technical flood risk, resilience, and communication.
- It should be agreed on who will meet the ongoing printing and distribution costs beyond the project timescale. This requirement is particularly true for transient areas with a high turnover of residents. New guides can be distributed through community points, landlords, and housing associations.

This tool is an effective way to communicate technical information simply. It provides communities access to the tools and resources already available to them.



# FLOOD SAFETY PLANS RISLE VALLEY

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## SPECIFIC OBJECTIVES

The aim of the flood safety plan, modelled on a fire evacuation plan, is to depict, on a plan of the building and to the scale of a city block, the instructions to be followed to ensure the safety of a building's residents in the event of a flood (safe havens, network outage, evacuation routes, etc.).

## TARGET AUDIENCE

Building residents.

## PLACE OF USE

The project team presented the finished plans to those concerned in January 2023 in Pont-Audemer, and then to the councillors, technicians and social housing landlords.



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## DEVELOPMENT METHOD

Cerema decided on a method of drawing up the plans and called for tenders to find a service provider (Osgapi) responsible for defining and applying this method on the pilot site at Pont-Audemer. The service consisted of two stages:

- designing mock-ups
- creating flood safety plans for both inside and outside for two collective buildings and one individual building

Cerema also contacted the territory's two social housing landlords. Siloge agreed to be part of the project.

On 23 November 2022, a steering committee made it possible to discuss the subject with Osgapi, Siloge, councillors and technicians responsible for the environment, and those who cover old age and disability.

## RESULTS

**Type of audience:** councillors and technicians, social housing landlords and social housing tenants

**Number of people:** five councillors and technicians, one landlord and three social housing tenants

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## EVALUATION

### **Level of public interest**

There was strong interest from the landlord and the community. In both cases, the subject had not been addressed before, and people did not know how to create a flood safety plan.

### **What worked well?**

The components that were vital to its success were:

- finding an interested landlord
- relying on a consulting firm with experience in dealing with assessing the vulnerability to flooding

### **Challenges faced**

No flood safety plan existed, so it was necessary to research in advance to guide the work.

On another note, some tenants refused the visits.

### **Lessons learned**

The flood safety plan is an innovative tool that is worth further investigation. There are many questions, but not all can be answered due to the project's duration.

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**Was it worthwhile for this target audience?**

Yes, the community, in particular would have liked to continue discussing the subject. This interest gave the landlords pointers to continue working on the subject of floods.

**Cost, schedule (implementation time, etc.)**

The time from writing the specifications to the final presentation was 12 months. It cost 37,200 euros (all taxes included).

## SPECIFIC OBJECTIVES

- To increase flood preparedness and flood risk awareness within the wider community.
- To collaborate and build relationships with stakeholders and communities.

Appreciative Inquiry and public consultation surveys in the Plymouth pilot indicated that flood preparedness scores were low in both the Trefusis Park / Lipson Vale and St Levan areas. Therefore, the PCC team decided it needed to raise flood risk awareness on a whole community scale, not just with those who had volunteered to be part of flood action groups. Due to COVID-19 restrictions preventing face-to-face events and the team finding that online events were unsuccessful, they created newsletters.

## TARGET AUDIENCE AND PLACE OF USE

Newsletters have been sent to houses within the 500m public consultation zones around Trefusis Park and St Levan Park. Copies have also been made available at various events throughout the city.

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## DEVELOPMENT METHOD

The newsletters have allowed the PCC BRIC team to collaborate and build relationships with stakeholders by inviting them to submit articles. The following groups, projects and organisations have been included in the publications:

- key risk management agencies – the Environment Agency and South West Water
- internal PCC projects - Community Forest and Green Minds
- flood action groups from other parts of the city and the Neighbourhood Watch Team in St Levan

The newsletters have also enabled PCC to continue to spread its “Slow the Flow” message through the inclusion of graphics to show how urbanisation affects surface water run-off and suggestions of simple ways in which people can help to slow the flow.

In addition, the newsletters have included a “Make a Pledge to Slow the Flow” competition, sponsored by South West Water, who donated water butts for the winners.

Full copies of the newsletters can be found in the Resources section of the PCC online Resilience Network: Bric Network - Dashboard ([plymouth.bric-network.com](http://plymouth.bric-network.com))

## BUILDING FLOOD RESILIENCE IN COMMUNITIES

Supporting our local communities to plan ahead, act quickly and recover well



We are BRIC (Building Resilience in Communities), a two-year EU funded project led by Plymouth City Council. You might have met us at one of our St Levan Park Public Consultation events or seen us chatting to local people in your neighbourhood. We are working with local communities such as yours who are at risk of flooding.

Many people think that their homes won't flood, and if you live at the top of a hill that might be the case, however wherever you live you could be affected by flooding. Consider the impact if your route to work, school, the shops or doctors flooded.

Whatever your situation we're all in this together and the BRIC team are here to support your community to become more flood aware. While you might not be directly affected by flooding, having a better understanding of what to do in a flood emergency could help your neighbours, a good friend or family member act quickly and recover well.

If you'd like to know more about how you can help your community by becoming a local Flood Warden, a member of a Flood Action Group or simply attending a flood awareness session then why not drop Sarah, Liza and Kim a quick email to [BRIC@plymouth.gov.uk](mailto:BRIC@plymouth.gov.uk).

This BRIC edition contains articles from Plymouth City Council's Engineering Design Team, the Environment Agency and South West Water. There are useful hints and tips about how you could help 'slow the flow', what shouldn't be put down your loo and an update on the St Levan Park Flood Relief Scheme Public Consultation.

Finally, don't forget to enter our Slow the Flow competition to win a garden water butt or a tree and be recognised for your efforts by being awarded a digital badge.



*Newsletter excerpt  
© Plymouth City Council*

### Competition (sponsored by South West Water)

The best five 'slow the flow' suggestions will receive a free garden water butt. The competition is open to everyone including your local school – so please get involved!

We want to spread the 'slow the flow' message, so we will be awarding everyone who makes a pledge a digital badge that you can share with your friends and family on social media.

So once you've chosen your pledge, please share it with us by emailing [bric@plymouth.gov.uk](mailto:bric@plymouth.gov.uk)



*Slow the Flow competition details in the newsletter  
© Plymouth City Council*

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## RESULTS

Over 8,500 homes within Plymouth's two pilot areas have received two newsletter editions.

## EVALUATION

The PCC BRIC team considers newsletters a very effective tool for raising flood risk awareness on a whole community basis. They are one of the only ways to connect with community members who do not wish to attend events or are unable to do so.

Whilst only a handful of entries have been received for the make a pledge competition, they have been very thoughtful ones, which will now be used to further promote the initiative as engagement continues.



# ONLINE ENGAGEMENT TOOLS

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## SPECIFIC OBJECTIVES

A story map is a digital tool in the form of a narrative, aiming to tell a story using interactive content that includes text, maps, images and photographs. Considering how easy it is to use and its possibilities in representing and covering subjects, this tool is used in many fields (science, geography, town planning, sociology, etc.).

Because of this, story maps have become one of the awareness-raising solutions used to support the resilience networks within the framework of the BRIC partnership. To do this and reach the widest audience, especially those considered vulnerable, the content of stories should be varied, simple and educational.

For some pilot sites, users can add content to the story maps with photos or information during potential flooding episodes.

Because of their diversity, the story maps aim to meet several objectives linked to the project's expectations:

- presenting the territories that are involved in the process through information on the locations and environmental characteristics
- offering the resilience communities interactive support in using social innovation tools
- an information and outreach portal that can be used in workshops, seminars and artistic events



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## **TARGET AUDIENCE**

Story maps can be used for the general public without separating people into categories. Nevertheless, although putting together the story maps relies on technical means, their content was devised to raise awareness, and their educational value is a bonus.

## **PLACE OF USE**

Since they are a digital tool, story maps can be accessed online via the pilot site resilience networks but also via the websites of some of the BRIC partners.

## **DEVELOPMENT METHOD**

The story maps were developed in collaboration with Ogoxe and designed using the Esri (ArcGIS) tool. From the start of the project, a co-construction process (Ogoxe and a pilot site representative) was set up to define a methodology, a framework for distributing tasks and a delivery schedule. In line with the co-construction approach, several workshops took place to share and structure the content and design the page format. Effective communication between the two parties was vital. The technical support from Ogoxe was also beneficial for the partners who needed help understanding the ArcGIS tool.

Additional information is included in chapter 4 (Webmap / WebApp).

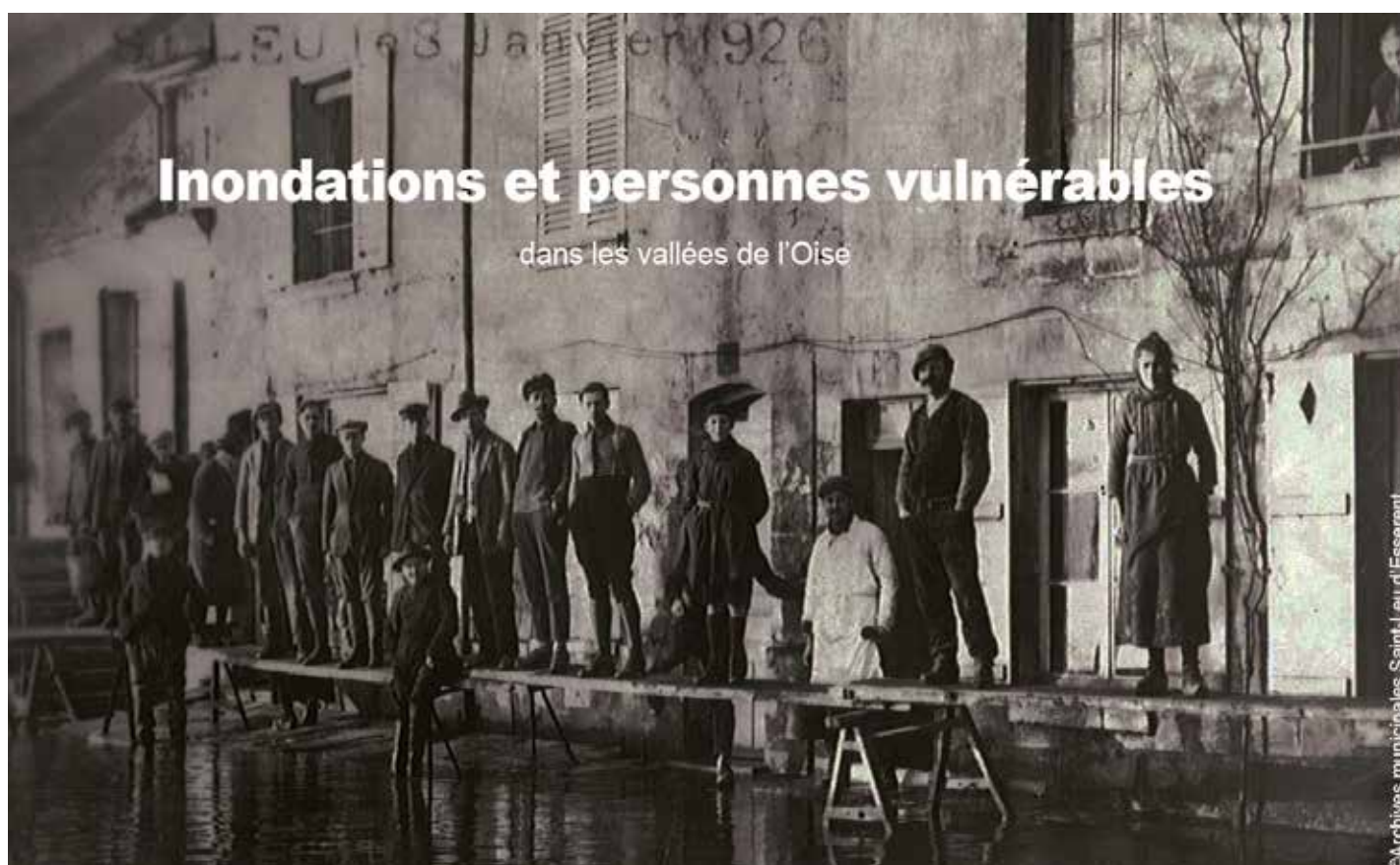
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## RESULTS

An example is the story map of the Oise Valleys pilot site:

<https://vallee-oise.bric-network.com/partner-app/storymap>

Composed of three parts, this storymap allows the Internet user to revisit the industrial past of the Oise valleys by considering the cohabitation of human and material issues with potential flood risks. Secondly, it allows users to learn more about the methodology for defining vulnerable populations by providing access to interactive maps. Finally, a third part offers connected users the opportunity to increase their knowledge of prevention, control and resilience to flood risks.



*Welcome page to the Oise Valleys story map © Oise-les-Vallées*

## EVALUATION

### What worked well?

To provide feedback on the use of this tool, the project team must review its roll-out to identify the features that worked well.

### Lessons learned

Several lessons can be learned from the experience of designing a story map, including the need to:

- define a theme with enough resources to implement it
- simplify the ideas and the subjects covered to make reading easier and encourage people to want to reach the end of the page
- adapt the content so as not to bog down the pages
- offer users the chance to contribute to the process of involving citizens



*Extract from the 'are we vulnerable?' section from the Oise Valleys story map*  
© Oise-les-Vallées

# PODCASTS AUTHIE VALLEY

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## SPECIFIC OBJECTIVES

The podcasts are intended to be a digital channel for information and raising awareness. They are a tool that is easy to use and, since the podcasts only need to be listened to, they can reach a broad audience.

## TARGET AUDIENCE

The podcasts developed by the CPIE Canche and Authie Valleys are aimed at the general public.

## DEVELOPMENT METHOD

The first step when producing a podcast is to define the subject to be covered and sketch the outline, then select the voices appearing on the recording. The podcast can be an interview in which one or several people are interviewed, and then the listener will hear questions and answers. Alternatively, it can be a report or documentary-type podcast in which one or more voices address the topic.



*Podcast recorded by the CPIE about  
the Authie Valley territory  
© CPIE Authie and Canche Valleys*

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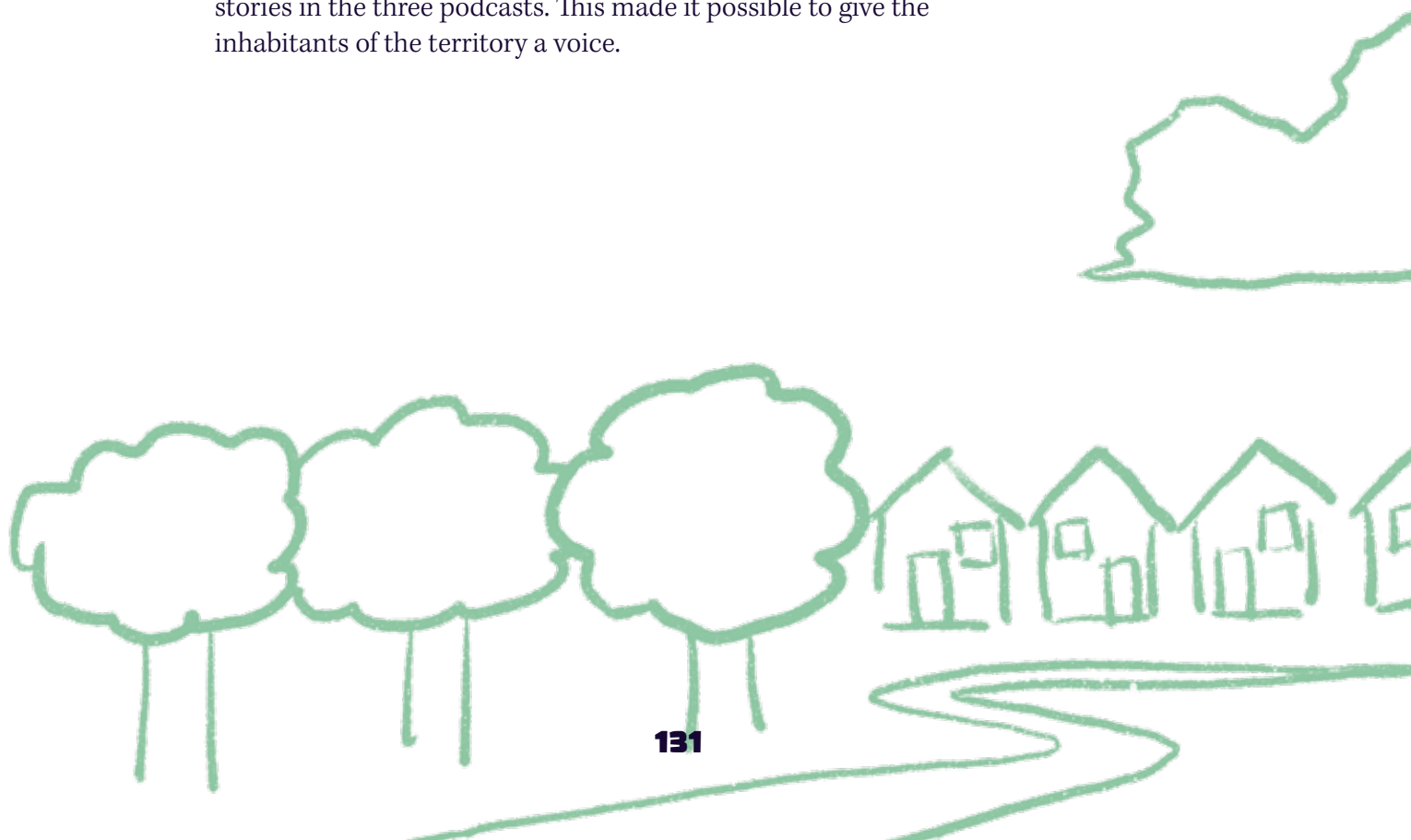
The CPIE made two series of podcasts:

### **First Series**

The first series, Flooding and Adaptation, is in four parts. It involves meeting residents to hear their stories about their experiences of flooding. It consists of edited interviews so only the answers can be heard, not the questions.

### **Second Series**

The second series takes a new approach to flooding, examining the impact on people's leisure and recreational activities. It consists of three podcasts, also carried out and recorded as interviews. This series gives an account of the extensive impact of floods, looking even further than the dramatic things that can happen to houses, furniture or even the victims' health. Indeed, people who do not live in a flood zone and are less worried about these issues might find that their leisure activities, such as fishing, hiking or canoeing, are affected. People who do these activities as hobbies tell their stories in the three podcasts. This made it possible to give the inhabitants of the territory a voice.



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## EVALUATION

### **Level of public interest**

The seven podcasts posted amassed over 200 views on YouTube, representing approximately 30 views per podcast. Apart from the figures, getting any other feedback on whether the general public was interested in these podcasts is not possible.

### **Challenges faced**

The logistics of recording and editing were the biggest challenge of using this tool. It was also a challenge to make contact with the valley's inhabitants and persuade them to participate in the podcasts. The project team needed to reassure those contacted about why their participation was significant. People were frightened and intimidated by the thought of broadcasting their voices on public platforms.

### **Lessons learned**

Several lessons can be learned from this experience:

- Think ahead about an evaluation tool to assess the impact of the podcasts and the interest they arouse in a range of listeners.
- Use short formats of no more than 20 minutes to ensure listeners' attention.
- Take the time beforehand to talk to the participants who will feature in the podcast to explain the point of this tool, what is expected from it and also to reassure them.



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### **Was it worthwhile for this target audience?**

Developing these podcasts was a good way of meeting residents and getting them to think about climate change and flooding. Creating this tool benefitted the CPIE, the organiser, and the interviewees. For the people who will listen to these podcasts, however many or few, the stories and information gathered will represent a significant benefit in terms of awareness and knowledge.



# 4. SUSTAINING COMMUNITY FLOOD RESILIENCE

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# INTRODUCTION

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The BRIC project partnership has created and utilised many social innovation tools to help build resilience in communities:

## FLOOD ACTION GROUPS AND FLOOD WARDENS

- Flood action group creation
- Flood warden recruitment
- Community-led mapping

## TRAINING

- BRIC Online training modules
- Workshops
- Digital badges

## COMMUNITY FLOOD WARNING SYSTEMS

- Community alert and information points (Totems)
- Hydro and weather Stations
- Personalised alert devices

## RESILIENCE NETWORKS

- Resilience network model
- Model Charter Agreement
- Social enterprise financing options

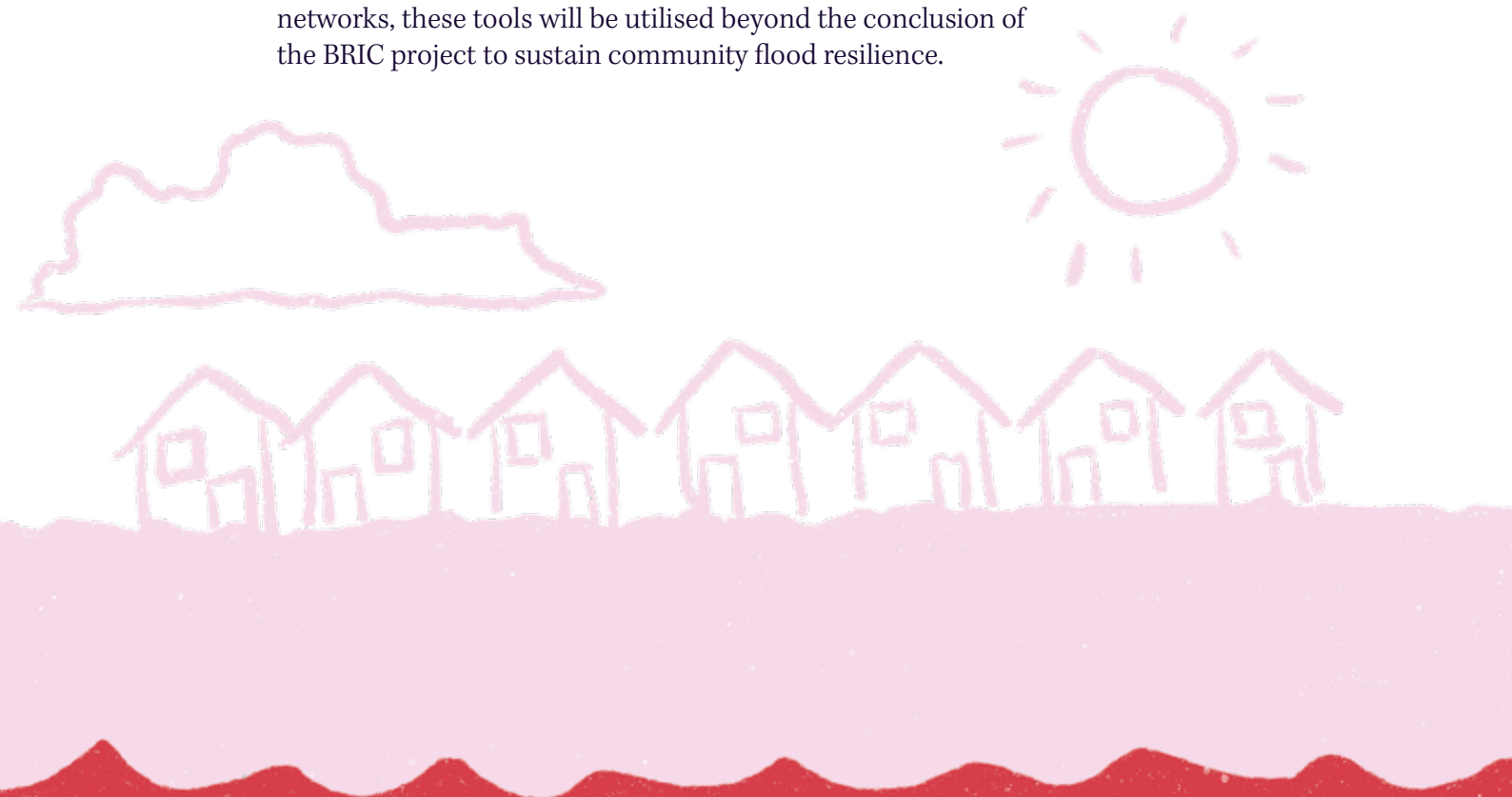
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## BRIC WEB PLATFORM

- Hosted applications :
  - » Page BuilderApp
  - » TrainingApp
  - » SurveyApp
  - » Comments, Resources, FAQs
- Partner applications :
  - » StoryMap
  - » WebMap/WebApp – interactive maps, data collection apps
  - » OgoxeApp
  - » Flood Online Reporting Tool (FORT)

This chapter provides details on each social innovation tool, including the methods adopted and best practices for replicating such tools.

Through the creation of flood action groups and resilience networks, these tools will be utilised beyond the conclusion of the BRIC project to sustain community flood resilience.



# FLOOD ACTION GROUPS / FLOOD WARDENS

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## FLOOD ACTION GROUPS

Flood action groups comprise people who have been flooded or are at risk of flooding and who volunteer their time as a representative voice for their community. They work on behalf of their wider community to find ways of reducing flood risk by working in partnership with flood risk management authorities (RMAs). Through flood action groups, communities can:

- address their concerns about flood risk issues, for example, underperforming or malfunctioning flood risk assets
- influence procedures and maintenance schedules of risk assets
- raise awareness of flood risk in the community
- provide input into and co-create potential flood mitigation schemes with local knowledge and expertise
- create community emergency and resilience plans to implement in the event of a flood

Forming a flood action group can be an intensive and lengthy process. It is important to remember that flooded people will not necessarily have the time to commit to a group, nor may they wish to partake. An excellent first step is to identify existing community groups and individuals directly impacted by flooding and begin to understand the community's appetite for a flood action group. For example, there may be a push for flood risk mitigation schemes or a desire to enter discussions with RMAs about future flood risk.



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A crucial role of a flood action group is to represent its wider community's views and to work through their concerns with RMAs using a bottom-up approach. For this to happen effectively, communication with the broader community must take place. A flood action group needs to gather information from residents, including their experience of flooding, what they believe to be the critical flood risk issues and potential solutions collected from local and historical knowledge. Any previous experience working with RMAs is also beneficial.

A flood action group needs to articulate the flood risk issues facing the community. Through group meetings and discussions, the group can develop a written understanding of the flood risks and issues of concern.

The group should identify the relevant flood RMAs. In England, those agencies may include the county council or unitary authority as the Lead Local Flood Authority (LLFA), local highways department, water companies, and the Environment Agency. In France, they may include departmental institutions of the state and local authorities, or the water agency, network managers, basin syndicates, etc.

The flood action group should develop an understanding of the roles and responsibilities of each relevant RMA. They can also begin to understand how funding works and how budgets are allocated, so they know the capabilities and limits of each agency's role.

At this stage, the group may lead multi-agency meetings to work through the identified issues and develop a flood action plan.



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Alongside these meetings, the group may undertake other proactive work in the community. For example:

- developing an emergency plan or a response plan
- creating literature to educate the community about its flood risk issues. Topics might include:
  - planning and development
  - riparian ownership and management
  - insurance
  - mapping opportunities for natural flood management

The flood action group may require support as they undertake a proactive work programme. Because of the relationships built during the multi-agency meetings, RMAs are often willing to assist them.

Some key points to note about creating and working with flood action groups are:

- Keep things simple – spare time is short, especially for those who have been flooded.
- Multi-agency meetings are intended to build trusting relationships between the RMAs and the community – avoid contentious language and blame.
- Flood action groups represent their community, so frequent communication between the group and the wider community is necessary.
- Flood action groups do not necessarily achieve overnight success – group members must understand that change takes time.
- Every voice matters – ensure that everybody has a chance to speak and nobody is left out.
- Use an independent facilitator such as the National Flood Forum to broker the relationship between the RMAs and the flood action group – this should allay any fears of bias or mistrust by the group towards the RMAs.



*A flood action group  
multi-agency meeting*  
© National Flood Forum



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### **MINI CASE STUDY:**

A person in Kent, who has been fighting for a solution to their flooding for over 15 years and suffering mental health impacts of flooding, has found that being part of a flood action group has allowed them to share their pain and experiences. The group has provided a path to potential solutions, leading to a scheme that has significantly reduced the impact of flooding in their area. Whilst limited flooding issues have continued, the success of the flood action group has motivated its members to continue fighting for further change and improvements.



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## FLOOD WARDENS

One of the key outcomes of the Weymouth pilot site has been creating a flood warden group.

To recruit volunteers, the project team used social media, local news platforms, leaflet mail drops and drop-in events at local community points. Once a few volunteers had been found, the team organised an evening meeting with them to discuss the flood warden role.

The eight flood wardens have gradually become well-connected with the RMAs. The group acts on behalf of the interests of other residents, ensuring that all RMAs work together to reduce flood risk in the area. The volunteers now recruit other flood wardens themselves, ensuring the group's sustainability. The Environment Agency is providing free training to the wardens.



*Flood warden training – 19 January 2023*  
© Dorset Coast Forum

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The wardens' roles are:

- assisting the creation and maintenance of the Community Flood Plan with the Environment Agency and Weymouth Town Council
- monitoring the condition of local drains, brooks and other watercourses, and reporting any issues to the appropriate agency
- distributing flood-related information to the public
- encouraging individuals to sign up for the Environment Agency's free flood warning service
- visiting people at risk to ensure they have received flood warnings
- calling for assistance on behalf of people struggling to carry out essential actions to safeguard themselves or their property
- obtaining local knowledge and information about the latest flood situation
- holding public meetings to discuss flooding issues and to determine RMA responsibilities
- liaising with RMAs about local conditions and needs
- noting and reporting local flood events
- setting up local monitoring patrols

The outcomes of the flood warden group have been:

- a more resilient and prepared community
- better links between the community and RMAs, including Dorset Council, Wessex Water, and the Environment Agency
- wider benefits, such as action on litter and fly-tipping
- increased well-being of the volunteers
- increased trust in government

---

Some points to note about recruiting flood wardens are:

- Try to recruit flood wardens from various areas, both within and outside the at-risk areas. Flood wardens at risk are likely to be too busy protecting their own property to assist others!
- Maintaining regular contact with flood wardens is key to sustaining their interest.
- Find a group coordinator to ensure the group becomes self-sufficient.
- Encourage flood wardens to recruit more volunteers themselves to grow the group.

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## COMMUNITY-LED MAPPING PILOT

The community-led mapping pilot has been a key part of the work undertaken in the Kent pilot site. The pilot aimed to:

- allow the community to work in collaboration with RMAs
- keep a current digital record of flood risk assets and problematic locations
- gather local evidence that can be used proactively to help reduce the risk of flooding
- identify what the community wished to include in the map
- train community members in the use of GIS software to update and maintain the map

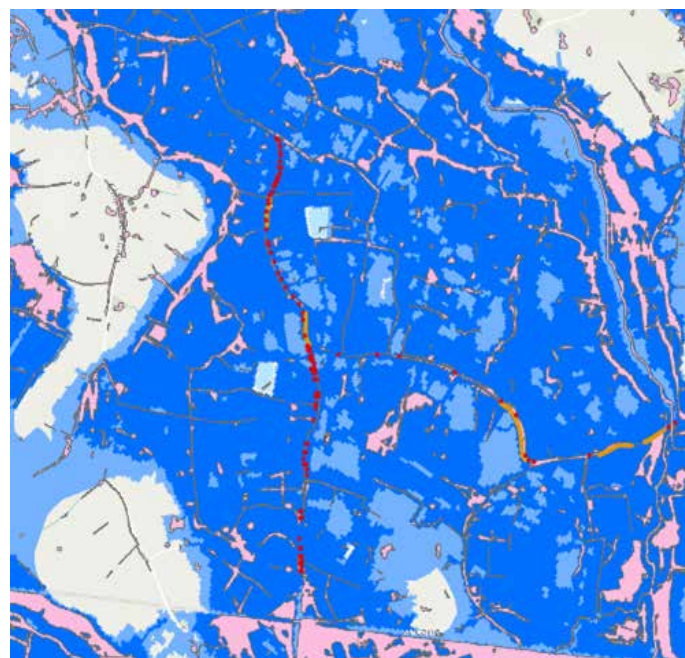


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The pilot took place in a small village in Kent that has flooded several times. The village's flood action group and other residents kept a collection of detailed paper maps with hand-drawn information and data that go back several decades. These maps contain vast amounts of information, including about the network of drainage ditches in the village and the locations of permissive road closures in the event of a flood.



*The work started with paper maps that the Flood Action Group already had.*  
© National Flood Forum



*The Flood Action Group identified the points that needed to be digitised.*  
© National Flood Forum

This data has proved beneficial when managing local flood risk issues. For example, by checking the information against that held by the local authority, the flood action group noted that the council's highways department only had records of seven drains in one street when at least 14 existed. This omission meant that some had been missed from cleaning and maintenance schedules, causing issues with surface water flooding.

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Often, there was only one paper copy of each map, so by digitising the information, it could be preserved and accessed by all members of the flood action group and the RMAs.

Initially, the flood action group members were concerned about the map creation technology, but they were all keen to get involved in collecting data. For example, each member walked along their street and marked the locations of all drains on a paper map.

The flood action group hosted a multi-agency meeting with representatives from the LLFA, the council's highways department, the Internal Drainage Board and the Environment Agency, where ideas for the map that would benefit the RMAs and the community were shared.

The digitised map includes the following:

- unregistered ponds that may contribute to flood risk
- locations of drainage ditches that are often blocked
- locations of permissive road closures
- other flood risk assets
- the Environment Agency's coastal, fluvial and surface water flood risk zones

The flood action group has received a demonstration of the software used (ArcGIS). However, further training is required to ensure that the group can maintain and update the map in the future.



# TRAINING

## BRIC ONLINE TRAINING MODULES

Thames21 and the National Flood Forum have co-created a series of online training modules. This training is aimed at 'Flood Resilience Champions', community members who may be flood wardens, part of a flood action group or a member of a resilience network.

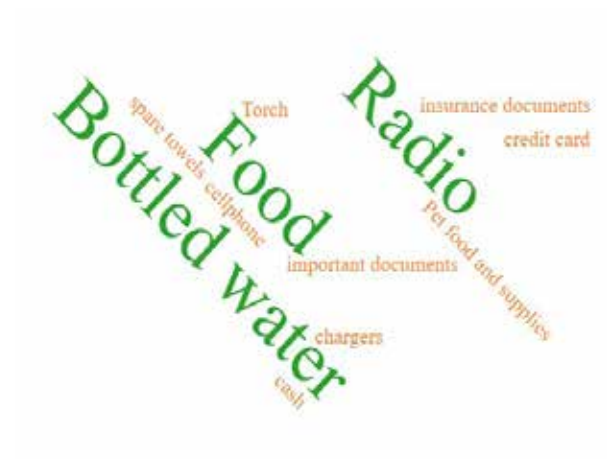
The team used their experience in leading training courses and volunteer programmes and resources from previous training programmes to create training modules about 'Flood and Environmental Awareness', 'Emergency Response and Flood Resilience', and 'Group Leadership and Facilitation Skills'.

OgoXe has developed a training app on BRIC's web platform. The app contains numerous user-friendly functions to allow the creation of interactive and engaging training, including:

- adding images and diagrams
- embedding videos from external sources
- multiple-choice questions
- long answer questions
- order rankings



*Trainees can type their ideas in the box*



*Responses are stored, and a word cloud can be generated*

---

The modules have been published and shared amongst resilience network members for testing. Community members have been asked to consider whether the language was too technical, the content was relevant and helpful, and whether the length of each module was appropriate. The project partners will then improve content based on the feedback received.

As stated above, the training is hosted online, which could limit its accessibility. However, where required, the project teams could deliver the training in person.

Each project partner will adapt the training content to ensure that it is relevant for their country or region.

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## WORKSHOPS

Project partners have used workshops in England and France to engage with RMAs and communities, including flood action groups.

Through contact with Cornwall Community Flood Forum, PCC obtained the resources to run Home & Dry workshops in Plymouth. The University of Exeter and two theatre performance groups who worked with communities in Cornwall and Kenya created the workshop. The results of their research culminated in creating a two-hour workshop designed to give participants an idea of the decisions people need to make to protect themselves from flooding. The workshop has proven to be a valuable resource. Not only does it raise awareness, promote discussion, and encourage questions, but it is also a great team-building exercise.



*Home and Dry Workshop with  
flood action group, Plymouth  
© Plymouth City Council*





In Weymouth, DCF held several multi-agency workshops to collect feedback about their Householder Guide to Flooding. DCF found the workshops useful for partnership work. The team also found that the workshops worked best when allowing time for networking to promote discussion and collaboration between the agencies.

In Authie, CPIE and Cerema held awareness-raising workshops. These workshops aimed to train and inform the community about flood risk in their area and how to prepare for it. The workshops were highly participative and were ideal for collecting stories and experiences through discussions and photographs. The project team held a further workshop to discuss the hydraulic functions of the catchment and the processes that lead to flooding. This workshop aimed to exchange views between the community and an RMA. Overall, the team found the workshops helpful in educating and training the public on the risks of flooding and allowing the community to communicate with RMAs. The workshops also played a part in enabling a flood action group to be formed.

*Awareness Workshop,  
Authie Valley,  
© CPIE Authie and Canche  
Valleys*



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## DIGITAL BADGES

While the BRIC training modules were being developed, PCC decided to trial an interim approach. They created a Flood Awareness digital badge in collaboration with Badge Nation and The Real Ideas Organisation.

Digital badges are designed to motivate learning and ambition, recognising the actions individuals accomplish outside of formal accredited qualifications. The team wrote the badge content using the Cities of Learning badge standard, which City and Guilds and The Royal Society for Arts, Manufacturers and Commerce endorse.

The earning criteria for the Flood Awareness badge are that the recipient has:

- taken part in an information session that explains why their local area is at risk of flooding
- learned about some practical measures they could take to protect their homes and communities from flooding
- received information about how they can get involved with flood risk resilience in their area and learned how climate change can increase the risk of flooding

By the end of November 2022, PCC had issued 16 digital badges: 56% had been accepted and 33% of recipients had shared their badges across social media channels. One paper certificate was issued in recognition of the help a schoolboy gave to the team as they set up for one of their events (see mini case study).

Digital Badges can also be obtained through the BRIC web platform after completing online training modules.



*Flood Awareness Digital Badge,  
© Plymouth City Council*

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### **MINI CASE STUDY:**

X scooted over to the PCC BRIC Team at around 9:30am and helped put up a large gazebo and set up chairs and a table. He then assisted the colouring wall artist in carrying his equipment from his car into the park (this was no small task) and then helped him set up too.

X was an absolute joy to have around. He was cheerful and chatty and showed a genuine interest in what the team was doing in the park, raising awareness of flooding in the St Levan area. He disappeared around lunchtime. As the team were unable to thank him properly, they contacted the school to award him a Certificate.

The team met X again at another event. He said how happy and surprised he had been to get the award. This recognition had boosted his confidence.

# PROVIDING COMMUNITY FLOOD INFORMATION AND WARNING SYSTEMS

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To effectively manage the risks associated with floods, it is vital to have robust information systems in place. These systems can provide critical information to protect people and property. Social networking tools can also be implemented to help communities stay informed and connected during flood events. These tools can play a crucial role in strengthening the resilience of vulnerable populations and allowing them to better prepare for and cope with floods. Such tools are:

- **community information points (Ogoxe Totems)**
- **personal device for flood resilience (Ogoxe Smart Device)**
- **hydro and weather stations, and**
- **IoT data and content manager (OgoxeApp)**



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## COMMUNITY INFORMATION POINTS (OGOXE TOTEMS)

The Ogoxe Totem is an innovation protected by Intellectual Property. It is a connected object (IoT) that provides information and warning for populations linked to various risks, especially floods. The Ogoxe Totem serves as an educational and awareness-raising resource, the objectives of which are to raise public awareness of the dangers of flooding and to develop sensitivity to water-related risks. It will be used by elected officials and risk managers will use it to disseminate important information that is easily accessible to the public.

The Totem is equipped with interactive screens that can be configured via the OgoxeApp to display a multitude of information. This can be based on information provided by elected officials and risk managers or directly collected from sensors such as weather and hydrological stations. The Totem will transmit information about flooding in the community, areas at risk, emergency plans such as evacuation routes, and real-time warnings, which can be viewed and configured using the OgoxeApp IoT manager (see further details below).

For the BRIC project, Ogoxe provides Totems on four pilot sites: Oise, Pont Audemer, Weymouth, and Canvey Island. The project partners and their communities will test the Totems, with communities involved in their design and development to ensure that they can provide valuable information and aid to the public during emergencies.

Ogoxe has developed two types of Totems, a tower and a screen. The primary purpose of the Ogoxe Totem screen is to spread awareness in public domains, while the main purpose of the Totem tower is to provide information and alerts during emergencies in remote areas.

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## OGOXE TOTEM TOWER

The Ogoxe Totem tower is designed to be installed in hard-to-reach places and remote areas to provide real-time alerts and information about flood danger. It is resilient, robust and autonomous. It does not require connection to electricity (it is solar-powered) nor cabled telecommunication to transmit information. It provides customizable alerts and indications to protect the public and has various uses, including:

- providing real-time danger levels
- light and sound signals
- battery charge status
- displaying text, image and video content
- displaying data gathered from meteorological and hydrological stations

The whole structure and internal electrical components of the Ogoxe Totem tower are weatherproof. The tower can be placed anywhere without fear of damage by water or humidity. It is designed to be resilient and to transmit alerts even when telecommunications networks are not functioning. Additionally, it is autonomous in terms of energy and viewable 24/7. Ogoxe can tailor the functionalities and characteristics of the Totem based on the environmental risks in the area and requests from the BRIC partners.



*(A) the designer prototype of the Ogoxe Totem tower with external wood cladding;  
(B) an image of the installed Ogoxe Totem tower in the field*  
© OgoXe

The external cladding of the Totem tower can serve multiple daily purposes for the community. For example, it can be used as a first aid station, bike fix station, book exchange booth, herbs or plant station, or mailbox. The materials and design of the external cladding are highly customizable to fit any environmental setting. This flexibility makes the Ogoxe Totem tower a versatile and reliable device for providing critical information during floods and a valuable community resource.

The following are examples of potential locations for the BRIC Ogoxe Totem Tower:



*Ogoxe Totem tower external cladding community design perspectives*  
© OgoXe



*Potential installation sites in Oise for Ogoxe Totem Towers, simulated renderings:*  
(A) Creil – in the middle of the place Jean Anciant close to the primary school Danielle Mitterrand  
(B) Le Plessis-Brion – near a national wetland park  
© OgoXe

## OGOXE TOTEM SCREEN

The Ogoxe Totem screen is a type of Totem primarily used for information sharing and awareness. These Totems have a larger screen than the Totem tower and are weatherproof, waterproof and dustproof, and can be made vandalism-proof by adding a reinforced glass secondary structure. Ogoxe can configure the screens through the OgoxeApp to display various information, including data from meteorological and hydrological stations. However, unlike the Totem tower, the screen requires a continuous power source due to its more significant energy demands. Additionally, for the external cladding, customization is limited to changing the colour of the casing because the large screens take up most of the space in the structural frame.

Examples of potential installation sites for the BRIC Ogoxe Totem screens are shown below:



*(A) the designer prototype of the Ogoxe Totem screen; (B) an image of the Ogoxe Totem screen. Note that the totem looks wet because the photo was taken during testing conditions where water was poured directly on it to test the waterproof capabilities*  
© OgoXe



*Potential installation sites for Ogoxe Totem screens, simulated renderings (A) Oise - Longueil-Annel – at the library entrance (B) Weymouth – Beach office*  
© OgoXe



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## OGOXE SMART DEVICE

The consequences of natural disasters can be severe if the inhabitants of areas at risk are not well-prepared or well-informed. The Ogoxe Smart Device is designed to protect and serve the community by providing easily accessible information and encouraging good conscious behaviour. In natural disasters, the device can help save lives by raising awareness of risk and providing users with relevant information and instructions, such as how to shelter and protect themselves.

Risk managers and communities automatically locate the Smart Device's position, ensuring that people to be rescued are properly identified in communal emergency plans. This has benefits in terms of physical and mental safety, such as reducing emergency response times.

The Ogoxe Smart Device is a compact and easy-to-use tool that provides information on environmental variables during a flood hazard. The device is designed to provide users with the information they need to assess a flood risk situation and follow the evolution of that situation.

The device is portable, allowing users to place it anywhere for easy access in an emergency. It is also resilient: in the event of a power cut, the device switches to energy-saving mode and has a long battery life, ensuring it remains functional. This makes it suitable for individuals, industries, communities, the service and private sectors, and farmers.

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Within the BRIC project, the new generation of Ogoxe Smart Device has been distributed and tested. It includes additional features compared to its predecessor:

- real-time and forecasted graphical weather data (MeteoFrance data,
- river water height and discharge levels (Vigicrues data)
- groundwater levels
- FM radio
- environmental information receiver
- the ability to receive information messages from the local government and risk managers

As well as using the device during emergencies, owners can use it daily to display local weather data and access FM radio or local authority information.

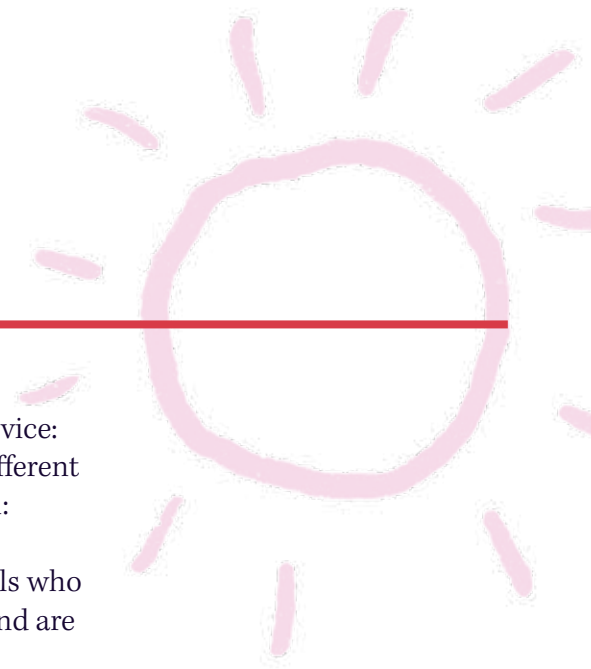
The Smart Device has an 8-inch touch screen that allows users to navigate through the various functions. It connects to the user's WiFi terminal.

The main challenge for the Ogoxe Smart Device is to stay connected and informed even in the case of a power cut or lack of network coverage. To overcome this challenge, Ogoxe has worked on improving the robustness of the connection between the sensors, smart devices, and servers by proposing efficient deployment methods and implementing an innovative communication mesh. This communication mesh is like a web of connections between different parts of the IoT system, where each element can directly talk to multiple other components. This way, even if one part of the system fails, there are still different ways for information to flow and reach its destination.

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Three pilot sites will be used to test the Ogoxe Smart Device: Oise, Pont Audemer, and Authie. Each pilot site has a different focus on how the device will help inform the population:

- In Authie, the device will be distributed to individuals who are most at risk of mudslides during heavy rainfall and are located in areas with limited 3G/4G coverage.
- In Pont-Audemer, the habitants in precarious situations with limited mobility who live alongside the river banks will receive real-time danger information so they can move to safety.
- In Oise, the Smart Device will be placed in households and situations where the immediate intervention of an emergency respondent or local authority may be necessary in case of danger. The device's SOS button can notify the respondents about who is most in need of assistance, such as in retirement homes and schools.



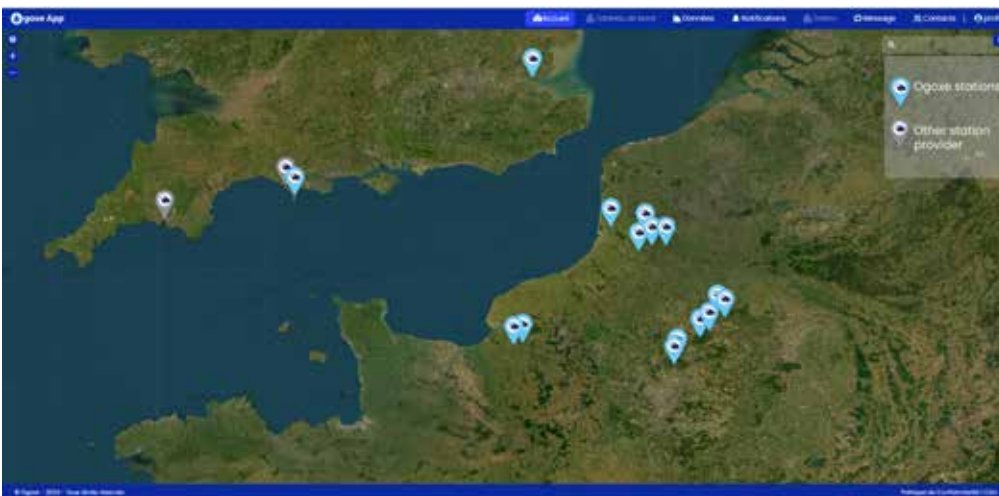
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## HYDRO AND METEO/WEATHER STATIONS

In recent years, the frequency and severity of extreme weather events have increased, making the study of atmospheric phenomena more crucial. Ogoxe, together with the BRIC partners and community stakeholders, are installing meteorological and hydrological stations in different pilot sites to observe the impact of these events.

The data collected from these stations will provide the information necessary to plan and implement effective measures to reduce the impact of extreme weather events. These stations will also offer real-time data for all users via the OgoxeApp (see further details below) and provide vital information for the deployed IoT devices. With the information from the stations (i.e., rainfall, river water height, temperature etc.), risk managers can set up automated SMS/call alerts for all parameters by selecting different threshold levels in OgoxeApp.

Ogoxe will install 20 stations in five pilot sites (Authie, Oise, Pont Audemer, Weymouth and Canvey Island). External providers will install one station in Plymouth and one in Weymouth. The locations of the installations are shown in the figure above and details provided in the following sections.



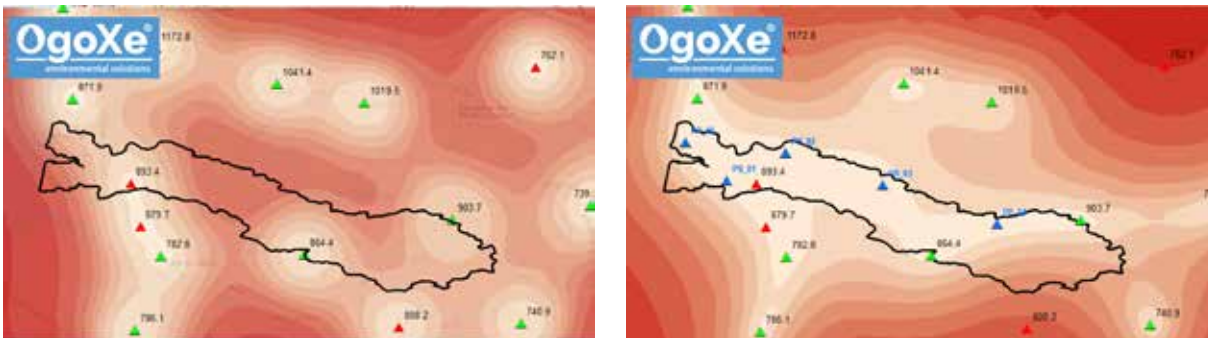
***Location of the different installation sites for the hydrological and meteorological stations***  
© OgoXe

## OGOXE STATIONS

Ogoxe follows a comprehensive process for selecting sites for installing meteorological (weather) and hydrological stations to ensure that the data collected is accurate and useful. This process starts with a research study on existing stations to determine the optimal locations for new stations. Factors taken into account include:

- accessibility
- availability of the area
- minimal interference from structures
- the need to respond to high-risk areas such as flood and mudslide zones.

Ogoxe aims for an optimal density of meteorological and hydrological stations to obtain precise information about storms, balancing economic considerations and topographical constraints.



***Result of the study conducted in the Authie basin:  
(A) rainfall standard error distribution of existing  
meteorological stations in Authie;  
(B) reduction in rainfall standard error distribution  
because of the proposed additional Ogoxe stations  
© OgoXe***

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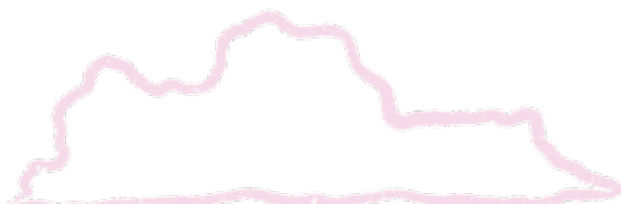
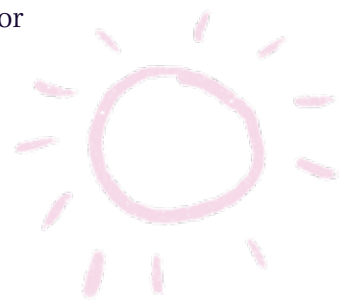
For weather station sites, Ogoxe considers the following factors to ensure accurate precipitation measurements:

- orientation
- collector spacing
- vertical distance
- vegetation height
- object presence
- building projections
- wind shielding
- separation from emission sources
- roof projection angle (no greater than 30 degrees)

Similarly, for the hydrological stations, Ogoxe followed specific guidelines, including:

- selecting sites with steep banks
- avoiding sections with high flow rates
- installing the stage measuring device as close to the edge of the stream as possible
- ensuring the site does not collect floating debris
- turbulence for the instrument
- site accessibility

The Ogoxe meteorological stations contain several sensors, including an impact gauge for precipitation measurement. This type of gauge, also known as a radar disdrometer, uses a radar to measure the rain when drops hit a surface. This technology allows for the quantification and qualification of precipitation: it can discriminate between rain, snow, drizzle and sometimes hail. The stations are customizable, making them suitable for various applications.



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The Ogoxe meteorological stations are autonomous and connected: they are solar- powered, so they do not require electricity; they are compatible with most communication systems and can be used in a wireless network. The stations are also adaptable to different climatic zones and are low maintenance, providing uninterrupted information reading. The weather stations monitor:

- temperature (-40°C to +80°C)
- humidity (0 to 100%)
- atmospheric pressure (150 to 1100 hPa)
- wind speed (0 to 60m/s)
- wind direction (0 to 359°)
- precipitation (0 to 100mm/hr)



*Some examples of the Ogoxe meteo stations installed for the BRIC project located in Authie pilot site communities of (A) Grouches Luchel (B) Noeux les Auxi and (C) Villers sur Authie.  
© OgoXe*

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The Ogoxe hydrological stations use ultrasonic sensors to measure water height. The sensors are placed above the watercourse and use a ceramic material subjected to electrical stress to generate a vibration. This vibration is used to calculate the time it takes for a wave to travel from the sensor to the water and back, allowing for the measurement of the water height. The hydrological stations are energy efficient (solar-powered), are low maintenance, and have good accuracy for flood monitoring. They will help monitor water levels for both flooding and low water levels, with a measuring range of 40cm to 10m.



*Ogoxe hydrological station  
installed at a bridge  
© OgoXe*

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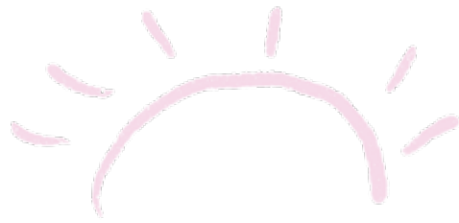
## **OTHER STATION PROVIDERS**

In Plymouth, PCC wants to improve the city's flood warning system by installing a weather station at a secondary school, Lipson Co-operative Academy. The weather station will be installed in an open location on the school's roof to ensure data accuracy and will be connected to a gateway that will transfer data to a web platform.

The weather station will use sensors to measure 11 parameters, including solar radiation, wind speed and direction, air temperature, and barometric pressure. The collected data will provide rainfall alerts to a new flood action group in Lipson and supplement the flood risk reduction measures of the Trefusis Park Flood Relief Scheme.

The weather station and the web platform will also provide live data to the school to support its Geography curriculum.





(A) Marked X is where the weather station will be installed © Plymouth City Council  
(B) the weather station © Decentlab

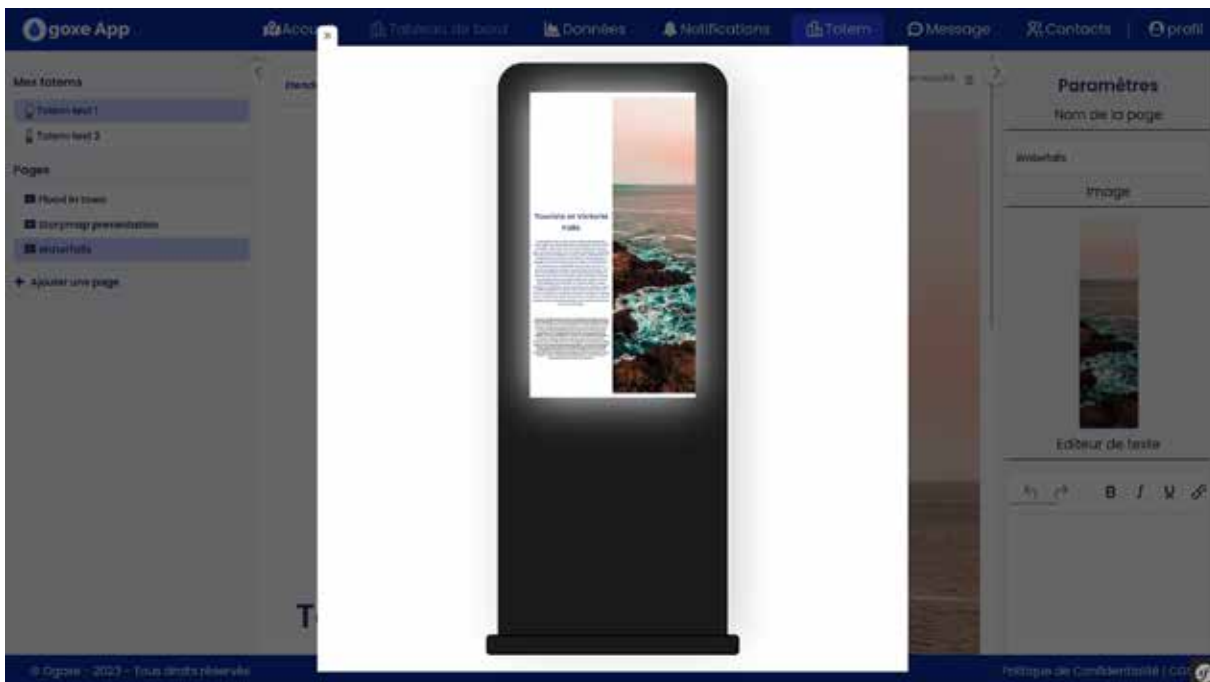
In Weymouth, the existing Beach Office weather station will be linked to the Ogoxe IoT systems, so the data will be visible on the Ogoxe Totem screen outside the Beach Office building. This weather station measures multiple parameters, including temperature, humidity, atmospheric pressure, wind speed and rainfall.

The screenshot shows a web interface for a weather station. At the top, there's a navigation bar with 'Home', 'Map', 'Database', 'Reports', 'Help', and 'Logout'. The main heading is 'Beach Office' with a location pin icon and 'Weymouth | 8:31 AM (UTC+00:00)'. Below this, there's a 'Profile' button and a 'Last updated 33 minutes ago' timestamp. The main content area is divided into two columns. The left column contains a list of metadata: 'Company', 'Online since', 'Views', 'Followers', 'City', 'Location', 'Local time', 'Coordinates', 'Elevation', 'Height', 'Brand', 'Model', and 'Website'. The right column displays weather data: a sun icon, '8 °C', 'Feels like 8°', '1 km ESE', '1028 hPa', '25.9 m', and a time range from 8:31 AM to 6:23 PM. At the bottom right, there is a map showing the location of the weather station in Weymouth, with a blue pin and a location icon.

*Beach office weather station information*

## OGOXEAPP - IOT DATA AND CONTENT MANAGER

OgoxeApp has a special feature only available to risk managers and elected officials in communities for managing the data and content of the IoT devices. It provides a centralized interface for organizing, analyzing, and visualizing the data, and controlling connected devices. These distinct users have access to the Totem configuration interface, which allows them to customize the contents displayed on the Totem's screen, such as videos, images and text. The users can also choose to display data from installed BRIC stations and other online content, such as storymaps and webmaps integrated into the bric-network pages.



*The Totem screen configuration interface for risk managers and community leaders in OgoxeApp*  
© OgoXe

# RESILIENCE NETWORKS

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## RESILIENCE NETWORK MODEL

Community resilience networks provide a platform for communities affected by flooding or at flood risk to work collaboratively with RMAs. The networks create open forums for discussion and allow community members to be directly involved in strategic decisions that affect their flood risk. Whilst flood action groups allow for partnership working between the community and RMAs on a local level, resilience networks allow for more strategic input, covering a wider area such as a city, district or county.

The BRIC project aims to establish eight community resilience networks: four in England and four in France. Due to the length of the project, many of the resilience networks are in their infancy. Therefore, this section concentrates on the Kent Resilience Network, supported by the National Flood Forum, which is the most established.

The Kent Resilience Network consists entirely of community members representing flood action groups who aim to build close relationships with RMAs to address common flood risk and drainage concerns. Some examples of those concerns are:

- riparian ownership
- planning and development policy
- lack of joined-up thinking between communities and RMAs
- access to funding
- land use concerns
- surface water management
- climate change resilience

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By considering the commonality of issues, a network can establish its strategic objectives.

Establishing where the network wishes to sit within local flood risk management is important. Activities may include:

- representation on flood risk management committees, resilience forums or partnerships
- introducing the network to key players in flood risk management
- sharing the Terms of Reference and strategic objectives with those stakeholders

Alongside regular network meetings and representation at a more strategic level, there may be other proactive work that a resilience network can undertake. For example:

- information evenings and awareness-raising events
- volunteering groundwork activities
- resilience plan development
- skills development via the 'Resilience Champions' training programme

It is important to note that resilience networks may look very different in different areas, depending on local common issues, their strategic objectives and their membership. However, what will not change is each resilience network's aim to build capacity for social innovation throughout the community.

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## MODEL CHARTER AGREEMENT

A Charter Agreement or Terms of Reference allows a resilience network's purpose, membership and structure to be formed and codified. All network members should agree on it. The membership can then distribute the document to relevant stakeholders with whom the network wishes to engage, such as RMAs and councillors.

The purpose of the Model Charter Agreement is to:

- identify strategic objectives and commonalities to address
- promote effective communication and collaborative working between communities and RMAs to ensure the sharing of ideas, information, and experiences
- ensure discussions are held about how to influence the effective management of local flood risk from ordinary watercourses, surface run-off, groundwater, and sewerage problems
- ensure that communities are involved in flood risk management discussions
- maximise opportunities to influence partner strategies and resource allocation and increase external funding
- minimise or reduce the risk of flooding and its effects

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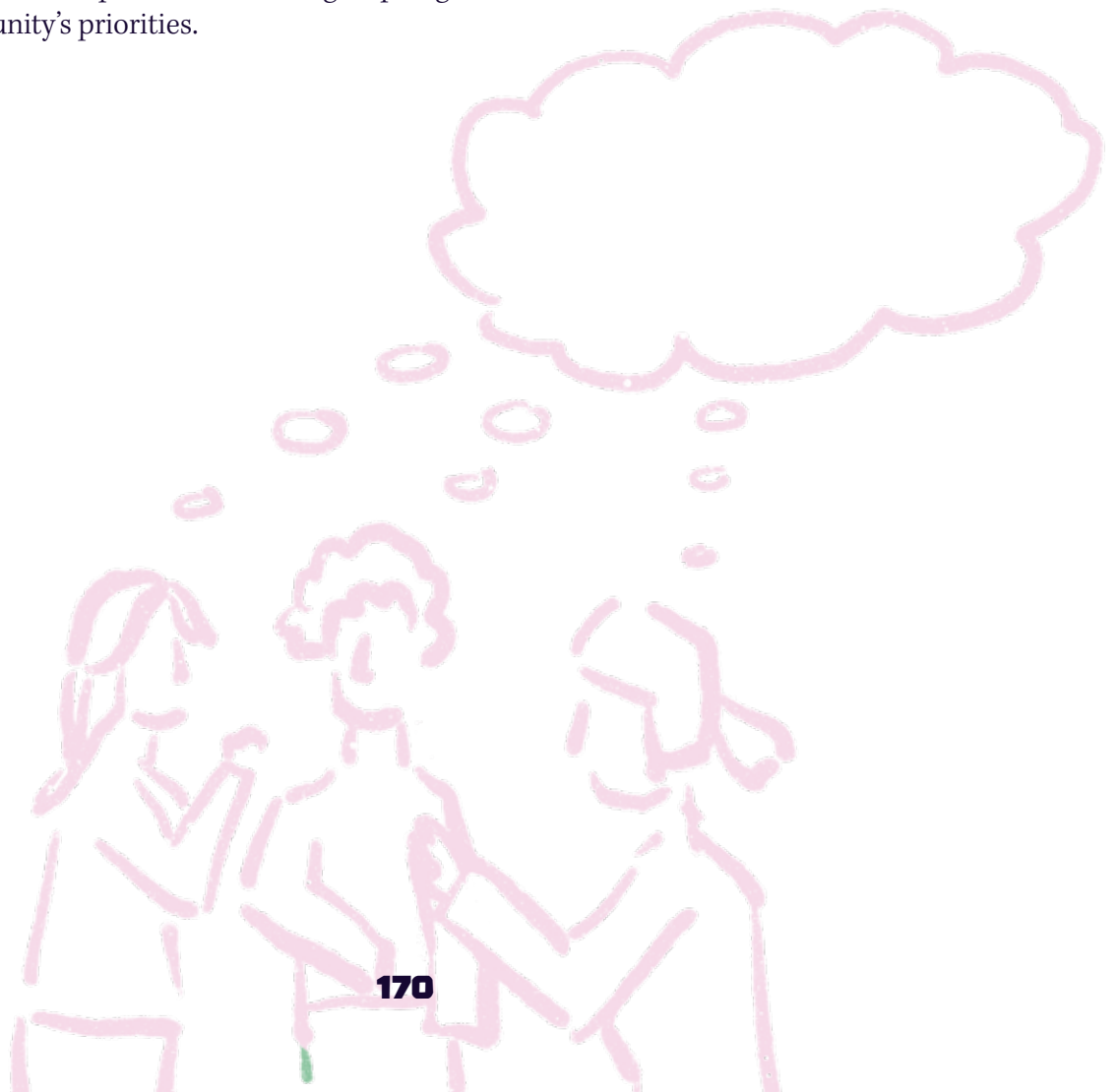
## MEMBERSHIP

Membership in a resilience network should be open to those interested or involved in their community's flood risk mitigation.

Member's roles may include:

- attending and participating in meetings
- representing the views and concerns of their group, organisation or community
- reporting back to their group, organisation or community about the progress of issues discussed at the network
- encouraging collaboration between network members
- contributing to achieving the network's objectives

Each member should be allocated equal time at each meeting to provide an update about their group, organisation or community's priorities.



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## SOCIAL ENTERPRISE FINANCING OPPORTUNITIES

Limited funding opportunities for flood risk management are available for communities in the UK. However, some organisations may provide funding to resilience networks, as set out below:

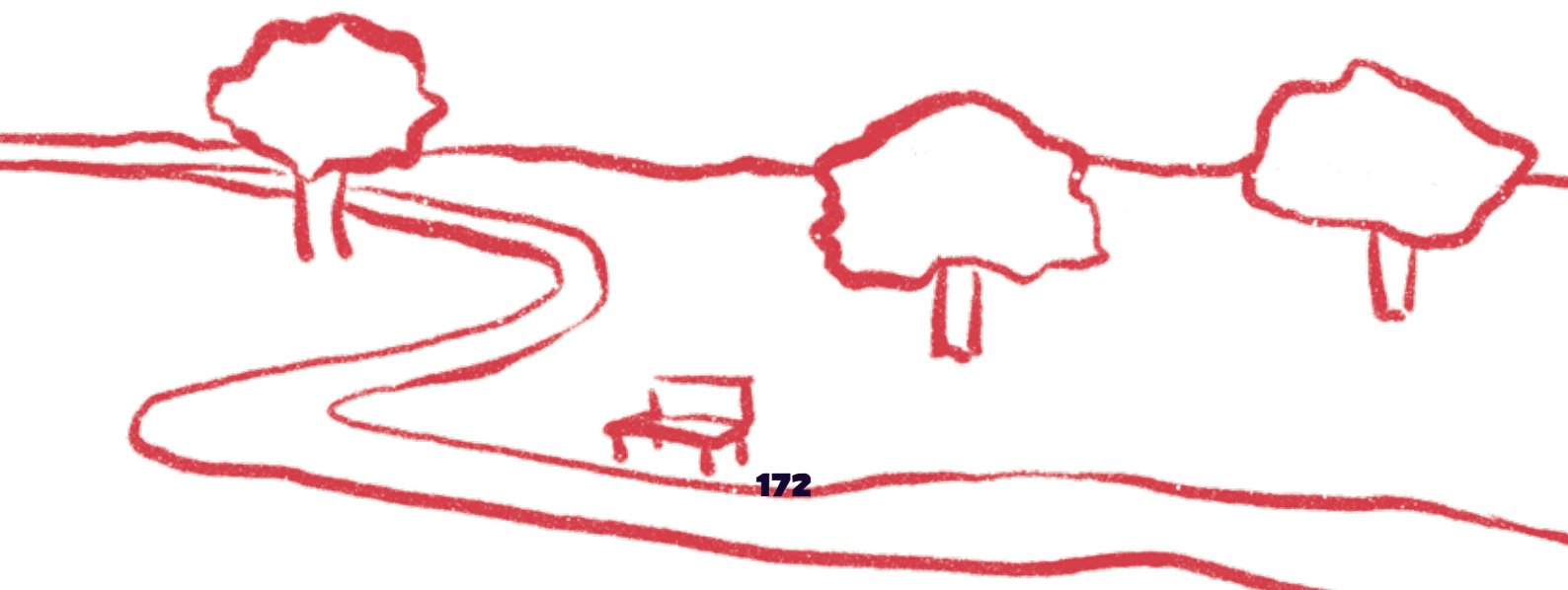
- National Lottery or People's Postcode Lottery :
  - » Various funding sources are available, from small grants for smaller projects to larger grants for wider-ranging projects.
  - » It may be necessary to become an 'Incorporated Group' with a board to be eligible, which may not be appropriate for some resilience networks.
- Parish councils:
  - » Parish Councils only cover a small local area. Therefore, it may be necessary to apply for funding from several Parish Councils across the network's area
- Community groups and clubs, e.g. The Rotary Club :
  - » Some groups and clubs issue funding and grants to communities.
  - » Some clubs that provide grant funding require the network to become 'Qualified', which means meeting specific criteria and completing training.
- Community Foundation:
  - » Not all funding sources are available directly to unincorporated community groups.
  - » The amount of funding available can vary.

- 
- Fundraising:
    - » There are several creative, innovative and established ways of fundraising, but it can be difficult and time-consuming to raise significant funding in this way.
  - Trusts, non-government organisations and businesses

In France, people exposed to flooding can receive funding from the state to carry out work to reduce the vulnerability of their home to flooding (raising the electricity supply or a boiler, changing the materials of floors or walls, etc.) (80% of the costs, if the work is compulsory).

An association can also receive funding from municipalities or a group of municipalities.

Also, the national charity 'Fondation de France' clusters together over 1,000 charities, which may be able to fund community groups. However, the funding is subject to groups meeting specific criteria, and there is only one opportunity each year to win a funding bid.





# BRIC WEB PLATFORM

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The BRIC Web Platform is a deliverable of the BRIC project; it integrates the outputs of eight resilience networks, the BRIC Resilience Model, and the BRIC Resilience Toolkit. The platform brings together French and English communities to share their experiences, identify common challenges, and find innovative solutions to manage natural risks.

The BRIC Web Platform is designed to help build resilience in communities vulnerable to natural risks. The platform provides resources, guidance, good practices, surveys, and training materials to support the sustainability of these efforts. The platform is low-cost and accessible, making it a cost-effective resource to help social innovation and the delivery of flood risk management services.

The BRIC Web Platform consists of several hosted applications, including:

- Page BuilderApp
- TrainingApp
- SurveyApp
- Comments, Resources, FAQs
- Other administrative functionalities, such as user management, menu builder, statistics and analytics, and administrator feedback

It also includes partner applications such as:

- StoryMap
- WebMap/WebApp - interactive maps, data collection apps
- OgoxeApp
- FORT tool

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The platform is intended for use by all members of the community. It is a fast and collaborative way of creating community flood resilience webpages without coding. The platform is customizable, flexible, and adaptable to specific needs and requirements. It has a user-centred approach, with all functionalities co-created and conceptualized with the BRIC project partners.

To support the efficient creation of bric-network community pages, the Web Platform has several user roles:

- **Administrator:** responsible for creating and managing the bric-network community site, with sub-user types (owner, configurator, editor, and evaluator) for easy management and collaboration.
- **Privileged user / Stakeholder:** has access to admin-created content not available to public users.
- **Public user – active user:** has access to admin-created content, participates in training and surveys provided by the community bric-network.
- **Public user:** accesses admin-created content anonymously.

## BRIC-HOSTED APPLICATIONS

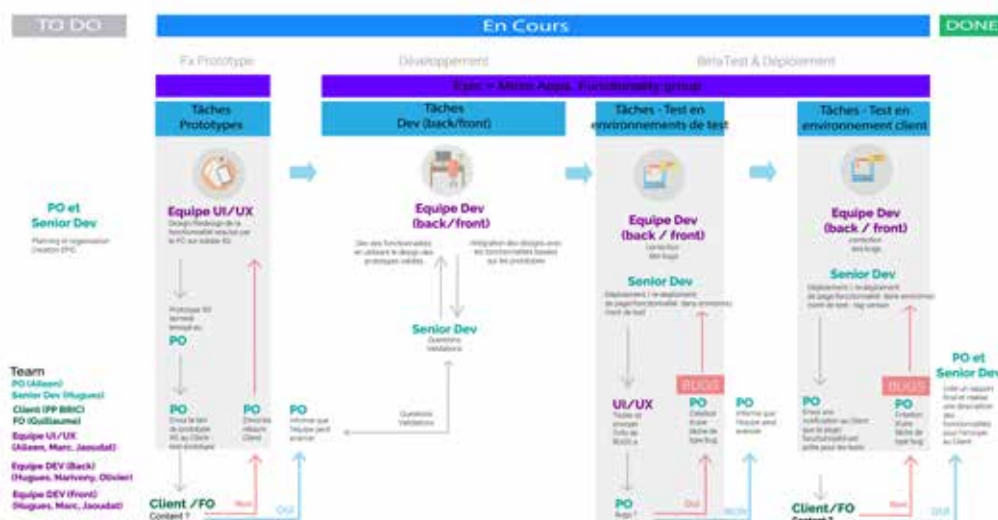
Ogoxe has developed the BRIC-hosted applications specifically for the BRIC web platform. It has prioritized the ability to personalize the product and user functionalities and the delivery of the end-user expectations.

Ogoxe implemented a user-centred design for web development:

- During the conception process, Ogoxe designers held workshops, consultations and one-on-one meetings with the BRIC partners to create the prototypes for individual applications.
- After partner validation, the application went through the development phase.
- Once deployed, Ogoxe demonstrated the application and conducted an end-user testing phase to gather feedback and apply improvements.

The completed and deployed hosted applications on the BRIC platform are discussed in the following sections.

Platform.BRIC-Network Jira Project Workflow



*View of a learner's interface from one of the trainings available in the TrainingApp.*

*Screenshot from flood awareness training by [canvey-island.bric-network.com](http://canvey-island.bric-network.com)*

## PAGEBUILDERAPP

The PagebuilderApp allows administrators of the community bric-network pages to create customised and professional web pages without the need for manual coding. It has been designed to simplify the formatting process, with a “What You See Is What You Get” content entry tool.

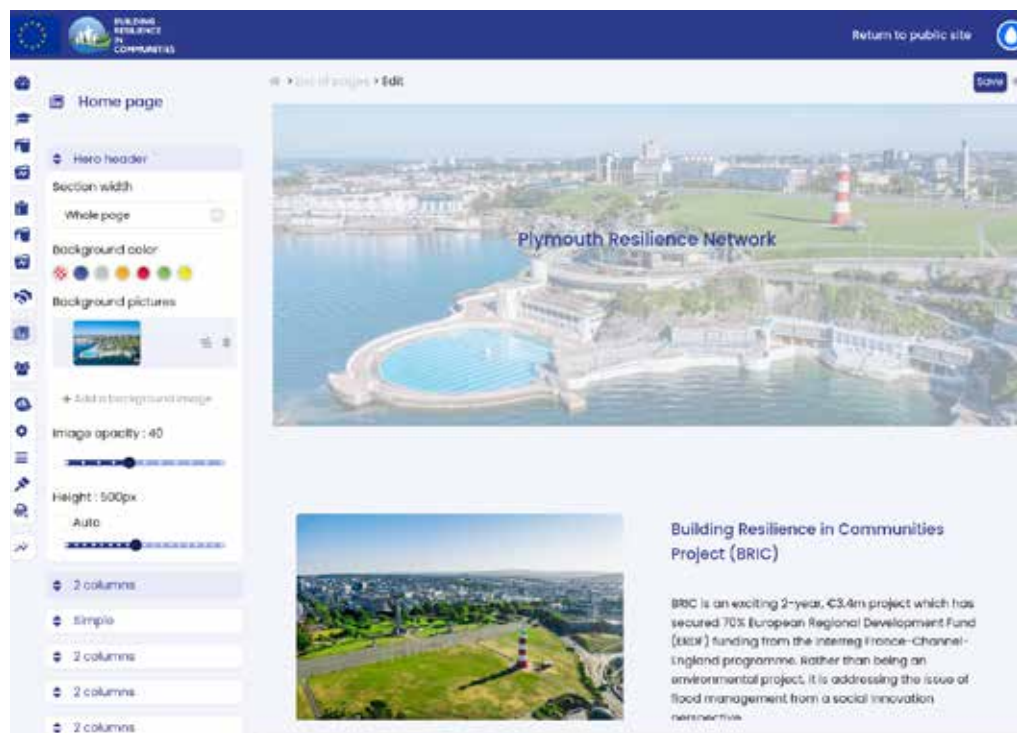
The app provides a user-friendly interface that allows users to design and organize page content. The App gives users the ability to arrange their content in a way that best suits their needs. They can:

- choose from a variety of layouts
- add content by dragging and dropping elements from the builder’s widget library, such as text boxes, images, videos or buttons
- customize the appearance of their page elements by adjusting their colour, font, size, and other styling options
- place elements in specific positions on the page and adjust the size and spacing of those elements.

The page builder can be used for all static pages that will be added to the BRIC network’s website. Before publishing, users can preview their pages and make any final adjustments as needed.

*The Pagebuilder App administrator interface showing the different customization possibilities.*

*Screenshot from [plymouth.bric-network.com](http://plymouth.bric-network.com)*

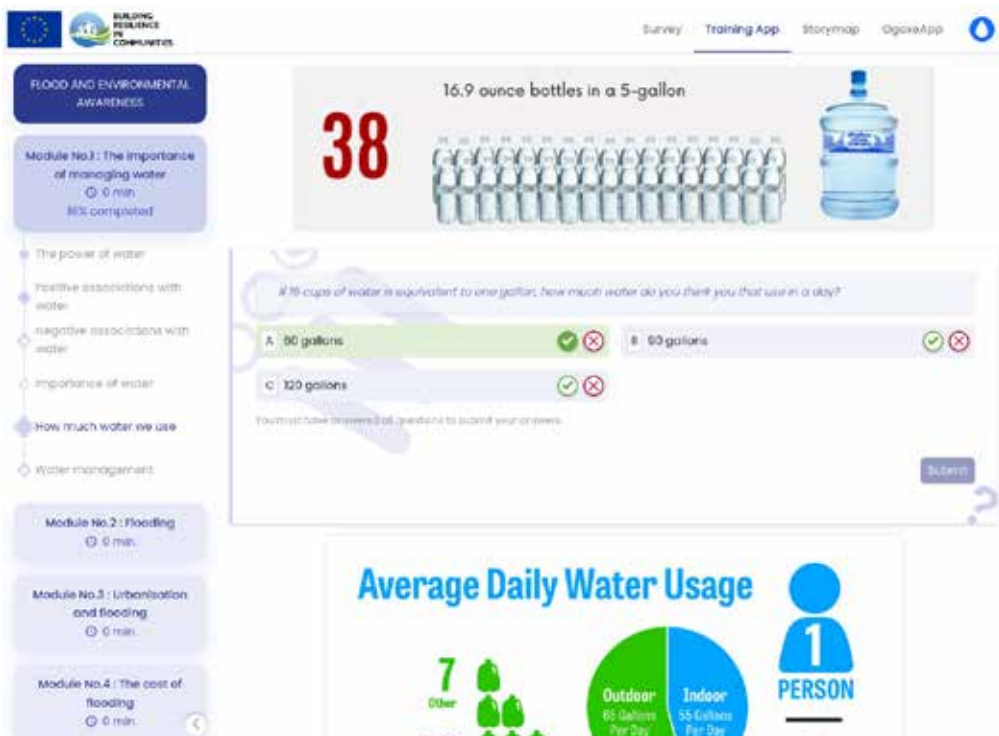




## TRAININGAPP

The TrainingApp enables trainers, educators and instructional designers to create and publish digital learning content for students and learners in their respective community bric-network pages. It provides a user-friendly interface and various tools to create engaging and interactive training content, including videos, presentations, assessments and interactive simulations.

The TrainingApp works by allowing its users to upload existing content or create new content. This content can include text, images, audio, video, and interactive elements such as quizzes. The app has a drag-and-drop interface for users to place and arrange the content, and various templates, themes, and styles to choose from.



*View of a learner's interface from one of the trainings available in the TrainingApp.*

*Screenshot from flood awareness training by canvey-island.bric-network.com*

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The TrainingApp also includes advanced features such as:

- reward elements with a training completion badge
- adaptive learning with the possibility to change pass rates and re-do wait times
- analytics tools to track student progress and engagement

These features allow trainers to provide a personalized and engaging learning experience based on the needs, preferences and learning pace of each student. Moreover, the analytics tools allow them to measure the impact of the training, identify areas that need improvement, and continuously update the content to meet the evolving needs of the learners.

One of the key benefits of using this application is that it makes creating, delivering, and managing online training content much easier and more efficient. Trainers are no longer dependent on web developers to create and publish their content. With TrainingApp on the BRIC Platform, they can fully control the content creation process, so they can quickly produce and publish high-quality digital training materials.

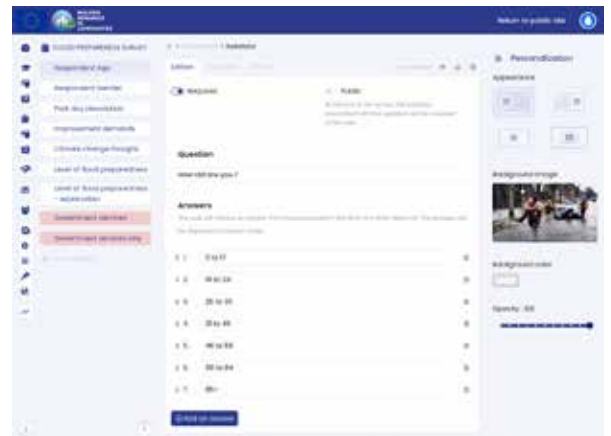


## SURVEYAPP

SurveyApp is a comprehensive online survey content creator. This tool helps administrators of bric-network sites to gather information and feedback from a target audience through online surveys. SurveyApp provides a user-friendly interface that allows administrators to create and distribute surveys so that even those without technical knowledge can build professional-looking surveys.

Creating a survey with SurveyApp involves selecting a survey type from multiple-choice, rating scale, open-ended, word cloud and more. Users can choose the style that fits their needs and requirements. They can create questions and answer options using the app's tools and features. Users can also customize other elements, such as the look and feel of the questions and images, to make the survey more engaging. When the survey is complete, administrators can distribute it to their target audience through email, social media, embedded forms on their website, or even print it for use in the field.

The app also retrieves and summarizes the results from the online version of the survey and provides real-time analytics, so administrators can see how their survey is performing and make changes as needed. Administrators can monitor how many people have taken the survey and the average responses. Administrators can also import surveys conducted in the field into the online version. The results are presented in diagrams for easy reading and analysis, and the administrator can export all results in csv format.



*Editing a survey with the SurveyApp © OgoXe*



*Real-time analytics with SurveyApp © OgoXe*

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## **OTHER BRIC PLATFORM FUNCTIONALITIES**

Administrators can activate the comments function of individual pages, which allows the audience / public users to send their direct feedback about web content.

The “Frequently Asked Questions” (FAQs) tab contains a list of frequently asked questions and answers for the platform, both for admin and public users.

The BRIC resources tab provides access to useful information such as guides, tutorials, and other documents that can help users understand the different activities carried out by the communities, as shown in their individual BRIC network pages.



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## PARTNER APPLICATIONS

The BRIC Platform allows the integration of externally hosted partner applications, providing flexibility and centralizing information for the community resilience network. Users can submit an app resource to the BRIC Platform, which can then be validated for compatibility and usefulness.

The following partner apps are already integrated:

- ArcGIS StoryMap: Allows the creation of immersive stories by combining text, interactive maps, and multimedia content.
- WebMap/WebApp: Provides an interactive display of geographic information to tell stories and answer questions.
- OgoxeApp: Enables all members of the public, risk managers, and local officials to view real-time data and information on natural risks, supporting better risk management and decision-making.
- FORT tool: Allows members of the public, flood wardens, and councillors to report flooding.

These partner applications add valuable functionality to the BRIC Platform and provide a comprehensive resource website for the community resilience network. They are discussed in the following sections.

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## ARCGIS STORYMAP

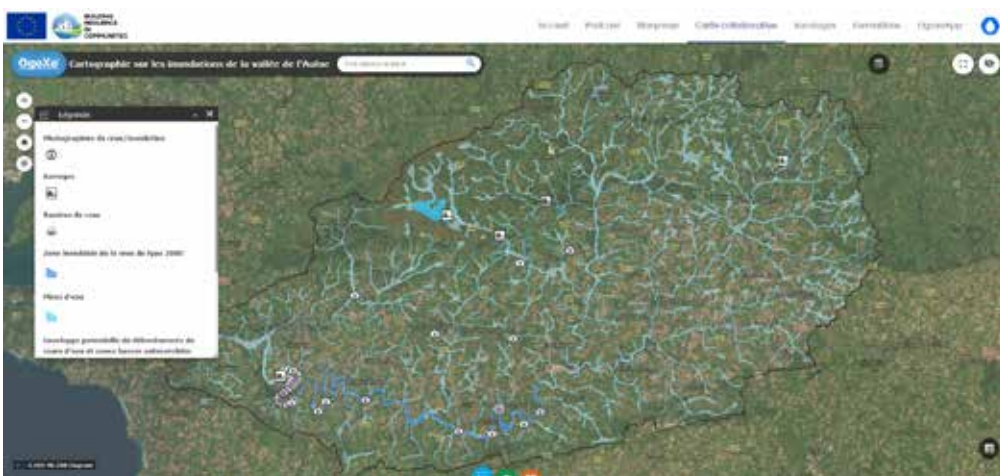
Each pilot site has a storymap integrated into its bric-network pages. For more information, see Section 3.

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## ARCGIS WEBMAP / WEBAPPS

ArcGIS web maps and applications are powerful tools for visualizing, exploring and analyzing geospatial data. Ogoxe has created several ArcGIS webmap / webapps for the BRIC partners for various purposes, such as:

- visualizing and exploring geospatial data, such as demographic, climate, and environmental data
- analyzing spatial patterns, relationships, and trends, such as land use changes
- communication and collaboration, such as sharing information and data among stakeholders and the public
- delivering location-based information and collaborative community data collection



*A webapp for collaborative data / image collection from the community. Screenshot from [vallee-aulne.bric-network.com](http://vallee-aulne.bric-network.com)*

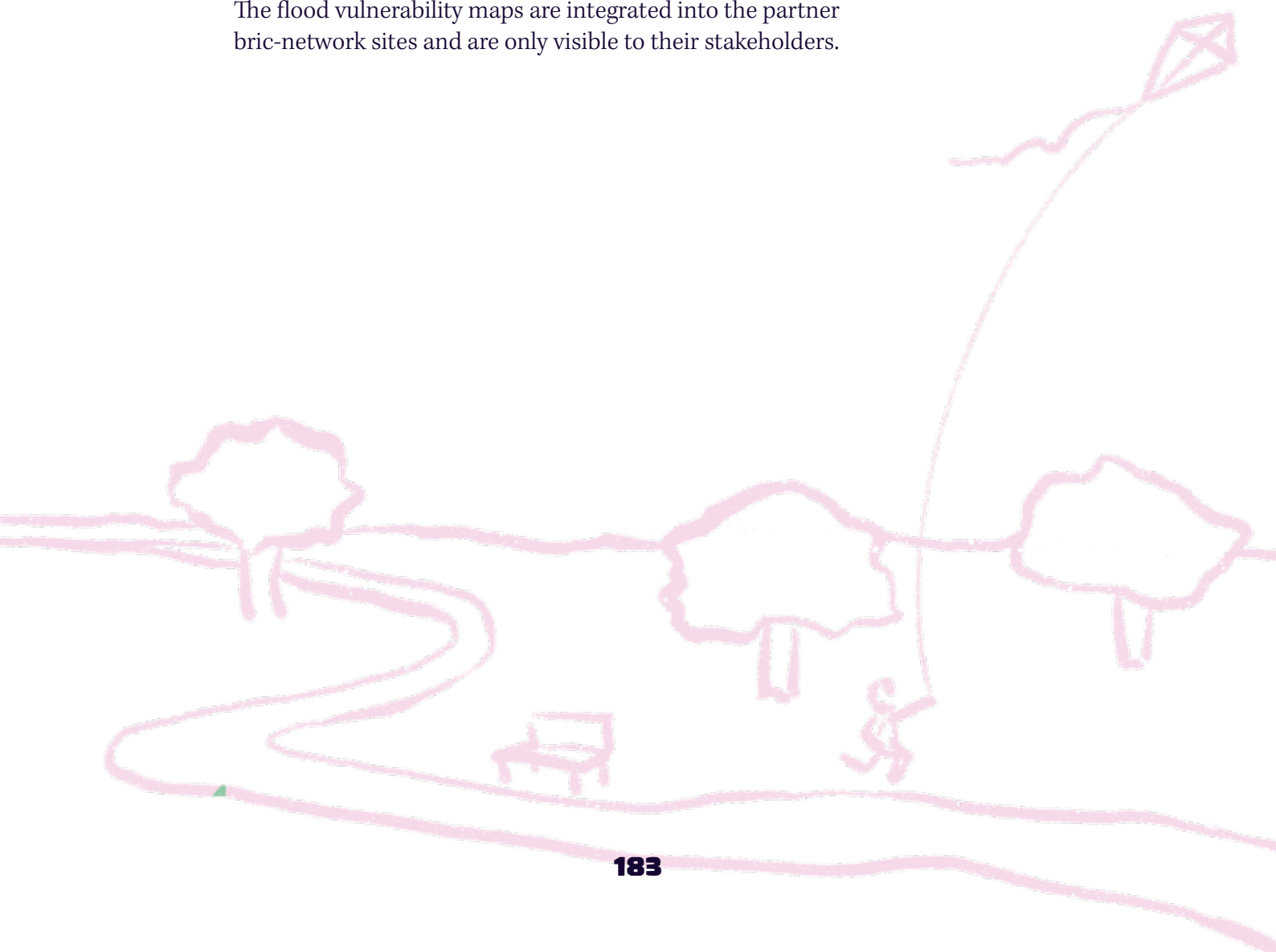
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These webmaps / webapps are either integrated directly as partner apps in the community bric-network pages or within the storymaps to support the geospatial narrative.

For the UK partners, Ogoxe also created an interactive flood vulnerability webapp using ArcGIS. These flood vulnerability maps are important for assessing the pilot sites. Ogoxe:

- obtained and organized flood-related data, including flood zones, water level data, and land use information
- created and configured map layers
- performed spatial analysis to generate flood vulnerability indices and isoline maps
- added functionality, such as searching, filtering and visualisation of data

The flood vulnerability maps are integrated into the partner bric-network sites and are only visible to their stakeholders.



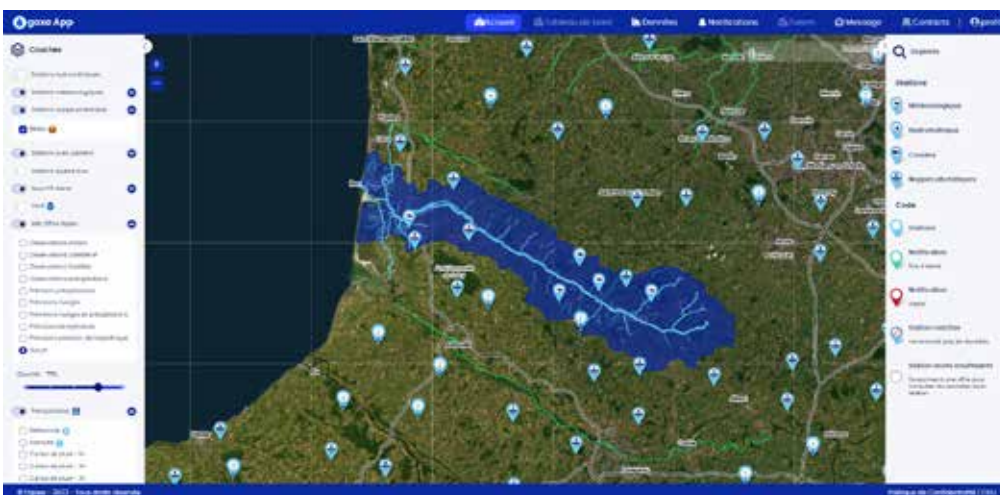
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## OGOXEAPP - INFORMATION AND DECISION SUPPORT WEB TOOL

OgoxeApp is a web-based information and decision support tool that offers a smart and resilient flood information and monitoring solution for individuals, businesses and local authorities. The application provides real-time access to a wide range of environmental data essential for making decisions during natural disasters. OgoxeApp allows individuals and organizations to understand natural hazards and to stay informed of impending threats by email, SMS, or call.

The OgoxeApp has a three-step protection system:

- **Inform** - providing access to real-time information on weather, river and flood levels and a climate risk map.
- **Plan** - allowing users to receive alerts in case of risk by email, SMS, or call while continuing to monitor the weather.
- **Protect** - providing advance warning of imminent risks, ensuring protection for the user and their loved ones, property, business, and assets.

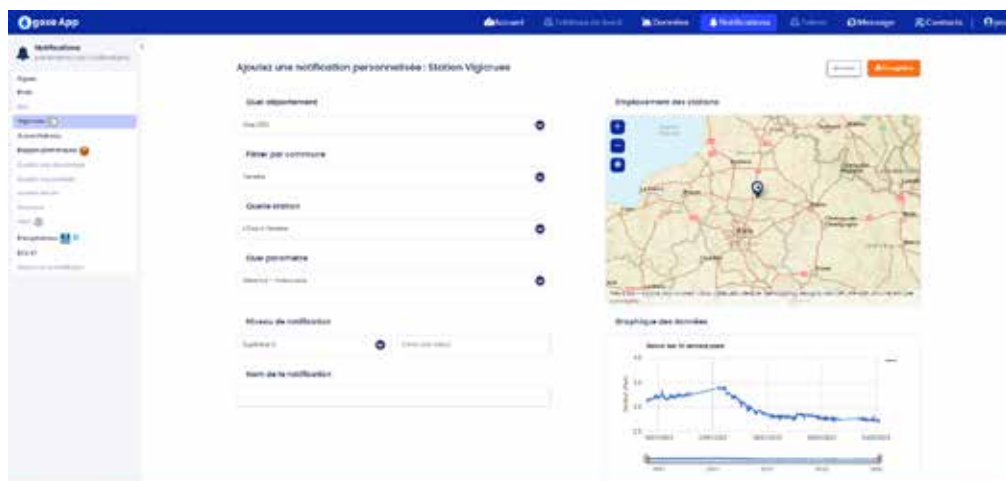


*OgoxeApp homepage showing the map and information of the stations and all available information layers*  
© OgoXe

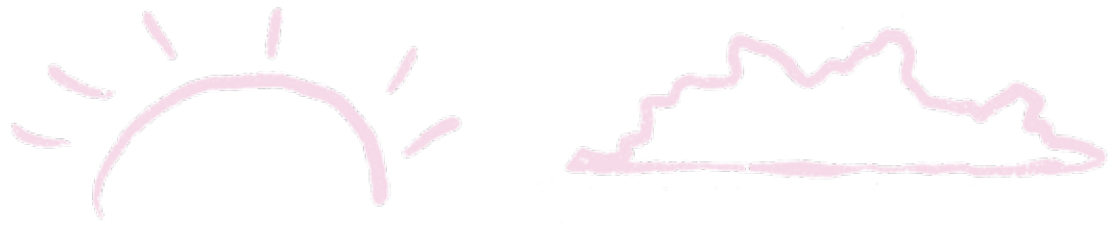
The app has four main parts:

- **Home page** – this part allows users to view the latest data collected by the application, including hydrometric, meteorological, groundwater, camera and air quality stations, Vigicrues monitoring course, wind, met office radar, and precipitation.
- **Data consultation** – this part allows users to consult and compare data history, either by station or by parameter, with a graphical display.
- **Notifications** – this is an important feature, allowing users to program alerts to be sent when a specific value or threshold has been reached. Notifications can be sent via email, SMS, or voice call. Users can create contacts for their accounts and send notifications to these contacts subject to their acceptance.
- **Mass messaging** – this feature allows users to send messages to their contacts, via email, SMS or call. The management of contacts is done through a dedicated tab. Users can only send messages for informative purposes, not for commercial purposes.

Integrating OgoxeApp to the BRIC web platform allows the partners and their community to have their station and IoT device information in one place. It also allows the bric-community page users direct access to a comprehensive and user-friendly tool that provides real-time environmental data and allows for effective decision-making during natural disasters.



*OgoxeApp notification/alert parametrization interface*  
© OgoXe



## FORT - FLOOD ONLINE REPORTING TOOL

The Flood Online Reporting Tool (FORT) allows individuals, flood wardens, and councillors to report flooding. The information collected is used to identify the likely sources of flooding and to identify the RMA that may be responsible for acting. Reporting is an important trigger for Lead Local Flood Authority involvement. The system can automatically send reports to relevant authorities, linking communities with the RMA who can work with them to increase their resilience.

Three aspects which need to be covered when communicating with stakeholders and communities about FORT are:

- **Why** - It is vital that people understand the benefit of reporting flooding.
- **How** - People need to know how to use the tool, particularly if they are flood wardens or community representatives.
- **When** - A greater understanding is needed of when to use the tool, including that historic flooding can be reported as well as recent flooding.

Record current flooding  
If you are flooding now this will inform multiple agencies, however, this will not

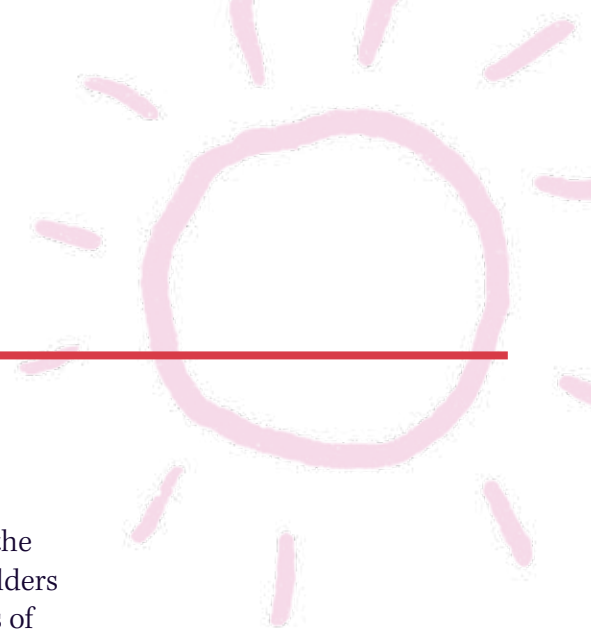
Record recent flooding  
If your property has been affected by flooding in the last 5 years, this will inform

Update a record  
You can provide an update to an existing record you created.

*FORT welcome page*

---

Integrating FORT onto the BRIC web platform allowed the team to collect feedback from project partners, stakeholders and the community. The team provided demonstrations of the tool and asked participants to fill in a short survey via the SurveyApp. That feedback is being used to enhance FORT by improving usability, accessibility and awareness. This process has also increased stakeholders' awareness of the tool, who may need access to a reporting system in their area.



# 5. STAKEHOLDER ENGAGEMENT



**190 INTRODUCTION**

**191 COMMUNITY OF PRACTICE**

# INTRODUCTION

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Stakeholder engagement involves building and maintaining relationships. Concerning the BRIC project, these relationships include local authorities, water management companies, and other local organisations.

Stakeholder engagement is fundamental to the success of flood resilience networks. Relevant authorities can disseminate information to residents and help to legitimise the project, increasing community engagement and attendance at flood resilience events. Gateway organisations in the project sites can enable us to reach a broader, more diverse audience, ensuring that flood resilience networks accurately reflects their communities.

Stakeholder engagement has taken different forms in England and France, as the contrasting political systems bestow different powers to various stakeholders in the project sites. For example, in France, local authorities are responsible for flood risk management. In contrast, in the UK, the picture is complex, with the Environment Agency, local authorities and water companies all having important roles.

In whichever form it takes, stakeholder engagement is essential for the longevity of resilience networks beyond the conclusion of the BRIC project. Organisations connected with the BRIC project will operate beyond the project's close. They will help to sustain the networks BRIC has helped to create and work towards achieving flood resilience through these networks.

# COMMUNITY OF PRACTICE

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Project teams can achieve stakeholder engagement through face-to-face and online interactions. The following methods of engagement are detailed in this section:

## **LINKEDIN**

## **CROSS-BORDER SEMINARS**

## **PRESENTATIONS**

## **BRIC TALKS**

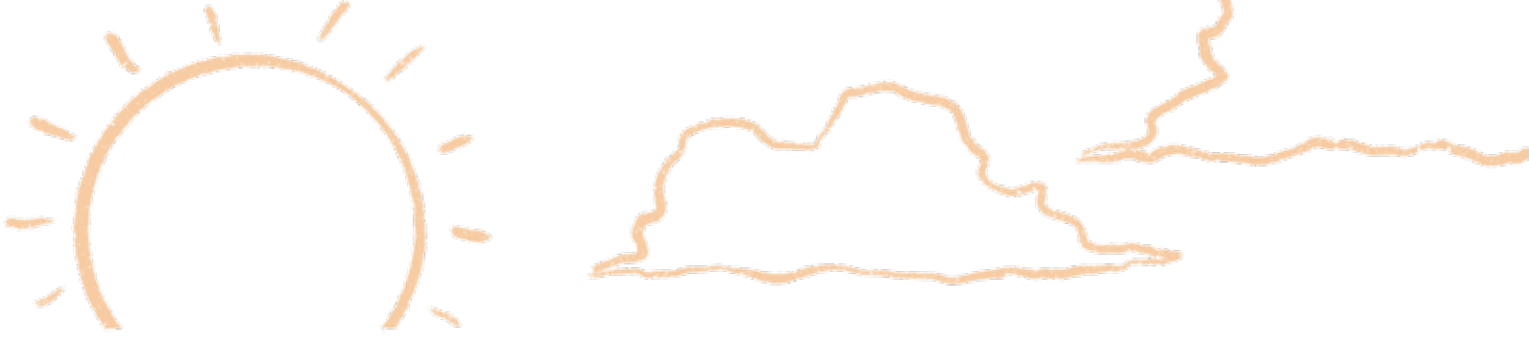
## **MULTI-AGENCY MEETINGS**

## **LINKEDIN**

The BRIC project has created a LinkedIn page entitled 'Building Resilience in Flood Disadvantaged Communities (BRIC)', which aims to create a place for industry professionals and stakeholders to share ideas, opinions and best practice.

While BRIC has created profiles and pages on most social media networks, the LinkedIn page is far more active and popular, gaining over 300 followers since its creation. This level of engagement has enabled the project partners to share their work with the broadest possible audience.





The LinkedIn page has been used for a variety of purposes. It has enabled the BRIC partners to publish updates and information about their work in their pilot sites. The popular ‘BRIC Talks’ series was posted on LinkedIn, introducing the project partners and relevant stakeholders. It has also been a place where the BRIC partners can share and advertise their upcoming events.

The LinkedIn page has allowed members to share relevant and interesting articles regarding flooding, flood risk management and resilience. These have included thought-provoking articles about the mental health impacts of flooding, how it feels to have flooded, and updates on new and ongoing flood management schemes. LinkedIn is thus a space in which members have been able to share their views and enter into fruitful discussions in the comments section.

The LinkedIn page has followers from various professions and industries, including local government, education and environmental services. The followers are evenly split between France and the UK, coming from various locations across the project area and beyond. The page is bilingual, and members can use the built in translation functions to engage with posts in both languages.



***LinkedIn post about Plymouth Libraries “We Are In This Together” climate change event – 25 October 2022***

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## **CROSS-BORDER SEMINARS**

Cross-border seminars have given the project teams a unique opportunity to share learning between England and France. These seminars have allowed for comparisons between the different approaches to flood risk management from a social, political and economic viewpoint. There are many differences in how each country deals with flooding, so comparing methods has enabled partners to find the most effective social innovation tools for their communities.

Cross-border seminars also allow partners to share their perspectives and insights. Communities can question the relevant stakeholders and express their opinions on what is and is not working. Cross-border seminars can thus become a space in which ways of increasing flood resilience in project sites can be deconstructed and reconstructed through a reflective process to ensure that the aims of the BRIC project and the needs of local communities are being met.

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## 'CITIZEN INVOLVEMENT IN FLOOD RESILIENCE' SEMINAR

In March 2022, the National Flood Forum and Cerema hosted a cross-border seminar for the BRIC project on 'Citizen Involvement in Flood Resilience'. This event was a hybrid and bilingual conference taking place online and in person in Rouen, France, with simultaneous translation between English and French.

The seminar had three main objectives:

- to assess the governance of flood risk management and the involvement of communities in the two countries
- to evaluate the strengths and weaknesses of community involvement in flood resilience in the two countries
- to share best practices in awareness raising and community involvement

The seminar's target audience included the BRIC project partners, state services, elected representatives, local authorities and other involved organisations. Representatives from the communities in pilot sites in England and France were also welcomed.

The seminar included a workshop session, where the attendees were split into small groups to discuss and answer questions about how best to involve communities in flood risk management. The small groups discussed how:

- to share information between communities and risk management authorities (RMAs)
- communities and RMAs can best work together
- to record and promote local experiences

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The key themes identified throughout the seminar were:

- How do we engage with flooded people and communities?
- How do we ensure the messages we produce are shared widely?
- How do we cross-collaborate and share best practices?
- What were the key differences in how flooded people and communities experience flood risk in our areas and countries?
- What can we do to ensure we share best practices from other countries?

The seminar was a great success. UK and French partners shared and learned valuable ideas on how to best support communities at risk of flooding.



*Sébastien Dupray, Cerema,  
opening of the day  
© Cerema*



*Katia Sanhueza-Pino, National Flood Forum,  
opening of the day  
© Cerema*

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## 'CROSS CHANNEL COLLABORATION TO REDUCE FLOOD IMPACT' SEMINAR

The seminar 'Cross Channel Collaboration to Reduce Flood Impact' was hosted online by Thames21 and OLV on 24 November 2022. It brought communities and authorities together, sharing knowledge, lessons and best practices. Attendees included:

- the BRIC project partners
- local authorities
- water management bodies
- local organisations
- representatives of communities from the pilot sites

Hosting the seminar online increased attendance as it prevented cross-channel travel. It also made it easier for attendees to ask questions, as they could type them into the chat, and organisers could instantaneously respond. The translation was the key potential barrier to the seminar's success, which was overcome by using a translation service.

The seminar speakers represented local authorities and partners operating in the pilot sites on both sides of the channel. The speakers from the local authorities provided their perspectives on flood risk management, data collection and emergency planning. Partners from Canvey Island and OLV presented the tools and techniques they use to engage communities at a neighbourhood level. There was an opportunity for conference attendees to ask questions after the presentations to ensure that the conference was interactive.



The seminar had interactive sessions using Jamboards (online shareable whiteboards), allowing all attendees to get involved. Seminar attendees were asked to write their responses to the following questions on virtual sticky notes displayed on a virtual board:

1. Following on from the keynote speeches, what is currently happening in your area?
2. What gaps and challenges are communities identifying about the delivery of flood risk management services?
3. What gaps and challenges are local agencies identifying regarding the delivery of flood risk management services?

All outcomes from the Jamboards have been collected, shared and stored for reference.



*Jamboard asking participants 'Following on from the keynote speeches, what is currently happening in your area?'*

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The limitations of using Jamboards were that they restricted cross-channel collaboration. Simultaneous translation of different breakout groups was impossible, so the English and French Jamboard sessions were separate. However, the translated feedback session addressed this, where key discussion points from the English and French Jamboards were highlighted and shared.

Key themes identified during the seminar were:

- the importance of understanding the responsibilities of local authorities, water management agencies and individuals
- the importance of community engagement to understand their needs and how those needs can be met
- gaps in funding and resources preventing effective delivery of flood risk management services



## **TIPS FOR HOLDING CROSS-BORDER SEMINARS**

**ADVERTISE THE EVENT EARLY ACROSS MULTIPLE PLATFORMS AND MEDIA.**

**INVITE A RANGE OF SPEAKERS FROM BOTH SIDES OF THE CHANNEL BUT GET QUALITY, NOT QUANTITY.**

**PROVIDE A CLEAR BRIEF TO THE SPEAKERS.**

**MAKE SURE TO KEEP SPEAKERS ON TIME AND TOPIC.**

**ENCOURAGE COMMUNITY REPRESENTATIVES TO SPEAK.**

**TEST OUT THE TECHNOLOGY IN ADVANCE, PARTICULARLY THE TRANSLATION SERVICES.**

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## **PRESENTATIONS**

Presentations can be a helpful way to share core messages and ideas in a collaborative learning space. They enable direct stakeholder engagement through varied conversations and question-and-answer sessions. Project teams can use them to reach stakeholders when aiming to spread key messages to a broader audience because those stakeholders can then disseminate that information through their networks.

It has been important for project partners to build relationships with stakeholders to enable the continuation of the BRIC legacy beyond the end of the project. With the right audience, presentations are a great way to promote the project and to find people with influence who can take BRIC initiatives forward.

The key aspects to consider when delivering stakeholder engagement through presentations are:



**WHO IS THE TARGET AUDIENCE?**

**WHAT DO THEY AIM TO ACHIEVE BY LISTENING TO YOUR PRESENTATION?**

**WHAT DO YOU AIM TO ACHIEVE BY SHARING THE PRESENTATION?**

**WHAT ARE THE KEY MESSAGES YOU AIM TO DELIVER?**

**WHAT QUESTIONS ARE YOU LOOKING TO ANSWER?**

**WHAT CONVERSATIONS AND DISCUSSIONS ARE YOU LOOKING TO PROVOKE?**

**WHERE WILL YOU GIVE THIS PRESENTATION (I.E. DEMOGRAPHICS)?**

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## PLYMOUTH CITY COUNCIL PRESENTATIONS

The Plymouth City Council (PCC) BRIC team has presented about Appreciative Inquiry (AI) and community engagement at three online events:

- Devon Community Resilience Forum 2022 – 5 attendees
- Government Events – The Local Flood Defence, Resilience and Response Conference 2022 – 49 attendees
- Institution of Civil Engineers (ICE) – 80 attendees

These presentations aimed to raise awareness of the BRIC project and share knowledge and experience that may assist other projects and teams.

In hindsight, the presentation was much better suited to stakeholders from other organisations than the community members who attended the Devon Community Resilience Forum event. Choosing suitable events and using appropriate subject matter is essential for reaching the right audience.

The ICE presentation is an excellent example of how online presentations can reach a wider audience than in-person events. After the talk, two people working for the Environment Agency in the North East of England, who wanted guidance about AI, contacted the PCC BRIC team. This contact allowed the team to spread knowledge of the BRIC project to other parts of the country outside of the pilot areas.

The PCC BRIC team also gave two school presentations about career paths, with the message “What career choice you make now does not define your future”. The pupils, aged 14 to 15 years, were selecting their work experience placements and thus considered far from the labour market.

The pupils were encouraged to volunteer and try out different work types. The team used their career paths as case studies to show that where you start is not necessarily where you will end up!



## **BRIC TALKS**

The BRIC talks are interviews conducted by OgoXe with representatives from the project partners and stakeholders.

The talks were an opportunity for partners to highlight the purpose and motivations of the BRIC project. OgoXe asked representatives from partner organisations:



- 1 DESCRIBE THE BRIC PROJECT IN THREE WORDS**
- 2 WHAT HAS BEEN YOUR MOST INSPIRING MOMENT OF COMMUNITY ENGAGEMENT IN THE PROJECT SO FAR?**
- 3 WHAT HAS SURPRISED YOU MOST ABOUT THE BRIC PROJECT SO FAR?**
- 4 WHAT ARE YOUR SHORT AND LONG-TERM VISIONS FOR THIS PROJECT?**

These questions enabled members of the project teams working directly with communities to give valuable insights about project successes and shortcomings. It also allowed team members not working 'on the ground' to provide a broader overview of their organisation's work on the project site.



The talks were also an opportunity for stakeholders involved in the project to provide their perspectives. These individuals were asked:

- 1 WHAT DO YOU THINK ABOUT THE BRIC PROJECT?**
- 2 WHAT WERE YOUR MOTIVATIONS?**

Talking to stakeholders has provided an external perspective on the project and has helped to detail how partners have engaged with different authorities and organisations.

The BRIC talks were posted on the BRIC platform, YouTube and LinkedIn. The talks helped publicise the project's motivations, highlights and challenges and hopefully helped increase stakeholder engagement.



*'BRIC talk' with BRIC Programme Manager  
Liza Oxford*



*'BRIC talk' with Pierre Levalloie,  
Director of 'Etre et Boulot'*

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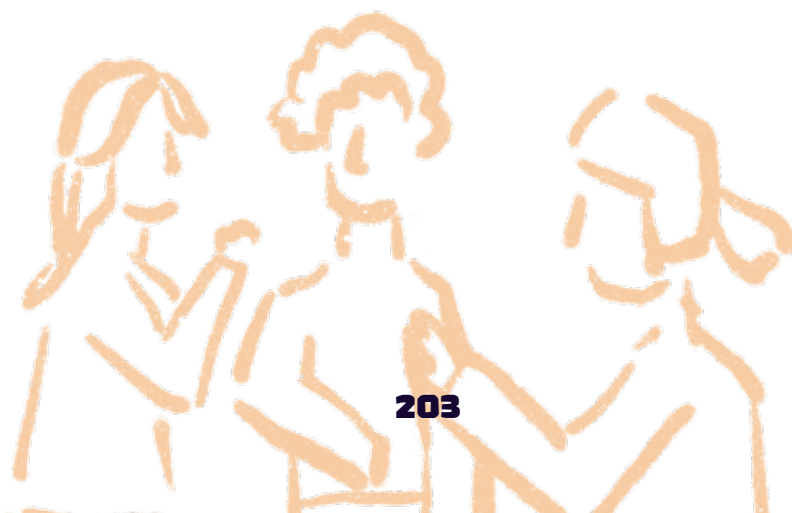
## MULTI-AGENCY MEETINGS

### NATIONAL FLOOD FORUM MULTI-AGENCY MEETINGS

The National Flood Forum (NFF) has developed a bespoke engagement process named multi-agency meetings. These meetings were held between RMAs and community flood action groups. They have offered many benefits to all parties involved and, by extension, the wider community.

The multi-agency meetings have occurred regularly and have set the direction for partnership co-creation between the RMAs and flooded communities to reduce flood risk.

The meetings have been a productive and efficient means by which RMAs could engage directly with flooded people, enabling them to hear and understand the issues experienced first-hand. They have also offered a platform for communities to be involved in co-creating interventions that help to reduce the flood risk in their local area. Communities have been able to share local expertise and work with engineers to ensure they use the most appropriate and viable flood alleviation interventions. Further, multi-agency meetings have allowed flood action groups to talk directly to the engineers and decision makers within organisations instead of going through emails or calls with engagement service staff who may not provide the required answers.



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NFF multi-agency meetings have created an environment that has built trust, allowing open and honest discourse to take place. RMAs can provide transparency about their limitations, such as resources or funding, without referring to pre-prepared political responses or the fear of backlash. This has enabled them to work productively with communities to implement ‘quick wins’, or smaller, interim solutions that benefit residents in the short term whilst longer-term actions are being considered. As such, these meetings provide an advantage over open public meetings, which can often result in a contentious one-way discussion between anxious members of the public and the RMAs, who may be limited in their ability to respond openly to questions.

### **DORSET COAST FORUM MULTI-AGENCY WORKSHOPS**

Dorset Coast Forum has held several multi-agency workshops in Weymouth, one of which was to discuss the Householder Guide to Flooding. The primary purpose of this event was to collect feedback from the relevant agencies to aid the production of the guide. However, as this in-person meeting was a novelty since the Covid-19 pandemic, the stakeholders stayed after the workshop to discuss other aspects of their work. This time allowed them to delve into deeper discussions than they would have if they had met online or sent their thoughts in an email. This cross-pollination through these types of multi-agency meetings is critical when undertaking partnership work.





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## **TIPS FOR HOLDING MULTI-AGENCY WORKSHOPS**

**HOLDING THE EVENT IN PERSON IS MORE BENEFICIAL THAN ONLINE.**

**INVITE A WIDE RANGE OF AGENCIES.**

**PROVIDE TIME AND SPACE FOR NETWORKING; MANY OF THE BENEFITS OF THESE MEETINGS RESULTED FROM THEIR INFORMAL ELEMENTS AS OPPOSED TO THE ORGANISED SESSIONS.**



# 6. PILOT SITE EVALUATIONS

**208 PLYMOUTH**

**217 CANVEY ISLAND**

**225 WEYMOUTH**

**231 KENT**

**237 AULNE VALLEY**

**244 OISE VALLEY**

**250 AUTHIE VALLEY**

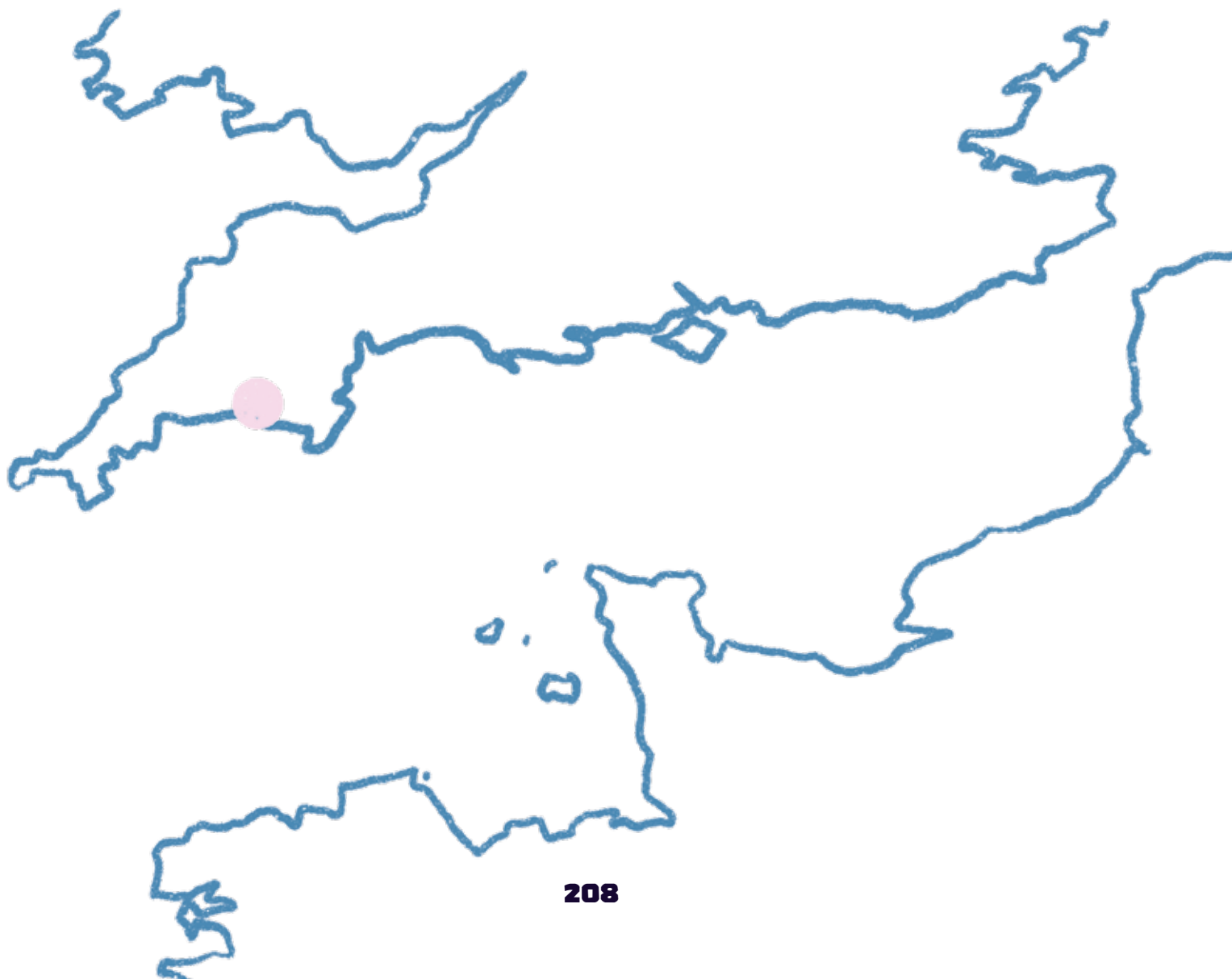
**256 RISLE VALLEY**

# PLYMOUTH

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- Appreciative Inquiry (AI)
- Community engagement events, including 'Slow the Flow' activities
- Public consultations
- Community newsletters
- Flood action groups
- Home and Dry workshops
- Flood awareness digital badge
- Weather station
- Stakeholder and school presentations



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## WHAT WORKED WELL?

AI has been integral to work carried out in Plymouth's two focus areas: Lipson Vale / Trefusis Park and St Levan. It helped to identify the following:

- each community's knowledge of flood risk and its preparedness for flooding
- appropriate interventions and activities
- opportunities to build strong working relationships with stakeholders and risk management authorities (RMAs)

For further information on the AI process, see Chapter 2.

Using the AI data helped the team to plan and deliver two effective public consultations in support of Plymouth City Council (PCC)'s Trefusis Park and St Levan Park Flood Relief Schemes. For further details, including results and evaluation, see Chapter 3.

The Plymouth team has used two successful initiatives to help bridge the gap in flood knowledge between those living at the top of the hill, who believe they are not at risk of flooding, and those living at the bottom of the hill, who are at risk. Those initiatives were:

- newsletters sent to over 8,000 homes
- a 'Slow the Flow' campaign

For further details, including results and evaluation, see Chapter 3.

PCC sourced an interactive Home and Dry game that they delivered as a workshop. These workshops were successful with new and established flood action groups and young people, giving participants an idea of the decisions people need to make to protect themselves from flooding. For further details, see Chapter 4.



*Mini water butts © Plymouth City Council*

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## WHAT DID NOT WORK WELL?

Sustaining the level of engagement required to support a community to become fully resilient is time and resource-heavy. The engagement levels necessary to encourage change have proved challenging in the short timeframe of the BRIC project and with limited staff resources.

Plymouth's two main target areas suffer from surface water flooding. This type of flooding made engagement difficult because the floodwater recedes quickly, and these events do not stick in people's memory. Some residents were not even aware of the localised flood risks, resulting in flood prevention and resilience not being a priority for them.

Engagement in the Lipson Vale / Trefusis Park area has been particularly challenging because:

- Trefusis Park and Lipson Vale sit in two different council wards, which are demographically very different, making the community fragmented
- the area has no community centre and no real place for community members to meet
- the area has a transient population, with a large proportion of rented properties
- the team had just begun to establish themselves in the community during their first public consultation when England went into another Covid-19 lockdown, making further face-to-face engagement impossible at that stage. Online events were not well attended and by the time the team had the resource to revisit the area, it felt like engagement was starting from the beginning again

In Lipson Vale / Trefusis Park and St Levan, engagement levels at events and during activities have been high, but converting this interest to active volunteer numbers has been more challenging. On paper, the Plymouth team have had many people indicate a willingness to become volunteers. However, when invited to meetings, the uptake could have been higher.

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## WHAT COULD BE IMPROVED?

Changing behaviours within a community takes time and requires a sustained amount of effort and engagement. It is acknowledged that the BRIC project had to contend with the challenge of Covid-19 lockdowns, which paused engagement for several months and hindered progress. However, even without these restrictions, the Plymouth team would have struggled to achieve more than just scratching the surface with their community engagement within the time given.

Had the team had more time, they would have worked more closely with gateway organisations. Reaching vulnerable people and at-risk communities requires a joined-up partnership approach with local community groups, stakeholders and other PCC projects. A local authority may carry a stigma and deter people from openly engaging and coming forward as volunteers. Collaboration with stakeholders could have increased the opportunity to reach a more diverse audience, especially those in vulnerable categories.

Had the weather station been installed earlier in the project, this would have allowed more time for the team to work with the local community and the school to ensure that the data and alert system were as helpful as possible.





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## **OVERALL RESULTS (FROM COMBINED USE OF TOOLS)**

While there are numerous online tools to research the demographic and socio-economic characteristics of an area, it is only once you start to talk to and work with a community that you discover what they are like. The AI approach gave the Plymouth team a chance to research their target areas in a more personal way. This research led to the team not making assumptions and being able to plan objectively for their public consultations.

The AI approach led to the creation and use of more meaningful and targeted activities, such as:

- delivering a more creative public consultation events programme
- championing the Slow the Flow campaign at five events
- delivering the Home and Dry workshop to two flood action groups and young people far from employment
- distributing over 8,000 community newsletters
- dropping 450 postcards to properties in flood risk streets



*Plymouth Library climate event – 25 October 2022*  
© Plymouth City Council



*Trefusis Park public consultation event  
– 21 November 2021*  
© Plymouth City Council

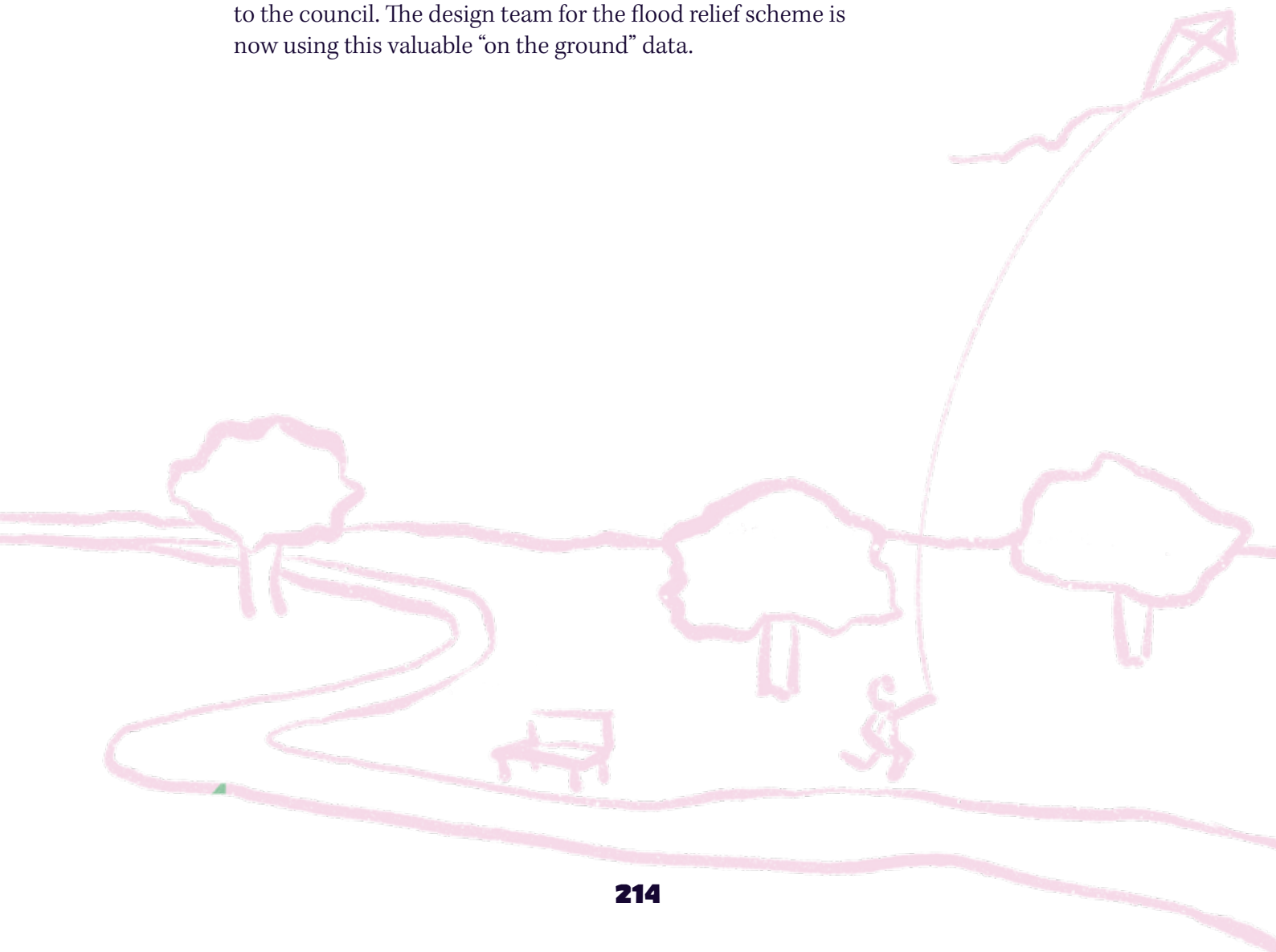
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## WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?

### Trefusis Park / Lipson Vale and St Levan

As a result of the public consultations and the newsletter distribution, the targeted communities are now more aware of the surface water flood risk. Due to the slow the flow campaign, they are more aware that, wherever they live, they can make a difference to the amount of surface water run-off that collects in low-lying areas.

Whilst two flood action groups are still in their infancy, PCC and residents can already see the benefit of their creation. For example, in St Levan, residents regularly report flooding issues to the council. The design team for the flood relief scheme is now using this valuable “on the ground” data.



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## **Weston Mill**

The Plymouth team's interventions have resulted in the flood action group in Weston Mill Village establishing itself well.

***“The flood action group has been formed in partnership with the BRIC project. Without them guiding us through the process, we wouldn't be here.”***

- Weston Mill Village flood action group coordinator

Through the development of the flood action group, the residents of Weston Mill Village are now better able to deal with their flood risk.

***“Having a flood action group in our village means we have a support network and people who have the right knowledge to act when we are flooding. They know what to do, how to respond and who to call and when. We work as a team, and each have our own part to play.”***

- Weston Mill Village flood action group coordinator

---

## RECOMMENDATIONS FOR FUTURE ACTIONS

Future recommended actions are to:

- deliver a citywide ‘Slow the Flow’ campaign to reach a wider audience
- create a flood awareness delivery programme for schools
- develop strong collaborations with gateway organisations to reach a wider audience
- develop the Plymouth Flood Resilience Network
- deliver online and face-to-face training and workshops to flood wardens and flood action groups
- continue creating newsletters to help raise awareness of increasing flood risks in Plymouth and to support engagement with a broad audience
- continue expanding Plymouth’s flood warning alert system by installing a further weather station in the St Levan area

# CANVEY ISLAND

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- AI
- Participatory photography workshops
- Litter picks, resilience walks and nature walks
- Community consultation events
- Community flood mapping events
- Canvey Island Storymap
- Flood preparation leaflet
- Online engagement
- Posters



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## WHAT WORKED WELL?

AI was successful because it allowed the team to reach members of the community who are the focus of the BRIC project: the elderly and those furthest from the job market. These people usually could not attend events but would engage when contacted directly through door-knocking. Many residents were willing to talk, providing valuable insights into the opinions of the local community, which were then used to shape the team's engagement strategies.

The participatory photography workshops provided a creative approach to address the emotive topic of flooding. Feedback from the workshops highlighted their success: participants spoke of how it made them view Canvey Island differently and think more about flooding, for example, noticing the wetlands.



*Participatory photography workshop © Thames21*

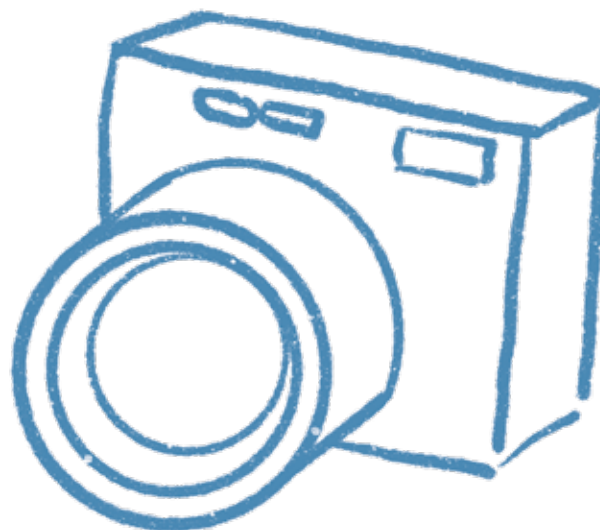
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An exhibition will soon display the photographs taken during the workshops. This event is designed to facilitate conversations in a creative space about the present and future flood risk. The exhibition will take place on the anniversary of the 1953 floods, which remain in the collective cultural memory of Canvey Island residents.

The community consultation event arranged by Canvey Island's town council was successful because:

- it attracted over 40 members of the community
- multiple organisations attended
- it helped to promote the BRIC project and the role of Thames21 (T21) on the island

Similarly, the community flood mapping events worked well. T21 had a stall at the weekly Thursday market, which allowed the team to speak to many people, especially older people and those furthest from the job market. These people would not attend events but were prepared to share their thoughts on flooding when asked directly.



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## WHAT DID NOT WORK WELL?

The litter picks required as part of the project did not successfully find volunteers to form a resilience network. This lack of interest in the network was despite the T21 team attempting to increase attendance by reframing these events as ‘Resilience walks’ and ‘Nature walks’ and using social media to maximise awareness of the events.

T21 consider the key reason for low attendance to be the inability to motivate the population. Suggestions for improving that motivation are detailed in the ‘Recommendations for future actions’ section below.

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## WHAT COULD BE IMPROVED?

### **Realistic targets**

Realistic targets based on the socioeconomic characteristics of the pilot site’s communities are essential for a project’s success. For instance, on Canvey Island:

- residents generally do not have enough free time to become flood resilience champions or organise flood resilience events
- residents also often lack the knowledge to apply for funding
- ‘active elderly people’ is not a realistic target demographic because elderly residents often have mobility constraints and dependents who require their time
- residents do not feel that flooding should be their responsibility



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### **Delineation of flood risk management responsibilities**

Residents on Canvey Island often feel that risk management authorities (RMAs) should assist more with managing flood risk. They are also concerned about the limitations of the infrastructure on the island. The T21 team suggests that the RMAs define roles in flood risk management more clearly and clarify these roles to the public. When residents understand their responsibilities and those of the different RMAs, they can hold relevant authorities and agencies accountable and begin to develop their own flood resilience.

### **Legitimisation of project**

The project would have benefitted from greater legitimacy of T21 in the eyes of the inhabitants. More than two years are needed for a new organisation to fully integrate into a deprived community and establish enough trust to form a flood resilience network. Also, the lack of stakeholder cooperation affected community engagement in BRIC events. If the local community does not see stakeholders engaging with the flooding issue, they may become disillusioned and reluctant to get involved. This is particularly the case when there is already a need for more trust in local authorities on Canvey Island.

Endorsement of events from a local councillor or water agency officer would have validated T21's involvement in running BRIC-related events on Canvey Island. It would also have assisted collaboration between local authorities and project partners and demonstrated local authorities' commitment to tackling flooding.



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## OVERALL RESULTS (FROM COMBINED USE OF TOOLS)

Project results have been difficult to measure quantitatively because of the nature of the engagement methods and desired outcomes. However, qualitative data was valuable in determining the tools T21 needed to increase flood resilience. For example:

- AI results highlighted that many residents did not feel prepared for a flood event or only felt prepared because they ‘had an upstairs’. Therefore, T21 has created a flood preparation leaflet to inform residents how to protect themselves from flooding.
- Online engagement highlighted residents’ feelings about pollution in Canvey Lake, a local flood retention pond and wildlife hotspot. T21 responded to this by arranging a meeting with the local council to discuss those feelings and possible solutions.

The litter picks did not establish new community groups to develop the resilience network as planned. However, participants were very open to conversations about the BRIC project while engaging in practical action to protect and improve their local area. Also, discussions included how to protect themselves and their property from flooding.

The participants may have shared this knowledge with their communities, which would support the development of the resilience network. Thus, it is impossible to measure engagement strategies’ success solely on attendance numbers.

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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

It is difficult to determine what has changed in the pilot site community, given the short duration of the project and the difficulties in quantitatively measuring the outcomes of different innovation tools. However, the T21 team hopes that:

- conversations with the community have helped to increase resilience, and these conversations have been shared through community networks
- the photographic exhibition will be the ideal creative space to facilitate conversations about flooding as a present and future threat
- the flood preparation leaflet should complement the exhibition as a more tangible strategy for building flood resilience and act as a helpful guide for residents about protecting themselves from flooding

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## RECOMMENDATIONS FOR FUTURE ACTIONS

As stated above, expecting people in deprived areas to become responsible for their own flood risk and to coordinate flood resilience is unrealistic. Instead, the local council should appoint a designated agent to work with the community to reduce their flood risk. Also, flood wardens should be paid for helping the community before, during and after a flood.

The appointed agent could assist the community in enhancing flood resilience using the following tools:

- AI
- flood resilience events
- school engagement events

Further, it may be possible to increase community motivation for flood resilience initiatives by:

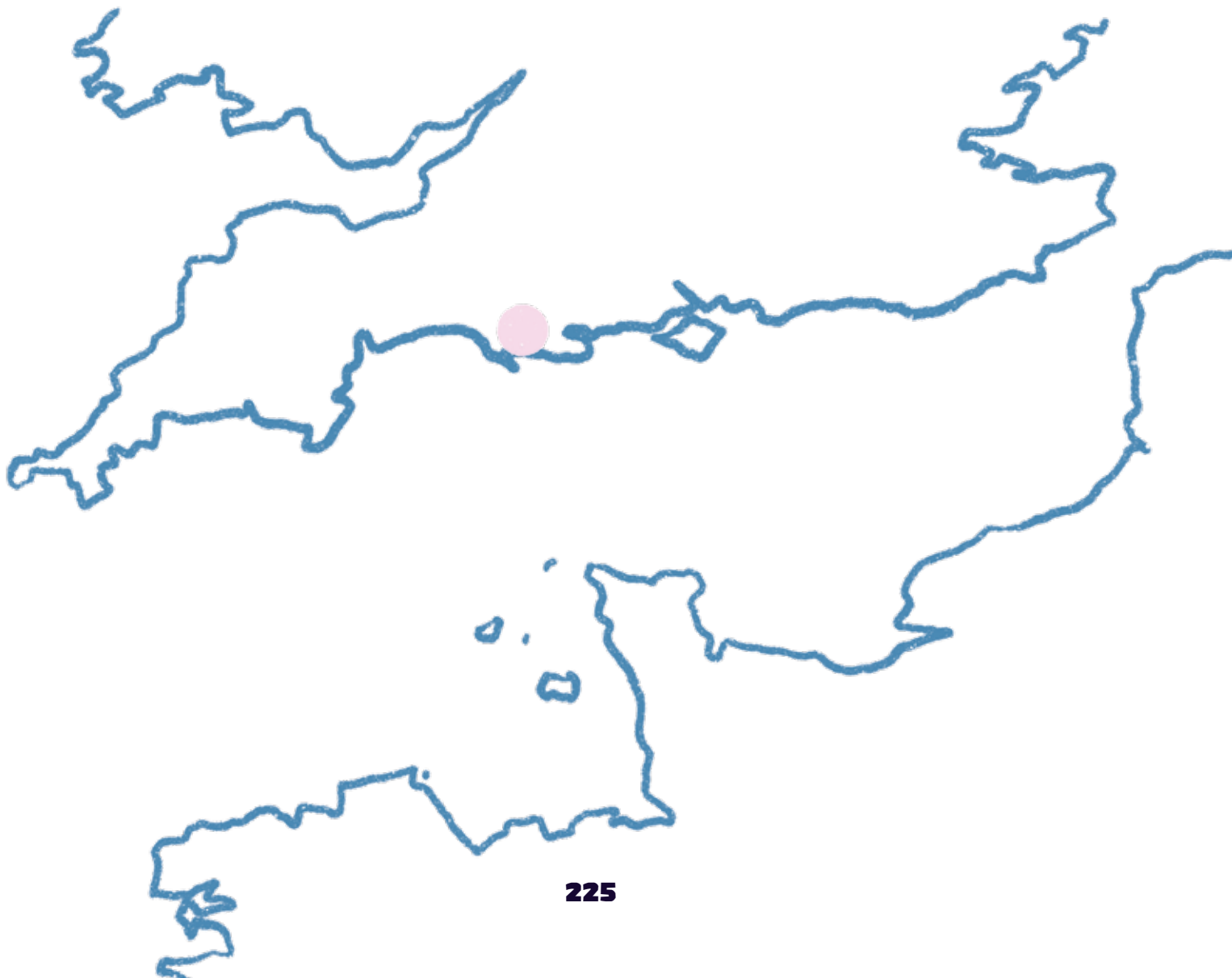
- having a longer project, allowing more time for:
  - » initial engagement, which would improve the team's knowledge of the area
  - » encouraging communities to participate actively
  - » the development of community trust
  - » community needs to be met
- using local stakeholders for support – this would allow communities to get involved in local initiatives that directly affect them

# WEYMOUTH

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- AI
- Production and distribution of the 'Householder Guide to Flooding' in Weymouth
- Creation of the Weymouth Flood Warden group, including volunteer recruitment, training, and coordination
- Community engagement events
- Development of the Weymouth StoryMap website
- Development of the Flood Online Reporting Tool (FORT)



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## WHAT WORKED WELL?

### Flood warden group

One of the key outcomes of the Weymouth pilot site has been the flood warden group. Throughout the project, the community has gone from having little knowledge of flooding and a disjointed approach to a solid group of eight regular volunteers.

By improving preparedness, the flood warden group has improved the well-being of its volunteers and the wider community. The community lacked flood awareness and understanding but has said they now feel much better prepared were they to flood again.

For further information, see Chapter 4.



*A guided flood walk led by Dorset Coast Forum and Dorset Council, attended by the Flood Wardens, local councillors and the Environment Agency © Dorset Coast Forum*

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## Engagement events

Weymouth's most successful engagement events were the ones advertised using various means. For some events, the team used social media, local news, letter drops and door-knocking, which saw the highest attendance and quality comments. Dorset Coast Forum (DCF) also attended some events held by other organisations, which were successful as they already had a good footfall.

DCF held events at different times of day, ensuring they gave everyone in the community a chance to attend. Keeping the events relatively informal helped promote conversation. People were more open and honest at these events than at formal ones. Attendance at events has varied and has been challenging to predict, ranging from five to 60 people per event. However, the team often found that some quieter events led to better-quality conversations than the more well-attended ones. Therefore, quantity is not necessarily more important than quality.



*A BRIC stall at Weymouth College Environment Week engaging a younger audience who are generally more difficult to engage © Dorset Coast Forum*

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## WHAT DID NOT WORK WELL?

One of the issues faced in this pilot site has been changes in staffing. These changes have led to uncertainty for the community and RMAs. Consistency of staff is vital when building trust between different groups.

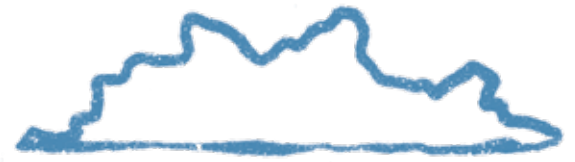
DCF could have undertaken the development of FORT and the householder guide earlier. This development would have allowed more time for the evaluation of these tools.

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## WHAT COULD BE IMPROVED?

- Future projects should avoid staffing changes to ensure consistency for the community and the wider organisation network. Trust in government takes a long time to develop, so keeping the same staff as much as possible can help build this trust.
  - The project team should follow stricter timelines to ensure enough time to evaluate the tools.
  - Similar projects would be longer than two years to allow enough time for the tools to be developed, established and evaluated.
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## **OVERALL RESULTS (FROM COMBINED USE OF TOOLS)**

There is a greater connection between RMAs, local organisations and the community. This connection has led to a rise in partnership working concerning building resilience.

RMAs and local organisations feel more equipped to work closely with the community to build their resilience to flooding and the wider impacts of climate change.

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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

- The community most at risk in Weymouth is better prepared and more aware of flooding risks. The flood warden group seeks to recruit more volunteers and will act self-sufficiently beyond the BRIC project.
- There is greater trust and connection between the community and the RMAs responsible for managing flood risk.
- Local organisations are more aware of flooding and can continue to spread this awareness amongst their local networks.

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## RECOMMENDATIONS FOR FUTURE ACTIONS

A future project team should make ongoing connections between all stakeholders, including the community, RMAs, local charity groups and action groups. The team can do this most effectively through organising face-to-face events and networking sessions, such as community fun days. These informal events allow natural conversation between groups and the opportunity to share ideas around resilience.

Given the demographic and socio-economic diversity, the project team should tailor information to the audience. DCF found that there was an extensive range of flood risk knowledge. Depending on the individual being spoken to, this requires adjustment of the engagement style, level of content and tools used. An example would be speaking with RMA representatives compared to engaging a community litter-picking group.

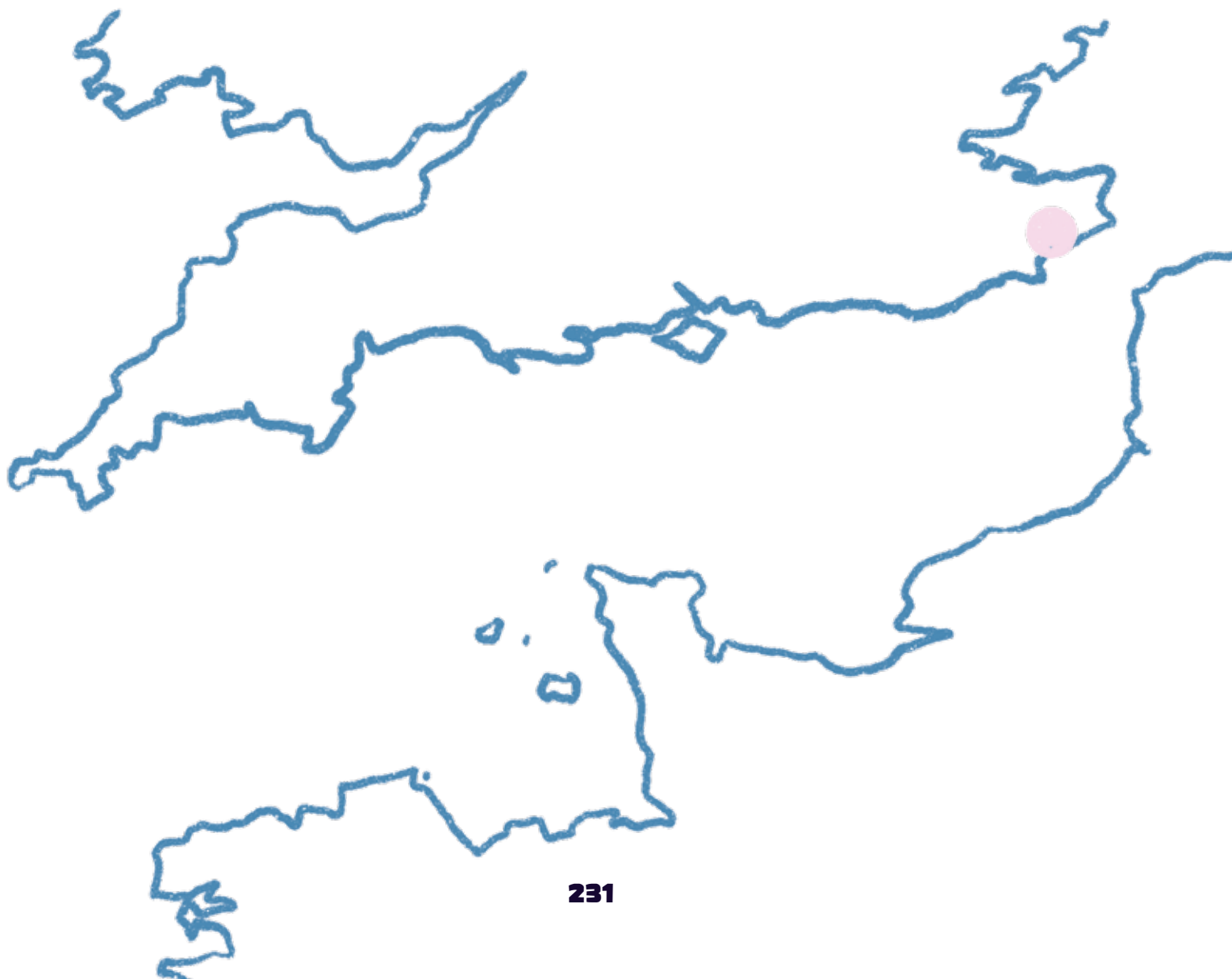
A future project team should continue the BRIC project interventions with ongoing work in the community. The BRIC project must have a legacy in the community to ensure the residents do not feel as if they have been left to continue the work on their own. DCF has achieved this in Weymouth by working closely with Weymouth Town Council and other RMAs throughout the project. They are now aware of the actions they can take to carry on BRIC's work.

# KENT

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- Community-led mapping
- AI
- Flood Action Groups
- Community resilience network
- Stages Evaluation tool
- Events



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## WHAT WORKED WELL?

There has been significant interest and willingness for the community to be involved in numerous aspects of the work carried out in the Kent pilot site. This interest has been most evident through the work on the community-led mapping pilot. The members of the flood action group provided their existing data and knowledge for inclusion, as well as going out and collecting additional data. Interest from the community was also evident at the flood awareness event held in Folkestone, where 92 members of the public attended to learn about their flood risk, understand what actions to take and what help was available to them.

There has been collaborative work undertaken with other agencies and authorities in Kent that demonstrates joined-up thinking, including:

- Flood awareness event, Folkestone – the Environment Agency and Kent Fire and Rescue Service
- Resident’s drop-in event, Deal – Southern Water

The flood action groups in Kent have worked well with the flood risk management authorities (RMAs) through multi-agency meetings. Through this collaboration:

- communities have been able to play an active role in their flood risk management
- RMAs have gained a better understanding and awareness of local problems
- RMAs have gained a community perspective on proposed solutions

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The National Flood Forum (NFF) has been involved in the creation of a new flood resilience network in Kent, which has:

- produced a Terms of Reference document to establish the network's structure, purpose and membership
- agreed its commonalities and strategic objectives
- been invited to join the Medway Flood Partnership group and the Kent County Flood Risk Management Committee – two further routes where communities can have a direct voice in the decision-making process

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## **WHAT DID NOT WORK WELL?**

It has proved challenging to create a flood action group in Folkestone because the last significant flood occurred in 1996, so there is limited flood memory. This lack of memory has meant that people do not feel the need to prioritise volunteering to understand or reduce their flood risk.

In Deal, creating a flood action group has also been challenging for different reasons. In this town, flooding occurs regularly, so there is already a task force and a flood relief scheme under development. These interventions have made people feel that a flood action group is unlikely to be needed or effective.

NFF has encountered some issues with RMAs failing to attend events and meetings as previously agreed, resulting in gaps in flood mitigation discussions with the community.

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## WHAT COULD BE IMPROVED?

AI interviews were primarily undertaken during the afternoon and in the summer. This approach resulted in a limited diversity of respondents, with more tourists and fewer people of working age. To improve the diversity of respondents and limit the number of refusals, it would be preferable to conduct interviews at different times of the day and year.

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## OVERALL RESULTS (FROM COMBINED USE OF TOOLS)

The BRIC project has empowered communities to play a part in their resilience instead of relying on other agencies and authorities. Through their flood action groups and as part of a resilience network, the communities can work with RMAs to achieve their goals and objectives. They recognise that this takes time and effort but can see a path to results.

***“[The Resilience Network] is like pushing a big boulder. It takes a lot of work to get it moving, but once it starts rolling, it will be difficult to stop”***

– Kent Resilience Network Member

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Communities have also embraced social innovation tools, such as the community-led mapping pilot, to build their resilience. Only the community, using their local knowledge and experience, can produce much of the data represented on the map.

From an individual perspective, the BRIC project has allowed people to have a platform to share ideas and experiences, successes and failures, and to be part of something bigger than just themselves – a community.

***“If it weren’t for the Flood Action Group and the NFF, we wouldn’t be standing here today achieving what we have done”***

- Flood Action Group Member

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***NFF BRIC stand at Folkestone flood awareness event © National Flood Forum***



***Engaging with the public at Folkestone flood awareness event © National Flood Forum***

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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

As a result of BRIC's interventions in the Kent pilot site, the main changes are:

- increased opportunities for communities through flood action groups and the resilience network to provide vital local knowledge to assist flood risk management
- an increased willingness from communities to take action to manage their own flood risk, as evidenced by the success of the community-led mapping pilot
- an increase in collaboration between RMAs because of multi-agency meetings, leading to a more streamlined approach to flood risk management

## **RECOMMENDATIONS FOR FUTURE ACTIONS**

Recommended future actions are:

- To continue supporting flood action groups in the pilot area – two years is not enough time for a group to become self-sustaining.
- To continue supporting the Kent Resilience Network – flood action group representatives have little experience tackling strategic flood risk management issues across the county, so they would benefit from NFF's guidance.
- To roll out community-led mapping to other communities in Kent – however, this will require funding for software and training.
- To promote the BRIC model and its tools to stakeholders to encourage further community involvement in flood risk management.



# AULNE VALLEY

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

In the Aulne Valley, Cerema's goal was to bring together a local network along the river and highlight the river's heritage while raising awareness of flooding. Cerema carried out the actions in direct collaboration with EPAGA (public organisation for the planning and management of the Aulne riverbed) and other organisations with whom partnerships were formed during the project.

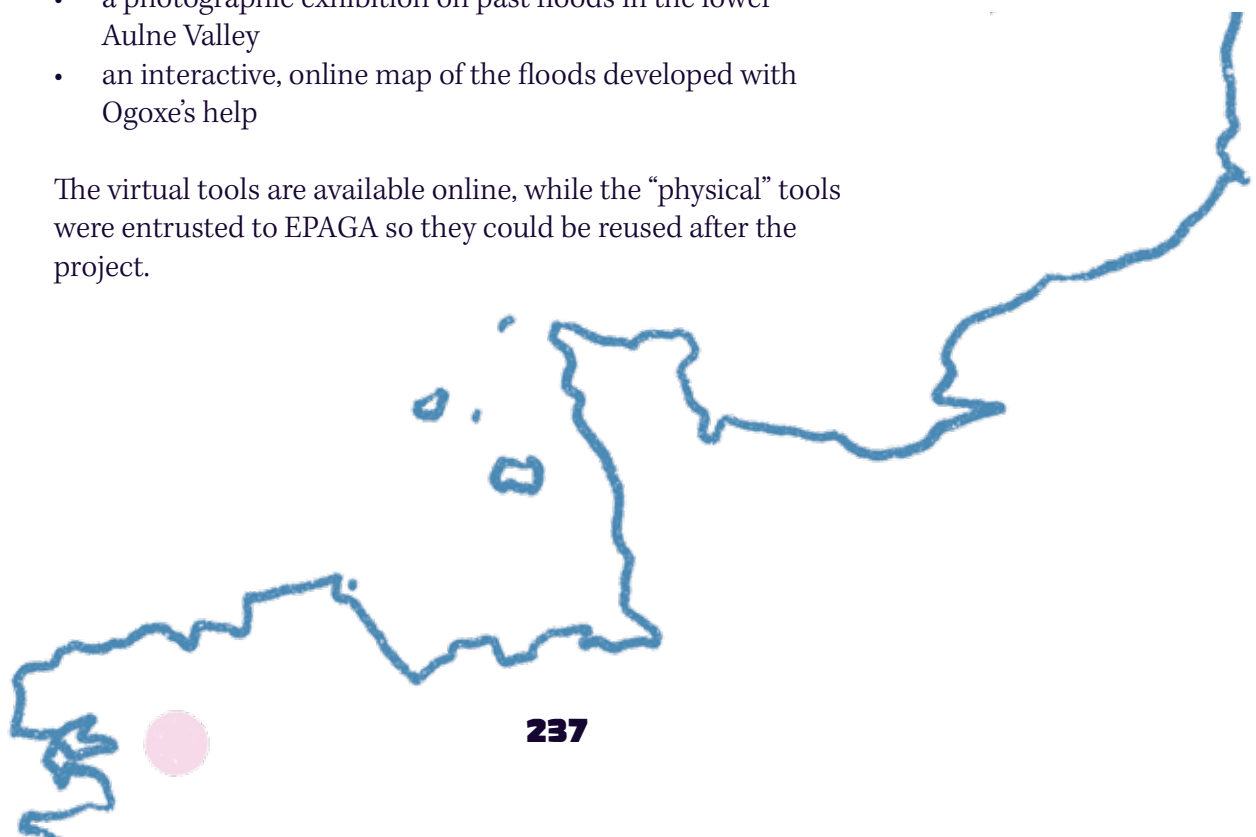
A first series of actions meant Cerema could get to know the territory better and make contact with local stakeholders. They were:

- an assessment of the local area
- a survey via semi-structured interviews
- AI

A second series of actions enabled sustainable tools to be created aimed at everyone to raise awareness of flooding and highlight collective memory and the territory. They were:

- a podcast produced by La Traverse: The Aulne in transition
- a story map developed with the support of Ogoxe
- a photographic exhibition on past floods in the lower Aulne Valley
- an interactive, online map of the floods developed with Ogoxe's help

The virtual tools are available online, while the "physical" tools were entrusted to EPAGA so they could be reused after the project.



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A third series of actions involved artistic activities by the Folie Kilomètre group. Creative workshops and sensory walks along the Aulne were intended to approach the subject of flooding sensitively by sharing inhabitants' experiences and artistic creations. Three permanent additional creations made during this process will be reused after the project: a chronological frieze about the floods (rounding off the photographic exhibition), an interactive map and a model of the Aulne Valley.

Finally, the actions in the Aulne Valley culminated in the organising of a major event: the festival "*Along the Aulne*" (24 and 25 September 2022). This event had two aims:

- to rebuild the link between the Aulne and residents with a festive and positive approach, to highlight the territory and raise awareness of flooding
- to establish a partnership between local stakeholders through the organisation of the event so that they take (back) ownership of the theme of flooding and take charge of the event to make it sustainable

This event featured stands on environmental awareness and floods, shows and fun activities suggested by local organisations. The local festival committees provided the catering.



***Photographic exhibition on the floods and model of a river basin during the Aulne Festival (Châteaulin, 24 September 2022)***

© Cerema



***Vigicrues aperitifs during the Aulne Festival (Port-Launay, 25 September 2022)***

© Cerema



## WHAT WORKED WELL?

The success of the actions carried out in the Aulne Valley is down to building relationships of trust with stakeholders from the territory and regularly discussing things in person. The partnership established during the project with Châteaulin's non-profit association, Polysonnance, has been key. This partnership enabled the project team to reach disadvantaged communities and adapt their actions. Polysonnance, Cerema, and EPAGA played a significant role in organising the Aulne Festival.

Another successful element of the project was that the actions in the Aulne Valley made it possible to bring together a network of stakeholders. In particular, the three communes of Châteaulin, Port-Launay and Saint-Coulitz worked together to organise the Aulne Festival. Each organising committee member has said they would like to repeat the Aulne Festival every two years. The territory's stakeholders have therefore taken on responsibility for the actions carried out, which will continue beyond the BRIC project.

Finally, regarding raising awareness to flood risk, the project team received positive feedback about the artistic activities. Highlighting the inhabitants' experiences, creating collective memory and tackling the subject sensitively have all made it possible to reach local residents.



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## WHAT DID NOT WORK WELL?

The project team found it challenging to get the public to come to some open events. This lack of interest could be linked to a lack of publicity or the fact that the event was not advertised in the right way.

Due to time constraints, the project team could not carry out some of the more targeted actions on flooding: the team could not put together a civilian reserve group. They did not identify enough people who felt concerned.

These two issues are partly due to the project's short length: it did not allow the team to dig deep enough into the local voluntary associations or develop enough partnerships.



*Creative workshop with residents (Châteaulin, 4 March 2022) © Cerema*

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## WHAT COULD BE IMPROVED?

The project team's actions were successful since they formed partnerships with local stakeholders. However, the stakeholder's staff needed more time to carve out from their workload to spend on this project. Making these actions sustainable may enable everyone to devote what is necessary to make getting involved easier.

One feature that could be improved is the duration of this type of project. It takes time to create a local initiative, make sure that inhabitants embrace a subject, form links with local stakeholders, local voluntary associations and contacts and take everyone's expectations into account. It is much less effective and sometimes damaging to plan actions according to a project timetable without considering the people you want to be involved, their priorities and budget schedules.

Finally, it would be beneficial to rely more on the networks of each local stakeholder, especially voluntary associations.

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## OVERALL RESULTS (FROM COMBINED USE OF TOOLS)

In terms of overall results, the actions in the Aulne Valley made it possible to bring people together around the Aulne on the topic of flooding.

Organising an event about the Aulne has enabled partnerships to be formed locally, creating a real network. The partners, EPAGA, Polysonnance and the three communes of Saint-Couliz, Châteaulin and Port-Launay, embraced the subject of flooding with a genuine desire to keep it going. The partners want to make “Along the Aulne” a permanent fixture. That is a real win.

Furthermore, from the inhabitants’ point of view, the project made it possible to:

- share and reinforce people’s collective memory (through a photographic exhibition and a chronological frieze)
- share individual flood resilience practices collectively (through podcasts and the Vigicrues aperitifs organised during the Aulne Festival)



*Organising Committee of the Fête de l'Aulne (Le Télégramme, 23 September 2022) © Cerema*

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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

The BRIC project has made it possible to create and strengthen partnerships with local stakeholders. They have taken on the idea of organising a festive event about the Aulne to raise awareness of flooding and bring residents together.

The first edition of the “Along the Aulne” festival certainly gained the trust of some local stakeholders who contributed to the event, which will help with future events.

## **RECOMMENDATIONS FOR FUTURE ACTIONS**

To carry out projects like this in the future, the project team considers the following points necessary:

- jointly putting together the project with skilled workers from the social sector and with inhabitants, taking into account their interests and concerns
- dedicating time to it
- connecting people as part of a network, creating links so that residents take ownership of the actions carried out and make them viable over time
- remembering the importance of organisation: a local organisation with human resources is needed to help coordinate long-term actions

# OISE VALLEYS

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- AI
- Storymap “Flooding and vulnerable people in the Oise valleys”
- Interviews with stakeholders
- Awareness-raising workshops for schools
- Educational walks with elderly people
- Educational game “Flooding : Am I affected?” about the risk of flooding and its direct and indirect consequences
- Training application
- Smart devices (currently being implemented)





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## **WHAT WORKED WELL?**

The French-English cross-border collaboration contributed to the success of actions in the Oise Valleys, particularly AI and the storymap. AI made it possible to approach the general public to gauge the level of risk culture among the categories of people interviewed and thus to prepare awareness-raising actions.

Through the BRIC project, the team have strengthened existing and established new partnerships with organisations and communities around the issue of awareness-raising. These partnerships have resulted in the creation of awareness-raising workshops for schoolchildren and educational walks for the elderly. These activities were thought out, co-designed and carried out in collaboration with the local public basin establishment (Entente Oise-Aisne) and the risk prevention department of the town of Creil. Three Creil schools wanted to take part in the approach, as well as the Centre Communal d'Action Sociale.



To accompany these events, the Agency has developed several communication and information materials on the risk of flooding. It has also produced a fun game for the general public (adapted to younger people) entitled “Floods: am I concerned?”. It consists of a map of a given territory with a representation of the flood hazard, a colouring, a dice and a height gauge allowing the participant to confront the different heights of water that he could encounter in case of flooding. The principle of the game is to use the dice and the map to locate the places where the participants live, work or play and to discuss the direct and indirect impacts of flooding.

More generally, it is expected that the collaborative networks formed through these activities are likely to be sustained over time, enabling this type of action and initiative to be long-term.

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## WHAT DID NOT WORK WELL?

Apart from raising awareness among schoolchildren and the elderly, mobilising the general public around flood risks did not work well at the Oise valleys site. Possible reasons for this are:

- the nature of the Urban Planning Agencies, which are territorial engineering structures whose main stakeholders are the member communities. They do not, therefore, deal directly with the general public ;
- the Covid-19 pandemic, which caused delays in setting up community engagement ; and
- the short duration of the project (aggravated by the health crisis), which did not allow for timely feedback on the initiatives undertaken.

In addition, it only proved possible to conduct three interviews with institutional stakeholders, possibly because of the interview’s length (at least an hour) and their need to better understand what the exercise would achieve.

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## **WHAT COULD BE IMPROVED?**

The timing of AI needs to be carefully considered. The project team's first AI campaign was scheduled for an election period but had to be postponed to ensure political neutrality. The interviews were then due to take place during the summer, but this meant that the participation rate was lower than if they had occurred during other times of the year.

A longer project would have assisted the project team in implementing its actions, particularly as a social innovation approach was new to them. A more extended duration would also have allowed the team to evaluate the interventions properly.

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## **OVERALL RESULTS (FROM COMBINED USE OF TOOLS)**

Having a clear and comprehensive view of all the results achieved by the project team's interventions is not easy. Nevertheless, some provisional results are described below :

- taking into account the AI, interviews with stakeholders, and workshops, more than 300 people have been made aware of the flood risk issues within the Oise Valleys
- about 250 schoolchildren took part in awareness-raising workshops (10 classes of CM1/CM2 schoolchildren aged 7 to 10)
- between 20 and 40 elderly people participated in educational urban walks in the town of Creil



*Example of an exhibition panel designed for a public awareness event ©Oise-les-Vallées*

## WHAT HAS CHANGED AS A RESULT OF BRIC'S INVOLVEMENT?

In addition to existing local awareness-raising actions and initiatives, implementing a social innovation approach has introduced new practices and opportunities to involve the general public. For example, thanks to the BRIC project, populations particularly vulnerable to natural hazards, such as children and the elderly, are increasingly involved in awareness-raising.

The BRIC project has also enabled the Urban Planning Agency, whose primary role is to work with institutions, to take on a new role as a communicator and “populariser” for the general public.

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## RECOMMENDATIONS FOR FUTURE ACTIONS

The interventions and solutions trialled through the BRIC project have all been beneficial for raising awareness of flood risks within the Oise Valleys. The project team recommends that social innovation activities are extended past the end of the project by introducing new practices and mobilising competent organisations so that inhabitants can continue to be involved in raising risk awareness. This could be done by :

- regular awareness-raising briefings for teachers and professionals working with vulnerable people ; and
- strengthening the role of urban planning agencies as an organisation that can support awareness-raising actions on flood risk nationally in France through their national federation (FNAU), which could bring this involvement to the attention of the ministry in charge.

# AUTHIE VALLEY

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## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

- AI
- Podcasts
- Story map
- Collective workshops
- Festival of Resilience
- Weather stations and connected objects



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## WHAT WORKED WELL?

Awareness-raising workshops were organised by the CPIE Vallées de l'Authie et de la Canche in partnership with Cerema to meet the inhabitants of the Authie valley. In a logic of continuity, the three meetings that took place aimed to train and inform the participants about the risk of flooding in the territory and the means to prevent and protect against it. Thanks to these meetings, the participants were able to:

- discuss the material and psychological consequences of a flood
- obtain advice on the responses to have in case of emergency
- be informed about how a catchment area works and on the phenomenon of runoff

Guided by the thread of experience sharing, these workshops also pursued a desire for transmission and training. To this end, flood risk management professionals shared their knowledge of these occurrences and their consequences. These meetings aimed to create a collective dynamic around the risk of flooding in the territory.



*Resilience workshop – November 2022*  
© CPIE Authie and Canche Valleys

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Flooding is an important subject to discuss with the inhabitants of a valley vulnerable to this natural risk. Talking about it collectively and informedly allows people to structure their strengths to prevent this risk and be more resilient when it occurs.

CPIE organised a Festival of Resilience in the commune of Auxi-le-Château, dedicating a whole month to raising public awareness of climate change and flooding. The festival took place in November 2022 and included various events:

- an exhibition
- theatre-forum performances for schoolchildren
- a training course accessible to all on the subject of natural risks
- a games evening to tackle these issues in a more playful way

Theatre performances were offered to five schools, welcoming nearly 180 pupils and their supervisors. These performances were given by the Ca s'peut pas company, which designed an interactive show on climate issues, inviting the audience to participate in the staging. This concept allowed the children present to be spectators and actors in the production, thus aiming to raise awareness.



*School theatre to raise awareness of climate change – November 2022 © CPIE Authie and Canche Valleys*



*Flood risk awareness training – November 2022 © CPIE Authie and Canche Valleys*





Ogoxe developed weather stations and connected boxes, which were made available to the Authie valley. Five stations were installed in:

- Villers sur Authie
- Remainnil
- Noeux-lès\_Auxi
- Grouches Luchuel
- Montigny les Jongles

Once installed, Ogoxe connected the equipment to the OgoxeApp, an online application accessible through the Authie Valley online resilience network. Each member can configure the app to receive notifications according to pre-determined criteria.

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## WHAT DID NOT WORK WELL?

The team encountered the unavailability of inhabitants when carrying out AI. They found it challenging to find people willing to be questioned. Among the respondents, the interest shown was quite limited and led them to give very brief answers.

Even though Auxi-le-Château and its surroundings are regularly flooded, the awareness-raising workshops did not arouse much curiosity. The team found it challenging to mobilise the public for these events, which led them to question whether they had sufficiently publicised them.

In general, the top-down meeting or workshop formats also struggle to mobilise people. However, the workshops set up as part of BRIC did not pursue this idea but instead had an objective of exchange and sharing. However, in our communication, this aim is likely not perceived or understood by the general public.



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## **WHAT COULD BE IMPROVED?**

For such a project to significantly impact the territory, it is necessary to have a figure identified by the local residents and stakeholders. A person's commitment for the entire project duration is important to facilitate the appropriation of the issues pursued by the project.

The meetings with the area's inhabitants have made it possible to initiate a collective dynamic towards forming a resilience network, but it is necessary to go much further. The ambition must be even more significant, so the duration of a project like BRIC must be longer. Territories need time to take ownership of their issues, carry out actions, and witness changes.

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## **OVERALL RESULTS (FROM COMBINED USE OF TOOLS)**

Implementing the BRIC events and tools has allowed the emergence of a greater sensitivity on the part of the inhabitants to the issue of flood risks. The installation of the Ogoxe warning tools is too recent to see the results. Nevertheless, the project team is convinced that their adoption will make it possible to sustain the objectives and results already achieved by the project, i.e. raising the awareness of the inhabitants and strengthening their vigilance and resilience.

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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

During the workshops, an inhabitant of the neighbouring catchment area showed great interest and concern. The BRIC project has had a significant impact on the catchment area beyond the boundaries of the pilot site, as it has awakened the institutional actors to the problem of flooding.

## **RECOMMENDATIONS FOR FUTURE ACTIONS**

It is necessary to promote regular and close contact with the actors of the territory, including elected representatives of the communes, residents' associations and State services, to adapt actions to the region's specific challenges and its inhabitants.

# RISLE VALLEY

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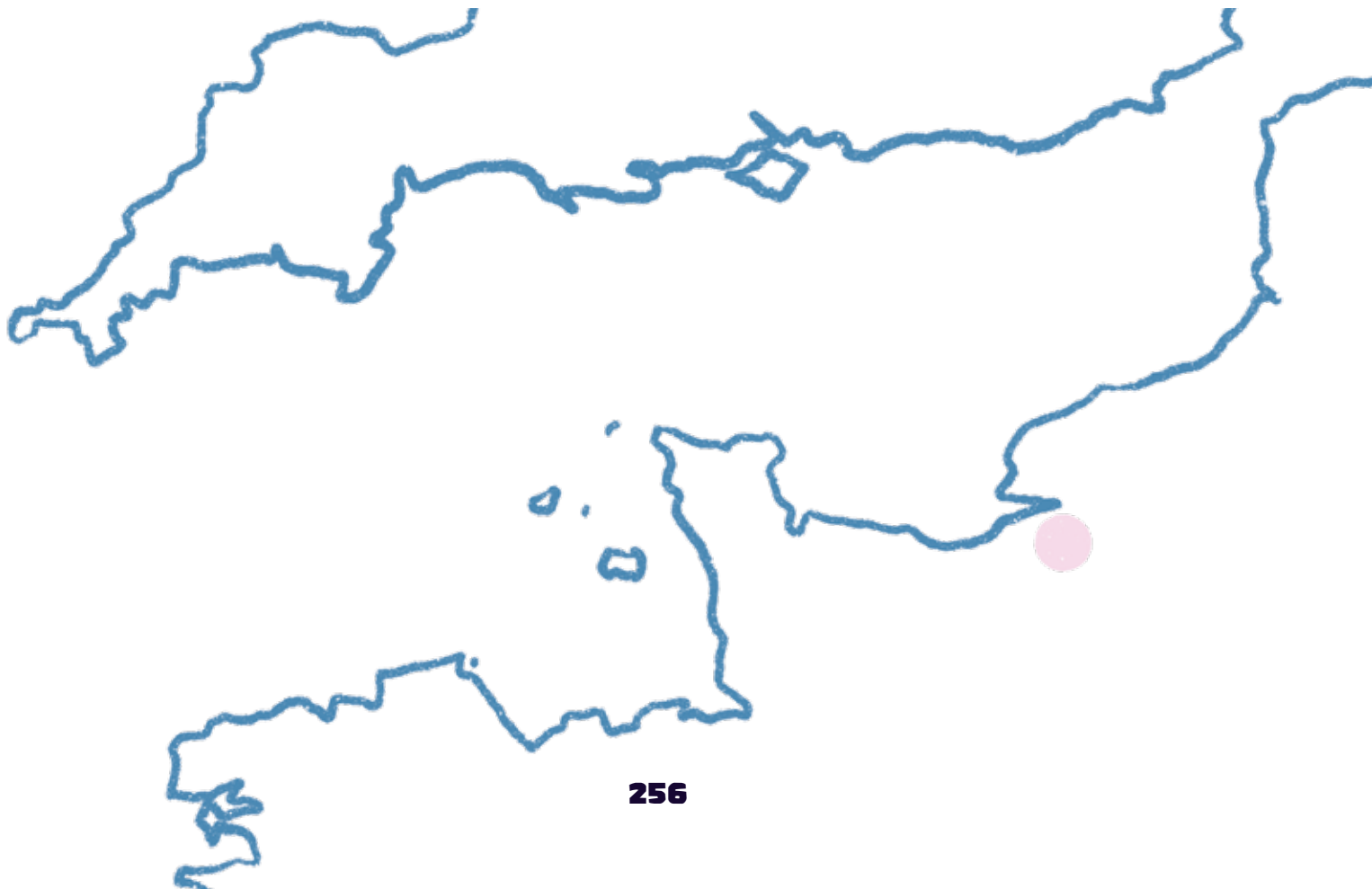
## SUMMARY OF KEY TOOLS USED AND ACTIONS TAKEN

In the Risle Valley, Cerema wanted to develop a risk culture by emphasising the presence of water.

On the one hand, they relied on existing stakeholder networks to find new ways of addressing the subject of floods. To do this, Cerema rolled out methodological tools across several pilot sites: assessment of the local area, semi-structured interviews, AI and a story map.

On the other hand, they looked to test crisis management awareness and preparedness tools:

- flood safety plans showing the instructions to follow should homes be flooded, similar to fire safety plans
- virtual reality tools to give users an immersive experience
- rapid flood modelling tools, detection of openings in buildings in case of flooding, for reactive and fast protection



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## WHAT WORKED WELL?

The story map was widely appreciated since it enabled territorial partners to take part in constructing the story and the territory's features to be highlighted through it. The tool's interactivity was particularly appealing to the people involved in the project since the story map makes it easy to adapt its content.

Relying on an inclusion association made it easier to access the project's target audience and think about collective projects to be rolled out in the territory (e.g. a TikTok video campaign). This reliance on a local network made it easier to adapt the technician's approach to the target audience and generate enthusiasm for the project.



*Discussion between supervisors and staff from the Être et Boulot association, and the French-English members of the BRIC consortium, 23 March 2022 © Cerema*

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Holding semi-structured interviews made it possible to meet key resources who could provide information on how to proceed with the target audience. The interviews were an important tool for better understanding the people involved and adapting to them.

The idea of a flood safety plan quickly appealed to and was listened to by the territory's partners (inter-municipality, social landlords).

The virtual reality tool also appealed to councillors as a support tool for discussions.





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## WHAT DID NOT WORK WELL?

The project's length was too short, and the Covid-19 pandemic made it impossible to achieve all the goals that had been set. Setting up a network of supportive partners took up much time, as did developing the tools.

The AI did not go as expected since respondents wanted to end discussions quickly. This difficulty in engaging people during AI out in public has led the project team to reconsider their format so that they are based on third-party events.

The idea of a "resilience champion" was not appealing to the public or partners involved. However, the project team could encourage these "champions" to become project ambassadors for implementing flood safety plans, for example.

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## WHAT COULD BE IMPROVED?

From an overall point of view, the way in which actions on the territory are conducted could be improved to encourage inhabitants to get involved. Embracing the idea of resilience does not come naturally. Therefore, Cerema needs to support the public better in their understanding of and acceptance of the issue.

Continuing with the actions carried out for this site should enable the project team to achieve these goals in time. Lack of time was the critical factor in why a network could not be established.

For example, the managers from the insertion association Être et Boulot have started a piece of work with their staff members. Their experience of working methods with this target audience, combined with the knowledge gained, should make it possible for them to make a success of the actions they have in mind (e.g. TikTok video campaign).



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The inter-municipal authority also showed a strong interest in using digital awareness-raising tools, such as virtual reality, flood safety plans and the story map, in the territory. There is the issue of continuity in terms of political backing after future elections.

On another note, linking a specific purpose, such as the flood safety plan, to having a “resilience champion” would perhaps make it easier to increase support.

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## **OVERALL RESULTS (FROM COMBINED USE OF TOOLS)**

In a territory that is not used to dealing with the issue of flood risk, the BRIC project has made it possible to sow the seeds that only need a bit of water to blossom. Indeed, the various tools trialled meant partners with different perspectives engaged.

Because of this, three actions could reflect this general approach:

- The work with the inclusion association Être et Boulot makes it possible to raise awareness at different levels: with employees and supervisors, but also the public to whom they will present their work.
- The promotion of the flood safety plan, which raises awareness among all those concerned, such as social landlords and councillors, as well as social housing tenants.
- The workshop on 7 January 2023, through virtual reality with technicians and community councillors, with inhabitants of an affected area. This workshop is a unique and direct discussion of awareness of flood risk.



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## **WHAT HAS CHANGED AS A RESULT OF BRIC'S INTERVENTIONS?**

In a territory that does not have a network of local partners to encourage territorial resilience to flood risk, and despite recent floods (2001), the BRIC project has made it possible to raise awareness of this among various stakeholders and start to connect them in a network.

Developing innovative and agile tools has enabled the inter-municipal authority to get involved in the issue. From now on, it plans to dedicate space to this topic in its cultural area, which is accessible to everyone. The story map will also be used during the 2023 wetlands day.

## **RECOMMENDATIONS FOR FUTURE ACTIONS**

The items considered important for future projects are:

- jointly building a project that brings together stakeholders both on the social and the risk side
- taking time to build a network of stakeholders for optimal outreach
- finding local stakeholders in the territory and succeeding in setting up sustainable activities
- using different tools to be more appealing to the public and partners

# 7. CROSS BORDER COMPARISONS



**264 FLOOD RISK GOVERNANCE**

**269 APPROACH TO COMMUNITY ENGAGEMENT**

# FLOOD RISK GOVERNANCE

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## DIFFERENCES IN GOVERNANCE BETWEEN THE TWO COUNTRIES

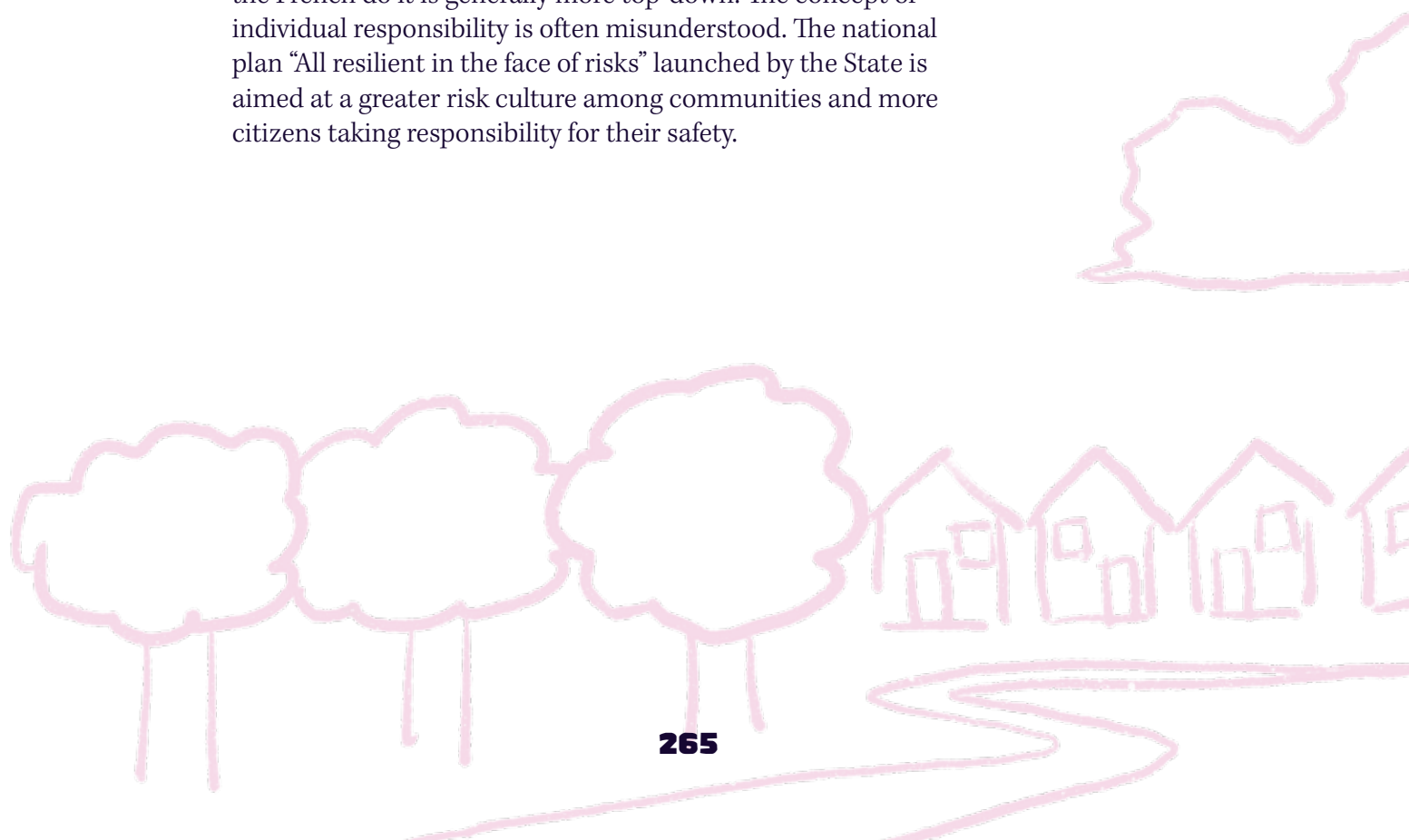
The BRIC partnership between France and England has resulted in a striking disparity in flood risk governance between the two countries. The government and environmental agencies in the United Kingdom assume the lead in these issues. However, due to the limitations of their role, some local issues will be ignored. These limitations result in communities needing to band together to devise strategies for dealing with the flood risk within their area.

Furthermore, the numerous stakeholders (layers of administration and homeowners) can cause problems regarding management and levels of responsibility. In England, flood risk is governed by several agencies and different authorities. The national responsibility for flooding falls to the Environment Agency (EA), which comes under the Department for Environment, Food and Rural Affairs (DEFRA). On a regional level, the EA is also responsible for flood risk management of the main rivers and coastal flood risk. Locally, responsibility for flooding falls to the Lead Local Flooding Authority (LLFA), which is generally the County Council or Unitary Authority. The risk of surface water flooding and ordinary river flooding is part of their remit. Floods coming from drains are the responsibility of the local wastewater treatment company. Flooding of road gutters and drains usually comes under the remit of the local highway authorities, which may be the local county or district council.

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The government could improve flood risk governance in the UK by establishing more explicit roles for local authorities and water management agencies. When these responsibilities are clearly explained to residents, they can hold the relevant authorities and agencies to account and start to develop their own flood resilience.

In France, the State traditionally takes a more central role in managing natural risks, although it increasingly delegates this to local authorities. In addition, the State is the primary reinsurer when compensating for natural disasters (with the natural disaster compensation scheme) and the financer of specific preventative measures (through the major natural hazards prevention fund, the *Barnier Fund*). This high level of involvement from the State and the emphasis on compensating for damages has fostered an attitude of people being “entitled to compensation”. This attitude does not encourage communities or individuals to assume full responsibility or implement preventative measures. The way the French do it is generally more top-down. The concept of individual responsibility is often misunderstood. The national plan “All resilient in the face of risks” launched by the State is aimed at a greater risk culture among communities and more citizens taking responsibility for their safety.



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In France, regulatory measures tend to reinforce responsibility, particularly by establishing GEMAPI (Aquatic Environment Management and Flood Prevention) by communes and their regrouping, enabling them to take operational and financial control of the waterways and floods in their territory. Likewise, the Barnier Fund is an interesting French anomaly that facilitates the funding of numerous preventative measures, reduces vulnerability and even risk culture and enhances knowledge of crisis management systems.

In the UK, the government places more responsibility for flood protection on the individual. Even though there is a tendency to emphasise personal responsibility in flood management, there are limits to this when faced with forceful natural hazards.

Volunteering is part of the UK's culture and could result from the overall philosophy of civic duty. It has been going on for many years and also covers natural risks. Several experiences showing this have been developed in this model guide, such as local flood risk management communities and their support to residents, flood wardens, etc.



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## COMMON WEAKNESSES IN BOTH COUNTRIES

Ultimately, both countries have similar ongoing issues, some of which are vulnerabilities in effective flood risk management.

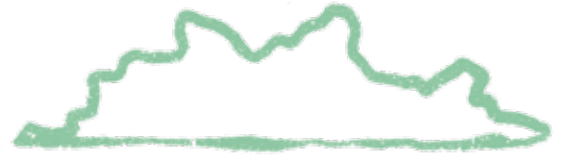
First, there are generally insufficient financial resources for the work needed. The subject is even more delicate in England, where local authority funding is minimal and often comes from grants or donations.

There may be several different local stakeholders, sometimes with competing issues and priorities. This complex framework can be challenging for the general public to understand.

In both countries, there is pressure on land due to urban development, leading to more issues in flood zones.

In these problematic flood-prone areas, there are generally two types of residents: those who are prepared to get involved and try to improve things and those who blame the local authorities or the government for things not working. Each type of resident will require a different approach to improve their resilience.

Finally, both countries have potential room for improvement in educating school children, since lessons on water and flooding could be given more emphasis.



## A POSITIVE THING IN COMMON

When it comes to crisis management in France and England, the response to flooding is the same for all partners at different levels, whether operational, technical, etc. During the crisis, all stakeholders get involved (communes, the State, firefighters, network administrators, associations such as the Red Cross, etc.).

## COMMON AREAS FOR PROGRESS

Through the BRIC project, areas for improvement in risk governance have emerged. They all relate to the on-the-ground organisation of cooperation between various stakeholders and better collaborative work. To achieve this, a proactive approach is needed towards flood resilience and flood risk management.

Since flood risk covers many levels ( from statutory and national planning to communities and individuals), there needs to be a collaboration between all parties to ensure cooperation, efficacy and efficiency. Also, responsibilities must be shared.

The authorities in both countries must make room for multi-level discussions so that the stakeholders and communities can work together. Working in a partnership takes time and resources. More than two years of the BRIC project are needed to develop a community resilience network fully. This long-term task must be embedded in the territories and communities and sustained over time.



# APPROACH TO COMMUNITY ENGAGEMENT

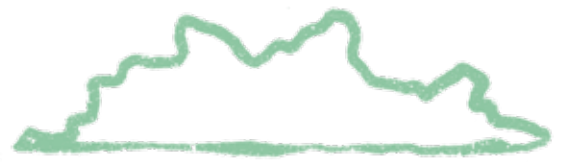
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## POSITIVE THINGS IN COMMON

Local authorities are responsible for evacuations and protecting residents. Landlords are responsible for protecting their property.

Regarding the vulnerable populations targeted by the BRIC project, the English organisations know that they need to be approached on their own terms, since they are a part of society that may be reluctant to be given orders or even take advice. There are many local authorities who are not trusted by these populations, so it is vital to build a relationship of trust. France also has bridging organisations that work with target audiences, so engagement with these specific groups could be similar to that in the UK.





## COMMON POINTS OF WEAKNESS IN BOTH COUNTRIES

When it comes to community engagement, although there are many differences between the two countries, they share certain weaknesses.

Firstly, the subject of forgetting about risk. In the wake of a crisis, all stakeholders are involved, and everyone shows solidarity and a willingness to act. However, if no new hazards occur in the area, the memories fade and, momentum is lost.

The project partners have seen a need for more collaboration and information sharing between communities and authorities in both France and England. There needs to be more citizen involvement in shaping public services. In both countries, links must be created between the community and stakeholders.

Populations in both France and England are hard to reach. In both countries, there needs to be sustained engagement for things to change. That takes a lot of time. Therefore, the BRIC project's two-year duration is not long enough for a new organisation to integrate fully into a disadvantaged community or to build enough trust to form flood resilience networks.

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The socio-economic features of a particular area are also a reason for the lack of community engagement, something that affects both countries. The BRIC project's target audiences (elderly people, jobseekers, etc.) often have financial limitations or reduced mobility that prevents them from participating in events or flood prevention projects. Considering the residents' socio-economic status, more funding and support than was available within the project would have been helpful in meeting these requirements.

The lack of community engagement also results from residents believing that flooding is not their problem. In France, some local people have resilience, but it is not widely shared. Talking about this topic is always a real issue. Some residents still think it is up to the government to act rather than them. In response, the government's double-speak is sometimes ambivalent: it advocates, "living with the risk and everyone is responsible for their own safety", but it is also in charge of residents' safety. In England, residents' concerns about flooding are often linked to the lack of intervention from local authorities and water management agencies and the limitations of infrastructure. They often believe that floods are not their responsibility and are not keen to get involved.





## DIFFERENCES BETWEEN THE TWO COUNTRIES

Community involvement differs between the two countries, especially if we assume that it is much more present in England than in France. It is necessary to consider the different vocabulary used in the two countries. The term “communities” is not defined in the same way. The English communities in the BRIC pilot sites are generally smaller than those of the French partners. In addition, in the UK, the French term “population” would be much broader, so we would consider it to be at least a county, if not more.

The idea of community engagement is more deeply ingrained in Britain, particularly with community flood action groups encouraged by local authorities. These different groups are an essential place for sharing, which the authorities can rely on, and the populations have a certain amount of trust in (the approach is less top-down and institutional). The flood action groups are an excellent way for the risk management authorities to have direct contact with flood victims in a harmonious environment and to work together to find potential solutions to the community’s concerns about flood risks. COVID-19 restrictions have had an effect on community involvement in England. Even during major events such as this, there is solidarity amongst neighbours and the whole population, making it easier to return to normal more quickly. However, there is still plenty of room for improvement regarding raising awareness of the risks and getting the population involved. The state and local authorities, and the multiple tools in place, currently leave little room for the population’s involvement.

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The involvement of the population in England in the heart of “communities” could also inspire the French to do something similar. However, it is not only a different way of governing but also an attitude that needs to be changed. Institutional reform is required, and a slow transformation towards increasing French people’s responsibility for risk management, aiming for collective and individual resilience actions.

Regarding the BRIC project’s target audiences, in England, due to reduced funding, fewer organisations support people furthest from the labour market, making it hard to reach these people. In contrast, in France, several organisations support these people and could become future project partners.

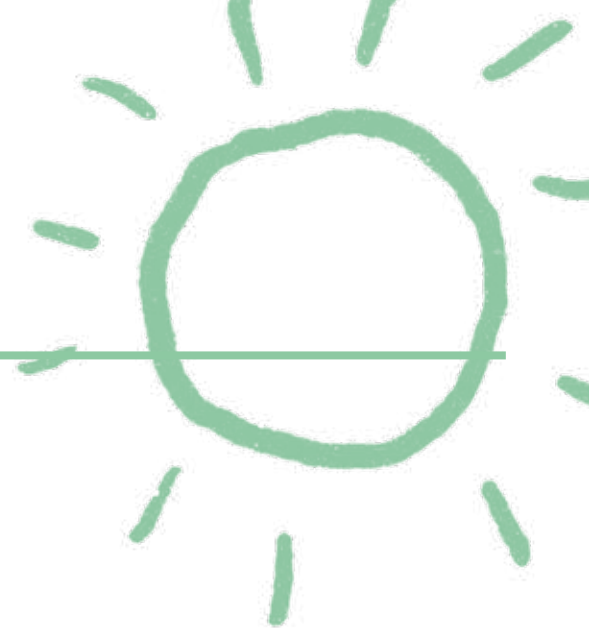


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The lack of stakeholder cooperation has been a significant obstacle to community engagement in one of the English pilot sites. The lack of consistent communication and cooperation on the part of the local authorities and water service providers has had an impact when it comes to information about water management. This has prevented communities from receiving clear information on roles and responsibilities in the event of flooding. The lack of stakeholder cooperation has also affected community engagement in BRIC events. If the local community does not see stakeholders engaging in flooding issues, they may feel disillusioned, leading to a reluctance to engage. This is particularly the case when there is already a need for more trust in local authorities.

Poor relations with external organisations are a reason why community engagement is limited, something that is not shared with French partners. Some people in this UK are disillusioned after years of feeling neglected by the authorities, and they are used to organisations coming and going without bringing any significant changes.

Furthermore, many people are reluctant to admit that they live in an area that is at high risk of flooding since it is a very personal and emotional topic. Some of them are also worried that recognising this risk will affect their home insurance premiums or the value of their property.



# 8. PROJECT-WIDE LESSONS LEARNED





**278 INTRODUCTION**

**279 DO SOCIAL INNOVATION TOOLS WORK TO BUILD FLOOD RESILIENCE?**

**284 WHAT APPROACHES UNDERTAKEN IN FRANCE COULD BE USED IN ENGLAND?**

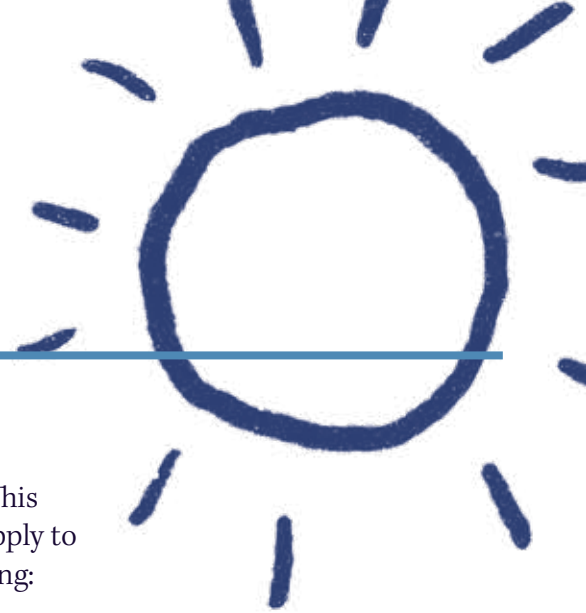
**285 WHICH APPROACHES/EVENTS IN ENGLAND COULD BE USED IN FRANCE?**

**287 IS TARGETING SPECIFIC AUDIENCES (ELDERLY PEOPLE, THOSE OUT OF THE LABOUR MARKET, CHILDREN) THE RIGHT APPROACH TO RAISE AWARENESS OF FLOODS?**

**289 WHAT ARE THE MAIN CHALLENGES OF MANAGING A SOCIAL INNOVATION PROJECT LIKE THIS?**

# INTRODUCTION

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Across the pilot sites, there have been many learning outcomes, some of which are highlighted in Chapter 6. This chapter focusses on project-wide lessons learned that apply to all pilot sites. These learning outcomes cover the following:

- effectiveness of social innovation tools
- applicability of tools across the channel
- effectiveness of targeting specific demographic groups
- key challenges of the project



# DO SOCIAL INNOVATION TOOLS WORK TO BUILD FLOOD RESILIENCE?

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A project without social innovation tools is likely to produce poorer results and lack the depth and breadth of quality community engagement to build resilience to flooding.

Social innovation tools need to consider people's needs, identified by listening. When using social innovation tools to help a community become more resilient, it is crucial to understand and recognise the audience you are speaking to – do they have a specific interest in participating in events or being part of conversations? Are those that come across as the loudest and angriest still affected by trauma and anxiety due to flooding? Therefore, it is essential to listen to and be guided by their concerns, manage expectations, and have regular conversations to understand their needs better.

Activities and events that are perceived to be creative will be more engaging. More informal exchanges in less strict settings are important when addressing personal and emotional issues and can make citizens more willing to talk than if they were directly asked about flooding issues.

However, we have found that one “size” does not fit all. Whatever social innovation tools are used, regular engagement is essential. For instance, Plymouth City Council (PCC)'s initial community engagement in the Lipson Vale area was very positive, with many people coming forwards to volunteer. However, the UK quickly went back into a lockdown, which meant that when the team returned to the area, they effectively had to restart their engagement.

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We have ensured that engagement initiatives have used activities that target different learning types. For example, for the Slow the Flow campaign, PCC used:

- **Visual** – seeing the mini flood tank
- **Kinaesthetic** – playing with the mini flood tank and creating mini water butts
- **Auditory** – discussions about display boards

Using the three approaches simultaneously created more effective active engagement.

### MINI CASE STUDY:

A boy of about 8yrs walked past PCC’s stand at a climate change event. The team asked whether he wanted to make a mini water butt, but he declined. However, he was then encouraged by his mum to give it a try. Once he got going, he was fully engaged for about 20 minutes, which gave the team time to have a meaningful conversation about slowing the flow with his mum and grandmother.



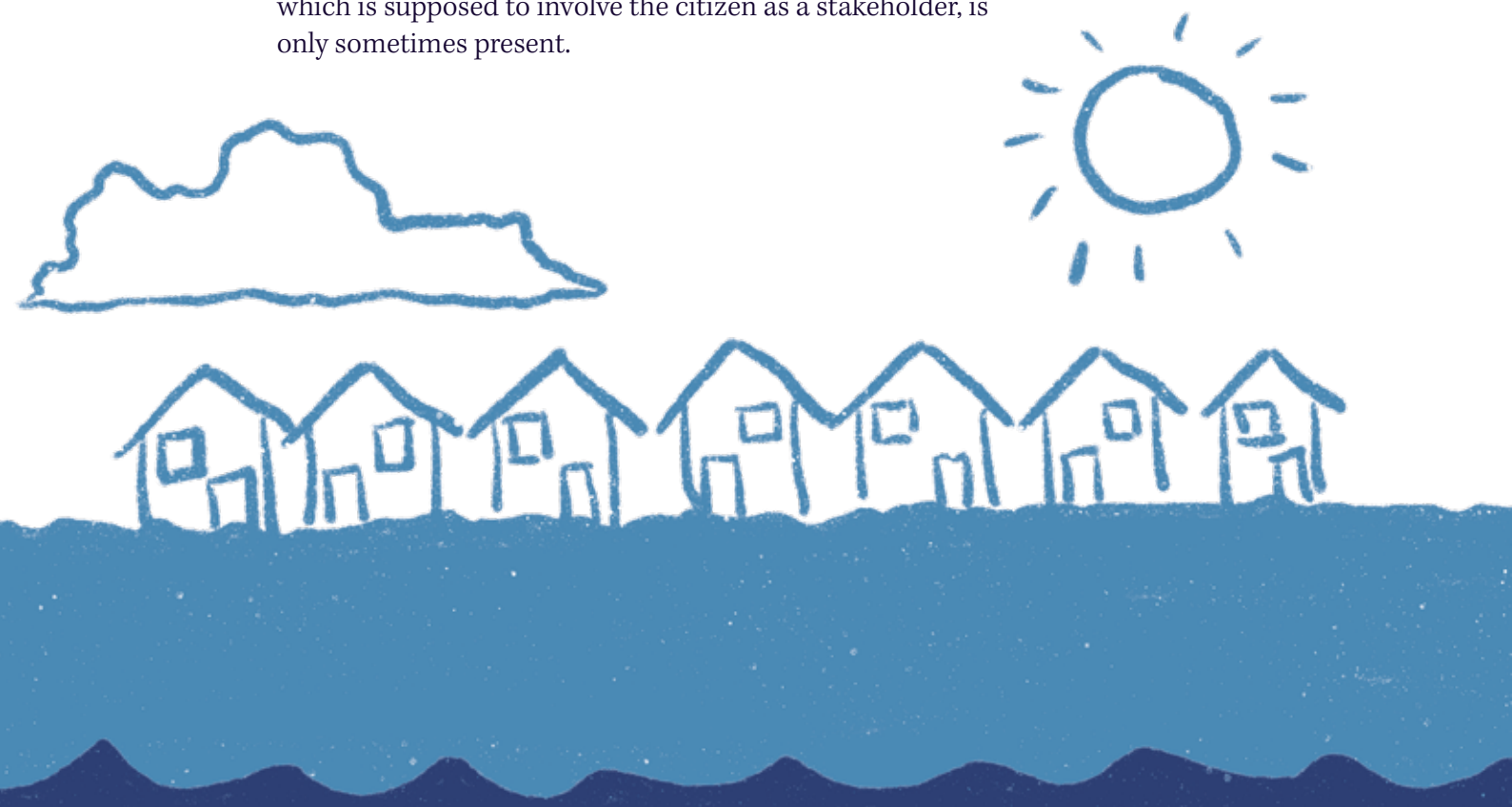
*Slow the Flow engagement event  
© Plymouth City Council*

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Dorset Coast Forum found that in Weymouth, it was essential to use different engagement methods due to the area's diverse demographic. These methods included a variety of engagement tools and holding events at various locations and times of day to ensure everyone got a chance to engage.

We have seen that flood resilience is complex, with shared responsibilities between several stakeholders. Social innovation is needed so that everyone, in his or her own role (resident, business owner, local authority officer, local councillor etc.) can get involved.

In France, responsibility for managing risks is “legally” shared between the State and local authorities. Within this partnership policy, the role of the citizen often needs to be better defined, making them an additional element instead of an active player in the process. The position is similar in England, with the role of citizens often a secondary consideration. Resilience is often understood through the prism of land use planning, which questions the adaptation of urban environments and infrastructure. The social dimension, which is supposed to involve the citizen as a stakeholder, is only sometimes present.



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Social innovation can positively impact flood resilience because it allows for a rethinking of needs and a search for the most appropriate solutions. Integrating this approach into flood risk management implies considering the vulnerabilities of individuals by questioning their relationship with the environment and their perception of risks. One of the objectives could be to promote a risk culture that could give people the ability to cope with floods.

Risk management authorities (RMAs) cannot eliminate the risk of flooding. Therefore, community involvement is vital. For each person to fully understand their responsibility, it is necessary to:

- be aware of flood risk
- feel concerned
- understand other people's and agencies' responsibilities
- share good practices

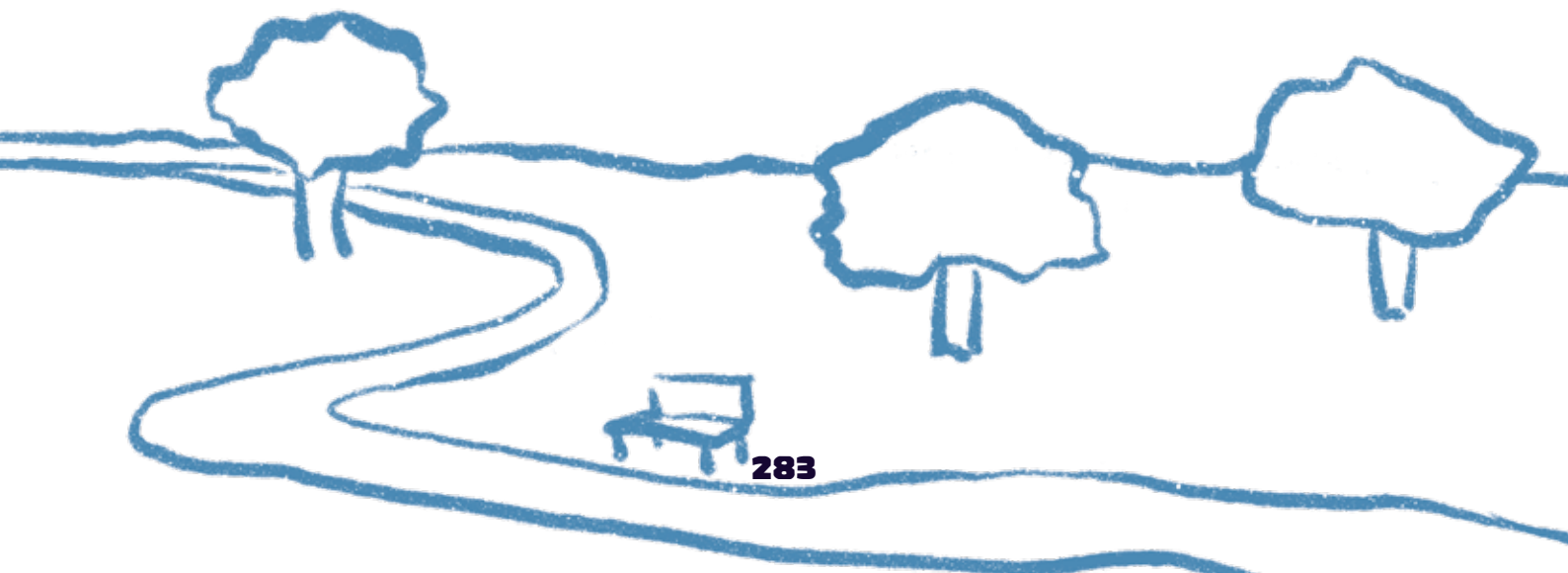


*Meeting of multiple agencies and residents, Authie Valley*  
© CPIE Authie and Canche Valleys

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Social innovation allows the involvement of all stakeholders in a cost-effective manner. This is where social innovation differs from many other flood risk management approaches. Drawing upon existing networks and creating new ones is an essential step. These networks are even more relevant as they address and unite people around other themes, such as water quality, social cohesion, and the broader impacts of climate change.

However, the impact of social innovation tools can be limited because flooding is a complex topic to discuss, regardless of the approach. Many residents in the BRIC pilot sites are reluctant to admit that they live in an area vulnerable to flooding as it is an emotional and deeply personal topic. For example, most residents on Canvey Island live there because they were born there, have social networks, or cannot afford to move anywhere else. Residents' concerns often stem from a lack of assistance from local authorities and water management agencies to tackle the root of the problem. Dealing with these issues is beyond the scope of the BRIC project. We can only help residents build a flood resilience network and cannot fully address the causes of flooding, such as poor infrastructure and climate change. Therefore, RMAs should undertake social innovation projects in parallel with capital infrastructure investments and flood management measures to reduce the root causes of flooding. Without addressing these root causes, conversations about infrastructure and management measures can be a source of disappointment and anxiety for residents.



# WHAT APPROACHES UNDERTAKEN IN FRANCE COULD BE USED IN ENGLAND?

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- As trialled in Pont-Audemer by Cerema, Augmented Reality can significantly raise awareness for communities and stakeholders (RMAs). It is a tool that could change perceptions and increase engagement.
- Some creative games have been developed by Oise-les-Vallées that would be interesting to trial with an English audience. These games would be easily transferable between countries and could also be used in schools.
- A river walk, such as the one implemented by Cerema, could be a powerful tool to start a flood resilience conversation. These walks can connect people with their local catchment and encourage a more profound consideration of flood resilience. They have the added benefit of the increase in well-being linked with being around water.
- French partners tend to stage bigger events. The UK could adopt this approach for city or county-wide initiatives. However, replicating larger events takes time and effort, whereas a project team can repeat 'smaller' activities quickly and easily.
- Accessing those furthest from the labour market in Pont-Audemer was achieved via an existing insertion association. Due to many similar existing organisations in the UK, this could be a helpful approach.



*River Walk, Vallee de l'Authie*  
© CPIE Authie and Canche Valleys





# WHICH APPROACHES/EVENTS IN ENGLAND COULD BE USED IN FRANCE?

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Some actions and events implemented by the English partners throughout the BRIC project could be used in France, again to raise awareness and build local resilience:

- The Slow the Flow events and competition run by PCC have been interesting to follow. Those events have made it possible to raise awareness and familiarise people with innovative techniques to reduce the risk of flooding through workshops and fun games. The goal is to make each individual understand that, wherever they are, they can take positive action to prevent floods. The Slow the Flow competition also highlighted resilient and creative local people who have designed and implemented individual systems for saving water to reduce the risk of flooding.



*Slow the Flow  
Winner with  
the PCC BRIC  
Team  
© Plymouth  
City Council*

- 
- Our English partners used interesting tools to gather stories and raise awareness in different ways. This was particularly the case with Thames21, who organised several photovoice workshops. The photographic tool then made it possible to discuss floods and their impact.
  - Promoting meetings and immersive events is also an effective way of capturing the public's attention and raising awareness. The event organised by the National Flood Forum in Folkstone fire station is an example of this. In fact, during this event, with crisis management stakeholders and firefighters, participants could attend demonstrations, get advice on the process to follow during floods, and answer quizzes. It is a good way of bringing these stakeholders closer to local communities so they can understand each other's roles.

# IS TARGETING SPECIFIC AUDIENCES (ELDERLY PEOPLE, THOSE OUT OF THE LABOUR MARKET, CHILDREN) THE RIGHT APPROACH TO RAISE AWARENESS OF FLOODS?

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Raising flood awareness should be aimed as much at those affected by floods as those indirectly affected and those who are spared, as awareness is specifically aimed at prevent an eventuality.

As for defining the particular vulnerability of certain groups, we will work on the premise that all populations exposed to flood risks are vulnerable, regardless of their economic situation or their age. However, several criteria contribute to this vulnerability, such as access to and use of digital information and communication tools, physical mobility, knowledge of natural risk, and the financial means to address the damage caused.



*Theatre-forum show for children  
in the Authie Valley  
© CPIE Authie and Canche  
Valleys*

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Some people can turn out to be more vulnerable than others because they are less prepared for this risk, they do not know how to react to or deal with it, or even because their physical state could create difficulties during evacuations (this is particularly the case with elderly people or those with reduced mobility). Therefore, specifically addressing these people by raising awareness of flood risks can help them improve their own resilience.

Generally, a campaign to raise awareness should vary its methods and audiences to make it as effective as possible. Approaches may need to be adapted for some people unfamiliar with digital tools (social media, online media, surveillance and warning systems), and face-to-face meetings should be encouraged in these cases.

Thames21 identified the Appreciative Inquiry as an effective way to approach these audiences or those who feel they need to be more involved to participate in particular events. Approaching them in public with a survey or at an event with stands is still a very effective way of getting them to share their stories and raise their awareness.

For example, organising certain events such as meetings, seminars, or interactive workshops can frighten people because of their technical nature. They are also events that take up people's time, and because free time may be scarce due to work and family commitments or hobbies, this can stop many people from participating, even if they are very concerned.

In light of this, we should vary our approaches while knowing who each action addresses, as well as understanding the public and their vulnerability.

# WHAT ARE THE MAIN CHALLENGES OF MANAGING A SOCIAL INNOVATION PROJECT LIKE THIS?

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The BRIC project experiment has revealed the challenges to look out for in future projects of this type:

- **Successfully engaging the population:** this is one of the main challenges of this type of project. Several BRIC project pilot sites have witnessed how difficult it can be to bring together local communities, who are the first to be affected by exposure to risk, and the local authorities who have special powers in this area. The communities and councillors play an essential role in flood prevention and raising people's awareness of these risks.
- **Adapting to the audience and the region:** social innovation implies reflecting on and developing new tools and ways of approaching outreach and training. Because of this, it is vital to understand the local area and how much the target audiences know. Defining key concepts, such as "vulnerability", in the BRIC project is the first step. These actions make it possible to adapt the tools used to ensure that the public is receptive to efforts and that they are effective.
- **Ensuring that actions are sustainable:** one of the major challenges of any project is to provide a legacy and to leave a mark on the area where it took place. The goal is to inspire something that becomes long-lasting and permanent. This means having human resources available who are trained and motivated to keep the momentum going. Having financial resources available is also vital to ensure these initiatives are sustainable in the long term.



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- **Assessing the impacts of actions carried out:** it is important to be able to measure the results and evaluate the activities. We could measure the impacts of the BRIC project using set indicators. However, on a strictly social level, particularly in terms of the response regarding the populations' resilience, measuring the effect implies considerable resources and time. Therefore, this is one of the challenges to be overcome to coordinate possible future actions better.
  - **Giving it time:** Time is needed, on the one hand, to reflect on the actions to be implemented and then actually implement them, but on the other, to see the results in terms of social dynamics, civic engagement and enthusiasm around the project and actions taken.



# 9. CONCLUSIONS





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As stated in Chapter 1, the BRIC project aimed to use training, awareness raising and engagement tools through social innovation to help people be prepared, know how to act quickly in the event of a flood, and recover well after the crisis.

The project partners hope this Model Guide has shown that a project with social innovation at its heart can produce better results, with broader and better quality community engagement. Flood resilience is complex: social innovation encourages everyone to get involved.

Initially, some project partners were sceptical about Appreciative Inquiry (AI) because, historically, it been used more for company employees than for local people. However, it proved itself a powerful tool, and community engagement was more effective because of it. AI enabled the partners to gather valuable information about their communities before planning any interventions and to avoid making assumptions. AI also showed that water risk awareness within all the pilot sites was low, even though many suffer from regular flooding. The project teams obtained flood preparedness scores from 455 people. The average scores for the pilot sites ranged between 1.9 and 2.7 (1 = not at all prepared; 5 = very prepared), with 2.2 as the overall average.

The project intended to target elderly people and those furthest from the labour market. Whilst efforts were made to access these groups, the project partners have concluded that everyone at risk of flooding is vulnerable, regardless of their economic situation or age. Therefore, raising flood awareness should be aimed as much at those affected directly by floods as those indirectly affected and those who are spared. It is a community-wide issue.

It is appropriate to reflect on the project's specific outcomes (as stated in Chapter 1):

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## **RESILIENCE NETWORKS**

BRIC has yet to prove whether it is possible to create resilience networks in most of the pilot sites, partly because of the short duration of the project and partly because of the lack of community interest.

Two years is not long enough to form self-sustaining resilience networks. Changing behaviours takes time and requires a sustained amount of effort and engagement. All project partners have found their populations hard to reach. Flooding is a complex and emotive topic, and many residents are reluctant to admit that they live in an area vulnerable to flooding. Others consider that it is the government's responsibility to solve flood risk issues, so they are not interested in engaging in dialogue on this topic.

Attendance at some events could have been higher, and partners have sometimes found it challenging to find volunteers and maintain their interest. In addition, COVID-19 restrictions significantly affected the amount of engagement that could occur and impacted attendance post-pandemic, as people were cautious about attending events.

However, despite these considerable challenges, the project's interventions have empowered communities to play a role in their resilience rather than relying on other agencies and authorities. Each pilot site has seen an increase in community flood resilience. The use of social innovation tools (see further below) has brought people together to discuss flooding, and their flood risk awareness has improved.

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In some pilot sites, flood action group volunteers and flood wardens have been found. Although these groups are in their infancy, they are already showing benefits as residents are better able to manage flood risks and the community is better prepared.

There has been increased collaboration between communities and risk management authorities (RMAs). There is now greater trust and connection between the communities and the RMAs. In addition, local organisations are more aware of flood risk, so they can continue to spread this awareness amongst their networks.

While many new partnerships have been created with gateway organisations, there has not been enough time in the two years to develop those partnerships to their full effect. The project partners agree that such collaborations can help project teams reach a broader, more diverse audience, thereby maximising attendance at events and ensuring that flood resilience networks accurately reflect their communities.



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## **RESILIENCE TOOLKIT**

This Model Guide has described many social innovation tools that project teams can use to raise awareness of flood risk. There is no “one size fits all” in community engagement, so it is beneficial to have many tools to choose from that target different learning methods.

Whilst attendance at some events could have been higher, creative activities that were not directly focused on flooding were the most effective in allowing discussions about flood risk to evolve informally. The project partners also found that low attendance allowed quality exchanges about flood risk. It is not, therefore, all about quantity.

The technical tools (Householder Guide, flood safety plans, podcasts, totems and weather stations) have taken a long time to develop and rollout, meaning there has been little time to test them within the communities and evaluate them.

## **WEB PLATFORM**

The BRIC web platform has allowed each pilot site to develop an online resilience network space for sharing information. Communities can create content while accessing training, surveys, storymaps, and data from smart devices and weather stations.

# 10. RECOMMENDATIONS



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**The BRIC project partners wish to make the following recommendations to those defining and undertaking future social innovation projects:**

**SET REALISTIC PROJECT OUTCOMES AND BE MINDFUL OF HOW ACTIVITIES WILL BE EVALUATED**

The target community's socio-economic status should be carefully considered when defining a project's scope to ensure that the required outcomes are realistic and achievable. The BRIC project teams found that it was unrealistic to expect people in deprived areas to quickly become responsible for their own flood risk and to coordinate flood resilience.

Effective community engagement is time and labour-intensive. Make sure sufficient funding and human resources are available to support the project's activities.

Consider at an early stage how the project team will evaluate the impact of activities. Evaluation can be challenging when it is mainly qualitative data being collected.





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## **ALLOW SUFFICIENT TIME**

All project partners agree that it takes more than two years to create a self-sustaining resilience network. Sufficient time is needed for action planning and volunteer recruitment. Even more time is required to enable a project team to conduct meaningful initial engagement, to develop trust within a community and to ensure that the community's needs are addressed. It also takes a lot of time and effort to build a collaborative stakeholder network, which is essential to ensure continuity and support a community after a project has ended.

Plan enough time towards the end of the project to see and evaluate the results of the implementations.

## **GET TO KNOW YOUR AUDIENCE AND TAILOR ACTIVITIES TO THEM**

The BRIC project partners highly recommend carrying out Appreciative Inquiry at the start of a project to avoid making assumptions about the target community, their level of knowledge and what is important to them. It is crucial to understand a community's needs before trying to engage them and improve their resilience.

There is no "one size fits all" in engagement. However, creative engagement tools and informal events work well because they can encourage people to discuss complex and emotional topics in a non-confrontational and playful way. We also recommend a blended approach to engagement using both face-to-face and digital tools and activities. Many people are still not familiar with or able to access online activities, so face-to-face events will always be necessary.

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## **DEVELOP STRONG LINKS WITH LOCAL STAKEHOLDERS AND GATEWAY ORGANISATIONS**

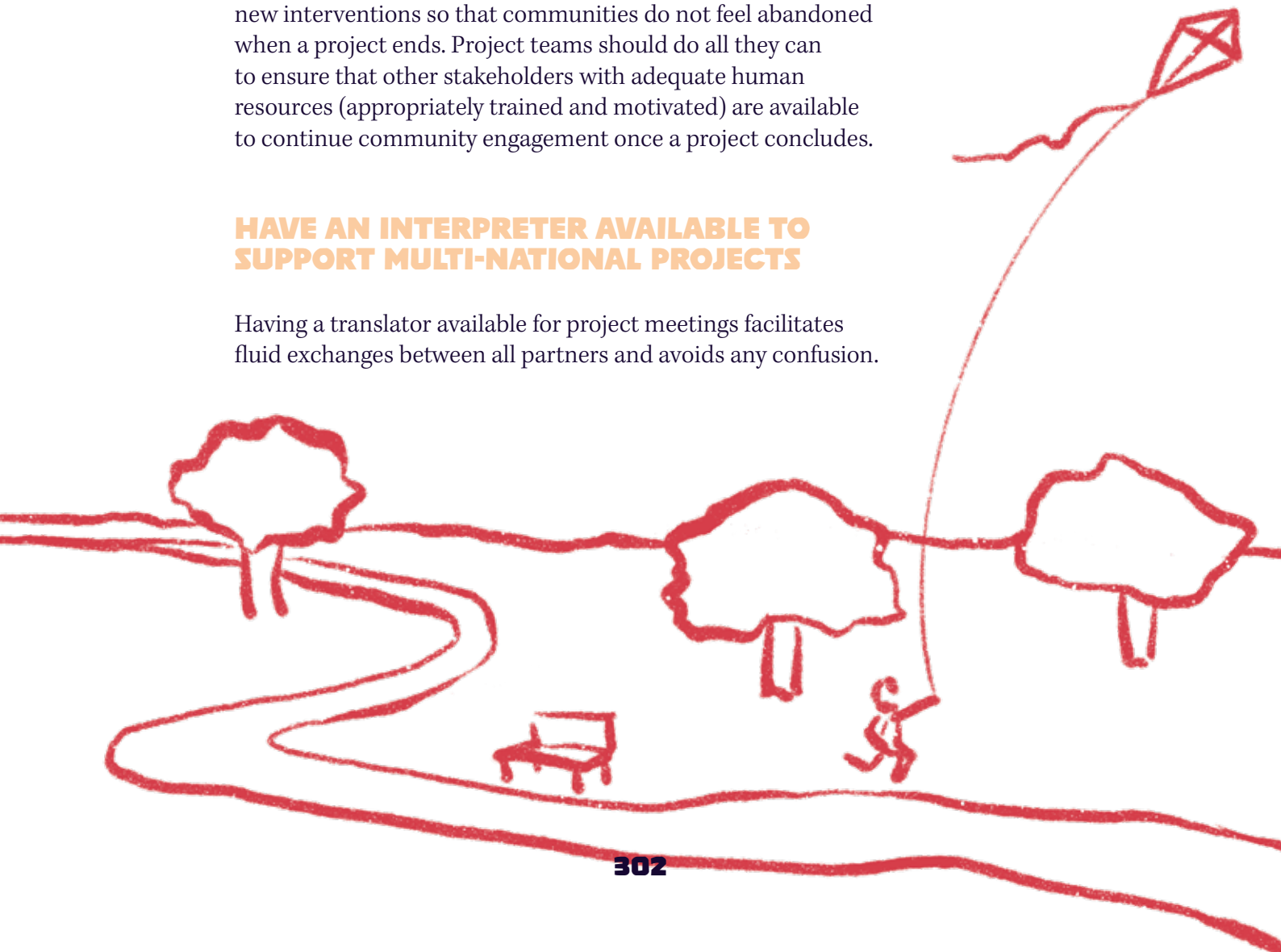
Community engagement can be very challenging when a project team has no existing links with a community. We suggest investing time to develop strong collaborative partnerships with existing organisations early because they will help build trust with communities and enable a project team to reach a broad audience.

## **TRY TO ENSURE THE LONG-TERM SUSTAINABILITY OF PROJECT INITIATIVES**

It is important that either project actions continue or initiate new interventions so that communities do not feel abandoned when a project ends. Project teams should do all they can to ensure that other stakeholders with adequate human resources (appropriately trained and motivated) are available to continue community engagement once a project concludes.

## **HAVE AN INTERPRETER AVAILABLE TO SUPPORT MULTI-NATIONAL PROJECTS**

Having a translator available for project meetings facilitates fluid exchanges between all partners and avoids any confusion.



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**The project partners also wish to make the following recommendations to risk management authorities (RMAs):**

### **INVOLVE PEOPLE MORE IN THE DEVELOPMENT OF PUBLIC SERVICES AND FLOOD RISK MANAGEMENT STRATEGIES**

RMAs should move citizen involvement to the forefront of flood resilience so that people can become active participants in the process. Stakeholders and communities can work collaboratively if RMAs make room for multi-level discussions.

By involving communities when developing flood risk management strategies, residents will be more willing to share responsibility for their flood resilience because they will feel empowered and engaged.

### **SUPPORT THE DEVELOPMENT OF FLOOD ACTION GROUPS AND RESILIENCE NETWORKS**

Flood action groups and resilience networks are an excellent way for RMAs to have direct contact with people at risk of flooding in a safe environment. They also provide an opportunity to work together to find potential ways to reduce flood risk. However, they take time and effort to create and will require continued support from the RMAs if the groups and networks are to develop and become self-sustaining.

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## **USE SOCIAL INNOVATION TOOLS IN CONJUNCTION WITH CAPITAL INFRASTRUCTURE PROJECTS AND FLOOD RISK MANAGEMENT MEASURES**

The BRIC project partners have trialled numerous social innovation tools over the past two years. Despite the challenges of implementation, they have all been beneficial in building people’s resilience. We recommend that RMAs also use them with capital infrastructure projects and flood risk management measures to avoid communities being subject to a “top-down” approach, which can be disempowering. Communities should never feel that actions are being imposed on them but rather that new ideas are a collaborative process explored with them.

