

'Liquid' equilibria. New semantics for water places in the mountains

Giulia Azzini

Dipartimento di Architettura e Studi Urbani, Politecnico di Milano, Italy
giulia.azzini@polimi.it

Abstract

The proposed contribution investigates the role of public space design in the regeneration of water places in Italian mountain areas. In an environmental crisis and increasing abandonment scenario, water stands as a central issue of critical discussion, representing for these territories a valuable source of livelihood and, at the same time, a potential danger. In this regard, the article proposes some significant experiences on the double scale of landscape and architecture: within the design framework, public space is an opportunity to establish new balances in the surrounding, intersecting the theme of water with the social and environmental issues affecting mountain areas. The aim is to identify regenerative strategies for the definition of a new semantics for water places, as dynamic and heterogeneous systems open to the current challenges and where communities and environment coexist.

Il contributo proposto indaga il ruolo del progetto degli spazi pubblici per la rigenerazione dei luoghi dell'acqua nelle aree montane italiane. In uno scenario di crisi ambientale e crescente abbandono, l'acqua si pone come tema centrale di discussione critica, rappresentando una preziosa fonte di sostentamento e, contemporaneamente, un potenziale pericolo per questi territori. L'articolo propone, a questo proposito, alcuni progetti significativi alla duplice scala del paesaggio e dell'architettura: questi individuano nello spazio pubblico l'opportunità per la costruzione di nuovi equilibri nel luogo, intersecando il tema dell'acqua alle principali questioni sociali e ambientali che colpiscono le aree montane. L'obiettivo è l'individuazione di strategie rigenerative utili a definire una nuova semantica per i luoghi dell'acqua: sistemi dinamici ed eterogenei, aperti ai cambiamenti in atto e in cui comunità e ambiente coesistono.

Keywords

Water places, Mountain, Regeneration, Climate change, Public space.

Luoghi dell'acqua, Montagna, Rigenerazione, Cambiamento climatico, Spazio pubblico.

Liquidity in the mountains: between fragility, risk, and water systems

The sociologist and philosopher Zygmunt Bauman introduced the concept of 'liquidity' to depict the modern condition (Bauman, 2000): a transitional phase marked by dynamism and impermanence, characterized by a sense of uncertainty. Moving from a sociological point of view to embrace the design sphere, this concept invites us to reconsider the space from a transformative perspective: change is indeed the framework of the contemporary landscape, affected by continuous challenges caused by both human and environmental actions. Although the two forces often establish a problematic relationship¹, they participate in the same idea of nature, according to Humboldt's definition (1845): a variable and interconnected system, based on the influences within the cosmos, rather than on a sterile classification of living beings.

In connection to the dimension of uncertainty, liquidity represents a susceptible condition within fragile areas, encompassing marginal territories such as mountain or rural settings characterized by low levels of income and productivity, aging, and depopulation (Carrosio, Faccini, 2018). Liquidity can also be applied to some characteristic elements of the territory: water systems, defined by a river, its tributaries, and the architectures for water management and

use, represent an interesting field of investigation in this regard. Indeed, water, on the one hand, has an intimate changing nature, modifying its form depending on the morphology of the basin, the characteristics of the soil, and finally anthropogenic factors; on the other hand, it is a collective good that nourishes places and determines therefore their transformation and development.

In contemporary times, water stands as a central issue of critical discussion. Increasing average temperatures, rising sea levels, and growing periods of drought alternating with intensifying precipitation cause violent catastrophic phenomena. Thus, water presents an interesting antinomian character: on the one hand, it is a primary resource and driving force of the places, supporting their development; on the other hand, it seems a potential danger, considering the climate crisis' effects.

In Italy, the antinomian nature of water is even more evident in mountain areas, whose traditional geomorphological fragilities are today highlighted by climate change: the growth of hydrogeological risk and the reduction of water availability in the summer season, alternating with the greater frequency of floods, have serious consequences on the biodiversity of these places, as well as threatening the economic and productive activities settled here and increasing the vulnerability of people and infrastruc-

tures². All these factors ultimately extend the conditions of physical and psychological marginality of the mountains, which can be framed in the more general abandonment and depopulation processes involving inner areas of the Country.

Taking up the initial metaphor, three intersecting factors contribute to the liquidity of mountain areas: fragility, environmental risk, and water systems.

The water places in mountain areas: experimentation fields in an era of radical changes

If previously the attention of architecture and urban planning has been directed almost exclusively to the city (Carlow, 2016), the urgency of the current changes prompts a reflection on marginal contexts as privileged scenarios for sustainable development (Koolhaas, 2020, p. 3). For this reason, the mountains, which cover about 35% of the Italian surface³, represent a significant research scenario and an essential test case for the development of adaptation policies for the near future (Mercalli, Cat Berro, 2016). Historically, the mountain morphology is strongly influenced by the watercourses: in the mountains “There is no land that does not owe its existence to a river or a source. [...] Water is the essential nourishment of villages, [...] which quenches men or beasts or irrigates the countryside and gardens”⁴ (Nigro, 2020, p. 104).

Thus, the water places have always been essential parts and ordering factors of the mountain land-

scape, collectively defining an intricate system characterized by two important components: on the one hand, the river and its tributaries, a fundamental source to ensure soil fertility, food, communication routes and defense tools; on the other hand, the cross-scale set of architectures for employing water and controlling its course.

Concerning the architectural perspective, since the first half of the 19th century large-scale water regulation works were not realized due to the limited availability of technical means. Nonetheless, the mountain villages had multiple supply facilities: fountains, providing water for daily uses, *lavoirs* for doing laundry, and troughs for the animals. These architectures also served as meeting places and ornaments, originating from certain historical periods and aesthetic tastes, and finally representing the material testimony of collective work and life. Instead, the second industrial revolution marked a transitional period between two essentially different landscapes: from the establishment of small businesses for water distribution and power generation, to the construction of extensive collection basins and dam projects (Pavia, 1998). These sophisticated engineering solutions profoundly affected the mountain landscape, damaging its naturalness and biodiversity. As a result, the river and its waterways, previously perceived as an essential part of the mountain landscape, became a “neglected area” (Clément, 2004, p. 4)⁵.

However, the recent interest in ecology and environmental sustainability, largely due to the visible effects of the climate crisis, fosters a reevaluation of water systems as complex biological structures⁶. This transition of meaning prompts a reconsideration of water places with a renewed point of view, orienting processes of renaturalization, restoration, and enhancement (Oldani, 2016, pp. 72-74). Therefore, the water places become experimentation fields, offering regenerative opportunities for the territory from both social and environmental perspectives: the former refers to the need to contrast depopulation and abandonment in mountain areas; the latter promotes the restoration of the places' biodiversity and naturalness, considering long-term positive effects on environment, people, and infrastructure.

Working at different scales and enjoying a sensitivity that integrates multiple perspectives, architectural and landscape design can effectively pursue the regeneration objective. By fitting into the framework of liquidity, they constitute a tool for the transformation of places concerning emerging issues in contemporary times (Defilippis, 2020).

The design of public space to foster regeneration processes

The public space includes all areas open and accessible to every member of society (Orum, Neal, 2010, p. 1). It seems essential in marginal contexts with a marked territorial polarization, which causes depopulation

phenomena translated, on a broader scale, into a serious identity crisis of places.

For mountain and rural communities, the public space is the privileged environment for the formation and preservation of individual and local identity: squares, paths, and gathering places represent an expression of physical connections in a certain context and, at the same time, intangible connections between its inhabitants. In this regard, the previous paragraphs have illustrated the notable identity and collective value of public spaces linked to the water supply in mountain villages: these were opportunities for socialization in the past, and today describe the historical, economic, and productive dynamics of the territory. The discussion surrounding water-regulating architectures, such as dams and weirs, is different, as until now they have mainly represented barriers rather than a valuable element in the landscape.

These considerations highlight how in mountain areas, affected by aging and abandonment, the design of public space serves as a promising tool for responding to territorial marginality: it increases the quality of space, builds connections in a place, and fosters interactions among its inhabitants.

The water system shares a connective nature with the public space: on the one hand, it physically connects the territory, while on the other it constitutes a collective resource around which the interests of the mountain communities gravitate. Thus, water be-

comes the stage of the project: here the coexistence between natural and human habitats, the reactivation of the social dynamics, and the environmental risk mitigation intersect, transcribing possible new narratives for the mountains.

Architecture and landscape design: an adaptive approach

In the previous paragraphs, the metaphor of liquidity has combined the dimensions of fragility, risk, and water system in the mountains. The intersection of these three factors fosters a reinterpretation of design concerning emerging issues in contemporary times. Among these, two seem particularly relevant: the environmental issue which, during the climate change era, requires the restoration of the waterways' naturalness, with consequent benefits for the whole territory; and, finally, the social issue, linked to the depopulation and abandonment processes affecting mountain areas.

Within this framework, the architectural and landscape design can rewrite the water places encompassing the re-interpretation of river infrastructures, the preservation of open spaces, the reuse of buildings on the margins of the rivers, and the restoration of small supply facilities in minor centers. Regardless of the specific subject, all these actions should refer to an adaptive approach: operating on a spectrum

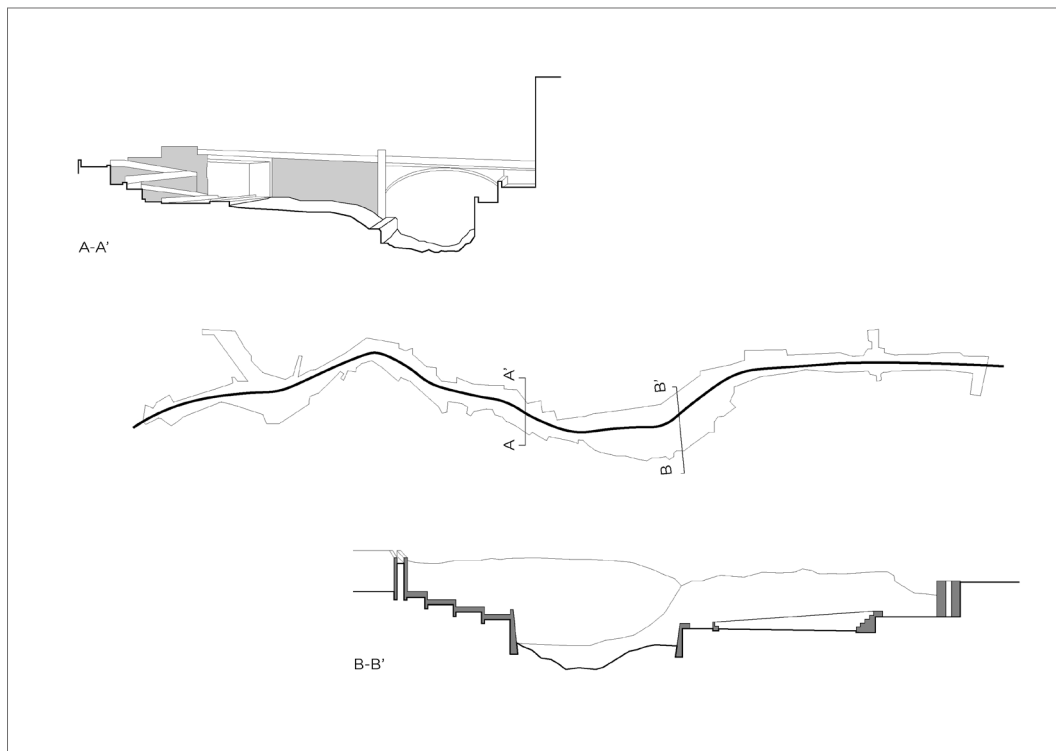
Fig. 1 - Cross-sections of the ravine design by Palerm & Tabares De Nava, Santa Cruz de Tenerife, Spain (graphic re-elaboration by Giulia Azzini).

ranging from the scale of the landscape to that of the architectural objects, adaptation projects are oriented to the protection of the water heritage while addressing the territorial fragilities and the environmental risks in a certain area. The result of this strategy is an open work, that is flexible from a temporal, spatial, and scalar point of view concerning the changes affecting the territory: it represents an opportunity to experiment with the different materials of the project by combining them in innovative solutions, capable of establishing articulated relationships with their surrounding (Oldani, 2016, pp. 155-159).

The design of water places: paradigmatic experiences on territorial and architectural scale

As discussed, water resources hold an essential value in mountain environments: on the one hand, they are the driving force of the economic-productive dynamics of the territory; on the other hand, they are a place rich in biodiversity, and a source of ecosystem services and benefits. Thus, the design of water places, in its multi-scalar declinations, constitutes an opportunity to redefine the relationship between water and society.

The following experiences, all driven by a public vocation, are inscribed in the liquidity of the landscape: they contribute to the transformation of their surroundings by enhancing the water system, address-

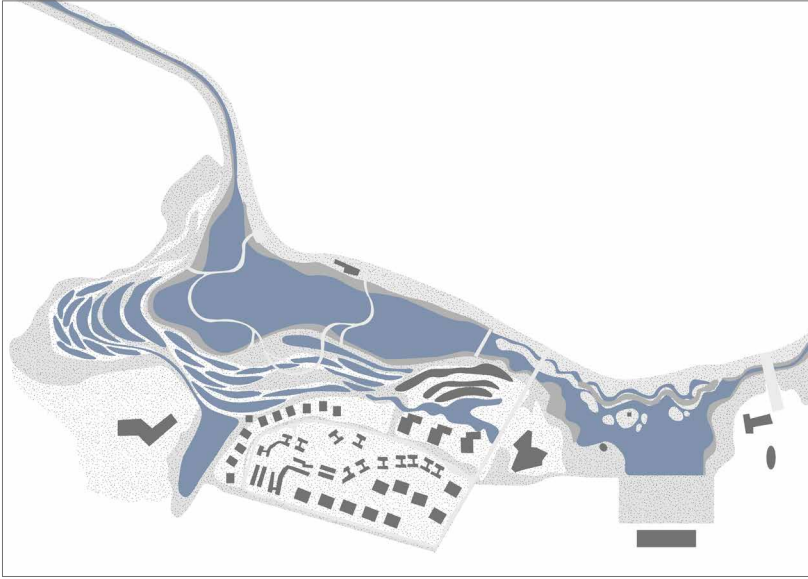


ing the fragilities of the territory and, finally, reducing environmental risks. These experiences are divided into two scalar categories: interventions on the territorial scale, on the one hand, and minor-scale supply architectures, on the other. The purpose of this choice is to show how projects on different scales compose a single intervention system essential in mountain areas, addressing aspects that affect the opposite dimensions of the landscape and the village.

Concerning the interventions on the territorial scale, there are still few design experiences of this kind in Italy: most of them are limited to urban contexts, where the river margin becomes an opportunity to create new collective spaces, fostering its integration within the city. However, the analysis of case studies in different contexts can provide useful insights and guidelines for the regeneration of water spaces in the mountains.

The first relevant example is the design for the ravine in Santa Cruz de Tenerife, in Spain, by the architectur-

al firm Palerm & Tabares De Nava (fig. 1). Ravines are characteristic features of the Canary Islands, historically shaping the development of cities by representing an obstacle rather than a resource. In the case of Santa Cruz de Tenerife, the exclusive consideration of the ravine as a barrier has ultimately resulted in a considerable depletion of the biodiversity of its riverbed, while also contributing to the marginalization and consequent degradation of the urban fabric connected with it (Mulazzani, 2010, p. 60). The outcome of the intervention by Palerm & Tabares De Nava is, first, to safeguard the banks of the ravine through different solutions; secondly, to define a new relationship between the ravine and the city, making explicit its linear park vocation. Thus, the project includes three layers of action: the bottom, subject to renaturalization operations and water control restoration; the intermediate level, with public spaces, facilities, and a new connection between the banks of the ravine; and, finally, the city layer, with the essen-



tial vehicular and pedestrian connections. The project is effective in facing the territorial liquidities, precisely because all works are addressed as a single design theme: the result is the transformation of the landscape into a new ecosystem that promotes biodiversity, on the one hand, and the interaction between individuals and the water resource, on the other.

Another project on the territorial scale is the Minghu Wetland Park by Turenscape in Liupanshui, China, completed in 2012 (fig. 2). Liupanshui is a city where the dialectic between land and water resonates: surrounded by mountain ranges, it is historically crossed by the Shuicheng River, which has witnessed the city's transformations during the past few decades and has carried the collective memories of the inhabitants over time. Since 1966, large-scale urbanization and industrialization processes have taken place in this region. The Shuicheng River Reconstruction project, completed in 1980, radically transformed the river into a straightened channel with concrete embankments. This intervention prevented the river's capacity for flood control and self-purification, leading to its progressive degradation. Within this framework, the project by Turenscape has a double aim: on the one hand, the preservation of the ecological se-

curity patterns and infrastructure: on the other, the restoration of the Shuicheng River, its biodiversity, and its continuity with the landscape. Therefore, the designers work on specific sections of the river within a general masterplan and, on the macro-scale, reinstate its ecological and social value by resorting to an adaptive approach: firstly, they integrate existing streams and fishponds into a series of purification wetlands, helping the river water recharging and the urban flood regulation; subsequently, they revitalize the riparian ecology and maximize its self-purification capacity by removing the concrete embankments; finally, they increase the accessibility of the riverfront through the creation of bicycle and pedestrian paths. On a smaller scale, the designers create a series of punctual elements like bridges and rest areas, and employ native species for biodiversity enhancement purposes. In conclusion, Turenscape designs an ecological infrastructure for the region, exemplifying how to harmonize the relationship between humans and nature in contemporary times. Here the idea of transformation, linked to the concept of liquidity, is clear: the once highly polluted waterway of Liupanshui becomes a lifeline for the city. A second set of projects focuses on the enhancement

Fig. 2 - Masterplan of Minghu Wetland Park by Turenscape, Liupanshui, China (graphic re-elaboration by Giulia Azzini).

of public spaces related to water supply architectures in smaller villages: this is, as discussed, an extremely relevant topic in mountain areas, with strong social and collective connotations. In these cases, the adaptive approach departs from the dimension of risk to address, instead, the traditional fragilities of marginal territories: within small hamlets where aging and depopulation trigger processes of gradual abandonment, the design performs the fundamental task of reconnecting place and inhabitants. This is possible through punctual but significant interventions, capable of qualifying the space and encouraging its interaction with local communities: in this context, water represents a precious resource around which to catalyze regenerative actions.

In this regard, the projects by Amanzio Farris in Rocca di Mezzo (Lazio, 2015) stand out (figg. 3-4): they restore the identity of the springs and other water collection points in the village, through simple but decisive interventions. By employing ordinary materials and geometrical shapes, the renewed pattern of signs involves existing elements, confirming established behaviors and making new ones possible. Moreover, distinct areas for staying emerge through the use of different materials, which mediate be-

tween the contained dimension of the seats and the larger scale of the environment.

Similar design features characterize the project by Franzoso Marinelli for the regeneration of public spaces in Bolciana (Trentino Alto Adige, 2017), a dense nucleus on the sunny slope of the valley crossed by the Sarca River. The project's central concept stems from the intrusive nature of the open spaces, seeking to rethink the existing elements of the village through minimal actions. Interpreting Bolciana as a single architecture, the designers reshape the edges of the squares and their relationship with the main street, enhancing the role of the threshold. The use of simple geometries and bush-hammered concrete, which recalls the local stones, integrates the project with the existing: thus, even water supply artifacts, such as fountains and troughs, emerge as small centralities in the microcosm of the village.

The same principles define the project *Monte* by Studioser (figg. 5-8), in a hamlet of the municipality of Castel San Pietro, Canton Ticino. Monte is an aging village: thus, the designers' purpose is to look for innovative solutions for a positive relationship between the well-being of elderly people and the surroundings. The intervention achieves this objective through a set of minimal actions on the small-scale architectures scattered throughout the village: the result is an intergenerational path, which combines the needs of the elderly with the social ones of the public space. Within this context, the design of troughs, fountains, and *lavoirs*, integrated into the village fabric, fosters the interaction between water and inhabitants.

Definition of a new semantics for water places in the mountains

The illustration of the case studies represents a moment of evaluation and validation of the principles assumed at a theoretical level, proposing practical solutions applicable to Italian mountain contexts and concerning the water places management and en-



Fig. 3 - *Una piazza marginale* by Amanzio Farris, Rocca di Mezzo (Rocca Canterano, RM), Italy (photo: Amanzio Farris).

hancement. In particular, in these projects the design emerges as an opportunity to integrate community and water places: on the architectural scale, by enhancing the identitarian and collective value of the small artifacts for water supply, as in the experiences in Rocca di Mezzo, Bolciana, and Monte; on the territorial scale, by developing innovative typologies that combine the quality of the project, the restoration of the river's naturalness, and its valorization according to a public perspective. In the latter case, the design by Palerm & Tabares De Nava, in Spain, and by Turenscap, in China, are meaningful: although in different contexts, they generate guidelines and strategies applicable to Italian mountain areas. Nevertheless, all the case studies employ an adaptive approach, introducing positive, long-term transformations by adapting to the liquidities of the landscape. Through the discussion of the case studies, it is pos-

sible to define a new semantics for water places in the Italian mountains: it is conceived as the codification of a renewed language developed, firstly, from the recognition and systematization of the essential territorial components and, lastly, the attribution of new meanings to them. Taking up the idea of nature by Humboldt, the water places are no longer isolated natural entities, but an out-and-out ecosystem: a heterogeneous and open unit characterized by the reciprocal exchange between its environmental and anthropic components. Within this framework, the architectural and landscape design can trigger virtuous dynamics for the regeneration of the mountains and their water systems, simultaneously considering the issues of sustainability, safety, environmental and social fragility; this makes it possible to adopt an adaptive approach, which draws on the different issues by highlighting the role of the project as a di-



Fig. 4 - *Una piazza marginale* by Amanzio Farris, Rocca di Mezzo (Rocca Canterano, RM), Italy (photo: Amanzio Farris).

alectical tool. According to this perspective, design is intimately ecological, fostering the relationship among the different forces within the landscape; and dynamic, metabolizing the contemporary challenges and, finally, recognizing them as a state of normalcy (De Francesco, 2020).

This new semantics seems particularly important and urgent, especially in light of the depopulation processes affecting the mountain areas and the worsening of climatic conditions: the rediscovery of the margins, the valorization of the diversity, and the reevaluation of residual spaces allow for an effective response to the issues posed by contemporaneity and, ultimately, foster the enhancement of the fragmented and plural nature of the Italian territory (Lantieri et al., 2021, p.40).

Notes

¹ The set of interventions that, over the centuries, have reduced the physical complexity, the biological variety, and the capacity to regenerate the natural ecosystems, represent some of the causes behind climate change. Thus, the existence of a labile condition of balance between human beings and their environments has emerged (Sestini, 1947), stimulating a critical reflection on appropriate strategies to re-establish their relationship.

² In the mountains, the unpredictability and irregularity of rainfall highlight the antinomian character of water. On the one hand, the intensification of rainfall generates multiple landslide phenomena, often with serious consequences for loss of life. Such events have been registered, for instance, in Valcanale (2003), Borca di Cadore (2009), Alta Val d'Isarco (2012), San Vito di Cadore (2015), and Chiesa in Valmalenco (2020). On the other hand, increased drought phenomena have negative effects on the production and distribution of water and energy, resulting in supply and demand mismatch.

³ Data from *Principali dimensioni geostatistiche e grado di urbanizzazione del paese*, in Istat, <<https://www.istat.it/it/archivio/137001>> (07/14)

⁴ The quote in its original version: "*Non c'è paese che non debba la propria esistenza a un fiume o ad una sorgente. [...] L'acqua è linfa vitale dei paesi, [...] che disseti uomini o bestie o che irrigi le campagne e gli orti*".

⁵ According to Clément, neglected areas are all the marginal spaces that have been abandoned following their exploitation.

⁶ According to Balmori, in the era of climate crisis the landscape can no longer be conceived as a contemplation object, but needs to become part of the action, aimed at shaping the relationship between man and nature rather than ordering and reorganizing the latter (Balmori, 2009, pp. 93-94).

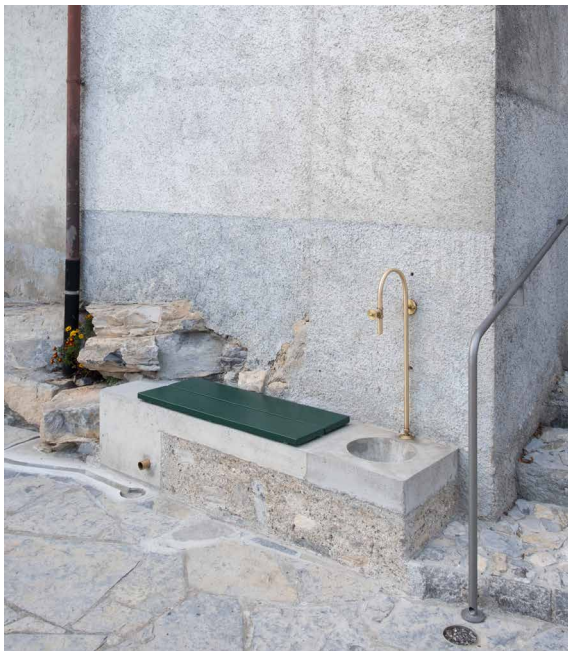
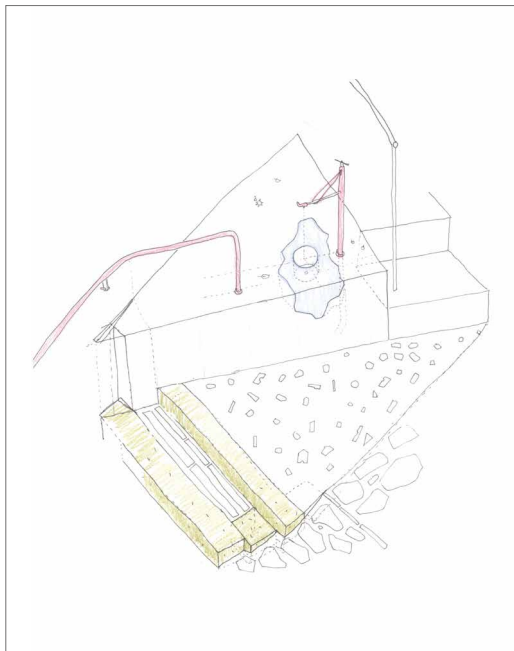


Fig. 5-8 - Details and drawings of Monte, design by Studioser Architects, Monte (Castel San Pietro, Canton Ticino), Switzerland (photo: Sven Högger Photography).

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