

FUTURES LITERACY LAB IN A TUSCANY RIVER BASIN

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Two major floods in 2013 and 2015 devastated Buonconvento, a small Municipality of about 3.000 inhabitants along the Ombrone River in the Province of Siena, submerging the historic and modern city center, destroying the regional railway and a bridge, and isolating a settlement for over six months.

Following the first 2013 flood, the “Committee for the Enhancement of the Landscape and Environment of Buonconvento” engaged with local and regional institutions to expedite infrastructure restoration. These discussions highlighted fragmented governance and the need for integrated policies on soil and water protection and territorial enhancement.

After the second flood and under new leadership, the Committee initiated the idea to engage in a participatory process for defining a River Agreement (RA).

Inspired by international experiences (i.e. Belgium, France) and defined by the Consolidated Environmental Act (2006) and the National Chart of River Contracts (Regione Lombardia et al. 2010), RAs have already been undertaken in several river basins in Italy (Voghera 2020) as voluntary agreements that mobilize participation by all the stakeholders along the riverside in an pact among administrations, stakeholders and citizens that extends beyond administrative boundaries and embraces institutional and non-institutional actors at different scales.

Based on strategic and negotiated planning, RA is a regional design process aimed at integrating wide-ranging subjects (risk management, water and soil protection, environmental and landscape protection, territorial development) at both local and basin scale, by defining strategies and actions to orient local and regional planning, programmes and policies and to attract combined forms of funding (Pisano & Lingua, 2019, 2021). Tush, the RA integrates sectoral policies into a multidisciplinary approach (Ingaramo & Voghera, 2016) aimed to define a multifunctional vision of the river, and of a rules system in which criteria of public utility, economic performance, social value and environmental sustainability are equally involved in searching for solutions for the River Basin redevelopment (Cialdea & Cacucci, 2017).

The expected output of the process is a general and shared riverside development framework through a decision-making process aimed at promoting vertical or horizontal subsidiarity by overcoming the strictly technical and sectoral nature of the traditional forms of water governance based on top-down hierarchies.

Within this process, the active involvement of local communities is, therefore, essential for searching for solutions based on integrated policies for ecological regeneration, and for the fruition of the landscape river system.

In the Ombrone reiver basin, the process toward the RA was started trough a participative process aimed at overcoming the perception of the river as a risk factor, for enhancing the river and waterside landscapes as ecological networks and elements of local development. The bottom-up participatory process “OSIAMO!” [Let’s try] Toward the Ombrone River Agreement” was financed by the Tuscany “Regional Authority for the Guarantee and Promotion of Participation” and was co-financed, coordinated and accompanied by the *Regional Design Lab* (ReDLab) of the Architecture Department of the University of Florence.

The process was intended to increase awareness of the river area of reference, the nature of the problems, as well as the potential deriving from overcoming parochialism to construct a new sense of community by strengthening a sense of belonging to the river territory and approaching its future enhancement through the definition of the shared vision for both the basin and the local communities.

This is why a Future Literacy (FL) approach was chosen, to reveal the diversity of images of the river that people hold and to discuss the possibilities for its future.

FL is the ability to understand how the future influences our perceptions and actions. It enhances creativity, adaptability, and innovation in the face of change. By recognizing anticipation as a core human trait, FL helps explore and shape imagined futures (UNESCO & PMU, 2023).

Within the Ombrone case, the Future Literacy Labs as hybrid strategic scenario methods proposed by Miller (2007) were chosen, as they were intended to offer valuable insights into how shared scenarios are formed and how participants learn to "use the future". The Future Literacy Labs were supported by a scenario setting based on Regional Design methodologies (Lingua 2017; Lingua & Balz, 2020) for the reconstruction of know-how and identity-based knowledge linked to hydrogeological protection, the ecological enhancement of the river landscape and the development of multifunctional farming methods, through forms of inter-scalar governance motivated by social resilience and, by the end, for the definition of future projections by helping actors to achieve a "future-thinking" attitude that led to a shared vision of both the basin and its local realities.

The 3-step interpretative framework by Miller (2007, 2018) was defined in the Ombrone river as a structured scenario planning method as follows:

Step 1: Awareness. This level focuses on understanding how change unfolds over time and recognizing the positions of communities and organizations based on their values and expectations. By revealing shared goals and assumptions, it strengthens team cohesion and decision-making confidence. Techniques for this phase emphasize making implicit views about the future explicit, fostering shared meaning without requiring consensus. The goal is to surface diverse perspectives and create a broad picture of possible futures (Miller, 2007).

The project's first phase interviews, river walks and co-design workshops were held in the two pilot projects of the municipalities of Buonconvento (Province of Siena) and Cinigiano (Province of Grosseto). These activities involving inhabitants highlighted diverse perceptions of the river and also included children: design workshops in the primary schools of the two concerned municipalities involved more than 200 children and functioned as a catalyst to parents (Raymond, 1999).

Participants identified problems and future expectations using maps to contextualize site-specific and basin-wide issues. The focus groups integrated expert and local knowledge, revealing differing anticipatory assumptions (fig. 1). While institutional actors focused on mitigating risks and landscape protection, local and children's knowledge emphasized the river's potential for community, recreation, and ecological preservation (fig 2). Conflicts, such as riparian vegetation management and flood retention basins, were also discussed. A holistic vision of the river emerged, blending management, enhancement, and community engagement (Lingua & Caruso, 2022).

Step 2: Discovering. At this stage, participants distinguish between possible, probable, and preferable futures. The process challenges existing anticipatory assumptions shaped by cultural, societal, and personal factors, encouraging participants to explore the unknown. It involves both abstraction, stepping away from familiar norms, and concretization by imagining how unfamiliar assumptions might operate in practice (UNESCO & PMBFCFS, 2023). This phase broadens the range of future scenarios and deepens analytical insights.

The Ombrone FLLs used Regional Design (RD) to visualize expectations through scenario construction, clarifying narratives about the river's future. Three scenarios focused on risk, environmental quality, and local development (fig. 3) were explored in thematic workshops. These scenarios reconciled expert and local perspectives, fostering shared understanding and visions. Pilot projects in Buonconvento and Cinigiano translated these visions into tangible outputs, including a masterplan for a fluvial park (fig. 4) and a parish map of trekking paths that demonstrates how planning decisions could integrate diverse ideas and inspire community satisfaction (Pisano & Lingua, 2021).

Step 3: Rethinking. This phase connects values and expectations to decision-making. Participants learn to differentiate deterministic and non-deterministic uses of the future, enabling them to reframe their assumptions and envision new possibilities. Strategic planning then operationalizes these visions, helping decision-makers question current policies and define actionable goals based on the outcomes of strategic scenarios.

In this phase, strategic goals and actions for realizing the Ombrone Action Plan, background document of the RA, were defined through collaborative planning. Six general objectives and 22 specific objectives emerged, organized into 33 action proposals. Each stakeholder committed resources and responsibilities, ensuring alignment with the shared vision. The action cards facilitated partnerships and funding applications for implementation. Efforts to sustain the project included thematic seminars and summer schools provided by the University, as well as ongoing community engagement activities by the different associations acting along the river.

The Ombrone River Agreement transformed the river from a risk element to a unifying force for territorial enhancement, fostering a shared vision of its future. The FLL activated for the Ombrone RA enhanced future thinking and, through the definition of 3 desirable scenarios, led to an action plan based on a shared vision for the basin valorization and development.

Together with these tangible results, a series of intangible ones has been detected (Lingua & Caruso, 2022): first, the involvement of different stakeholders, from children at the primary school to adults, from institutional actors to local associations, has contributed to reactivate the “basin community” through the provision of a series of activities dedicated to the improvement of environmental awareness in the schools and territorial animation (river walking, rafting and sup navigation) along the Basin. This approach culminated in political recognition, with the committee chairman becoming Buonconvento’s mayor, committed for advancing the community-driven agenda.

Secondly, the FLL led to a change in the imaginaries of the river: through the enhancement of future-thinking based on even disruptive and unthinkable scenarios, the perception of the river has changed from a risk (after the floods) to an opportunity, understood by the different stakeholders in a variety of ways (development of tourism, biodiversity, accessible space for playing). The imaginaries emerged within the FLL in the schools evidenced how children’s future thinking is more disruptive than adult’s one (Lorenzo, 2022): the involved children imagined a river park, accessible for all ages, and with even waterslides and river access for fishing.

Finally, the changes of narratives and imaginaries occurred in the FLL provided new perspectives about the operationalization of the Action Plan through activities pursuing interaction between the regional and the local scale. The Regional Design approach provided to visualize the entire basin and the visioning activities related to the scenario making enlarged the scales of reference: within the FLL an expansion of the spatial imaginaries occurred, in which the local context is concerned as part of the larger fluvial basin, and the regeneration and development strategies are part of a broader framework guided by the shared vision of the river agreement.

Apart from the expected result of improving future-thinking and enhancing the capacity to envision even disruptive futures breaking path dependencies (especially in adults), the strength of combining FLL with RD approaches lies in its ability to effectively shape and expand the boundaries of soft planning spaces. This involves integrating diverse geographies (functional, administrative, and perceived) while balancing regional and local perspectives. By broadening institutional geographies, this approach fosters a more inclusive and adaptive framework for planning.

Additionally, it enhances institutional capacity by cultivating shared spatial imaginaries and narratives that help build a cohesive river community. This sense of identification with the basin dimension unlocks new opportunities, reinforces a collective identity, and creates a strong regional brand that aligns with the shared vision.

Moreover, the integration of territorial strategies with the path toward a green and just transition ensures a connection to local contexts. This is achieved by adopting a place-based, future-oriented

perspective that respects local identities and biodiversity. The result is the formulation of actionable implementation projects that not only align with broader sustainability goals but also resonate with the unique characteristics of each area.

Despite its strengths, the process has faced some critical challenges. One significant issue is the difficulty local associations encounter in being recognized as relevant actors at the regional level. While the process is initiated and largely driven from the bottom up, these associations often struggle to gain the visibility and influence needed to participate meaningfully in regional discussions. The involvement of the University has played a crucial role in addressing this gap by providing accountability and lending credibility to the process.

Another challenge lies in the terminology used to engage stakeholders. The term "literacy" connected with futures has not been well received by institutions or citizens, as thinking about the future is considered as a natural human trait and does not require a formalized concept of literacy. As a result, a shift toward framing discussions around "future-thinking" rather than "future literacy" has been suggested, as it resonates more effectively with the stakeholders' perspectives on the participative process and its results.

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