



# River integration to the urban space

Modules:

**River management**

**Total duration:** 8 hours

**Field work:** Yes

**List of materials:**

Printed maps or online mapping software on mobile devices (smartphones or tablets), e.g. Google My Maps  
Photo camera or smartphones/tablets  
Worksheets (e.g. Questionnaire, interview questions)

**Worksheets:** 1, for documenting the interview findings

**Students' age:** 16-18

**Use of apps/software:** Google forms/Siftr

## Brief description

Planners often depict a city as a human body. Transportation, communication, rivers and sewer systems become arteries and veins pulsing through the city; parks and open spaces become urban lungs detoxifying the air they breathe. But what about water itself? Surely it is vital for all of these things beyond anthropomorphic attributions? In nature we have access to the sea, a river, a stream, a lake or a wetland. Perhaps it's our attachment to nature, but in urban areas people of all ages prefer public spaces where water is present. In urban planning this creates challenges: what if these public spaces are not enough? What if they are not accessible to all? What if we cut people off from public water so they can't feel it, play in it or even drink it? Water in a public space is not only a decorative element. It performs other important functions and has benefits that go way beyond the social aspects. It can be an ideal meeting and relaxation point in the urban fabric. Look at any city and you'll find people gathered along a restored riverfront or by fountains. Humans are attracted to water.



Sustainable solutions for urban design must include water elements at different scales, even to the point of affecting urban microclimates. A stream or a wetland can reduce the heat island effect, improve air quality and enhance local biodiversity. As a consequence, the city can be more livable and attractive to people and businesses.

Spatial planning can benefit significantly from the integration of water into urban spaces at an early stage, making a city more livable and more resilient. Boosting the presence of blue elements like rivers, streams, canals, artificial wetlands, reservoirs, etc. in urban areas can shape blue-green corridors that revitalize cities.

Reclaiming the historic role of rivers as key transport 'arteries', by introducing taxi boats or cruise boats, can enhance a city's transportation system and offer an alternative touristic attraction. This can also relieve the congestion of conventional traffic systems. A stream, integrated in a park, can connect two or more isolated neighborhoods with a green corridor.

Water management and spatial planning integration have become a major concern for urban planners in recent decades. Climate change, floods and rapid urbanization are driving the adoption and integration of all the elements that are a part of the complex system called a city: nature, infrastructure, utility networks, economy and society. The IWA Principles for Water Wise Cities have been developed towards that end. The pressures on urban water management mean that it needs to be integrated at the earliest stages of spatial planning; it cannot be considered as optional any more. It also needs to consider the point of view of water users: the people who live in the urban environment, whose experiences matter, but who are often ignored by planners.

So beyond the well-being the water provides in public spaces, it actually can connect people to each other and can be the champion to cross-sectoral, trans-disciplinary urban planning to achieve resilient cities. Acting together to meet a common goal means getting individual benefits from different perspectives.

Water can also facilitate activities that are beneficial for the health such as walking or jogging along the river or stream or rowing and canoeing if the flows allow it.

Observing biodiversity and learning about it – water and the natural habitats that are usually being developed around it, are education grounds and can be used as such to educate the general public on basic environmental protection principles.

In conclusion, for town planners, linear water ways that cross the city and their buffer zones have multiple value: they represent recreation grounds, physical exercise opportunities, education sources and green travel routes, as well as valuable natural areas that help reduce the heat island effect, improve air quality and enhance local biodiversity. Caution: in considering all the above benefits of rivers as integral elements of the city plan one should always take into account the need to preserve the river habitats and the biodiversity that is developing along the banks.

Chrysa Triantafyllidou, "Benefiting From Integrating Water Into Public Spaces", International Water Association (IWA)

<http://www.iwa-network.org/benefiting-from-integrating-water-into-public-spaces/>

## Objective of the learning unit

Students will focus on a river/stream/canal in their local area and embark in a research in order to formulate their proposals for the blue element's optimal integration in the city plan.

Students will perform an online research on good European practices, will engage in field visits in order to examine the current level of integration to the urban space, will interview a local expert (urban planner) in order to get input on the current city plans for integration, and will analyse this input in order to formulate their proposals for future interventions through text and using informatics and geo-referencing information for visualisation.

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To learn about:

- ✓ Blue infrastructure (rivers, streams, canals, etc.), their role of the in the life of a city,
- ✓ Urban planning ways of integrating it in the urban space in order to maximize environmental, economic and social benefits.
- ✓ Urban planning (how it works and its role in shaping the lives of urban population,
- ✓ Potential benefits from successfully integrating a blue spatial element (e.g. river, stream, canal) in the urban fabric.

To be able to :

- ✓ Work in groups
- ✓ Exercise their online research skills and develop their field research and interview skills
- ✓ Develop their analytical skills and exercise in teamwork and collaborative techniques
- ✓ Develop skills in using GIS software in order to visualise and communicate spatial information
- ✓ Enhance their awareness and attitudes regarding active citizenship and civic democracy.

## Introduction (orientation)

**Time estimated:** 20 minutes

**Where the activity takes place:** in the classroom, using PC, beamer and Internet

**Method (how the students have to work):** class brainstorming

**Instructions for the teacher:**

The teacher should introduce the topic through posing stimulating questions to the class or different groups of students regarding the existence of blue elements in their locality and their role/uses in the everyday life of the locals. The questions should be phrased simply and directly, addressing all students regardless of prior interest in the topic or performance in related school subjects. Questions should not include scientific terminology. The exact phrasing of the questions depends on the local context regarding the integration of rivers/streams/canals in the urban space and the life of the locals. Indicative questions are:

*“Can you think of a river or stream in our town/city/area? Would you say it is a positive, negative or neutral element?”*

*“What would it be like for the city if tomorrow it wasn't there anymore? (In the case of a covered river/stream, the question should be reversed, i.e. ...if tomorrow it resurfaced?)”*

*“How do people use the river/stream today? What do they do near it or in it?”*

*“Do you think the river/stream/canal has a role in the city? What is this role? Could this role be improved?”*

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## Conceptualization

**Time estimated:** 45 minutes

**Where the activity takes place:** in the classroom

**Method (how the students have to work):** group-work

**Instructions for the teacher:**

Ask students to formulate a hypothesis based on the input of the first session “Orientation”. This hypothesis could be phrased as a question or a statement. Break the hypothesis into a set of questions that need to be answered. Examples of a hypothesis would be:

*“How would the local river be best integrated to the city? i.e. become a part of the city that most people use to gain benefits (name the benefits) while the river habitats and biodiversity are protected.”*

*“What uses could be developed in different parts along the river?”*

*“Does the current city plan integrate the river in the urban fabric? How?”*

## Investigation

**Time estimated:** 5 hrs, 15 minutes

**Where the activity takes place:** in the classroom and outdoor

**Method (how the students have to work):** group-work

**Instructions for the teacher:**

### 1) Planning

**Location:** In the classroom

**Time:** 45 minutes

**Materials:**

Map of the town

Apps for collecting data online (Google forms, Siftr)

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Ask students

*"How would you go about investigating your hypothesis?" (or the questions you have broken it down to in the first session)*

Set the framework by introducing different investigation techniques, i.e. literature review, field visit, interview with an expert (a planner or local authority official), interview or survey with locals (i.e. their parents, local businesses, etc.).

Give the student groups 20 minutes to generate an investigation plan each. The objective is assessing the role of the local blue infrastructure in focus (rivers, streams, canals, etc.) in the life of the city, exploring ways of integrating it in the urban space in order to maximize environmental, economic and social benefits. By generating their investigation plan, students need to:

- Select on the map the area where they want to focus the investigation
- Decide how to perform the investigation (techniques, equipment needed, materials).
- Create a timetable where they set the order of the investigation activities.

The groups present their investigation plans and reach an agreement for the most reliable and feasible. It could be a combination of the plans presented.

The teacher may then offer feedback, proposing alternatives or adjustments to the investigation plan proposed by the students. The feedback should aim at making the plan feasible and concrete in terms of time management, access to proposed resources and availability of the persons to be interviewed/consulted.

The outcome should be an investigation plan complete with the activities to be implemented, the timetable for implementing them, the groups/persons responsible for implementing them, the necessary equipment and software, and the communication and info sharing arrangements. The investigation plan should allow for preparation time, i.e. preparing certain equipment (e.g. survey questionnaire design) or software (Siftr, Google My Maps) to be used.

## 2) Performing

**Location:** in town

**Time:** 4 suggested activities of about 45 minutes each

**Materials:**

Siftr/Google Maps

The investigation plan can be implemented on the basis of the following activities:

- ✓ Field visit: The students can walk along the river/stream/canal area selected and document the current land uses and problems/conflicts using printed maps or through certain software introduced for that purpose (Siftr and Google My Maps are recommended for this activity). Students will collect documentation material, i.e. photos and/or videos, to support their findings. Duration: 45 minutes.
- ✓ Survey: The students may perform a survey regarding the views of locals (inhabitants, businesses, visitors) on the role of the river and the problems and opportunities regarding its better integration to the city life. The survey should follow a short questionnaire and may also include a focus group meeting inviting locals to participate and share their views. This activity can be combined with the Field visit activity. Duration: less than 60 minutes.
- ✓ Expert interview: The students may, through their teacher, make an appointment with an expert in urban planning (i.e. an urban planner, a planning officer of the local government, etc.) for an interview. The interview questions should be prepared and communicated to the expert prior to the interview. It is recommended to combine the interview with the field visit, i.e. make the interview while walking along the river. Duration: less than 60 minutes.
- ✓ Literature review / online research: The students may perform an online research regarding good practices regarding the integration of urban rivers in the city fabric and innovative initiatives, both on a national and international level.

## 3) Concluding

**Location:** in classroom

**Time:** 2 suggested activities of about 45 minutes each

In the school computer lab or at home, students proceed to the analysis of the data collected and report the main findings. The analysis may vary depending on different research techniques employed:

- ✓ Field visit: Analysis may include an interpretation of the Siftr or Google Map created, or the input from the printed maps.
- ✓ Survey: Analysis of the questionnaire results through Excel tables and generation of selected diagrams.
- ✓ Expert interview: Outline the main findings from the interview regarding the students' hypothesis.
- ✓ Literature review / online research: Outline the main findings from the online research. Make sure to include good practice case studies or innovative interventions that have a potential for implementation in your case.



## Conclusion

**Time estimated:** 45 minutes

**Where the activity takes place:** in the classroom

**Method (how the students have to work):** group-work

**Instructions for the teacher:**

The different groups (or the whole class) report their findings from the investigation activities. They compare their findings with the formulated hypothesis or check if they answered the generated questions in the conceptualization phase.

The findings from different investigation activities need to come together and be presented in one place (maybe on the classroom walls or on an interactive board). The teacher may then lead a discussion inviting comments from students on certain attributes of the findings or in cases where the findings may seem conflicting.

## Discussion

**Time estimated:** 45 minutes

**Where the activity takes place:** in the classrooms

**Method (how the students have to work):** class discussion

**Instructions for the teacher:**

This phase aims to verify students' knowledge at school. The learning activity outcomes are evaluated by the teacher and the students can present their findings in front of their colleagues and teachers.

The teacher invites the students to come up with proposals for the river's better integration to the urban fabric, based on the findings of their investigation.

The findings, proposals and documentation material, with references to specific places in town, may be used for the development of a Location Based Game (LBG) or the creation of a proposals map with the use of QGIS.