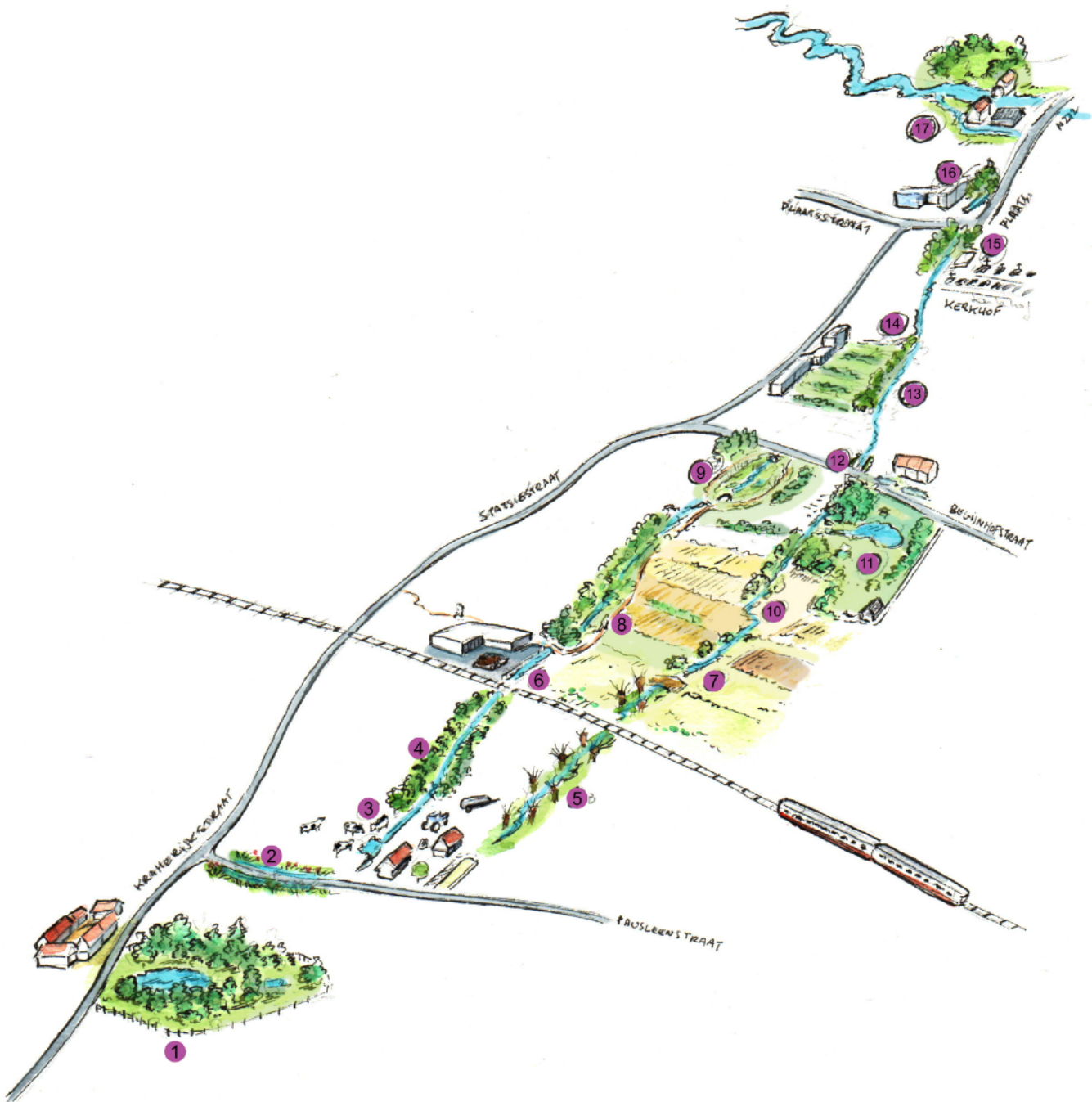


# Creek restoration project: different possible interventions

*Artistic research by Dustin Jacobus*  
Hielbeek, Tollembeek, Belgium, 2025



I've been helping locally with a #water project in a rural area, and it's been an interesting experience. I believe some of the design insights I've gained could apply to many other regions as well. The project aims to map small #creeks that feed into a local #river. These naturally occurring creeks are part of a larger, complex river system.

The issue is that these creeks are largely unprotected and poorly managed. The project wants to map them and develop a legislative framework to ensure better protection.

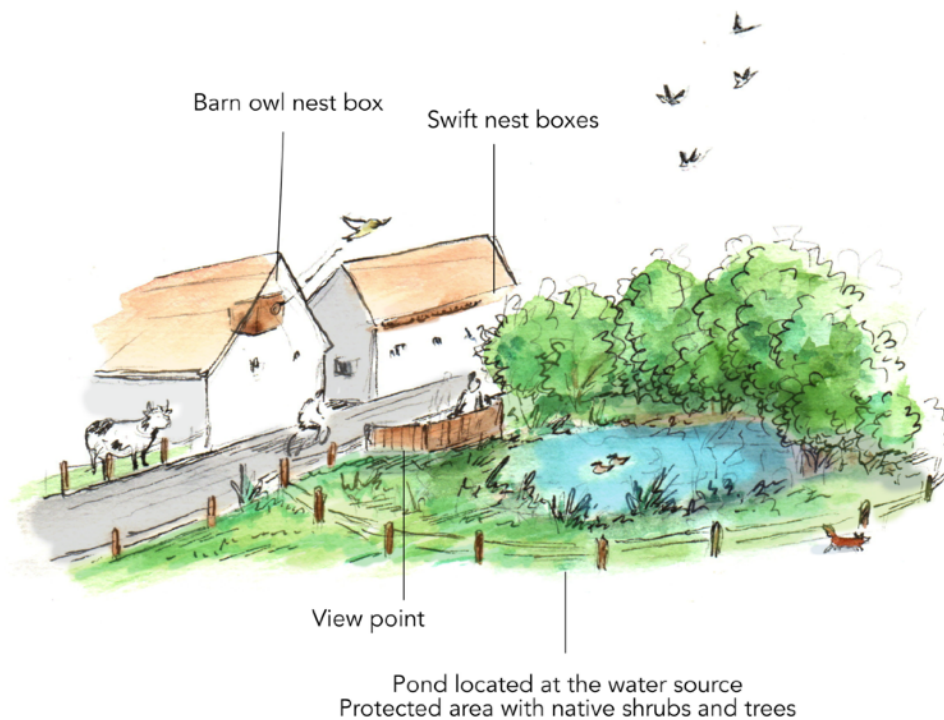
Water is crucial—not only here but everywhere. Ensuring the health of our water systems should be a key goal for a healthier future.

For this creek, I've identified 17 potential improvements. I've shared an overview #illustration that shows the numbered solutions.

## Point 1 Protecting the Source

The creek's source is near a small #farmstead and has been converted into a #pool. The first step would be to protect the source area of every creek. Natural #vegetation should be allowed to grow around these #sources, which are essential for water quality. While human access to water is important, sources should be kept intact and minimally disturbed. The surrounding environment could also be enhanced, such as by adding nesting boxes for local bird species.

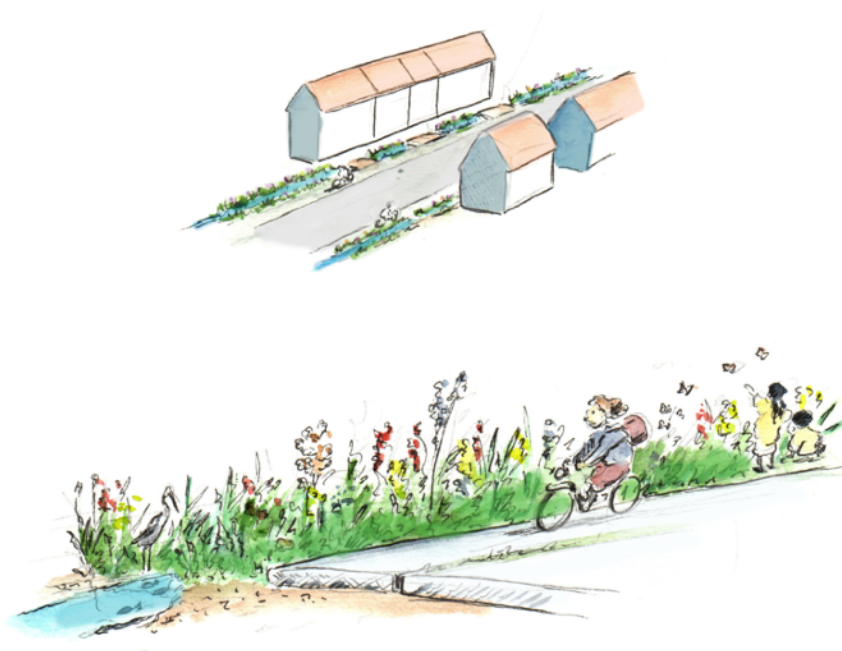
# Water source protection



## Point 2: Ditches

From the source, water flows into a drainage pipe leading to a ditch (see photo) that captures #rainwater from local houses. These #ditches are often designed for minimal maintenance. We could restore the creek's natural flow or, if we keep the artificial flow, transform the ditches into #ecological areas with flowering #plants and #wildlife. This could turn every ditch into an attractive feature, benefiting the neighborhood and improving #water quality.

# Ditches



## Point 3: the farm pond

The local creek is diverted through a sewer pipe and some ditches to maintain its flow across farmland. From a historical perspective, farms were often built near water sources. This makes sense because farmers needed reliable access to water for irrigation, livestock, and drainage.

However, with the rise of industrialized and globalized agriculture, water has increasingly been exploited. The result is degraded water quality and the drying up of natural water flows.

Locally, farmers are often blamed for water mismanagement. While this is partly true, it's important to recognize that the real issue is more systemic. Farmers operate in a broken system. A farmer in a solarpunk future could be a steward of local water systems, not an adversary.

Farmers could continue using creeks and rivers for irrigation and watering cattle in a responsible way while also taking steps to protect and preserve these aquatic systems. To make this vision a reality, we need to implement sustainable agricultural models. An agricultural model that prioritizes local communities over multinational corporations and large retail companies. By encouraging farmers to allow vegetation and trees to grow along small creeks, we and they can help maintain the health of the river and its surrounding ecosystem.

## Farm & pond



**Point 4.: Restoring the creek its course and its riparian vegetation**

## Point 5: Creeks and Willows

The creeks that cross #farmland face a major issue—vegetation along the banks is often removed to create additional space. This not only disrupts the natural habitat, but it also increases the risk of water contamination, particularly where crops are cultivated.

In Western Europe, #farmers once planted willows along creek banks. These trees thrive near water, and there was a time when they provided a return on investment. Each year, farmers would trim the fast-growing branches, which could be used to make tools, baskets, fences, or even for fuel to heat homes.

This practice formed a mutually beneficial partnership with nature. Willows are early-blooming trees, which offer vital resources to #pollinators, including queen bumblebees. Various species, such as the little owl, also use the cracks in the #trees as nesting sites. The long rows of #willows also helped protect the water from the harsh summer sun, providing shade and preserving the #ecosystem.

Unfortunately, this practice has largely fallen out of use. Now, it is mostly carried out by #nature conservationists and volunteer groups. Many of the willows are in poor condition, and little by little, they are disappearing. We see #bumblebee populations are dwindling, and the little #owl is increasingly struggling to find suitable nesting spots. This is a trend that saddens me deeply.

In particular, in areas where cattle are kept, these beautiful lines of willows along the creeks could still be incredibly valuable. Why not revive such beneficial partnerships between humans and nature? Our #farming ancestors knew how to work with nature, not against it.

#Imagine how the #landscape could be transformed if every meadow with small #creeks were dotted with these beautiful, functional #trees.

## Creeks and willows



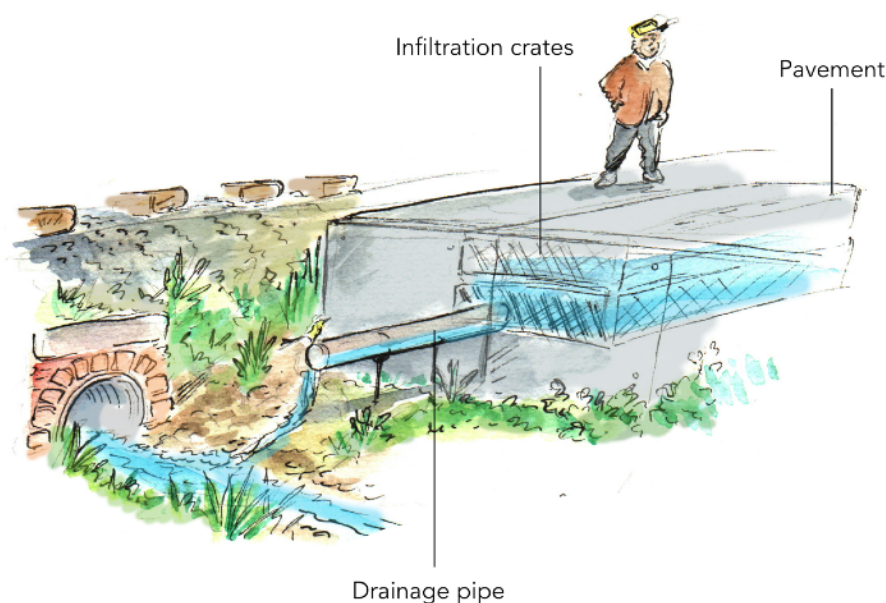
## Point 6: Infiltration Crates and Pavement

At this particular site, there is a woodworking company with extensive paved surfaces. As seen in the accompanying image, plastic pipes are used to drain rainwater and stormwater toward the nearby creek. This method is a common practice, where excess rainwater from paved areas or roofs is directed into the #sewage system, ditches, or in this case 'a creek'.

However, this approach presents several issues. First, during heavy storms, the volume of runoff water can be significant, which can overwhelm the local river system and lead to flooding. Second, because of the widespread paved surfaces, very little rainwater is able to infiltrate the ground, leading to undesired fluctuations in the local groundwater table. Lastly, the quality of runoff water is often poor; pollutants, debris, and chemicals on surfaces are washed away and end up in the water system, further degrading water quality.

While large paved areas and roofs are often necessary for businesses like this woodworking company, runoff water can still be managed more effectively. One solution is the installation of #infiltration crates beneath the paved surfaces at strategic locations. These crates can capture rainwater and allow it to slowly infiltrate into the surrounding soil, keeping the water locally instead of redirecting it away. In cases of excess water, it can still be directed to the nearby #creek, but this approach allows for better control over the volume and timing of #runoff.

## Pavement, water infiltration and retention



## Point 7: Sustainable Agriculture and Water Management

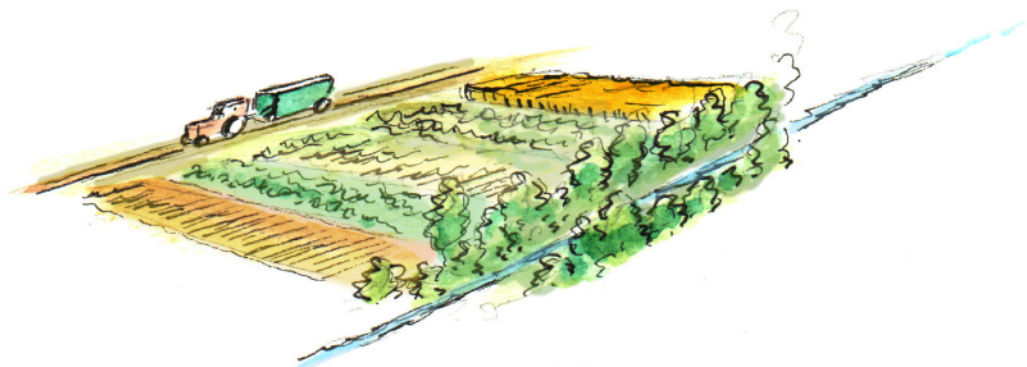
The creeks in question primarily flow through agricultural lands, where they face two significant threats. The first is contamination from chemicals such as herbicides, pesticides, and nitrates from manure. While governments have implemented regulations requiring farmers to maintain a buffer zone between crops and creeks, these laws are not always followed. As shown in the photo, it's common to see crops planted right up to the water's edge, increasing the risk of runoff into the creeks.

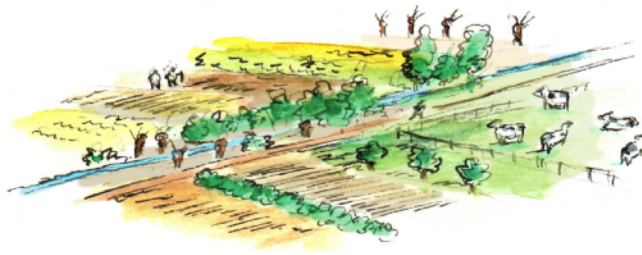
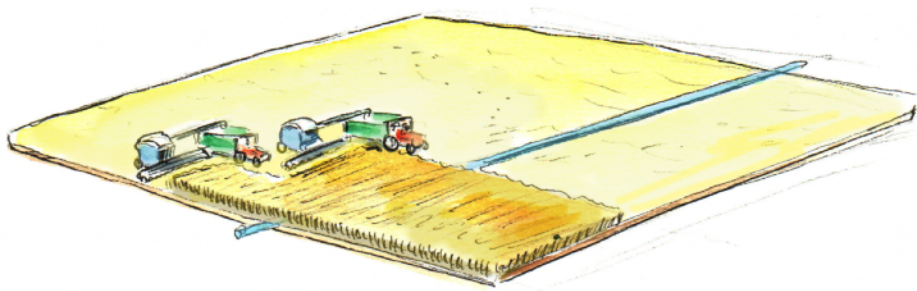
The second threat is the #mismanagement of water resources. Over-extraction, especially during hot summers, is a major concern. Many farmers rely heavily on irrigation, often without adequate regulation or oversight. Additionally, some farmers alter the natural flow of the water, channeling it through pipes beneath their fields (photo 2) to expand crop production and increase yields, as #illustrated here.

Both of these practices are #unsustainable and have no place in a solarpunk future. We need to #transition away from industrial #agriculture, which relies on harmful chemicals and over-exploitation of resources, and embrace community-driven, #regenerative practices like #permaculture. In a solarpunk world, #farmland would be in harmony with nature, creeks would be lined with native #vegetation, and farming would be chemical-free, focused on long-term #ecological health.

In this envisioned future, we restore the creeks to their natural states, allowing the #water to meander through the landscape as it once did, nurturing both the land and the #communities that depend on it. This approach isn't just a goal. It's a necessary step toward a more #sustainable, equitable, and #biodiverse future.

## Sustainable agriculture & water





## point 8: The protection of Seep Areas

When we think about water sources, we often imagine them as singular locations where water bursts forth from the Earth's crust. While such sources do exist, most creeks are actually fed along their course by numerous minor sources. These creeks often pass through seep areas, where groundwater slowly emerges from the ground, almost pressureless, seeping from multiple points towards the creek. These areas are typically wetter than their surroundings, even during dry spells, and after rainfall, they are the places where local groundwater reemerges.

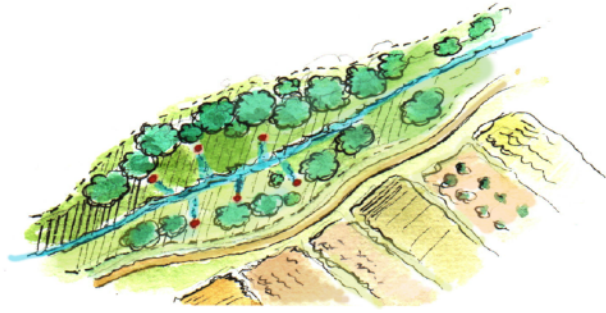
The amount of water produced by these seep areas should not be underestimated. They are often found in meadows or farmland, and unfortunately, they are not well-protected by current legislation. In a solarpunk future, I envision a world where we recognize and care for these areas, ensuring they are preserved from contamination and damage.

In addition to this, I've introduced a second concept in my sketch, one that aligns with the philosophy of the commons. In rural areas, there used to be many small hiking trails that connected villages. These paths were marked on maps and were considered common grounds, accessible to everyone. Over time, however, many of these trails have been forgotten or reclaimed by private landowners or farmers, with some even blocking access or discouraging hikers.

Restoring these trails could help rebuild the connection between farmers, farmland, the natural landscape, and the broader environment. Imagine a network of beautiful hiking paths that cross fields, small forests, and wetlands—an interconnected system that promotes both local culture and environmental stewardship.



# Seep area protection



## Point 9: water buffering

Throughout history, we have altered the course of many rivers. We've paved over small creeks and redirected water into pipelines and sewers. Water is often viewed as a threat, something we must control.

The mismanagement of water systems over the centuries must be addressed in the Solarpunk era. Many small creeks and rivers flow directly through residential areas. With climate change exacerbating extreme weather events, we now face more frequent floods due to heavy rainfall.

Our poorly managed water systems and misguided land use have contributed to these disasters.

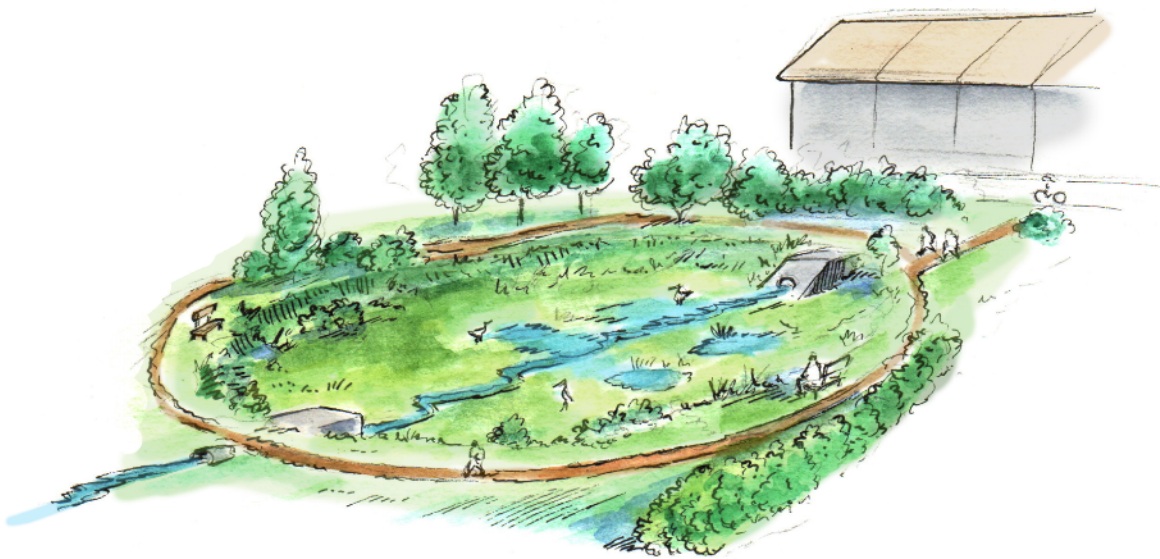
We see some governments taking action, such as the creation of this buffering pond near a residential area. The pond captures excess water and diverts it away from homes. While it's understandable that residents and local authorities prioritize such measures, one must ask:  
Why does the design have to be so uninspired?

It's a missed opportunity, in my opinion. We could design these spaces to allow native plants to thrive around the artificial pond. We could create walking paths, add benches, and invite locals to take a stroll. Throughout the year, they could enjoy the beauty and richness of this wetland. These projects are ideal for planting large trees and long rows of shrubs, creating a perfect environment for local birds to nest and forage.

The design seen in the photo reflects a typical human-centered approach, where humans consider themselves the sole stewards of the land and feel entitled to shape the environment according to their needs. The needs of other species, however, are often disregarded.

A key element of a sustainable future is ensuring that any design we implement takes into account the well-being of all life forms on Earth.

## Water buffering



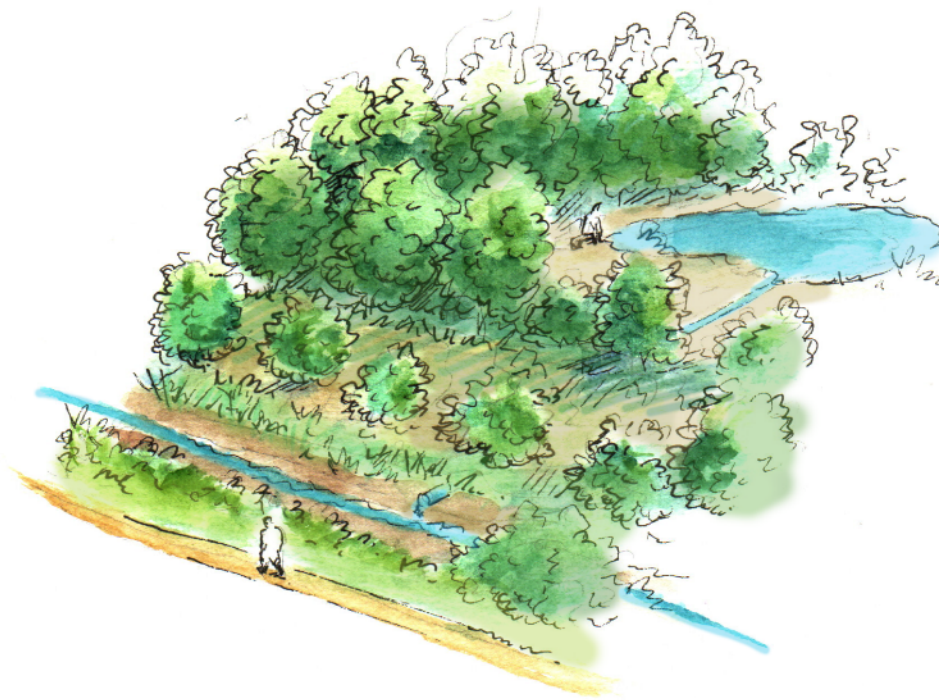
**Point 10: restoration of meanders**

## Point 11: focus on private land and water management (1)

Shown here is a large private property with gardens and ponds. Simple interventions, like planting #trees or aligning ponds with nearby creeks, could significantly improve #water quality and the natural #environment.

Even small changes on private #land can have a profound #impact, fostering a stronger sense of #community and shared #responsibility.

### Private land and water



## Point 12: The issue of swales and canals

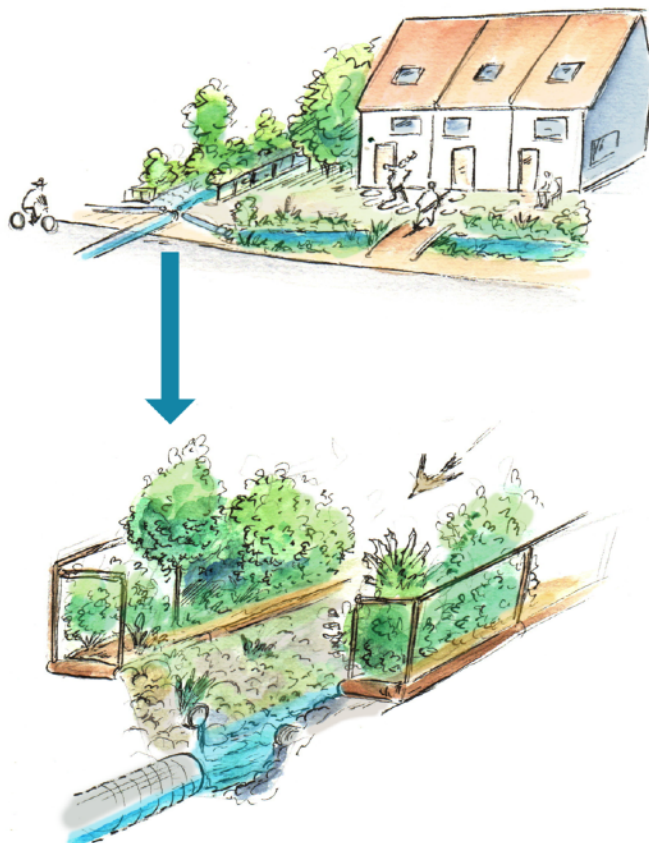
This example highlights uninspired, human-centered design. The photo illustrates a situation that is likely familiar in many parts of the world: a cluster of newly built houses next to a point where water from nearby #ditches is channeled into a larger watercourse. This main #waterway is actually a natural creek. While it's possible to direct excess water into creeks, it's crucial that the water is clean. Unfortunately, the photo clearly shows signs of #pollution.

Although the houses are new, there has been no investment from the developer in water management systems. Designing water retention features, even on public land, would have been a simple and effective solution. For example, depressions could capture #rainwater, and with the right plants, this water could be naturally purified and allowed to infiltrate into the ground. The excess #stormwater would then flow into the creek in a #healthier, more #sustainable state.

Another issue in the design is the alteration of the creek's natural banks. Concrete has been used to line the banks and the #creek bed, a technical approach aimed at efficiently directing the #water and preventing vegetation from growing in or around the stream. The rationale is to reduce maintenance for municipal workers.

However, this approach is poor design. While there are constraints, such as limited space and technical challenges like incoming pipes and steep banks, #alternative materials could be used. For example, rocks combined with sediment would stabilize the steep banks while allowing #vegetation to grow and water to #infiltrate. Even in a limited space, there is room to incorporate native, low-maintenance #shrubs and #plants along the creek's edges.

## Swales and canals



## Point 13: focus on private land and water management (2)

As shown in the photos, small creeks often flow through residential areas, acting as natural boundaries between private properties. A significant amount of land is privately owned, giving landowners considerable freedom in how they use it. While this is a fundamental right, it presents challenges in managing land in ways that benefit both individuals and the broader #ecosystem. This unregulated #freedom often leads to missed opportunities for environmental #stewardship.

While shifting to alternative land #governance models may be unrealistic in the short term, simple and clear regulations could encourage landowners to contribute to a more holistic, community-focused vision. This would allow private land to serve a greater good, benefiting both the landowners and the environment.

Take the small creeks that run through many gardens. #Vegetation along the creek banks can improve water quality, but if every piece of land is privately owned, this benefit is often overlooked. A simple solution could be to designate a small portion of each garden for native #shrubs and trees. This would help protect water systems while still allowing landowners to maintain control over their #property.

These interventions wouldn't infringe on #ownership rights but would encourage #landowners to design their properties in ways that align with a larger #environmental vision. It's about #balance: personal agency with a sense of the common good.

One #illustration shows a couple near a water stream, they enjoy the healthy and biodiverse water ecosystem they created together with their neighbors!

## Gardens and canals



## Point 14: Water protection and community center

Point 14 marks an interesting landmark along this local creek. The creek's headstream is redirected through pipes and alongside paved banks that cut through private gardens. Meanwhile, a secondary stream flows hidden underground in a pipe. At a certain point, both watercourses flow freely again and merge into one larger stream.

This is a striking example of how human interventions shape natural water systems to serve our needs. The creek's course is largely unknown to the public, it's not easily accessible, nor is it well documented on maps.

This situation underscores how disconnected we've become from our local water systems. In a solarpunk future, every citizen would at least have a basic understanding of how their local waters function. I'm confident that by restoring and properly maintaining these water systems, we can foster a deeper respect for water and nature. When we engage with these natural elements thoughtfully, our attitudes toward the environment will shift for the better.

If we continue to treat water and the environment recklessly, we can't expect future generations to step up as stewards of a sustainable world.

The landmark shown in the illustration represents a vital merging of streams, but it's now hidden behind walls and fences, its unique ecosystem almost entirely lost. This is a space that should be cherished and protected.

We could easily create community spaces around this waterway, perhaps a clubhouse, an open kitchen, or a pavilion where people can gather. From this central hub, we could provide access to the creek, allowing people to connect with this vital stream of life once again.

## Water protection & community centers



## Points 15 and 16: Public “water” interventions

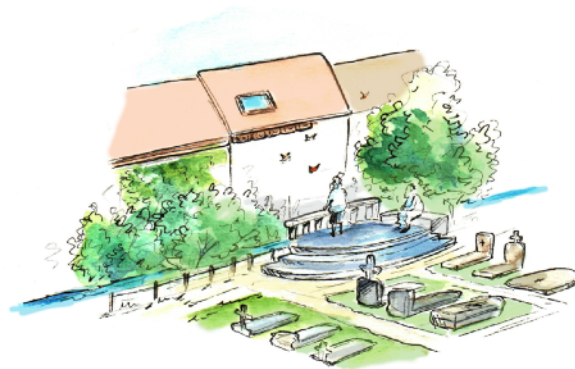
The local creeks run through the village but remain hidden, as water is often seen as an inconvenient nuisance that needs to be diverted or controlled. This approach leads to alienation, as people lose their connection to local waterways and often have little understanding of how the water system functions in their area.

By opening up paved-over streams, we have the opportunity to create new green spaces within urban areas. One illustration shows a typical market square, bland, uninspiring, and entirely human-centric. However, if we remove the pavement and allow the water to flow naturally, even if only partially, we could transform the space into a vibrant natural hotspot.

Imagine such spaces in your city: along the banks, there could be trees, shrubs, and benches, offering a peaceful retreat amidst the concrete surroundings.

The second illustration depicts a simple intervention where the creek flows next to a cemetery. Currently, there is no access to the creek, as if it holds no value at all. While a cemetery may not be the most popular public space, it is still a place where people come to mourn, contemplate, or simply rest in silence.

Now, imagine if we added some infrastructure along the creek bank, perhaps benches or small pathways, where people could stop and relax. By embracing these spaces, we could also improve local biodiversity, for example by installing birdhouses for species like house sparrows, which are in urgent need of support. The cemetery could become an ideal habitat for these birds, and with nest boxes placed on private homes along the creek, we could help them thrive in the area.



## Public "water" interventions



## Point 17: Community land trust

This last illustration depicts another intervention one can make to enhance local creeks. The creek's mouth, where it meets a nearby river, is located just a stone's throw from the local village. It lies next to an artificial pond and a crumbling, old watermill.

Such historic landmarks can still be found along Belgian rivers, though most are now abandoned, deteriorating rapidly, and often remain in private hands.

Whenever I walk past sites like these, I wonder: Could we restore them in a solarpunk era? They could become community hubs, places where we could implement Community-Supported Agriculture (CSA) practices. These old structures offer a chance to revive forgotten knowledge through low-tech solutions, creating meaningful connections with our past while shaping a sustainable future.

A watermill is a structure that harnesses hydropower, using a water wheel or turbine to drive mechanical processes such as milling, rolling, or hammering. These processes were essential for producing everything from flour and lumber to paper, textiles, and even metal goods.

How beautiful would it be if such local technologies could once again serve local communities, bringing practical and sustainable benefits?

I envision these sites becoming vibrant centers for new forms of community activity, places of learning, cooperation, and local production. The surrounding farmland could be used for CSA projects, while the garden could be transformed into a public picnic area.

The water itself, along with the pond, could be enhanced by adding plants that help filter and purify the water. Dense reed beds and man-made bird islands could further boost local biodiversity, making these areas not only functional but also ecologically enriching.



# Community land trust and water management

