

Bourbre's Flood Risk Management Programme

About the IWA Action Agenda for Basin-Connected Cities

IWA has recently released the [Action Agenda for Basin-Connected Cities](#) which builds on the [Principles for Water Wise Cities](#), with a focus on how cities can be active water stewards in their wider water basins. This includes the Drivers for Action such as extreme events, declining water quality, and water availability; followed by the Pathways to Action through assessment, planning and implementation; and the Foundations for Action from developing a vision to building capacity to improving governance. To learn more visit - <http://www.iwa-network.org/press/the-action-agenda-for-basin-connected-cities/>

About the Basin Stories

The [basin stories](#) are documenting some of the best practices and approaches that demonstrate how stakeholders especially those in urban areas (e.g. city government, water and wastewater utilities, industries) are taking part or contributing to sustainable management of water resources. Greater basin-level collaboration from catchment to consumer is essential for sustainable water management in the face of growing demand on water resources and global change. The stories aim to inspire urban stakeholders to be aware and respond to what is happening in their watershed.

Contributed by:

Summary

With a population of about 211,000, the Bourbre watershed in France plays a major economic role as about 1000 jobs are generated in the area yet the basin is faced with the challenge of floods due mainly to the developments within the basin. These developments have increased the risk of flooding resulting in loss of lives as well as economic losses especially to local business. As a response to this challenge,

Syndicat Mixte d'Aménagement du Bassin de la Bourbre (SMABB), which is the organisation responsible for the Bourbre Basin, has established a Flood Action Prevention Programme (PAPI). This approach of integrated water management in the basin involved a wide variety of stakeholders to connect urban areas with their basin and also promote knowledge exchange amongst different services (e.g. urban planning with water services) and different sectors (environment, water, agriculture). The PAPI outlines a set of actions to prevent, anticipate and manage the risk of flooding. As a follow up to the PAPI, SMABB also launched the Flood Risk Prevention Plan, a regulatory document for urban planning to ensure that the development in urban areas considers mitigating measures against flooding. SMABB believes adopting long term strategies and plans to reduce vulnerability of the basin as well as increasing the awareness among different parties is the foundation to improve the resilience of the basin.

Problem:

- Urbanization is increasing risk of flooding in the downstream cities
- Vulnerability against flooding events

Solution:

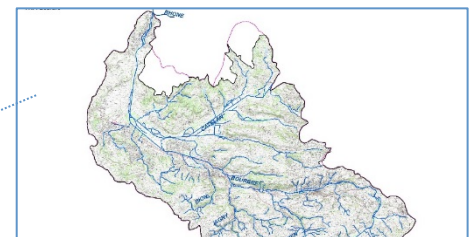
- Integrated water management through The Flood Action Prevention Programme to build resilience by engaging different stakeholders

Geographic information

Country: France

City and population: 211,000 inhabitants

Basin area: 750 km²



Problem

The Bourbre, located in the Rhone Basin flows from the Burcin town into the Rhone at Chavanoz. The river receives 3 main tributaries on its left bank: Hien, Agny and Bion, making a network of about 150 km. Constituting about 73 municipalities and 211,000 inhabitants, the Basin can also boast about 50 businesses that play an important economic role generating approximately 1000 jobs in the area. Risk of floods remains a challenge to the economy as well as lives of the inhabitants.

The lower part of the basin has been modified over time through urbanisation, agricultural activities and hydropower. Continuous urbanization and development within the Bourbe basin over the past years has led to an increased risk of flooding. These floods result in an increase in water flow in the Bourbre changing the watercourse configuration, putting about 13 municipalities at risk. In 1993 and 1998, the basin suffered serious flood events that caused resulted in loss of life as well as economic damage. Studies revealed the impacts from floods to be concentrated in 3 sectors: Chérury Bridge, Saint Victor de Cessieu and Saint Jean de Soudain, which together accounts for 75% of the total damage to the watershed. The cost of flooding impacts was estimated to be about € 63 million over the entire watershed, out of this € 54 million affects businesses alone.

Solution

The absence of upstream development plans to mitigate floods further downstream (often in urban areas) informed the need to build the basin's resilience through strategies such as awareness raising of the inhabitants on possible risks and reducing the vulnerability of residential and commercial buildings against flooding events. Since 1944 and also following the floods of 1988 and 1993, the SMABB (whose responsibility is to carry out programmes on the Bourbre watershed) has launched numerous studies to better protect property and the lives of people. One such programmes is the [Flood Prevention Action Programme](#) (PAPI), which includes actions to prevent, anticipate and manage the risk of flooding in the Bourbre basin. The actions are divided into 4 groups namely:

1. Communication
 - Improve knowledge and risk awareness
2. Monitoring and predict alert
 - Monitoring of floods and flood forecasting
 - Manage the crisis
3. Reducing vulnerability
 - The taking into account of flood risk in urban areas
 - Reducing the vulnerability of people and property
4. Reducing the occurrence of floods
 - Slowing down of flows
 - The management of hydraulic protection works.

During the development phase of PAPI, stakeholders were engaged to connect urban areas with their basin and also to promote knowledge exchange amongst different services (e.g. urban planning with water services) and different sectors (environment, water, agriculture). SMABB conducted about 40 workshops/meetings and debates over a two year period with local inhabitants and representatives of private and public sectors including the chamber of commerce, local business and environmental associations with the aim to:

- Better understand the issue from the stakeholder perspective and their motivation for action in order to align the project targets with the current issue
- Establish a platform where different groups can discuss and debate
- Elaborate the technical and scientific diagnosis of the current situation the watershed is facing and seek project's support and approval from different parties
- Connect the watershed as a whole with a common strategy that is based on integrated water management approach and aims to increase the awareness in the basin

- Establish a master plan for the watershed that is agreed upon and supported among different parties

Working together

Dealing with the problem of floods needed an integrated water management and a holistic approach that can look beyond one municipality. The actions in the PAPI have divided between the different institutional actors at local, the SMABB, at most global, the State.

- **The SMABB**
 - Facilitates and coordinates the PAPI
 - Implements the transversal actions (maintains the vegetation and the banks, informs and sensitizes the actors of the watershed, accompanies the communes for the management of the town planning, the reduction of the vulnerability ...)
 - Accompany the communes for the development of works (dikes, ice jam traps, over-flooding)
- **Municipalities and inter-communalities**
 - Implement works in their area
 - Relay information to the population
 - Take into account the risk of flooding in their urban planning
 - Organize the security of citizens through alert and crisis management systems.
- **The State**
 - Anticipated arrival of floods (Flood Forecasting Service)
 - Regulates urbanization in a flood zone by establishing PPRI (Flood Risk Prevention Plan)
 - Performs a graduated vigilance according to the level of risk
- **Region, Department, Water Agency**
 - Participate in financing

Lessons learned

Adopting long term strategies and plans to reduce vulnerability of the basin as well as increase the awareness among different parties are important in improving the resilience of the basin. The involvement and participation of different stakeholders in the establishment of the PAPI led to a deeper analysis and understanding of the different actors in the basin, and this approach developed a customized tool that can be widely accepted in the basin. Additionally, the partnership with stakeholders paved the way for the development of a five year land use planning program (Flood Risk Prevention Plan), which gained the acceptance of the local community, to reduce risk of flooding in the downstream areas of the basin. The project also succeeded in increasing the farmers' awareness and acceptance for constructing flood protection measure on their lands that protect the downstream cities. A Comprehensive Development Plan to redesign flood prevention on the Bourbre basin is currently underway. This would aim to develop a comprehensive policy on the reduction of hazards and control of vulnerability by integrating as much possible respect for the proper functioning of aquatic environments.

Resources

Syndicat Mixte d'Aménagement du Bassin de la Bourbre 2019, viewed 25 July 2019. Available from: www.smabb.fr

What are the Drivers for Action?

For more information on the Drivers for Action visit the [Action Agenda for Basin-Connected Cities](#)

Extreme Events

- Public health hazards
- Damage to infrastructure
- Economic activities and supply chain disruption

Declining water quality

- High operating costs
- Loss of credibility and trust
- Environmental, cultural and health impacts

Water availability

- Water supply disruption
- Constraints to growth
- Declining quality of life

Pathways for Action

For more information on the Pathways for Action visit the [Action Agenda for Basin-Connected Cities](#)

Assessment

- Investment in data & information systems
- Linking traditional water management with science
- Invest in values to motivate water decision-making

Planning

- Risk-based approach to planning
- Water allocation mechanisms
- Stakeholder participation in planning and management
- Aligning urban development with basin management

Implementation

- Integration of natural infrastructure
- Economic and financing mechanisms
- Building partnerships from catchment to tap
- Digital Technologies

About Syndicat Mixte d'Aménagement du Bassin de la Bourbre (SMABB)

SMABB is a public institute found in 1968 that develop studies around water resources and implement measures against pollution and flooding. Their work also ensure the ecological status of the water and the aquatic environment. Find out more here: <http://www.smabb.fr>, <https://www.facebook.com/smabb38/>, <https://twitter.com/SMABB38>