Making Water Smart Communities work: Lessons for community engagement from six in-depth case studies

Kavindra Paranage & Tom Hargreaves

3S Research Group

University of East Anglia

Making Water Smart Communities work: Lessons for community engagement from six in-depth case studies

Kavindra Paranage | University of East Anglia
Tom Hargreaves | University of East Anglia

Executive summary

Effective community engagement is critical to the success of water smart communities. As climate pressures, regulatory demands, and public scrutiny grow, sustainable water futures will depend not only on technical innovation, but also on new forms of planning, governance, and long-term community involvement.

As part of the Enabling Water Smart Communities project, the University of East Anglia conducted six in-depth case studies across the UK to examine how community engagement is already being reimagined in practice. These cases spanned a wide range of initiatives—from citizen science and co-designed drainage to grassroots advocacy and community-led housing. Drawing on these examples, the report identifies five key lessons for building more inclusive and effective water smart communities:

1. *There is no single blueprint.*
   Water smart communities are shaped by local geography, governance, and social dynamics. Effective models must be tailored to context, not replicated wholesale.

2. *Communities are already engaging.*
   Across all cases, communities were found to be creatively and proactively involved in water stewardship. What they often lack is recognition, resourcing, and integration into formal systems.

3. *Communities offer new framings and knowledge.*
   Publics not only respond to water issues—they also reframe them, highlighting overlooked aspects like aesthetics, equity, and governance. These contributions can improve institutional understanding and decision-making.

4. *Co-creation is essential.*
   Water smart initiatives work best when communities are engaged from the start, shaping priorities and design—not simply consulted after decisions are made.

5. *Engagement methods must evolve.*
   Standard engagement practices like surveys and consultations are often too narrow. More plural, adaptive, and systemic approaches are needed to build trust and sustained collaboration.

Making water smart communities the norm—not the exception—will require recognising and supporting the diverse ways communities already engage with water. This means shifting from delivering solutions to cultivating relationships. It demands seeing local knowledge as essential, embracing co-creation, and embedding communities as equal partners in shaping sustainable water futures.

University of East Anglia

Water smart communities recognise that sustainable water management depends not only on technical innovation but also on changes in planning, governance, and community engagement. Infrastructure and data are critical, but they must be matched by approaches that are responsive to place, grounded in local knowledge, and co-created with communities themselves.

Across the UK, interest in involving the public in water-related initiatives is growing. Yet persistent challenges remain. In 2024, trust in water companies fell to a 13-year low, with an average score of 6.37 out of 10, according to the Consumer Council for Water. Only 23% of people say they trust their provider to act in the best interests of the environment—down from 31% in 2021.[1] At the same time, uptake of water efficiency measures has often lagged behind expectations, while some proposals have faced strong local resistance, resulting in delays, cost overruns, and reputational damage.

The Enabling Water Smart Communities (EWSC) project began with the recognition that these issues are not just peripheral—they go to the heart of how water is managed. Addressing them demands new models of stewardship that are not only technically effective, but also socially legitimate, locally grounded, and capable of sustaining long-term community involvement. At the University of East Anglia (UEA), our contribution has focused on what this might look like in practice—and how it can be meaningfully achieved.

Research Approach

UEA's contribution to the Enabling Water Smart Communities (EWSC) project focused on understanding how communities are—and could be—more meaningfully engaged in the creation of water smart communities. To explore this, we examined six case study communities from across the UK that are already experimenting with new forms of engagement, governance, and stewardship in relation to water:

SuDS+

A sustainable drainage demonstration project involving in-depth co-design with local communities to shape the form, function, and visibility of green infrastructure.

[1] Consumer Council for Water. (2024, April 10). *Customer trust and satisfaction in water companies falling in latest Ofwat and CCW research*. Retrieved from https://www.ccw.org.uk/news/customer-trust-and-satisfaction-in-water-companies-falling-in-latest-ofwat-and-ccw-research/

Project Zero

A water neutrality initiative that developed highly tailored, household-specific behaviour change pledges through direct engagement with new residents.`

Catchment Systems Thinking Cooperative

A national citizen science programme working with local volunteers to co-produce water quality data and strengthen community roles in catchment monitoring.

Project Groundwater

A flood resilience programme engaging nine communities at high risk of groundwater flooding through local forums, knowledge-sharing, and tailored planning support.

Community Land Trust Network

Advancing community-led housing models where residents co-govern shared green infrastructure and water-saving features.

Cam Valley Forum

A grassroots environmental network where local residents organise river protection efforts, lead advocacy campaigns, and shape regulatory responses.

These case studies were intentionally selected to reflect a wide spectrum of community engagement practices—from industry-led awareness and behaviour change campaigns, to in-depth co-production processes, through to citizen-led activism and governance. To our knowledge, this represents the first effort to analyse such a diverse set of water-community relationships through a shared framework.

Understanding this diversity is crucial. Future efforts to support water smart communities will only succeed if they are inclusive of, and responsive to, the different ways communities already engage with water. To investigate this, we conducted site visits, interviewed project organisers and community members, reviewed documentation, and reflected on how different visions of "water smart" are being enacted in practice.[2]

From this broader study, five key lessons have emerged—each offering practical insights into how water smart communities can be supported, strengthened, and scaled.

1. **There can be no single blueprint for a Water Smart Community**

A key lesson emerging from this research is that there can be no singular model of a water smart community. Despite growing interest in identifying scalable frameworks, the findings from these case studies suggest that water smartness cannot be defined through a fixed blueprint. Instead, water smart communities are highly place-based, contextual and shaped by local geography, community dynamics, and institutional arrangements.

For example, Project Groundwater is a six-year initiative led by Buckinghamshire Council, funded by Defra's Flood and Coastal Resilience Innovation Programme. It works across nine communities in the Chiltern Hills and Berkshire Downs that are exposed to high groundwater flood risk. The project has placed particular emphasis on collaborating with local residents and community flood forums to develop responsive, place-based mitigation strategies. In the Pang Valley, pre-existing local groups such as the Pang Valley Flood Forum had already accumulated detailed knowledge of local hydrological conditions. This included not only which locations were most prone to groundwater emergence, but also the timing and frequency of flood events. Rather than supplanting these efforts, Project Groundwater aligned with and built upon them — enabling the development of tailored flood management plans for households, schools, and healthcare facilities.

The Catchment Systems Thinking Cooperative (CaSTCo) represents a different configuration of water smartness. Led by The Rivers Trust and United Utilities, with over 24 partner organisations, the project is developing a national framework for citizen science and catchment monitoring. In the Wensum catchment in Norfolk, CaSTCo's implementation has involved close collaboration with local stakeholders, including anglers, landowners, and environmental volunteers. These groups have provided granular knowledge about pollution sources and water quality hotspots, often identifying discharge points or high-risk periods

[2] A short appendix (forthcoming) will provide an overview of each case study, including a brief description, photos, and further detail on how communities were engaged, the framing of water-related issues, and the roles played by different publics.

more precisely than conventional datasets. This locally-informed monitoring effort has helped improve the accuracy of pollution mapping and enhanced the credibility of community-sourced data within regulatory processes.

Community Land Trusts (CLTs) illustrate yet another approach to water smartness, oriented around governance and stewardship. In many CLTs, residents are involved in the long-term management of shared assets and green infrastructure. These arrangements include the use of communal water-saving technologies, such as water butts or permeable surfaces, and shared responsibility for maintenance and care. The emphasis here is not on technological innovation per se, but on building institutional capacity within communities to act as stewards of local water systems.

Each of these case studies highlights a distinct dimension of water smart practice—whether in relation to community-based monitoring, flood resilience, or long-term stewardship. Importantly, they demonstrate that the meaning of "water smart" varies significantly depending on place, purpose, and community configuration. There is no universal form that can be replicated across contexts. For some communities, the journey toward water smartness may involve introducing new technologies and infrastructures. For others, it may require new forms of awareness-raising and behaviour change. And for still others, it will mean recognising and respecting existing forms of community-led stewardship—and allowing these to shape local development on their own terms. In short, successful water smart communities emerge through adaptive, locally-grounded processes of design and delivery.

2. Communities are already engaging in diverse ways

A second key insight from the case study research is that communities are never passive recipients of water-related interventions, nor are they disengaged or lacking in relevant knowledge. On the contrary, across all six projects examined, community members were found to be actively engaging with water in diverse, creative, and often highly impactful ways. This finding challenges the commonly held assumption that water-related behaviours must be instilled through education or behaviour change campaigns. In many cases, communities are already taking the initiative — often with limited support or recognition — and possess valuable forms of situated knowledge that are critical to the success of water smart approaches.

In SuDS+, for instance, community members were actively involved in site planning and design conversations. Local insights influenced decisions on where particular drainage features would be most effective — not just technically, but in terms of visibility, accessibility, and multi-functional use. This enabled SuDS to be integrated in ways that met both water management and wider community objectives, such as biodiversity, recreation, and safety.

Similarly, in the CaSTCo project, community volunteers contributed more than labour. Their longstanding familiarity with local watercourses, including knowledge of historic pollution incidents, seasonal variations, and upstream land-use patterns, played a central role in the selection of sampling sites and the interpretation of monitoring data. These contributions were often more locally precise than national or regional datasets, and in many cases, proved instrumental in improving the spatial targeting of catchment interventions.

In the Cam Valley Forum, a volunteer-led citizen advocacy group in Cambridgeshire, residents have taken the lead in organising river clean-ups, launching education campaigns, and advocating for improved regulation of sewage overflows and pollution. Their actions range from collaborative events with local schools to formal responses to planning applications and regulatory consultations. The Forum's work exemplifies a form of civic environmentalism that is proactive, place-based, and sustained — far beyond the one-off engagements typical of many formal consultation processes.

Over and over again, the case studies revealed that communities do not lack knowledge, interest, or initiative. What they often lack is recognition, adequate resourcing, and meaningful integration into planning and decision-making processes. Many of the most promising contributions to water smart practices are already happening—but outside formal systems of governance. Reframing engagement to start from a position of mutual recognition, respect and collaboration, rather than presumed deficit, is a necessary step toward building more inclusive, legitimate, and ultimately more effective water smart communities.

3. **Communities offer valuable knowledge and new ways of understanding water issues**

The third key lesson from the case studies is that communities are not only participants in water management — they are also active producers of knowledge and social intelligence. In many instances, community members introduced alternative ways of understanding water issues that differed from, and often improved upon, institutional framings.

In Project Groundwater, for example, local forums challenged technical definitions of flood risk by drawing attention to patterns of groundwater emergence that were missing from standard datasets. In CaSTCo, volunteers helped identify pollution hotspots but also drew attention to aesthetic and cultural aspects of water quality—such as changes in colour, odour, and recreational suitability—that are rarely prioritised in formal monitoring schemes. Their contributions highlighted the need for broader, more human-centred understandings of water health.

The Cam Valley Forum provides another example. As a citizen-led advocacy group, the Forum has actively challenged conventional governance models by calling for greater transparency, local accountability, and stronger public protections. Their campaign for Bathing Water designation for the River Cam is a case in point — using regulatory mechanisms to advance both environmental and civic objectives. Meanwhile, CLTs illustrate how communities can act as infrastructure innovators in their own right. Through co-designed green spaces, shared stewardship of water-saving infrastructure, and governance structures that embed local priorities, CLTs offer alternative, community-led pathways to water resilience—without relying on external prompts or frameworks.

Taken together, these examples demonstrate that communities themselves can provide new kinds of knowledge, understanding and innovation that can extend and develop institution-led framings of water issues. Critically, these examples suggest that limiting engagement solely to institution-led framings, risks narrowing the kinds of knowledge that inform decision-making. In so doing it can marginalise community expertise, erode trust, and thus make future collaboration and engagement even more difficult.

4. **Water Smart Communities must be co-created, not delivered**

The fourth lesson emerging from the case studies is that water smart communities cannot be designed in isolation from communities and imposed upon them from above. Too often, policy and industry approaches assume that technical solutions can be developed independently and then rolled-out to communities through education, incentives, or formal consultations. However, this model — which prioritises delivery over dialogue — risks significant opposition, implementation failure, and the long-term erosion of public trust.

Across the case studies, the risks of pursuing a "design–implement–defend" model were clear. In multiple contexts, local actors expressed frustration with past experiences where decisions had been made without their input and where attempts to engage the community felt like an afterthought. In contrast, the most promising examples of water smart practice were those that emphasised early-stage collaboration, shared ownership of ideas, and a willingness to adapt to local preferences and capacities.

In Project Zero, a water neutrality initiative led by Affinity Water and implemented in the Bidwell West housing development in Bedfordshire, co-creation was central to the project's success. Rather than promoting a pre-designed behaviour change campaign, the project began by engaging residents in conversations about how they were already saving water in their homes. These discussions informed a set of behavioural pledges tailored to each household's existing practices and willingness to change. This approach reduced the risk of resistance and created a sense of ownership over the water-saving goals. As a result,

Bidwell West was able to demonstrate a net reduction in water demand — despite adding over 900 new homes — and became the world's first "water-positive" housing development.

The CLT model also illustrates the benefits of co-creation. In CLTs, decisions about housing design, layout, and shared infrastructure are made collectively by residents. This participatory governance structure creates the conditions for long-term engagement and adaptive management. In some CLTs, this has enabled residents to incorporate sustainable drainage systems, shared green infrastructure, and localised water-saving measures that reflect community priorities. Importantly, these features are not simply "installed" but actively stewarded — embedding water smartness into the everyday practices of the community.

In the SuDS+ project, community engagement was foundational to its success. Implemented in Stanley, North Durham, this five-year initiative prioritized involving local residents in addressing flooding challenges through Sustainable Drainage Systems (SuDS). Rather than imposing predetermined solutions, the project employed a co-design approach, collaborating with the community to identify and develop interventions that aligned with their needs and aspirations. This participatory process not only enhanced the effectiveness of the flood mitigation strategies but also fostered a sense of ownership and stewardship among residents, ensuring the long-term sustainability of the implemented solutions.

These examples underscore a critical point: water smart communities cannot be done to communities — they must be done with them. Attempts to deliver water smart infrastructure or programmes without meaningful collaboration are not only ethically questionable but often strategically flawed. Community resistance, legal challenges, delays, and damage to reputations and trust are common consequences. By contrast, co-created approaches tend to be more durable, locally relevant, and better aligned with the social realities of place.

Creating space for co-creation requires a shift in institutional mindset. It demands that planners, water companies, and developers move beyond instrumental engagement towards more genuine forms of partnership that are attentive and responsive to the issues and concerns raised by communities. It also requires recognising the value of lived experience and local expertise — not as supplementary to technical knowledge, but as essential to the development of viable and legitimate water smart solutions.

5. **Building Water Smart Communities will demand new approaches to engagement**

The final lesson to emerge from the case studies concerns the limitations of conventional community engagement methods. Despite growing recognition of the importance of public participation in water planning, many existing practices

remain highly structured, top-down, and narrowly framed. Techniques such as online surveys, public consultations, and stakeholder workshops are often insufficient for capturing the diversity of community perspectives—let alone fostering the forms of collaboration required for co-creation. Evidence from the case studies highlights both the shortcomings of traditional methods and the potential of more flexible, responsive approaches.

In Project Groundwater, for instance, initial survey responses were found to be demographically skewed, prompting the team to diversify their outreach strategies. One response was to launch a local podcast focused on groundwater flooding, aimed at engaging broader audiences and offering new entry points into the project's objectives. Other case areas experimented with local events, social media, and neighbourhood-level intermediaries to strengthen engagement and expand reach.

In CaSTCo, organisers similarly recognised that existing communication channels—largely reliant on partner networks and voluntary sector intermediaries—were unintentionally limiting the demographic diversity of citizen science volunteers. Many participants were retirees, while younger people and underrepresented groups were notably absent. This led to a reassessment of recruitment strategies, including outreach through community organisations, alternative media platforms, and more flexible training formats. These adjustments aimed to ensure that citizen science reflected a broader cross-section of local society.

Perhaps the most innovative example of rethinking engagement comes from Project Zero. Rather than relying on one-way communication or predetermined behavioural targets, the project team developed a "hyper-local" engagement model. This began with a discovery phase, where residents were invited to reflect on how they already used water, what conservation practices they found acceptable, and where they saw potential for change. These insights formed the basis of a behaviour change campaign tailored to different household types—replacing generic messaging with specific, feasible pledges developed in collaboration with residents. This approach generated high levels of uptake and enabled a stronger sense of community-driven environmental action.

Across all three examples, a common theme emerges: the need to move beyond standard engagement templates and towards more plural, inclusive, and adaptive forms of interaction. Effective engagement is not just about gathering input; it involves recognising communities as collaborators with valuable knowledge, interests, and agency. Developing water smart communities requires that institutions invest in the design of engagement processes that are fit for this purpose—processes that are attentive to difference, open to experimentation, and capable of evolving alongside community needs.

Crucially, these cases also point to the need for a shift away from one-off consultations, surveys, or workshops, and toward a more systemic understanding of engagement. Engagement should be seen not as a series of isolated events, but as part of a broader system of interlinked, ongoing relationships. Interactions with one community can shape how future efforts are received—both within that community and elsewhere. They build reputations, set expectations, and influence what future forms of participation will be possible. Recognising this means developing more joined-up and adaptive approaches that are better able to work with the multiple, diverse, and evolving ways in which communities understand, engage with, and contribute to the development of water smart communities.

Conclusion

Effective community engagement is essential to the development of water smart communities. As the challenges facing water systems become more complex—ranging from climate impacts to infrastructural strain—there is increasing recognition that sustainable solutions cannot be designed or delivered by institutions alone. This is why the EWSC project has focused on exploring new models of stewardship and more inclusive approaches to engagement.

This report has drawn on six in-depth case studies, each representing a different kind of innovative water community from around the UK. Together, they illustrate the diversity of ways in which communities are already engaging with water and contributing to more resilient futures.

Our analysis of these cases reveals five critical lessons for more effective community engagement in water smart communities:

1. *There can be no single blueprint for a water smart community* - water smart communities must be designed around local conditions, capacities, and values.
2. *Communities are already engaging in valuable ways* - often without formal support or recognition.
3. *Communities offer valuable knowledge and new ways of understanding water issues* – often offering alternative and broader ways of understanding water problems and framing solutions.
4. *Water Smart Communities must be co-created, not delivered* — water smart communities cannot simply be delivered to communities from above. They must be locally co-created as part of genuine and long-term partnerships.
5. *Building Water Smart Communities will demand new approaches to engagement* **-** moving beyond one-off consultations towards more systemic, plural, adaptive, and inclusive approaches.

Transitioning Water Smart Communities from isolated novel experiments, into a new normal for housing developments will not come from simply replicating and scaling-up a single pre-existing solution or blueprint. Instead, it will demand recognising, supporting, joining-up and working alongside the multiplicity of ways in which communities are already engaging in new ways of thinking about, acting upon and stewarding water smart solutions.

Water smart communities are not a product to be delivered—they are a relationship to be nurtured. This calls for moving beyond predefined roles and acknowledging the fluid boundaries between communities, experts, and institutions. Local knowledge must be treated not as supplementary, but as essential to the development of meaningful and lasting solutions. Achieving this will require openness to new forms of governance, ownership, and engagement that stretch beyond the limits of conventional planning frameworks.