Elche Water Heritage 2035: Investment Plan for the Palmeral and its Irrigation System

August 2026

HYDRO HERITAGE CITIES

URBACT

Co-funded by the European Union
Interreg

Excelentísimo AYUNTAMIENTO de ELCHE

CONTENT

EXECUTIVE SUMMARY 2
1. POLICY CONTEXT 5
1.1 Needs Analysis in the Territorial Context 5
1.2 The Policy Response 7
2. The Investment Proposal 11
2.1 Background to the Proposal 11
2.2 Our Starting Point 12
2.3 The Adapted Version of the Innovative Practice 15
2.4 Integrated and Participatory Approach 17
3. The Adapted Innovation Project 22
3.1 Value Proposition 22
3.2 Workplan (Set of Actions) 25
3.3 Governance and Delivery Model 37
3.4 Project Schedule 39
4. Budget and Funding Sources 43
4.1 Project Costs 43
4.2 Investment Sources 46
5. Monitoring and Evaluation 52
5.1 Monitoring AND EVALUATION Approach 52
5.2 monitoring and Evaluation Framework 55

EXECUTIVE SUMMARY

The **Elche Investment Plan** sets out a long-term framework for protecting, reactivating and giving contemporary public value to the city's **hydraulic heritage system**, understood not as a set of isolated assets, but as a **living territorial structure** linked to the **Palmeral of Elche**, its irrigation network, the wider cultural landscape and the future resilience of the city.

The Plan responds to a clear territorial challenge. Elche possesses an exceptional hydro-cultural legacy, internationally recognised through the **UNESCO World Heritage status of the Palmeral**, yet that legacy is under pressure from a combination of factors: partial deterioration of key hydraulic elements, uneven visibility of the water system in contemporary urban life, the need to ensure irrigation continuity under increasingly demanding environmental conditions, and the governance complexity inherent in a system that combines municipal leadership, historical irrigation institutions, technical water management and wider social use.

From this perspective, the Plan is not conceived as a conventional heritage-restoration document. It is an **integrated investment framework** that connects **heritage conservation**, **circular water management**, **environmental resilience**, **public interpretation**, **education**, **cultural identity** and **collaborative governance**. Its purpose is to ensure that the hydraulic system supporting the Palmeral remains not only historically recognisable, but also functionally viable, institutionally manageable and socially meaningful in the coming decade.

The proposal has been shaped in the context of the **Hydro Heritage Cities** network, but its final logic is firmly rooted in Elche's own territorial reality, accumulated experience and local process. It builds on a growing strategic recognition that hydraulic heritage must be addressed as a cross-cutting urban issue and not merely as a residual conservation concern. It also builds on previous and ongoing efforts already undertaken in Elche, including hydraulic recovery works, the increasing role of regenerated water in irrigation, the activation of interpretive resources such as the **Molí del Real**, and a wider process of local dialogue and strategic alignment.

The Plan is organised around **four strategic objectives**:

- **Preserve and recover the historical hydraulic heritage of Elche.**
- **Promote sustainable, circular and innovative water management.**
- **Strengthen participatory and inclusive governance of the hydraulic system.**
- **Reinforce knowledge, sense of belonging and cultural identity around water.**

These objectives are translated into a structured workplan that combines major hydraulic and heritage interventions with softer but strategically essential lines related to interpretation, education, governance, digital access, annual activation and environmental monitoring.

Three major action families define the core of the proposal.

The first is the **recovery of the hydraulic backbone** of the system. This includes the renovation of the irrigation canals network and the **Canal del Desvío**, the reconnection of key hydraulic sections with the **Acequia Mayor del Pantano**, the rehabilitation of buried acequias in urban areas, and the recovery of emblematic assets such as the **Molí del Real** and, at a later stage, the historic power station of the **Pantano de Elche**. These actions are essential to restore continuity, intelligibility and physical viability to the historic irrigation structure that underpins the Palmeral as a living cultural landscape.

The second is the consolidation of a model of **heritage-led circular water management**. This includes real-time monitoring of regenerated water quality, irrigation automation in traditional huertos, the deployment of intelligent environmental monitoring in selected huertos, and the creation of a regulation basin to improve water quality and reliability. In this sense, the Plan is distinctive because it links hydraulic heritage directly to present-day challenges of water efficiency, quality control, resilience and circularity.

The third is the strengthening of the **public, educational and social value** of water heritage. Through interpretation, school programmes, memory work, dissemination materials, biodiversity-related citizen science, digital tools and annual cultural activation — notably **Water Week** — the Plan seeks to reconnect residents, schools, visitors and local stakeholders with the water structures, practices and meanings that have historically shaped Elche. This dimension is especially important because physical recovery alone would not be sufficient to secure long-term public ownership and legitimacy.

The governance model of the Plan reflects the institutional ecology of Elche. The **Ayuntamiento de Elche** provides overall political and institutional leadership, with the **Department of Heritage** acting as the main functional lead. **Aigües d'Elx** plays a central co-implementation role in the technical, educational and interpretive dimensions of the proposal. The **Comunidad de Regantes de la Acequia Mayor del Pantano de Elche** is recognised as a core institutional partner, not merely as a stakeholder, because the continuity of the hydraulic system depends on its historical role, operational knowledge and legitimacy. Around this core, the Plan also mobilises educational, cultural, environmental and knowledge actors, while the **ULG** is retained as a mechanism of advice, legitimacy and coordination.

The implementation horizon extends to **2035** and is structured in three phases:

- an initial **launch and activation phase**,
- a **main implementation and scaling-up phase**,
- and a **consolidation and long-term positioning phase**.

This longer horizon reflects the fact that the Plan combines actions already in implementation, medium-term hydraulic works and longer-term educational, environmental and governance effects. It also allows the proposal to align with a realistic public-investment logic rather than forcing an artificially compressed timeline.

The current cost structure of the Plan is already sufficiently defined to support a credible investment narrative. The **core identified investment package** amounts to **5.214.500 €**, distributed across the four strategic objectives and a cross-cutting digital platform. In addition, the Plan includes recurring annual costs linked to **Water Week**, the maintenance and updating of the digital platform, and the innovation and sustainability programming associated with the **Molí del Real**. Over the full 2026–2035 horizon, this produces a **total indicative Plan envelope of 5.704.500 €**.

The financing strategy is based on a **blended public-investment model**. It assumes a combination of:

- **municipal own resources and co-financing capacity**,
- **provincial and regional public support**,
- **state funding** for selected thematic lines,
- and **European funding instruments** for pilot, environmental, innovation and cooperation-oriented components.

This is fully consistent with Elche's recent investment practice, which already combines municipal effort with subsidies, structured financing and external programme support. The Plan therefore presents a realistic investment case: ambitious enough to justify external support, but grounded enough to demonstrate local capacity, accumulated effort and implementation readiness.

The value proposition of the Plan is clear. It offers public funders the opportunity to support the **long-term safeguarding of a UNESCO-linked hydraulic landscape** while simultaneously improving circular water management, reinforcing environmental resilience, expanding educational and cultural use, and creating integrated territorial value for the city and its communities. In this sense, the Elche Investment Plan is both a heritage initiative and a forward-looking urban investment proposal

1. POLICY CONTEXT

1.1 NEEDS ANALYSIS IN THE TERRITORIAL CONTEXT

Elche's territorial identity is inseparable from **water**. In a semi-arid Mediterranean environment, the city and its surrounding territory developed through a long historical relationship between settlement, irrigation, agriculture and landscape management. This relationship is visible not only in the urban fabric of Elche itself, but also in the wider **Camp d'Elx**, where water infrastructures, agricultural uses and cultural practices have historically shaped both productive life and territorial identity.

Within this broader setting, the **Palmeral of Elche** occupies a singular position. It is the most emblematic and internationally recognised expression of that water-based cultural landscape, yet it cannot be understood in isolation from the hydraulic system that sustains it. The Palmeral was inscribed on the **UNESCO World Heritage List** in 2000 under criteria **(ii)** and **(v)**, with a property area of **144 ha**, and its cultural value is directly linked to the historic irrigation logic that made the palm grove possible.

The hydraulic heritage of Elche is therefore not a collection of isolated monuments or picturesque elements. It is a connected system composed of the **Pantano de Elche**, the **Acequia Mayor del Pantano**, secondary acequias as Acequia de Marchena, partidores, mills, canal infrastructures, irrigation know-how and associated agricultural and cultural practices. The territorial logic of this system extends from the dam and the historic diversion canal to the urban and peri-urban irrigation network that sustains the Palmeral and related huertos.

The challenge is not simply to preserve individual assets, but to safeguard the continuity, intelligibility and functionality of a historic hydraulic system.

This challenge has several dimensions.

A first dimension is **environmental and functional**. The traditional irrigation system was designed for a water-scarce context and historically enabled the long-term viability of the Palmeral and surrounding huertos. Today, **climate change**, recurrent water stress and the need to manage water more efficiently place new pressure on this heritage system. The issue is not simply that the infrastructure is old; it is that the system must remain viable under more demanding environmental conditions and under stronger competition for water resources.

A second dimension concerns the **physical condition and continuity of the hydraulic system**. Some stretches and components of the network have been restored or remain operational, while others are deteriorated, fragmented, hidden or only partially functional. The **Canal del Desvío** alone extends for **4,000 m**, including **1,900 m of tunnels** and **120 m of aqueducts**. Certain sections have already been canalised and rehabilitated, but key parts of the system remain pending, including elements of the head intake, the tunnels and the reconnection with the

Acequia Mayor. Elche is therefore not starting from abandonment, but neither is it operating a fully recovered hydraulic heritage system.

The **Pantano de Elche** itself illustrates both the scale of the asset and the scale of the challenge. It remains one of the most significant hydraulic monuments in the territory and a central element in the identity of the system. At the same time, its current hydraulic and environmental condition reflects the broader vulnerability of the water structure on which the Palmeral historically depended. The deterioration or underperformance of these strategic elements affects not only heritage conservation, but also irrigation quality, landscape resilience and long-term system sustainability.

A third dimension is the **invisibility of much of the hydraulic heritage in everyday urban life**. Parts of the system remain buried, weakly signposted, poorly interpreted or disconnected from contemporary public experience. This creates a gap between the historic importance of water in Elche and the way water heritage is perceived by residents, schools and visitors.

In practical terms, the city faces a dual task:

- **protecting the system physically**, and
- **making it legible again** in the public realm, in educational settings and in the everyday narrative of the city.

A fourth dimension is **social and cultural**. Although Elche possesses exceptionally strong heritage assets, the hydraulic system is not always perceived as a contemporary civic and educational resource. The relationship between the Palmeral, irrigation and local identity remains powerful, but it is not equally strong across all generations and social groups. The future of the system therefore depends not only on restoration and technical management, but also on interpretation, educational use, public awareness and the reinforcement of belonging around water heritage.

A fifth dimension concerns **governance and coordination**. The hydraulic heritage of Elche lies at the intersection of municipal responsibilities, historical irrigation governance, water-cycle management, cultural interpretation and community participation. The management of this field involves multiple actors with distinct but interdependent roles. Long-term viability depends on their capacity to work through coordinated arrangements that can align heritage recovery, water management, public use, education and stewardship. In this respect, the challenge is not simply technical; it is also **institutional**.

At the same time, Elche starts from a strong base of assets and opportunities. It has:

- an internationally recognised **cultural landscape**,
- a still legible **irrigation structure**,

- a dense heritage narrative linked to water,
- relevant interpretive and educational resources,
- and a growing strategic consensus on the need to connect **hydraulic heritage**, **sustainability** and **resilience**.

The need is not to create value where none exists, but to **reconnect, coordinate and invest** so that existing value can be sustained and activated.

The territorial challenge addressed by this Investment Plan is therefore clear: **Elche needs to safeguard and reactivate its hydraulic heritage not only as a legacy of the past, but as a living system capable of supporting the conservation of the Palmeral, improving water resilience, strengthening cultural identity, enriching education and enabling a more integrated and participatory model of governance**.

1.2 THE POLICY RESPONSE

The response to this challenge does not begin from an institutional vacuum. Elche already possesses a substantial body of local strategies, sectoral plans and public commitments related to **heritage**, **sustainability**, **water**, **tourism**, **education**, **social cohesion** and **integrated urban development**.

What has been missing is not policy attention in the abstract, but a sufficiently coherent **investment-oriented framework** capable of bringing these agendas together around the specific challenge of hydraulic heritage. The Investment Plan should therefore be understood as an implementation instrument that gives territorial, strategic and financial coherence to policy commitments that already exist across several fields.

At local level, the Plan aligns most directly with Elche's emerging integrated urban strategy. The **Urban Agenda of Elche** and the earlier **Elx2030** exercise provide an important framework for linking **sustainability**, **resilience**, **quality of life**, **climate adaptation** and **heritage-informed urban development**. Within that broader strategic space, the Investment Plan contributes a more specific and operational focus on **water heritage**. It translates general commitments on environmental transition and urban quality into a concrete portfolio of actions concerning:

- irrigation networks,
- regenerated water,
- interpretation,
- education,
- and governance.

The Plan also fits with the logic of **EDUSI-Elx**, which aimed to improve urban conditions and quality of life through integrated urban development. While EDUSI was not designed specifically for hydraulic heritage, its underlying logic of strategic urban investment, spatial improvement and integrated intervention is highly relevant. The Investment Plan can therefore be read as a thematic continuation of that same integrated ambition, but focused on one of the city's most distinctive territorial assets: the **hydro-cultural landscape of the Palmeral and its irrigation system**.

The local policy fit is equally strong in relation to **heritage, tourism and education**. The **Tourism Master Plan** is relevant because the Plan does not treat hydraulic heritage only as a conservation matter; it also recognises its interpretive, visitor-facing and place-making value. At the same time, the Plan does not reduce the hydraulic system to a tourism product. Tourism and interpretation are outcomes of heritage conservation, public understanding and landscape activation, not the sole rationale for investment.

The educational and social dimensions of the Plan are also consistent with existing local policy directions. Elche has strategic frameworks related to **youth**, **inclusion**, **intercultural coexistence** and **community development**. These do not define the Plan, but they are relevant insofar as the Plan seeks to make hydraulic heritage meaningful to schools, young people, residents and diverse communities. The educational, interpretive and community-facing actions proposed in the Plan should therefore be understood as one way of materialising broader municipal commitments to **citizenship**, **inclusion** and **environmental awareness**.

A second and especially important layer of the policy response is the **UNESCO and cultural-landscape framework**. The **Palmeral of Elche** is not only a symbolic green asset or a tourist attraction; it is a **World Heritage property** whose long-term safeguarding depends on maintaining the logic of the irrigated landscape, the visibility and viability of its water structures, and the transmission of associated cultural practices and meanings.

The Investment Plan supports these values in practical terms through:

- recoverable infrastructure,
- functional irrigation continuity,
- public interpretation,
- educational activation,
- and stronger governance arrangements.

A third layer concerns **sustainable water management and climate resilience**. Elche already has strategic references in this field, including local sustainability and energy agendas and broader commitments related to efficient resource use and environmental transition. The Investment

Plan contributes directly to this policy field by connecting hydraulic heritage with present-day water management.

The role of **regenerated water** is particularly important. The city already operates within a context where water reuse is materially relevant to irrigation sustainability, and the integration of regenerated water into the traditional irrigation logic gives the Plan a strong policy anchor in **circular water management**. In this sense, the Plan is not a nostalgic restoration exercise, but a contemporary response that combines heritage recovery with more resilient and efficient water use.

This logic also aligns with wider priorities around **sustainable urban development**, **cultural heritage**, **circularity** and **climate resilience**. These broader references are useful for strategic positioning and future funding opportunities, but the Plan's credibility depends primarily on its **local grounding**. Its strength lies in showing how wider policy priorities can be embodied in Elche through concrete interventions in irrigation recovery, regenerated water, monitoring, interpretation and governance.

The Investment Plan should therefore be read as the **integrating policy response** that Elche previously lacked. It brings together heritage protection, sustainable water management, educational activation, interpretation, identity-building and participatory governance into a single implementation framework.

Its added value is not that it introduces entirely new policy goals, but that it connects existing ones around a coherent territorial logic and translates them into action around one of the city's most distinctive assets.

Image 1. Molí del Real.

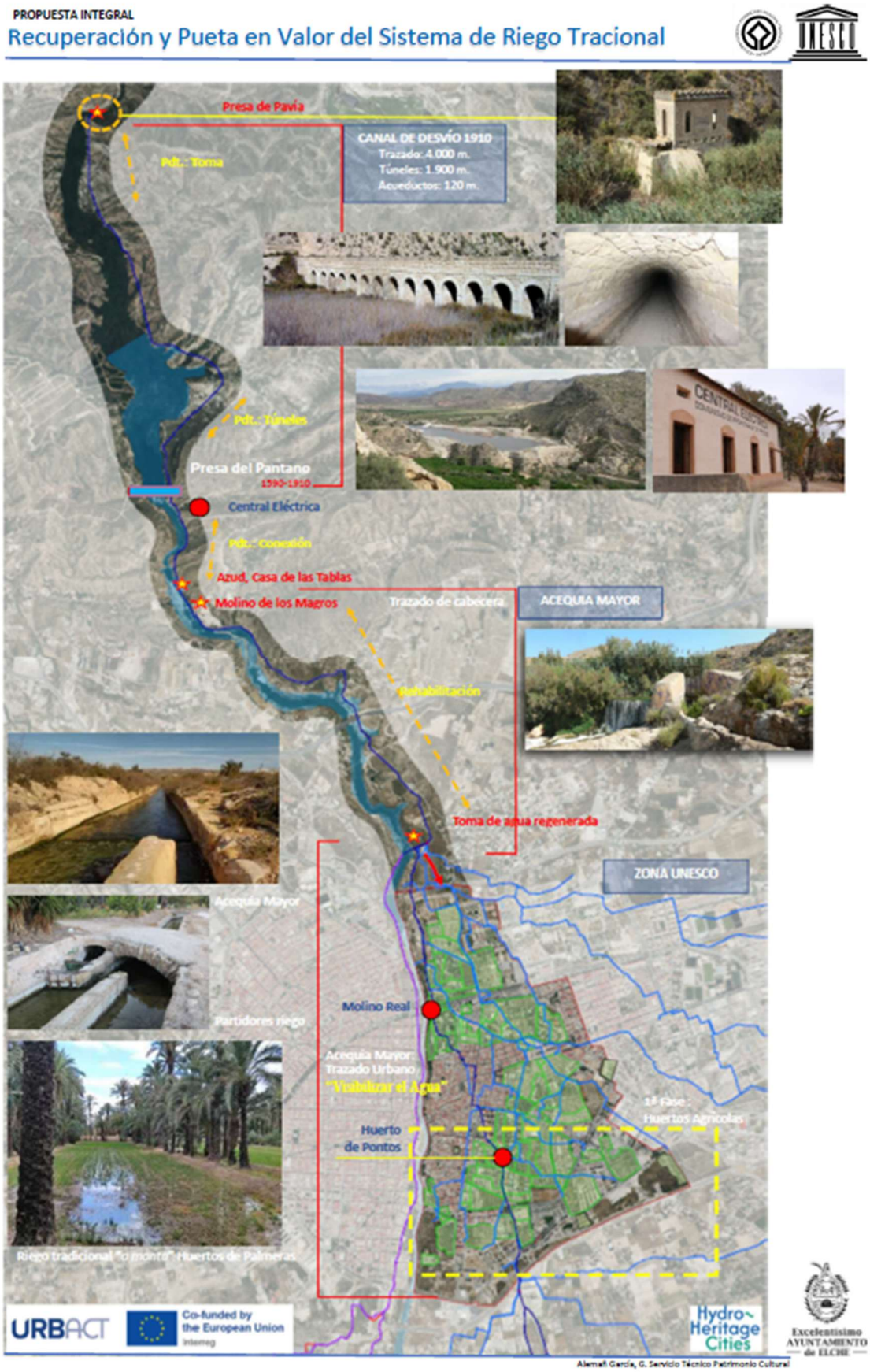


Image 2. Proposal for the Recovery and Enhancement of the Traditional Irrigation System. Elche City Council.

2. THE INVESTMENT PROPOSAL

2.1 BACKGROUND TO THE PROPOSAL

The Elche Investment Plan emerges from the convergence of two dynamics.

The first is **local**: a growing recognition in Elche that hydraulic heritage must be addressed as a strategic urban issue rather than as a collection of isolated restoration needs.

The second is **transnational**: participation in the **URBACT Hydro Heritage Cities** network, which offered Elche a structured framework for rethinking how hydro-heritage can be adapted, governed and funded in the present.

These two dynamics are inseparable. The Plan does not derive from an abstract transfer exercise, but from the meeting between a **place-based local challenge** and a **European opportunity** that helped Elche organise, test and mature its own response.

The network originated in the experience of **Chalandri**, where hydro-heritage was reinterpreted not only as a matter of conservation, but as a **living resource** capable of generating environmental, cultural and civic value. For Elche, the relevance of that experience did not lie in the possibility of copying a ready-made project. It lay in the transfer of a strategic logic:

- making hidden water heritage visible and functional again,
- combining hard and soft investments,
- linking heritage to resilience and public space,
- and connecting technical intervention with education, participation and governance.

A small number of headline lessons made that approach meaningful for Elche. It showed that hydro-heritage could support both physical intervention and wider urban activation; that citizen engagement and interpretation could be treated as integral parts of investment rather than as secondary communication tools; and that digital, educational and cultural components could reinforce long-term ownership of the resource.

These lessons were relevant because they offered a way to think beyond the traditional separation between **restoration**, **water management** and **public use**.

This became especially pertinent in Elche's case because the city already possessed a strong hydro-heritage foundation, but lacked a sufficiently integrated method for connecting its various dimensions. Elche did not need an abstract heritage narrative. It needed a framework capable of linking the irrigation system that sustains the **Palmeral** to contemporary issues of **water resilience**, **public awareness**, **education**, **identity** and **governance**.

The value of the Hydro Heritage Cities process was therefore **methodological as much as thematic**. It provided Elche with a structured route for moving from recognition of the challenge to a more defined investment logic. It helped to frame hydraulic heritage as a strategic resource rather than as a residual problem, and to organise the local discussion around **adaptation rather than replication**.

This distinction is important. Elche's interest did not lie in reproducing another city's interventions literally, but in understanding how an integrated hydro-heritage approach could be translated into its own territorial and institutional reality. In practical terms, this meant reframing the **Palmeral** and its irrigation system as more than a conservation concern. It meant understanding them simultaneously as:

- a **water-management system**,
- a **cultural landscape**,
- an **educational resource**,
- a **public narrative**, and
- a **governance challenge**.

It also meant recognising that the future of hydraulic heritage depended not only on restoration works, but on the capacity to combine physical recovery with **interpretation**, **school programming**, **community engagement**, **water monitoring** and **institutional coordination**.

The proposal should therefore be understood as the concrete result of a local trajectory that was strengthened, but not replaced, by the transnational process. The Hydro Heritage Cities framework provided concepts, examples and a transfer methodology. Elche provided the territorial reality, the hydraulic system, the actors, the accumulated initiatives and the strategic need.

The Investment Plan is the point at which these two dimensions converge and take the form of a place-based implementation proposal.

2.2 OUR STARTING POINT

Elche's starting point is marked by a productive tension. On the one hand, the city possesses one of the most distinctive **hydro-cultural landscapes** in Europe: the **Palmeral**, its traditional irrigation system, a set of hydraulic and agro-industrial infrastructures, and a dense web of associated practices, memories and institutional actors. On the other hand, much of this system enters the present under conditions of partial fragmentation, uneven visibility, incomplete recovery and insufficient strategic integration.

Elche does not begin from zero, but neither does it begin from a fully articulated investment model.

From a **technical and environmental** perspective, the city already has a relatively clear understanding of the hydraulic system that needs to be addressed. The territorial baseline includes the **Pantano de Elche**, the **Canal del Desvío**, intake points, tunnels, the connection to the **Acequia Mayor**, the regenerated-water intake, the urban irrigation network and a series of strategic interpretive nodes. This means that the basic system to be protected and reactivated is already legible. The challenge lies in moving from partial recognition and intervention to a coherent long-term investment pathway.

The water-management baseline is also more advanced than a superficial reading might suggest. Elche already operates in a context where **regenerated water** is materially relevant to irrigation sustainability. The connection between **EDAR Algorós** and the historic irrigation logic is therefore not an abstract future possibility, but part of the city's practical starting conditions. This gives the Plan an important degree of realism: it is built on an existing relationship between **water reuse** and **irrigation potential**, not on a purely hypothetical resource.

At the same time, the baseline remains uneven. Parts of the system are better documented, better understood or more advanced than others. Some needs are clearly related to **physical recovery** and **hydraulic continuity**. Others concern **visibility**, **digital access**, **interpretation**, **signage**, **biodiversity monitoring**, **educational use** or **public engagement**. This unevenness does not weaken the starting point; it simply means that Elche begins with a varied portfolio of needs and opportunities rather than with a single linear intervention.

Three elements are especially important here.

First, Elche already has a landscape of **existing educational, interpretive and documentary resources**. These include the **Molí del Real** as an interpretation and public-use space, **Hort dels Pontos** as a traditional huerto facility with educational potential, the **Museo del Palmeral**, **Fundación Proyecto Puçol**, municipal and irrigation archives, didactic materials linked to the Palmeral, and educational programmes already associated with water, sustainability and environmental awareness. This accumulated experience matters because the educational and interpretive dimensions of the Plan can build on existing assets and practices rather than being created entirely from scratch.

Second, Elche already has a trajectory of **previous and ongoing interventions**. These include initiatives related to regenerated water, the recovery and use of hydraulic infrastructures, the adaptation of the **Molí del Real** for public interpretation, exhibitions, water-related communication and citizen-facing cultural activity. The Investment Plan should therefore be understood as the next stage in a process of **recovery, activation and strategic consolidation**, rather than as an isolated intervention.

Third, Elche already shows a degree of **strategic convergence**. There is broad alignment around the need to recover and maintain hydraulic infrastructure, improve water sustainability, strengthen educational and interpretive work, reinforce local identity and develop more collaborative governance. That shared direction is a major asset. Many cities possess heritage assets but lack a coherent local narrative around them. Elche, by contrast, begins from a position where the basic direction of travel is already visible.

At the same time, the barriers are real. They include:

- uneven public awareness of the value of the hydraulic system,
- governance complexity,
- the need for substantial financial and technical investment,
- and the difficulty of reconciling traditional agricultural logics with current urban, environmental and institutional conditions.

The city therefore starts from a position of awareness and accumulated work, but not from one of closure. The Investment Plan is necessary precisely because readiness exists, but remains insufficiently integrated.

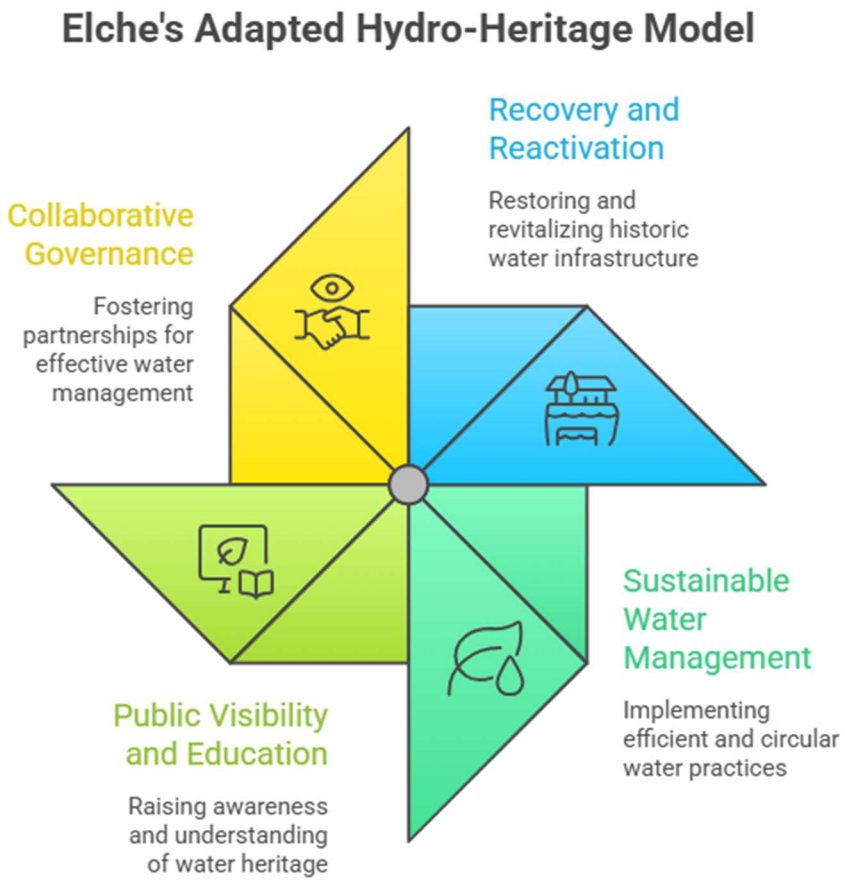
Elche's starting point can therefore be defined as one of **high territorial value, partial technical readiness, accumulated experience and strategic convergence, but insufficient investment coherence**. The city already possesses the resources, actors, initiatives and local motivation needed to build a credible Investment Plan. What it needed was a structured pathway capable of connecting these elements into a single implementation logic.

Image 3. Renovated aqueduct of Canal del Desvío.

2.3 THE ADAPTED VERSION OF THE INNOVATIVE PRACTICE

The innovative practice transferred through **Hydro Heritage Cities** is not reproduced in Elche through literal imitation. The reference experience emerged from a different type of hydraulic heritage, a different urban structure and a different governance ecology. Elche's adaptation is therefore based not on copying specific interventions, but on translating a strategic logic: **hydro-heritage should be understood not as a static legacy or a narrow conservation object, but as a living territorial resource capable of supporting resilience, sustainability, education, identity and civic engagement**.

In Elche, this adapted version of the innovative practice is organised around **four pillars**.



The **first pillar** is the **recovery and operational reactivation of the historic hydraulic system**. In Elche, the transfer logic is applied above all to the irrigation system that sustains the **Palmeral** and related huertos: the **Pantano**, the **Canal del Desvío**, the **Acequia Mayor** network, buried acequias, partidores and related infrastructures. This pillar is not limited to restoration as an end in itself. Its purpose is to restore **continuity**, **function** and **intelligibility** to a system whose value remains environmental, agricultural and cultural. This operational dimension is particularly important in Elche because the hydraulic heritage still underpins a **living cultural landscape**, not a purely archaeological one.

The **second pillar** is **sustainable, circular and monitored water management**. In Elche, one of the most relevant adaptations of the innovative practice lies in the connection between the traditional irrigation system and **regenerated water**, together with improved monitoring, quality control, irrigation efficiency and environmental intelligence. This pillar reflects the fact that heritage recovery and contemporary water management cannot be treated as separate agendas. The adapted model therefore links the safeguarding of the historic irrigation system to a more resilient and circular use of water, supported by:

- monitoring technologies,
- irrigation optimisation,
- and environmental data.

The **third pillar** is the **public visibility, interpretation and educational activation of water heritage**. A key lesson of the innovative practice is that hydro-heritage must be socially legible if it is to be sustained over time. In Elche, this translates into a stronger focus on:

- making hidden water visible,
- reinforcing public interpretation,
- connecting key heritage nodes,
- expanding school-based programming,
- developing accessible educational materials,
- and creating recurring moments of public activation.

The purpose is not simply to communicate existing heritage more effectively, but to reposition water heritage as a **shared civic and educational resource**.

The **fourth pillar** is **collaborative governance and social ownership**. The future of hydraulic heritage in Elche depends on the capacity to align **municipal leadership**, **technical delivery**, **historical irrigation governance**, **knowledge support** and **wider public legitimacy**. The adapted practice therefore gives a central role to governance arrangements capable of linking the **Ayuntamiento de Elche**, **Aigües d'Elx**, the **Comunidad de Regantes de la Acequia Mayor del Pantano**, heritage and educational actors, and wider civic participation. This does not imply reproducing another city's institutional design. It means adapting the lesson that long-term viability depends on **coordination**, **legitimacy** and **shared responsibility**.

These four pillars were not selected abstractly. They correspond directly to Elche's own territorial challenge and to the practical direction progressively defined by the city. The recovery of hydraulic continuity, the integration of regenerated water, the visibility of hidden heritage,

the educational use of the Palmeral, the activation of public nodes such as the **Molí del Real**, and the need for collaborative governance all arise from Elche's own context.

The value of this adaptation lies in its **integrated character**. Physical recovery without educational use would produce a technically improved but weakly appropriated heritage system. Educational and cultural programming without hydraulic recovery would produce symbolic activation without long-term system viability. Circular water strategies without governance and social legitimacy would risk technical progress without durable support.

The adapted practice therefore depends on the interaction of its four pillars.

In practical terms, Elche's adapted innovative practice can be defined as a **place-based model for reactivating hydraulic heritage as a living system**, centred on the Palmeral and its irrigation network, and organised around:

- infrastructure recovery,
- sustainable water management,
- public interpretation and education,
- and collaborative governance.

It is designed not simply to conserve the past, but to ensure that the city's water heritage remains **environmentally functional**, **institutionally manageable**, **culturally meaningful** and **socially shared** in the future.

2.4 INTEGRATED AND PARTICIPATORY APPROACH

The Elche Investment Plan has been shaped through a cumulative local process organised through the **Urban Local Group (ULG)** and complemented by wider testing and stakeholder engagement. Rather than relying on a single consultation exercise, the process combined local dialogue, resource mapping, strategic framing, action co-design and public-facing testing. As a result, the proposal evolved progressively from an initial shared concern for hydraulic heritage into a more structured investment logic.

The process was led by the **Ayuntamiento de Elche**, with the **Department of Heritage** acting as the main local lead, in close connection with **Culture** and the **Municipal Archive** and with support from the **European Projects Unit**. From the beginning, the work also involved actors with a direct role in future implementation.

In particular:

- **Aigües d'Elx** participated as a central technical and strategic partner, especially in relation to regenerated water, the urban water cycle, the **Molí del Real** and public education on water use.

- The **Comunidad de Regantes de la Acequia Mayor del Pantano de Elche** contributed as the historical irrigation community most directly linked to the management, functioning and knowledge of the traditional hydraulic system.
- **Fundación Proyecto Puçol**, the **Cátedra Pedro Ibarra**, municipal archival and heritage profiles, and **Elche Singular** also formed part of the core ecosystem shaping the proposal.

This distinction is important. **Molí del Real**, the **Acequia Mayor** and other hydraulic elements are **heritage assets or infrastructures**. The actors responsible for planning, operating, interpreting or governing them are different and must be recognised as such. The participatory process helped clarify these distinctions and translate them into a more credible implementation model.

The integrated character of the proposal emerged gradually through the local process itself. In an early stage, the ULG focused on identifying which aspects of the transfer experience were most relevant for Elche. The strongest local interest did not centre only on physical interventions, but on a broader combination of priorities:

- education and awareness-raising,
- participatory engagement,
- the connection between hydro-heritage and sustainability,
- the reinterpretation of hydraulic heritage as a living resource,
- technological innovation,
- and integrated funding approaches.

This was an important starting point because it confirmed that Elche's adaptation would need to go beyond a conventional conservation- or infrastructure-led approach.

A second key stage involved the formulation of a **shared vision** and the identification of **strategic objectives**. Through the ULG process, local actors converged around a future-oriented vision of Elche as a reference in sustainability and integrated water management, based on:

- the protection and enhancement of both **tangible and intangible hydraulic heritage**,
- the recognition of the ecosystem services of traditional irrigation,
- and the strengthening of **collective responsibility**, **innovation**, **accessibility** and **social cohesion**.

This phase also included a structured mapping of local resources, initiatives and projects already in place or under development, such as documentary and archival resources, educational tools, interpretation spaces, the **Molí del Real**, the work of **Fundación Proyecto Puçol**, the programmes of **Aigües d'Elx**, and projects linked to regenerated water reuse and the recovery of the historic irrigation system. This helped ensure that the Investment Plan was rooted in existing capacities and not conceived as an abstract or standalone exercise.

The same stage also clarified the main challenges that the Plan would need to address. These included:

- the deterioration of hydraulic heritage elements,
- the lack of good-quality irrigation water,
- high salinity in the **Vinalopó**,
- fragmented information,
- weak synergies between actors,
- limited participatory governance,
- and insufficient public knowledge of, and identification with, hydraulic heritage.

In response, the local process organised the proposal around four broad strategic directions:

- preservation and recovery of hydraulic heritage,
- sustainable, circular and innovative water management,
- stronger participatory governance,
- and reinforcement of knowledge, belonging and cultural identity around water.

These priorities already reflected an integrated perspective linking **heritage, water, environment, education, culture and governance**.

A further phase focused on the **co-design of actions**. Building on the strategic framework, the ULG worked on a first portfolio of proposals, defining expected results, possible lead entities, partners, resources and indicative timeframes. At this stage, a key local conclusion was that the Plan should not remain too narrowly focused on infrastructure, but should use hydraulic heritage and regenerated water as levers for wider objectives such as education, awareness-raising, social value and sense of belonging. This helped consolidate a more balanced proposal in which physical interventions remain important, but are combined with monitoring, interpretation, communication, citizen science, school-based activities, cultural activation and collaborative governance.

The integrated approach of the Plan can therefore be understood in **three complementary ways**.

Thematically, because it connects hydraulic heritage with water management, environmental resilience, public awareness, education and local identity.

Institutionally, because it depends on cooperation between the **Ayuntamiento de Elche**, **Aigües d'Elx**, the **Comunidad de Regantes de la Acequia Mayor del Pantano**, knowledge actors such as **UMH** and **Fundación Proyecto Puçol**, and a wider set of municipal, cultural, educational and civic stakeholders.

Socially, because the process did not remain confined to a closed technical circle, but progressively involved a wider ecosystem of actors linked to schools, museums, civic initiatives, irrigation and agriculture, and local cultural life.

This broader dimension became particularly visible in the **testing activity**, which was aligned with the local initiative **"La Memoria del Agua"**. Rather than functioning as a separate communication event, the testing activity served both as a consultation exercise and as an input to the Investment Plan. It created a wider space for reflection on the future of water and hydraulic heritage in Elche, while also helping to validate the direction of the proposal.

The results were clear. They confirmed strong local recognition of the value of the **Palmeral** and its associated hydraulic heritage, together with clear concern about their deterioration if no action is taken. This reinforced the importance of combining **physical recovery** with **educational**, **communicative** and **community-based** measures.

Overall, the local process has produced more than a list of stakeholders or a sequence of meetings. It has generated a structured progression:

- from shared diagnosis to shared vision,
- from vision to strategic objectives,
- and from those objectives to an integrated action portfolio, later reinforced through wider testing and dialogue.

As a result, the Elche Investment Plan is not based on generic participation rhetoric, but on a concrete local process through which actors progressively reframed hydraulic heritage as a **living resource** connected to **water, environment, education, culture, social value and collaborative governance**.

Image 4. Stakeholders attending the Day of the Water “Jornada del Agua” (30/10/2025).

3. THE ADAPTED INNOVATION PROJECT

3.1 VALUE PROPOSITION

The value proposition of the Elche Investment Plan lies in its capacity to convert an **exceptional hydraulic heritage system** into a coherent and credible field of **public investment**. This is not a proposal centred on isolated restoration works, nor a conventional heritage-promotion agenda. It is an integrated investment framework designed to protect and reactivate the hydraulic structures, water logic and cultural practices that underpin the **Palmeral of Elche**, while at the same time improving **water resilience**, reinforcing **circular water management**, expanding **educational and interpretive use**, and strengthening the public value of one of the city's most distinctive territorial assets.

The **UNESCO value of the Palmeral** is the main entry point of this proposition. The Palmeral is not only a symbolic landscape or a visitor asset; it is a **World Heritage property** whose significance depends on the historical irrigation system that made it possible and that still gives meaning to its cultural-landscape condition. Investing in the recovery, continuity and interpretation of that hydraulic system is therefore not a secondary enhancement. It is directly linked to the long-term safeguarding of the heritage values for which the site is internationally recognised.

This gives the Plan its first and most important investment claim: it supports the conservation of a **UNESCO-linked living landscape** by acting on the infrastructures, flows, institutional arrangements and public understanding that sustain it.

That heritage value is inseparable from a second dimension: **heritage-led circular water management**. One of the strongest features of Elche's proposal is that it does not treat hydraulic heritage as a purely cultural or museum-like field. Instead, it links the historic irrigation system to present and future water-management needs through the use of **regenerated water**, improved monitoring, more efficient irrigation and better control of water quality. In practical terms, the Plan builds on a local context in which regenerated water is already strategically relevant and where the irrigation needs of the urban huertos can be linked to a more circular and resilient use of resources.

This gives the proposal a distinctive profile. It offers more than symbolic heritage recovery. It offers a model in which **conservation and contemporary water management reinforce one another**, and in which investment in hydraulic heritage also becomes investment in a more adaptive and efficient urban-territorial water system.

A third dimension of the value proposition is **environmental and landscape resilience**. The Plan contributes to the preservation of a highly distinctive green-blue cultural landscape in a semi-arid Mediterranean setting increasingly affected by climate stress and resource pressure. It does so not through generic environmental rhetoric, but through concrete actions that improve

irrigation continuity, water quality, hydraulic-system performance and the visibility of the wider ecological logic of the Palmeral. The value of the proposal therefore extends beyond individual assets. It lies in strengthening the resilience of a landscape whose **environmental, agricultural and cultural dimensions** remain historically intertwined.

The Plan also creates clear and demonstrable **public value**. Much of Elche's hydraulic heritage is currently weakly perceived in everyday urban life, either because it is physically hidden, poorly interpreted or disconnected from contemporary civic experience. The proposal addresses this gap by linking infrastructure recovery to **public interpretation**, **educational programming**, **digital access**, **school-based activities** and **recurring cultural activation**. In this way, the Investment Plan becomes more than a technical intervention. It creates the conditions for the hydraulic heritage of Elche to become more intelligible, more accessible and more socially shared.

From the perspective of public funders, this is significant. The proposal does not generate value only for conservation specialists or water managers. It creates value for:

- residents,
- schools and young people,
- families,
- cultural and educational actors,
- and future generations who will inherit the Palmeral and its water system.

This public-value dimension is particularly strong in the fields of **education, culture and identity**. Elche already possesses a base of interpretive, documentary and educational resources linked to the Palmeral and water heritage, including the **Molí del Real**, **Hort dels Pontos**, the **Museo del Palmeral**, **Fundación Proyecto Puçol**, archival resources and existing educational programmes. The Plan does not seek to build this educational and cultural ecosystem from zero. It gives it greater coherence, continuity and strategic direction. This greatly strengthens the investment case, because public investment can build on existing nodes, accumulated practice and a recognisable local ecosystem rather than having to invent one from scratch.

A further strength of the proposal is its continuity with **past interventions and current assets**. Elche is not presenting a speculative or purely aspirational agenda. The city already has a trajectory of work related to the hydraulic heritage system, including recovery and use of water infrastructures, interpretive activation, educational and dissemination initiatives, and the increasing strategic use of regenerated water. The Plan adds value by connecting these precedents into a coherent long-term framework. This continuity matters because it lowers implementation risk. The proposal does not depend on creating institutional commitment or

operational capacity from zero; it builds on an existing base of action, knowledge and demonstrated local interest.

The value proposition also rests on the fact that the Plan is **integrated rather than sectoral**. If the investment were limited to hydraulic restoration works, it would risk improving infrastructure without securing long-term public relevance. If it focused only on education or dissemination, it would risk activating heritage symbolically while leaving the physical and hydraulic system vulnerable. If it concentrated only on regenerated water and monitoring, it would risk technical progress without cultural legitimacy or civic ownership.

The strength of the proposal lies precisely in bringing these dimensions together. It combines:

- **heritage conservation**,
- **water management**,
- **environmental stewardship**,
- **public interpretation**,
- **educational use**, and
- **collaborative governance**.

For public funders, this integrated territorial value is central. It increases the return on investment by multiplying the functions served by the same strategic intervention field.

Finally, the Plan offers value because it helps secure the future of a heritage system that is both **highly significant and structurally vulnerable**. Without coordinated investment, Elche risks the continued weakening of the hydraulic logic that underpins the Palmeral, the further invisibility of parts of the water system, and the loss of opportunities to reconnect heritage with sustainability, education and collective identity. With coordinated investment, by contrast, Elche can position its hydraulic heritage as a living system that supports conservation, circular water management, landscape resilience, public learning and long-term stewardship.

That is the core investment case of the Plan.

In concise terms, the value proposition can be stated as follows: **the Elche Investment Plan offers public funders the opportunity to protect and reactivate a UNESCO-linked hydraulic landscape while simultaneously improving circular water management, reinforcing environmental resilience, expanding educational and cultural use, and creating long-term integrated territorial value for the city and its communities**.

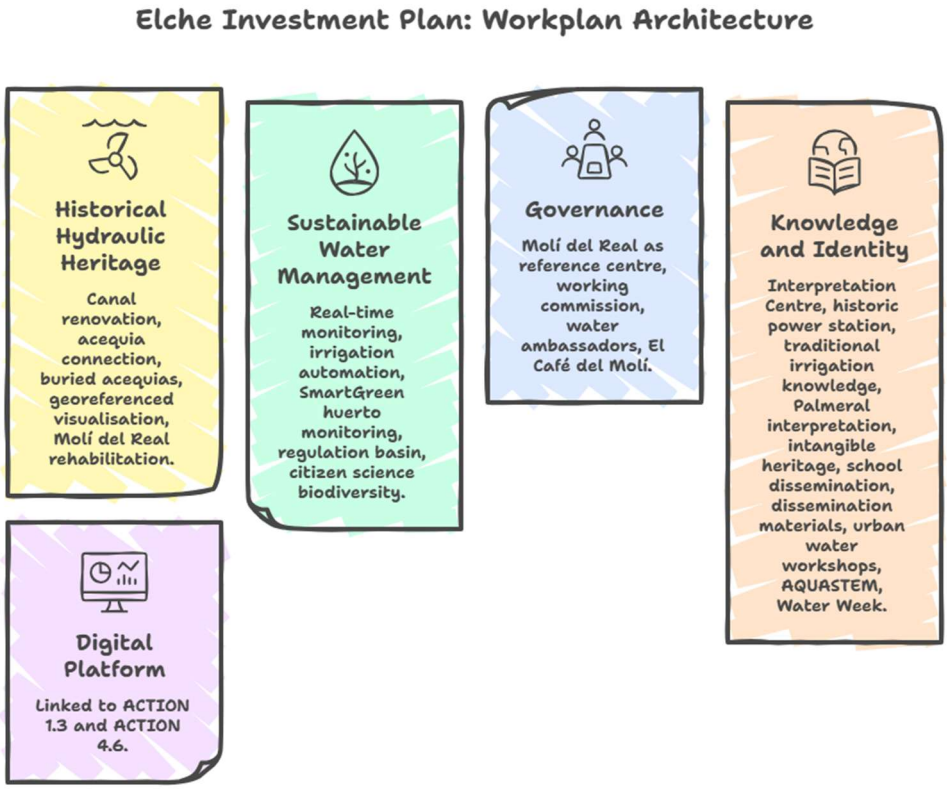
3.2 WORKPLAN (SET OF ACTIONS)

The workplan translates the strategic direction of the Investment Plan into a structured portfolio of actions organised around **four objectives**:

- **Preserve and recover the historical hydraulic heritage of Elche**.
- **Promote sustainable, circular and innovative water management.**
- **Strengthen participatory and inclusive governance of the hydraulic system.**
- **Reinforce knowledge, sense of belonging and cultural identity around water.**

Together, these actions form a coherent implementation pathway that combines **infrastructure recovery**, **water management**, **environmental intelligence**, **interpretation**, **education**, **community engagement** and **cultural activation**.

The actions are not all at the same stage of maturity. Some are already in implementation, others are technically prepared, and others remain at an earlier conceptual stage. This unevenness should not be read as a weakness. On the contrary, it reflects the real condition of the Plan as a portfolio that combines **already activated lines**, **medium-term investments** and **newer complementary measures** needed to complete the integrated logic of the proposal. Where budget, timing or maturity data already exist, they are retained. Where definition is less developed, the actions are described with a proportionate level of detail.



A further cross-cutting feature of the workplan is the development of a **digital platform**. This platform is not presented as a separate strategic objective, but as a transversal implementation component that supports the visibility, interpretation and accessibility of the hydraulic heritage system. Its territorial and cartographic layer is closely linked to **ACTION 1.3**, while its public-facing content and dissemination layer is closely linked to **ACTION 4.6**. The dedicated development and maintenance costs of the platform are addressed in **Section 4**, but its functional logic is embedded throughout the workplan.

Strategic Objective 1. Preserve and recover the historical hydraulic heritage of Elche

This first objective provides the **spatial and infrastructural backbone** of the Plan. Its purpose is not only to conserve isolated heritage elements, but to recover the **continuity**, **functionality** and **visibility** of the historic irrigation system that underpins the Palmeral as a living cultural landscape.

ACTION 1.1 – Irrigation canals network and Canal del Desvío renovation is the main structural intervention within the Plan. It focuses on the recovery of the historic hydraulic system through the rehabilitation of the **Molino de Pavía**, the canalisation of the water intake, the consolidation of tunnels and the reconnection of the **Canal del Desvío** with the **Acequia Mayor del Pantano**. Its main contribution is to restore the functional and heritage continuity of the traditional irrigation system and to secure the hydraulic basis for the long-term resilience of the Palmeral.

- **Lead actor:** Ayuntamiento de Elche – Heritage
- **Indicative budget: 2.500.000 €**
- **Maturity level: High**
- **Indicative timeframe: 3 years**

This action is reinforced by **ACTION 1.2B – Canal del Desvío – Acequia Mayor connection (Presa del Pantano)**. Its purpose is to extend regenerated-water supply to areas still lacking connection, especially in the northern sector, and thereby expand the number of huertos capable of being irrigated with improved water quality. It strengthens the functional effect of ACTION 1.1 and is critical to the wider irrigation strategy of the Plan.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 370.000 €**
- **Maturity level: High**
- **Indicative timeframe: 3 years**

Image 5. Presa del Pantano.

ACTION 1.2 – Rehabilitation of buried acequias in urban areas is particularly important because it moves beyond hydraulic performance alone and reintroduces hidden water heritage into the urban fabric, especially in areas such as **Curtidores** and **Molino de la Veta**. In this sense, the action contributes not only to heritage recovery but also to **urban identity**, **public space enhancement** and the visibility of the water system within the city.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 1.000.000 €**
- **Maturity level: High**
- **Indicative timeframe: 3 years**

The same visibility logic is strengthened through **ACTION 1.3 – Digitalisation and georeferenced visualisation of the acequia network**. The action proposes an interactive and publicly accessible system for visualising the historic network of buried acequias and traditional irrigation structures through cartographic, archival and digital tools. Although modest in budget, this line is strategically important because it improves access to knowledge and makes the "hidden water" of Elche legible for residents, visitors and educational audiences. It also forms a core part of the **cross-cutting digital platform** described in this Plan.

- **Lead actor:** Ayuntamiento de Elche – Heritage / Cartography / Municipal Archive
- **Indicative budget: 35.000 €**
- **Maturity level: Low**
- **Indicative timeframe: 1 year**

The final action under this objective is **ACTION 1.4 – Rehabilitation of the flour mill (Molí del Real)**. This action focuses specifically on the recovery of the historic mill as a unique **hydraulic-industrial heritage asset** and should be clearly distinguished from the later actions that relate to its interpretation, programming and governance role.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 80.000 €**
- **Maturity level: Medium**
- **Indicative timeframe: 2 years**

Taken together, these actions give the Plan a clear physical and territorial foundation: recovery of major hydraulic structures, improved continuity of water flows, re-emergence of buried heritage and restoration of emblematic water-related assets.

Strategic Objective 2. Promote sustainable, circular and innovative water management

The second objective gives the Plan its strongest **contemporary and operational** dimension. It links the traditional irrigation system to present-day challenges of **water quality**, **water efficiency**, **circularity** and **environmental intelligence**.

ACTION 2.1 – Real-time monitoring of regenerated water quality is one of the most technically robust actions in the workplan. It proposes a network of multiparametric sondas with telecontrol to monitor continuously the quality of regenerated water distributed through the **Acequia Mayor del Pantano**. Its main contribution is to reduce risks to the Palmeral and traditional huertos while generating useful data for management, research and public accountability.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 250.000 €**
- **Maturity level: High**
- **Indicative timeframe: 1 year**

This is complemented by **ACTION 2.2 – Automation of irrigation in traditional huertos**. The action introduces telemanaged valves to improve irrigation efficiency while respecting the visual and heritage-sensitive nature of the landscape. Its rationale is to combine traditional irrigation practices with more efficient and adaptable control systems, without undermining the cultural logic of the irrigated landscape.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 150.000 €**
- **Maturity level: Low**
- **Indicative timeframe: 2 years**

A more experimental but potentially high-value line is **ACTION 2.3 – SmartGreen digitalisation and intelligent monitoring of huertos**. This action proposes the deployment of environmental sensors in selected huertos to monitor soil humidity, temperature, phytosanitary conditions, pest risks and related variables. Its contribution is twofold: improved day-to-day management of the huertos and the creation of a demonstrator environment linking **heritage**, **environmental monitoring** and **innovation**.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 200.000 €**
- **Maturity level: Low**
- **Indicative timeframe: 3 years**

The block is further reinforced by **ACTION 2.4 – Regenerated water regulation basin**. This infrastructure is intended to support the blending and conditioning of regenerated water with water from the **Acequia Mayor**, improving irrigation quality and availability while consolidating Elche's circular water model.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 350.000 €**
- **Maturity level: High**
- **Indicative timeframe: 2 years**

Finally, **ACTION 2.5 – Citizen science: biodiversity and schools** ensures that sustainable water management is not framed only as a technical matter. By linking schools, biodiversity monitoring and local observation, the action adds a participatory and ecological layer to the water-management agenda and provides a bridge to the monitoring framework later set out in Section 5.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 25.000 €**
- **Maturity level: Low**
- **Indicative timeframe: 2 years**

Overall, Strategic Objective 2 transforms the Plan from a heritage recovery programme into a more forward-looking model of **circular, monitored and environmentally informed water management**.

Strategic Objective 3. Promote participatory and inclusive governance of the hydraulic system

The third objective introduces the **governance** and **social continuity** layer of the Plan. Its budget is comparatively small, but its contribution is strategic: it ensures that the Plan is supported by a structured ecosystem of dialogue, stewardship and collective responsibility.

ACTION 3.1 – Molí del Real as a Reference Centre for the Memory of Water is already in implementation. Unlike **ACTION 1.4**, this action does not concern the physical rehabilitation of the mill,

but its role as a reference facility for dissemination, interpretation, meetings, educational activities and participatory governance.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 5.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

ACTION 3.2 – Working Commission / Round Table on Elche's Hydraulic Heritage is also already in implementation. In practical terms, this action should be understood as the consolidation of a stable coordination and follow-up mechanism that builds on the experience of the **ULG** and seeks to maintain cooperation among public institutions, irrigation actors, cultural agents, knowledge institutions and local stakeholders.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 2.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

ACTION 3.3 – Water Ambassadors / Memory of Water creates a recognised community and volunteer programme capable of acting as a bridge between institutions, heritage and citizenship. Its role is not formal governance in a narrow sense, but **dissemination**, **mediation** and **social activation** around water heritage.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 2.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

The final action in this block is **ACTION 3.4 – El Café del Molí**. Conceived as a cycle of periodic meetings and discussions, this action provides a stable format for exchange among local actors, researchers, farmers, technicians and citizens, reinforcing the civic and collaborative dimension of the Plan.

- **Lead actor:** CEEI Elche, in collaboration with Aigües d'Elx
- **Indicative budget: 2.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

Together, these four actions ensure that the Plan is not reduced to investment in physical assets alone. They create an enabling governance environment and a more durable **social infrastructure** around the hydraulic heritage agenda.

Strategic Objective 4. Reinforce knowledge, sense of belonging and cultural identity around water

The fourth objective gives the Plan its strongest **educational**, **interpretive** and **cultural** dimension. It is the point where hydraulic heritage becomes a shared public resource through interpretation, school programmes, cultural activity and memory work.

ACTION 4.1 – Interpretation Centre of the Memory of Water (Molí del Real) is already in implementation. This action focuses on stable programming for the **Molí del Real** as a centre of interpretation, including guided visits, workshops, educational activity and public dissemination. It is also the natural point of departure for self-guided interpretive itineraries that connect the Molí with other heritage nodes.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 70.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

For clarity and consistency, the two actions previously presented under the same code are distinguished here as **ACTION 4.2A** and **ACTION 4.2B**.

ACTION 4.2A – Rehabilitation of the historic power station of Pantano de Elche extends the interpretation network towards the river and the history of hydraulic energy. This action broadens the narrative of water heritage beyond irrigation and links the Plan more clearly to the environmental and river-corridor dimension.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 50.000 €**
- **Maturity level: Medium**
- **Indicative timeframe: 2 years**

ACTION 4.2B – Dissemination of traditional irrigation knowledge linked to the Palmeral creates the basis for demonstrations, public activities and seasonal events focused on traditional irrigation practices. It provides the most suitable immediate framework for activities that connect practical knowledge, public awareness and cultural transmission.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 5.000 €**
- **Maturity level: Low**

- **Indicative timeframe: 1 year**

ACTION 4.3 – Promotion and dissemination of the Palmeral as heritage provides the framework for a structured service of visits and interpretation linking the Palmeral, its irrigation system, the **Museo del Palmeral**, **Fundación Proyecto Puçol**, the **Molí del Real** and **VisitElche**. This is one of the actions with the clearest immediate public impact, since it translates the Plan into a visible and accessible visitor and educational experience.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 5.000 €**
- **Maturity level: High**
- **Indicative timeframe: 1 year**

ACTION 4.4 – Collection of the intangible legacy of the Palmeral hydraulic system is modest in budget but strategically important. Its purpose is to document oral testimonies, memory, experiential knowledge and intangible practices linked to traditional irrigation. It anchors the Plan in **living cultural memory**, rather than in physical assets alone.

- **Lead actor:** Fundación Proyecto Puçol
- **Indicative budget: 4.500 €**
- **Maturity level: Low-Medium**
- **Indicative timeframe: 2–3 years**

The educational lines are especially relevant under this objective.

ACTION 4.5 – Dissemination in schools on the Palmeral and hydraulic heritage provides the basis for an annual school programme and should be understood as part of the structured educational contribution of **Fundación Proyecto Puçol** to the wider Plan.

- **Lead actor:** Fundación Proyecto Puçol
- **Indicative budget: 5.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: Annual cycle**

This is reinforced by **ACTION 4.7 – Workshops on urban water management in Elche for schools and visits to the EDAR**, which explains the urban water cycle and the circular economy in practice, and by **ACTION 4.8 – AQUASTEM**, which introduces a STEM-oriented educational dimension connected to water, sustainability and digital skills.

ACTION 4.7 – Workshops on urban water management in Elche for schools and visits to the EDAR

- **Lead actor:** Aigües d'Elx

- **Indicative budget: 3.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

ACTION 4.8 – AQUASTEM

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 6.000 €**
- **Maturity level: Already in implementation**
- **Indicative timeframe: 1 year**

The final action in this block is **ACTION 4.6 – Production of dissemination materials (comic and virtual encyclopaedia)**. This action broadens the communication strategy of the Plan through printed and digital educational materials aimed at schools, residents and wider audiences. Together with **ACTION 1.3**, it forms the content and public-access layer of the **cross-cutting digital platform**.

- **Lead actor:** Ayuntamiento de Elche
- **Indicative budget: 10.000 €**
- **Maturity level: High**
- **Indicative timeframe: 1 year**

Finally, **ACTION 4.9 – Water Week** is incorporated as a distinct **annual recurring action** devoted to the cultural, educational and civic celebration of water heritage in Elche. Conceived as a flagship public-facing programme, **Water Week** would connect schools, guided visits, demonstrations of traditional irrigation, workshops, public talks and family-oriented activities. Its role is to create a recognisable annual moment that increases visibility, strengthens local ownership and gives continuity to the educational and cultural dimensions of the Plan.

- **Lead actor:** Aigües d'Elx
- **Indicative budget: 10.000 € per year**
- **Maturity level: Low-Medium**
- **Indicative timeframe: Annual recurring action**

Overall, Strategic Objective 4 ensures that the Plan is not read solely as a hydraulic or heritage infrastructure programme. It turns water heritage into a field of **education**, **interpretation**, **public participation**, **memory transmission** and **cultural identity**.

Overall workplan logic

Taken as a whole, the workplan combines four mutually reinforcing dimensions:

- the **physical recovery** of the hydraulic and heritage backbone of the system,
- the **modernisation and environmental intelligence** needed to ensure long-term water resilience,
- the **governance structures and community-based mechanisms** required for continuity and legitimacy,
- and the **educational, interpretive and cultural activation** that gives the Plan lasting public value.

This balance is one of the main strengths of the Elche Investment Plan. It ensures that the proposal does not become either a purely infrastructural programme or a purely symbolic cultural agenda. Instead, it presents a coherent set of actions through which hydraulic heritage can function simultaneously as **heritage system**, **water-management structure**, **educational resource**, **public narrative** and **field of collaborative stewardship**.

Structured synthesis table

The following table provides a consolidated overview of the action portfolio. It is intended as a navigation tool within the main body of the Plan and should be read alongside the fuller action descriptions in the workplan narrative. It preserves the differentiated maturity of the portfolio and retains the available information on **lead actors**, **indicative budgets**, **timeframes** and **main contribution**. A cross-cutting digital component is also included to ensure consistency with the budget and implementation logic of the Plan.

Code	Action title	Lead actor	Indicative budget	Maturity level	Indicative timeframe	Main contribution
ACTION 1.1	Irrigation canals network and **Canal del Desvío** renovation	Ayuntamiento de Elche – Heritage	**2.500.000 €**	High	3 years	Main hydraulic and heritage backbone of the Plan
ACTION 1.2B	**Canal del Desvío – Acequia Mayor** connection (**Presa del Pantano**)	Ayuntamiento de Elche	**370.000 €**	High	3 years	Extends regenerated-water supply to additional huertos
ACTION 1.2	Rehabilitation of buried acequias in urban areas	Ayuntamiento de Elche	**1.000.000 €**	High	3 years	Recovers hidden water heritage in the urban fabric
ACTION 1.3	Digitalisation and georeferenced visualisation of the acequia network	Ayuntamiento de Elche – Heritage / Cartography / Municipal Archive	**35.000 €**	Low	1 year	Improves access to knowledge and supports the digital heritage platform
ACTION 1.4	Rehabilitation of the flour mill (**Molí del Real**)	Aigües d'Elx	**80.000 €**	Medium	2 years	Restores a key hydraulic-industrial heritage asset
ACTION 2.1	Real-time monitoring of regenerated water quality	Aigües d'Elx	**250.000 €**	High	1 year	Ensures continuous control of irrigation-water quality
ACTION 2.2	Automation of irrigation in traditional huertos	Ayuntamiento de Elche	**150.000 €**	Low	2 years	Improves irrigation efficiency while respecting the heritage context
ACTION 2.3	SmartGreen digitalisation and intelligent monitoring of huertos	Ayuntamiento de Elche	**200.000 €**	Low	3 years	Demonstrator for smart management, research and environmental intelligence
ACTION 2.4	Regenerated water regulation basin	Ayuntamiento de Elche	**350.000 €**	High	2 years	Strengthens circularity and resilience of water supply
ACTION 2.5	Citizen science: biodiversity and schools	Ayuntamiento de Elche	**25.000 €**	Low	2 years	Connects environmental monitoring with schools and public participation
ACTION 3.1	**Molí del Real** as a Reference Centre for the Memory of Water	Aigües d'Elx	**5.000 €**	Already in implementation	1 year	Activates the Molí as a social, interpretive and governance hub
ACTION 3.2	Working Commission / Round Table on Elche's Hydraulic Heritage	Ayuntamiento de Elche	**2.000 €**	Already in implementation	1 year	Provides a stable coordination and follow-up mechanism
ACTION 3.3	Water Ambassadors / Memory of Water	Aigües d'Elx	**2.000 €**	Already in implementation	1 year	Creates a recognised community and volunteer programme

ACTION 3.4	**El Café del Molí**	CEEI Elche, in collaboration with Aigües d'Elx	**2.000 €**	Already in implementation	1 year	Supports public dialogue, networking and dissemination
ACTION 4.1	Interpretation Centre of the Memory of Water (**Molí del Real**)	Aigües d'Elx	**70.000 €**	Already in implementation	1 year	Main interpretive and educational gateway of the Plan
ACTION 4.2A	Rehabilitation of the historic power station of **Pantano de Elche**	Ayuntamiento de Elche	**50.000 €**	Medium	2 years	Extends the interpretation network and adds a river-energy dimension
ACTION 4.2B	Dissemination of traditional irrigation knowledge linked to the Palmeral	Ayuntamiento de Elche	**5.000 €**	Low	1 year	Supports public demonstrations, seasonal activities and irrigation awareness
ACTION 4.3	Promotion and dissemination of the Palmeral as heritage	Ayuntamiento de Elche	**5.000 €**	High	1 year	Creates a coordinated visit and interpretation service
ACTION 4.4	Collection of the intangible legacy of the Palmeral hydraulic system	Fundación Proyecto Puçol	**4.500 €**	Low-Medium	2–3 years	Documents oral memory and intangible irrigation knowledge
ACTION 4.5	Dissemination in schools on the Palmeral and hydraulic heritage	Fundación Proyecto Puçol	**5.000 €**	Already in implementation	Annual cycle	Basis for the annual school programme
ACTION 4.6	Production of dissemination materials (comic and virtual encyclopaedia)	Ayuntamiento de Elche	**10.000 €**	High	1 year	Develops printed and digital educational materials
ACTION 4.7	Workshops on urban water management in Elche and visits to the **EDAR**	Aigües d'Elx	**3.000 €**	Already in implementation	1 year	Explains the urban water cycle and circular economy in practice
ACTION 4.8	AQUASTEM	Aigües d'Elx	**6.000 €**	Already in implementation	1 year	Promotes STEM learning linked to water and sustainability
ACTION 4.9	Water Week	Aigües d'Elx	**10.000 € per year**	Low-Medium	Annual recurring action	Creates a flagship annual educational and cultural activation moment around water heritage
Cross-cutting component	Digital platform for Elche's hydraulic heritage	Ayuntamiento de Elche, with content support from Aigües d'Elx and other partners	**75.000 €** development + **25.000 € / year** maintenance	Low-Medium	1 year development + annual updating	Provides the main digital gateway for access, interpretation, mapping and public dissemination

3.3 GOVERNANCE AND DELIVERY MODEL

The implementation of the Elche Investment Plan requires a governance and delivery model capable of combining **municipal leadership**, **technical water management**, **historical irrigation governance**, **heritage interpretation**, **educational activation** and **wider stakeholder participation**. This is essential because the action portfolio cuts across several domains at once: recovery of hydraulic heritage, regenerated-water management, environmental monitoring, interpretation, school-based programmes and cultural dissemination. A generic or purely administrative arrangement would therefore be insufficient. The governance model must reflect the actual institutional ecology of Elche and the cooperation already built through the local process.

At the centre of this model stands the **Ayuntamiento de Elche**, which should assume the overall **political and institutional leadership** of the Plan. Within the municipal structure, the **Department of Heritage** should act as the main functional lead. This reflects both the role Heritage has already played in shaping the Plan and the fact that several of the backbone actions relate directly to the recovery, interpretation and management of the historic hydraulic system. At the same time, implementation cannot remain confined to one municipal department. The action portfolio clearly requires the involvement of other municipal areas wherever actions affect **culture**, **municipal archive**, **education**, **urban planning**, **public space**, **environment**, **communication** or **tourism**. The most credible municipal model is therefore a **coordination structure for implementation led by Heritage**, but designed to bring in the relevant areas according to the needs of each action rather than through a rigid permanent bureaucracy.

A second pillar of the governance model is **Aigües d'Elx**, which must be recognised as a **core implementation partner and co-leading operational actor**. Its importance is not limited to water-supply infrastructure. It is central to several action lines, including real-time monitoring of regenerated water quality, the **Molí del Real** lines, **Water Week**, school-based urban water-cycle activities and other educational and interpretive measures. The Plan should therefore position Aigües d'Elx as the main operational partner for actions related to:

- regenerated water,
- water-cycle intelligence,
- water quality,
- the technical and interpretive activation of the **Molí del Real**,
- and public education on sustainable water use.

The third indispensable actor is the **Comunidad de Regantes de la Acequia Mayor del Pantano de Elche**. In governance terms, it cannot be treated as a simple stakeholder or symbolic participant. It is the historical irrigation community most directly linked to the continuity,

operation and legitimacy of the traditional hydraulic system. The governance model should therefore include the community as a **core institutional partner** for hydraulic recovery, irrigation continuity, regenerated-water deployment and the longer-term stewardship of the system. This is especially important because the Plan does not only intervene on physical structures; it also depends on the knowledge, legitimacy and practical continuity of the irrigation system as a **living institution**. The distinction between the **Acequia Mayor** as infrastructure and the **Comunidad** as institutional actor must remain explicit throughout implementation.

Beyond this core triangle of **Ayuntamiento de Elche – Aigües d'Elx – Comunidad de Regantes de la Acequia Mayor del Pantano**, the delivery model requires a second layer of **implementation and knowledge partners**. These include, in particular:

- **Fundación Proyecto Puçol**, especially relevant for actions related to intangible heritage, school dissemination and intergenerational transmission of knowledge;
- **UMH**, whose role is particularly relevant in monitoring, biodiversity, environmental intelligence and educational collaboration;
- and selected documentary, academic and interpretive actors such as the **Cátedra Pedro Ibarra**, municipal archival functions and other heritage-related knowledge profiles.

These actors are not the centre of political leadership, but they are important for the effective delivery of several actions and for ensuring that the Plan remains anchored in **knowledge production**, **memory** and **educational value**.

A third layer of the governance model should be formed by the wider ecosystem of **schools**, **education-support structures**, **civic actors**, **conservation groups**, **agricultural actors**, **visitor-facing bodies** and other local stakeholders that appear throughout the Plan. These actors should not be artificially elevated into a formal implementation core, but they are necessary for **legitimacy**, **outreach** and long-term **social ownership**.

Within this broader picture, the **Urban Local Group (ULG)** should be given continuity, but with a clearly defined role. The ULG nucleus has already played a decisive part in the design of the Plan through diagnosis, shared vision-building, prioritisation and action shaping. It should therefore continue as a **mechanism of advice, legitimacy and coordination with key actors**, helping to maintain continuity between the design stage and implementation. However, it should not be described as if it were itself the operational delivery body for the whole workplan. The more credible model is to maintain the ULG nucleus as an advisory and coordination layer linked to the implementation structure, while the day-to-day delivery of actions remains with the actors formally responsible for each line.

On this basis, the governance and delivery model can be understood as a **three-level arrangement**:

- a **strategic leadership and municipal coordination level**, led by the Ayuntamiento de Elche through Heritage and involving the relevant municipal areas according to the needs of the actions;
- a **core implementation partnership level**, centred on Aigües d'Elx and the Comunidad de Regantes de la Acequia Mayor del Pantano, with the participation of the most relevant delivery and knowledge partners depending on the action;
- and a **continuing advisory and legitimacy level**, rooted in the ULG nucleus and connected to a wider ecosystem of educational, cultural, environmental and civic stakeholders.

From a delivery perspective, the Plan should also rely on a **differentiated operational model** according to the nature of the actions:

- **direct municipal implementation** for infrastructure works, heritage recovery and core public services;
- **Aigües d'Elx-led operational delivery** for technical water-management lines, monitoring systems, urban water-cycle education and the Molí del Real activation package;
- **service contracts and technical assistance** for specialised studies, digital tools, environmental monitoring or interpretation design where needed;
- and **partnership-based delivery** for selected cultural programming, educational initiatives, memory work and public-facing events.

This differentiation is important because it allows the Plan to adapt to diverse funding sources, legal arrangements and implementation rhythms without blurring responsibilities.

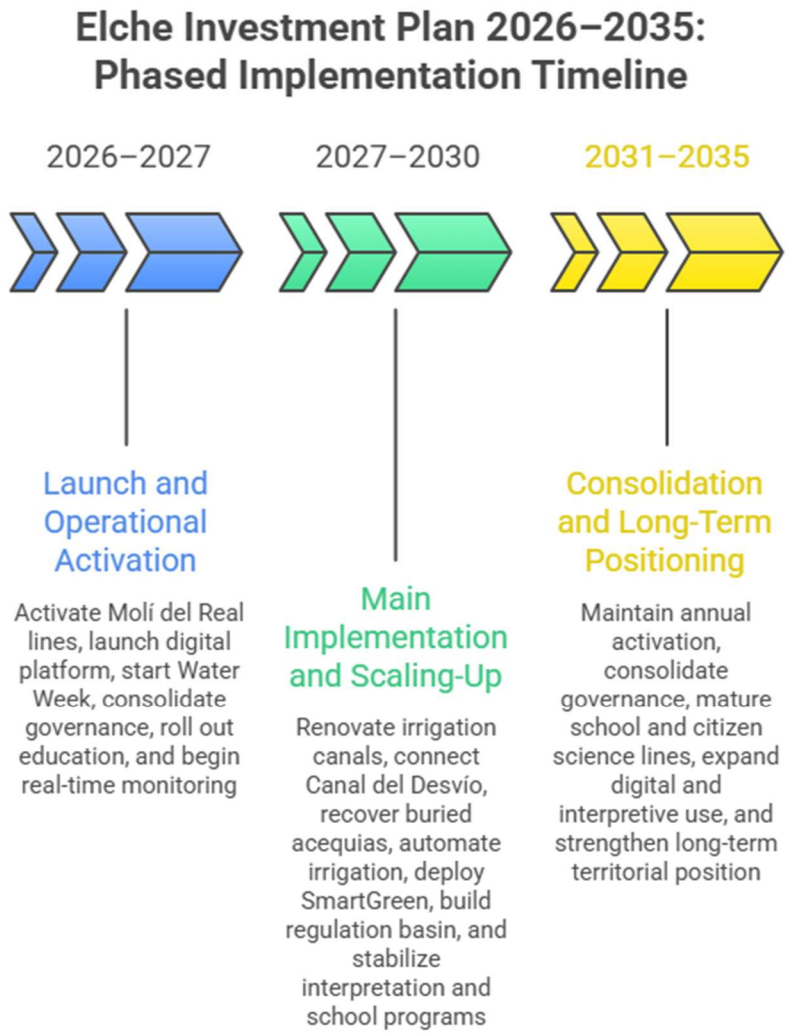
Finally, the governance model should be read as an **implementation arrangement rooted in cooperation that already exists**, not as a purely aspirational scheme. The local process and the action portfolio demonstrate that cooperation among the key actors is already in place, even if the final implementation architecture still needs to be stabilised through practice. The purpose of this model is therefore not to invent a new institutional universe, but to give structure, continuity and operational clarity to a collaboration that has already begun and that now needs to support long-term delivery.

3.4 PROJECT SCHEDULE

The overall schedule of the Elche Investment Plan should be understood as a **phased delivery framework extending to 2035**. This longer horizon is justified by the diversity of the action portfolio itself. Some lines are already in implementation or can be activated in the short term, while others involve medium-term hydraulic recovery works, environmental intelligence measures, interpretive infrastructure or cumulative educational and memory-based

programmes that require more time to mature. A shorter horizon would make the Plan look artificially compressed; a longer one would risk losing operational credibility. A phased framework to **2035** is therefore the most realistic way to combine short-term action with long-term ambition.

For practical purposes, the schedule should be read as beginning with an **operational implementation cycle from 2026 onward**, while recognising that a number of enabling conditions and early actions are already in motion. On that basis, the workplan can be organised in **three broad phases**.



Phase 1 – Launch and operational activation (2026–2027)

This first phase should concentrate on actions already in implementation, actions with short timeframes, and actions capable of creating early visibility, institutional coordination and social legitimacy.

The priority in this phase is to:

- activate and stabilise the **Molí del Real** lines;
- consolidate governance-support actions such as the **Working Commission**, **Water Ambassadors** and **El Café del Molí**;
- launch the **digital platform** and other quick-delivery interpretive tools;
- roll out educational actions already under way;
- and bring into operation technically mature actions such as real-time monitoring of regenerated water quality.

It is also in this phase that **ACTION 4.9 – Water Week** should be launched, with the intention of repeating it annually thereafter. The importance of this first phase lies not only in implementation speed, but in its capacity to demonstrate that the Plan can move from design to visible action without waiting for every medium-term investment to mature fully.

Phase 2 – Main implementation and scaling-up (2027–2030)

This is the period in which the backbone actions of the Plan should advance most substantially. It includes:

- the rehabilitation of the irrigation network,
- the **Canal del Desvío** connection,
- the recovery of buried acequias in urban areas,
- irrigation automation,
- the regulation basin for regenerated water,
- and the **SmartGreen** line.

At the same time, the interpretive and educational actions launched in the first phase should become more stable and systematic. The **Molí del Real** should consolidate its role as a public gateway, digital and interpretive tools should become more operational, and dissemination and school programmes should move from isolated activities to a more recognisable annual cycle.

This phase is also the most likely window for mobilising external funding for the actions that already indicate the need for it in their current formulation.

Phase 3 – Consolidation and long-term positioning (2031–2035)

By this stage, the major hydraulic and heritage interventions should be completed or well advanced, and the emphasis should shift toward:

- continuity,

- maintenance,
- institutional stabilisation,
- cumulative public value,
- and long-term positioning.

This includes the consolidation of governance arrangements, the continued annual recurrence of **Water Week** and other public-facing activities, the maturation of school and citizen-science lines, the fuller use of digital and interpretive tools, and the longer-term harvesting of actions such as the documentation of intangible heritage, whose value grows over time as more testimonies, memories and knowledge are captured.

This phase is also the right horizon for evaluating how far the Plan has strengthened Elche's position as a Mediterranean reference in the integrated management of hydraulic heritage.

Schedule logic and dependencies

The phased schedule is not a rigid chronology of isolated actions. It is a **sequencing framework** that reflects the cumulative logic of the Plan.

Several dependencies are clear:

- the interpretive and educational value of the Plan will increase as hydraulic and heritage recovery lines advance;
- monitoring and automation measures will become more meaningful as regenerated-water management stabilises;
- and public and school-based activities will become stronger as spaces such as the **Molí del Real** consolidate their role.

This is why the schedule should be read as a combination of **early activation**, **main implementation** and **long-term consolidation**, rather than as a flat list of deadlines. It respects the uneven maturity of the action portfolio while remaining operationally credible and financially realistic.

4. BUDGET AND FUNDING SOURCES

4.1 PROJECT COSTS

The budget of the Elche Investment Plan has been structured to reflect the actual maturity of the action portfolio. It combines **identified capital investments**, **programme and activation costs**, and a limited set of **recurring operational costs** that are necessary to sustain the Plan beyond the initial implementation cycle. The resulting budget is not artificially homogenised: where a reliable cost estimate already exists, it is retained; where costs are lighter or more programme-based, they are presented accordingly; and where some softer components are embedded within broader action packages, they are grouped in a proportionate way rather than overstated.

At this stage, the Plan contains a substantial base of already costed actions. The strongest financial definition is concentrated in the **physical recovery of the hydraulic system** and in the **circular-water management block**, while governance, interpretation and educational actions generally involve smaller or more operational cost envelopes. This distribution is coherent with the logic of the Plan itself: the most capital-intensive needs are those linked to hydraulic continuity, heritage rehabilitation and water-management infrastructure, while the social, educational and governance dimensions rely more on modest but sustained operating resources.

Core identified investment package

The identified cost base of the Plan is summarised below:

- **Strategic Objective 1 – Preserve and recover the historical hydraulic heritage: 3.985.000 €**
- **Strategic Objective 2 – Promote sustainable, circular and innovative water management: 975.000 €**
- **Strategic Objective 3 – Promote participatory and inclusive governance: 11.000 €**
- **Strategic Objective 4 – Reinforce knowledge, belonging and cultural identity around water: 168.500 €**
- **Cross-cutting digital platform – development cost: 75.000 €**

This produces a **core identified investment package of 5.214.500 €**. This figure captures the currently defined action portfolio and includes one initial cycle of annual activation where already incorporated in the action budgets.

Recurring annual operating costs

The core package is complemented by a small number of recurring annual costs that are essential to the Plan's long-term functionality and public value:

- **ACTION 4.9 – Water Week: 10.000 € / year**
- **Digital platform maintenance and content updating: 25.000 € / year**
- **Innovation and sustainability hub activities linked to Molí del Real: 15.000 € / year**

Taken together, these lines amount to **50.000 € per year** in recurring operating costs once fully in place. Projected over the wider implementation horizon, they raise the Plan's overall indicative envelope to **approximately 5,70 M€** over the period **2026–2035**. The purpose of retaining these recurring lines explicitly is to avoid treating the Plan as if all value could be created through one-off capital expenditure alone. The Plan depends on a combination of **infrastructure investment** and **continuity of activation**.

Precedent investments and accumulated effort

The Plan is not starting from zero. A number of relevant investments have already been executed or committed and should be understood as precedents that have reduced risk, improved readiness and demonstrated delivery capacity. These previous efforts are not added to the new Plan total, but they do show continuity and accumulated commitment.

The most relevant precedents include:

- the **1,6 millones €** provincial subsidy for the rehabilitation of the **Canal del Desvío** and several **partidores** of the **Acequia Mayor del Pantano**;
- the **232.000 €** bypass connecting regenerated water from **EDAR Algorós** to the **Acequia Mayor**;
- the **100.000 €** "La Memoria del Agua" initiative, co-financed by the Ayuntamiento de Elche and the Ministerio de Derechos Sociales y Agenda 2030, including the permanent exhibition at **Molí del Real**;
- and the broader **EDUSI-Elx** experience, which provides evidence of the city's previous capacity to manage integrated urban investment at scale.

These precedents are important because they show that the current Investment Plan is not the first financial commitment to the hydraulic heritage of Elche. It is the next step in a longer process of recovery, reuse, interpretation and strategic consolidation.

Indicative annual expenditure profile

The annual deployment of expenditure follows a **realistic project curve**, not a flat distribution. The more mature and technically defined actions are expected to absorb a larger share of

expenditure between **2026 and 2030**, while the period **2031–2035** is primarily one of consolidation, maintenance and recurrence of selected operational lines.

For the main implementation cycle, the indicative expenditure profile is as follows:

- **2026: 1.620.500 €**

  Launch and preparatory implementation phase, including one-year actions, digital-platform development, first programme activations and initial works packages.

- **2027: 1.650.000 €**

  First peak year of capital deployment, especially for multiannual hydraulic and water-management actions.

- **2028: 1.320.000 €**

  Second peak year of capital deployment and programme consolidation.

- **2029: 464.000 €**

  Completion of medium-term works and transition toward operational stabilisation.

- **2030: 160.000 €**

  Closing phase of the main investment cycle, with reduced capital intensity and growing weight of operational continuity.

This gives a total of **5.214.500 €** for the first implementation cycle, aligned with the core identified investment package.

For the later horizon, the reading is more aggregated. The period **2031–2035** is expected to be dominated by recurring activation and maintenance lines rather than by major new capital interventions. On the basis of the annual recurrent costs already identified, the indicative operating expenditure for **2031–2035** is **50.000 € per year**, or **250.000 €** over the five-year period.

Cost categories

From a cost-definition perspective, the budget can be read in three categories:

- **Actions with clearly identified investment figures.** These form the financial backbone of the Plan and include the main hydraulic, heritage, monitoring and interpretation actions already costed in the workplan.

- **Actions with modest but defined programme costs.** These include governance, dissemination, school programming, annual activation and cultural-memory actions, where the financial need is smaller but still explicit.

- **Actions with grouped or embedded cost logic.** Some softer or cross-cutting components are most credibly budgeted as part of broader packages rather than as artificially isolated lines. The **innovation and sustainability hub** is one such case: it is best treated as a subcomponent of the **Molí del Real** activation package, with an identified annual operating cost, rather than as a separate stand-alone capital project.

Overall, the financial structure of the Plan is sufficiently robust to support a near-final investment narrative. It identifies a realistic order of magnitude, preserves the available cost information, distinguishes capital from operational needs, and allows future funding decisions to be aligned with the maturity and nature of each action.

4.2 INVESTMENT SOURCES

The financing strategy for the Elche Investment Plan is based on a **blended public-investment model**, complemented where appropriate by partnership-based contributions. This is the most credible approach for a proposal of this type. The Plan is too integrated, and too varied in the nature of its actions, to depend on a single source. Its implementation requires a combination of **municipal own resources**, **provincial support**, **regional and state grants**, **European funding instruments** and, in a limited number of cases, contributions linked to public companies or other institutional partners.

A first key point is that the **Ayuntamiento de Elche** has real, but not unlimited, municipal financing capacity. The 2026 municipal budget provides a useful reference for assessing that capacity over the coming decade. The Ayuntamiento budget alone amounts to **294.179.293,30 €**, while consolidated local public-sector income reaches **342.508.694,06 €**. Within that structure, the city budgets **46.994.819,54 €** in real investments and **3.937.245,67 €** in capital transfers, bringing total capital expenditure to **50.932.065,21 €**, or **17,31%** of total expenditure.

This confirms that Elche is already operating with a significant annual investment capacity. At the same time, the financing structure of that capital effort is revealing. The 2026 financial report shows that municipal investment is financed through a mix of **subsidies**, **loans**, **asset disposals** and only a very small share of **ordinary resources**. In other words, Elche's major annual capital programme is already being sustained through a combination of **external support** and **structured financing**, rather than through ordinary municipal revenue alone.

This is highly relevant for the Investment Plan. It means that the city can credibly assume:

- part of the **co-financing effort**,
- selected **smaller investments**,
- and a limited set of **recurring operational costs**,

but it would be unrealistic to present the major hydraulic and heritage interventions as if they could be financed exclusively from municipal current resources. The financing strategy must

therefore distinguish clearly between the parts that are **plausibly absorbable within municipal budgeting** and the parts that **require external capital injection**.

A second important element is that the 2026 budget also shows **financial sustainability and investment room**, even within a context of significant borrowing. The financial documentation records a projected debt ratio of around **39,64%** after the new 2026 credit operation, while the intervention report concludes that the budget complies with the objective of **budgetary stability and financial sustainability**. The city also expects **1.600.000 €** in dividends from **Aigües d'Elx**, which reinforces the plausibility of limited municipal-company contributions to softer operational lines linked to water and interpretation.

From this perspective, the most credible **municipal financing logic** for the Plan is the following.

Municipal own resources are best suited to:

- annual programme costs of limited scale,
- co-financing requirements attached to external grants,
- staff time and coordination effort,
- maintenance and continuity of some educational and interpretive actions,
- and selected smaller capital lines with high municipal control and low financial risk.

This applies especially to:

- governance and coordination actions,
- educational and dissemination activities,
- annual activation lines,
- and part of the recurrent operational costs associated with **Water Week**, the **digital platform** and the **Molí del Real** activation package.

A second financing layer consists of **provincial support and direct public grants already demonstrated in practice**. The Plan is not proposing this route hypothetically. It already has clear precedents. The **Diputación de Alicante** has supported hydraulic-heritage recovery through the **1,6 millones €** project for the **Canal del Desvío** and associated structures, while **Next Generation** funding has already been used to finance the **232.000 €** bypass for regenerated water. These precedents are important because they show that external public finance has already been mobilised for actions closely aligned with the Plan's logic.

A third financing layer is **Generalitat Valenciana support**, which appears particularly relevant for several action families.

In the field of **agriculture and irrigation**, the Generalitat's strategic subsidy framework includes competitive lines for:

- **"Obras y servicios de infraestructura agraria en municipios"**, aimed at municipalities and mancomunidades,
- and **"Racionalización del uso de agua para riego: gota a gota"**, aimed at irrigation communities and other irrigation entities of general interest.

These lines are particularly relevant to the more infrastructural and water-management actions under **Objective 1** and **Objective 2**, especially where the Plan combines:

- irrigation continuity,
- water rationalisation,
- regeneration or modernisation of supply conditions,
- and the interface between historical irrigation governance and contemporary water management.

In the field of **landscape and territorial policy**, the Generalitat's framework includes support for **"Actuaciones, instrumentos y acciones en materia de paisaje"**. This is especially relevant for parts of the Plan related to:

- landscape interpretation,
- visibility of the hydraulic system,
- reintegration of hidden water heritage into the urban environment,
- and treatment of the Palmeral as a **cultural landscape** rather than as a set of disconnected assets.

The same territorial-policy logic may also support parts of the Plan linked to the **public legibility** of the hydraulic system, including digital visibility, spatial interpretation and selective urban reintegration of buried heritage elements.

In the field of **innovation and digitalisation**, the Generalitat's strategic framework includes lines under **"Avanç de la societat digital"**. These are not heritage-specific instruments, but they do make it plausible to frame the **digital platform** and some of its public-access, knowledge and interpretation functions within a wider digital-transition policy context, especially where the platform contributes to:

- public information,
- digital access to heritage,

- educational use,
- and broader local digital innovation.

A fourth financing layer is **state funding**, which is particularly relevant for thematic and sectoral lines connected to:

- heritage dissemination,
- sustainability,
- Agenda 2030,
- tourism,
- and cultural infrastructure.

The existing **"La Memoria del Agua"** co-financing model is a useful precedent here. It demonstrates that state programmes can support the Plan's softer but strategically significant dimensions, especially when they combine **dissemination**, **education**, **interpretation** and **social value**. This makes state-level support particularly plausible for parts of **Objective 4**, selected interpretive lines, cultural programming and public-facing educational actions.

A fifth and potentially decisive layer is **European funding**. Here it is important to remain selective and serious. The Plan should not present an indiscriminate catalogue of programmes. Different European instruments are relevant for different types of actions.

European funding logic by action family

Interreg Euro-MED is plausibly relevant for **cooperation-based and pilot-oriented actions**. It is especially suitable for:

- transnational learning and transfer,
- governance pilots,
- demonstrator actions,
- cultural-landscape interpretation formats,
- and selected soft measures with Mediterranean transfer potential.

It is less suitable for financing large local capital works on its own, but it can add value to the Plan where actions are designed as pilot models or transferable cooperation products.

LIFE is more relevant for the **environmental and resilience components** of the Plan. It is particularly plausible for:

- biodiversity monitoring,
- circular-water demonstration,
- environmental intelligence,
- adaptive management of the Palmeral irrigation system,
- and selected nature-based or resilience-oriented lines.

LIFE is not the natural route for routine heritage works, but it is a strong fit where the Plan generates measurable environmental value and where technical innovation can be linked to broader ecological or resilience outcomes.

Horizon Europe is more selective, but still meaningful for the Plan's **innovation-oriented components**. It is especially plausible for:

- research and demonstrators,
- data platforms,
- monitoring systems,
- water-climate intelligence,
- and experimental lines involving universities and specialised partners.

It is not the natural financing route for the Plan's core capital works, but it can support the more knowledge-intensive and innovation-driven parts of the portfolio, particularly under **Objective 2** and selected cross-cutting digital and monitoring components.

Funding logic by action family

Taken together, this produces a clearer and more realistic financing strategy.

Large capital-intensive actions — especially those under **Objective 1** and parts of **Objective 2** — should be presented as requiring a combination of:

- **municipal leadership and co-financing**,
- **external public grants**,
- and, where appropriate, **borrowing or structured multiannual financing**.

This applies particularly to:

- the renovation of the irrigation canals network and **Canal del Desvío**,
- the **Canal del Desvío – Acequia Mayor** connection,

- the rehabilitation of buried acequias,
- the regulation basin,
- and other hydraulic backbone measures.

Medium-scale interpretation, digital and educational actions can more plausibly be financed through:

- mixed **municipal and external grant support**,
- targeted **regional or state lines**,
- and selected **European thematic programmes**.

This applies especially to:

- the digital platform,
- georeferenced heritage visualisation,
- interpretation services,
- dissemination materials,
- and selected educational and monitoring actions.

Recurring annual lines — such as **Water Week**, **digital platform maintenance**, and the **Molí del Real innovation and sustainability hub** — are best treated as part of a stable annual operating commitment, supported through a combination of:

- **municipal own resources**,
- **Aigües d'Elx participation** where relevant,
- and periodic external reinforcement where available.

Finally, there is a limited but real role for **private or partnership-based contributions**. The Plan should remain predominantly **public-led**, especially where heritage assets, irrigation governance and water management are concerned. However, selected softer components — particularly cultural programming, sponsorship-linked public events, communication tools or educational activities — could be complemented by partnership-based or corporate-support arrangements, provided these remain clearly subordinate to public governance and do not distort the public-value purpose of the Plan.

Overall, the financing strategy of the Elche Investment Plan is therefore best understood as a **phased and blended public-investment model**. It relies on municipal anchoring capacity, but recognises the structural need for external support in the major investment lines. It builds on

demonstrated precedents, aligns different action families with different funding instruments, and reflects the financial reality of Elche's own investment model over the coming decade.

5. MONITORING AND EVALUATION

5.1 MONITORING AND EVALUATION APPROACH

The monitoring and evaluation system of the Elche Investment Plan is conceived as a **practical management and decision-support tool**. Its purpose is not limited to reporting. It is designed to show whether implementation is progressing as planned, whether the expected outputs are being delivered, whether the funded actions are generating public and environmental value, and whether the Plan is producing the broader territorial effects that justify long-term investment.

For Elche, a **mixed approach** is the most appropriate. It combines:

- **continuous monitoring**, focused on implementation progress, outputs and annual use;
- **periodic evaluation**, focused on results, broader effects and policy learning;
- and a **developmental and theory-based logic**, allowing the city to test whether the expected chain of change is actually materialising while still adapting actions over time.

This is more suitable than rigid experimental models for a long-term, integrated urban investment plan of this kind.

The monitoring system should operate at **five complementary levels**, directly aligned with the structure of the Plan.

Implementation monitoring

This first level tracks whether actions are moving according to **schedule**, **budget** and **maturity**. It covers procurement, design, works progress, annual programming, launch of digital tools, activation of educational lines and the operational status of actions already in implementation.

The basic management question at this level is: **are the actions progressing as planned?**

Output monitoring

This second level captures the immediate products of implementation. In the case of Elche, this includes:

- physical outputs such as recovered hydraulic sections or activated heritage assets,

- and operational outputs such as monitoring systems installed, school activities delivered, interpretation services launched, public events organised and digital tools made available.

This level is particularly important because the Plan combines physical, digital, educational and governance actions, each of which produces different types of outputs.

Use and activation monitoring

This level is especially important in Elche because the Plan is not limited to restoration. It also seeks to reactivate water heritage through:

- interpretation,
- visits,
- educational use,
- cultural programming,
- and digital access.

The monitoring system should therefore track whether the Plan is actually being used by **schools**, **residents**, **visitors** and **local stakeholders**. Without this layer, the Plan would risk measuring delivery without measuring public appropriation.

Participation and governance monitoring

The Plan depends on a multi-actor governance model led by the **Ayuntamiento de Elche** through **Heritage**, with **Aigües d'Elx**, the **Comunidad de Regantes de la Acequia Mayor del Pantano** and other relevant actors playing differentiated roles. Monitoring must therefore include the functioning of this governance system:

- regularity of coordination,
- active involvement of partners,
- continuity of the ULG advisory role,
- and the practical capacity of the governance model to support implementation and adaptation over time.

Broader result and effect monitoring

This final level focuses on the changes the Plan is expected to produce in the medium and longer term. In Elche, those changes relate above all to:

- improved continuity and function of the hydraulic heritage system,

- increased use of regenerated water,
- better irrigation performance and water quality,
- stronger environmental monitoring capacity,
- greater public visibility and understanding of water heritage,
- and a stronger educational and civic connection to the Palmeral and its irrigation system.

This layered approach is necessary because the Plan itself is layered. The workplan combines major hydraulic and heritage investments, water-management measures, governance actions, educational programmes, interpretive lines and recurring public activation. The monitoring system must therefore reflect that diversity rather than reducing all actions to a single administrative metric.

Roles and responsibilities

From an operational point of view, monitoring responsibilities should be distributed according to the governance model already established in the Plan.

- The **Department of Heritage**, as the main functional lead within the Ayuntamiento, should coordinate the overall monitoring system, consolidate data, prepare annual monitoring reports and ensure coherence between action tracking and strategic decision-making.
- **Implementing departments and lead partners** should act as data owners for their respective action lines.
- **Aigües d'Elx** should lead the collection of technical data related to regenerated water, water quality, irrigation monitoring, urban water-cycle education and the operational lines under its responsibility.
- The **Comunidad de Regantes de la Acequia Mayor del Pantano** should be involved in monitoring irrigation-related effects and the practical continuity of the historic hydraulic system.
- **Fundación Proyecto Puçol**, educational partners and interpretation actors should contribute to monitoring participation, school reach, memory-related actions and public-use activities.
- **UMH** and, where appropriate, other specialised partners should support technical monitoring of biodiversity, environmental indicators and selected analytical tasks.

- The **ULG** should retain a structured qualitative review role, particularly on participation, social relevance, public acceptance and the coherence of implementation with the Plan's original rationale.

Monitoring rhythm

The system should operate through a realistic reporting rhythm:

- **Quarterly internal follow-up** for major investment and implementation actions
- **Annual monitoring summaries** covering the full portfolio, including outputs, expenditure, use and activation
- **Biennial perception review**, based on a citizen and stakeholder perception survey
- **Strategic evaluation checkpoints** at the end of the main implementation cycle and again during the consolidation phase

The biennial perception survey is particularly important. It gives the Plan a realistic tool for tracking intangible but strategically relevant dimensions such as:

- perceived visibility of water heritage,
- public understanding of the irrigation system,
- perceived connection to the Palmeral and its hydraulic heritage,
- and stakeholder perception of coordination and institutional progress.

This is preferable to attempting annual full-scale attitudinal evaluation, which would be disproportionate for the size and nature of the Plan.

The overall purpose of this monitoring approach is therefore threefold:

- to support **day-to-day implementation management**,
- to provide **evidence for political and funding decisions**,
- and to generate **adaptive learning** over the life of the Plan.

In this way, monitoring and evaluation become part of implementation itself, rather than an annex produced after the fact.

5.2 MONITORING AND EVALUATION FRAMEWORK

The evaluation framework complements the monitoring system by focusing on whether the Plan is producing meaningful change across its four strategic objectives. In Elche, the framework should not rely on a long and unfocused list of indicators. It should combine:

- a **small number of core result indicators** at Plan level,
- a set of **action-level output indicators** linked to implementation,
- and a limited number of **grouped monitoring packages** for smaller actions.

This structure is realistic and institutionally credible. It keeps the framework manageable while still capturing the breadth of the Plan: **hydraulic recovery**, **circular water management**, **interpretation**, **education**, **governance** and **public value**.

Three monitoring layers

The framework should distinguish between **three monitoring layers**.

A. Individual monitoring of major investment actions

The main capital and technically defined actions should be monitored individually. This applies especially to:

- the rehabilitation of the irrigation canals network and **Canal del Desvío**,
- the connection between **Canal del Desvío** and the **Acequia Mayor**,
- the rehabilitation of buried acequias,
- the rehabilitation and activation of the **Molí del Real**,
- real-time monitoring of regenerated water quality,
- irrigation automation,
- **SmartGreen** monitoring in huertos,
- the regulation basin for regenerated water,
- and the rehabilitation of the historic power station of **Pantano de Elche**.

For these actions, the framework should track:

- implementation status,
- expenditure execution,
- delivery of defined outputs,
- and, where relevant, first operational effects.

B. Grouped monitoring of smaller activation, governance and educational actions

Smaller actions should not each generate a standalone evaluation burden. They should be monitored through grouped packages, for example:

- **Governance and participation package**: Working Commission, Water Ambassadors, El Café del Molí and related coordination actions
- **Education and cultural activation package**: school programmes, workshops, Water Week, public dissemination and recurring cultural activation lines
- **Digital and interpretation package**: digital platform, educational materials, interpretation services and public-facing dissemination tools

This grouped logic is especially useful because many of these actions are recurring, complementary and mutually reinforcing. Their value lies less in isolated measurement than in cumulative effect over time.

C. Plan-level result indicators

At Plan level, the framework should focus on a limited set of **core result indicators** that reflect the real strategic purpose of the Investment Plan. On the basis of the current workplan, the most coherent set is the following.

1. Hydraulic heritage rehabilitated and reactivated.

This indicator should measure the extent of the hydraulic system effectively recovered through the Plan. Depending on the action, it may be expressed as:

- kilometres or stretches of canals or acequias rehabilitated,
- number of key hydraulic structures restored or activated,
- or a combined physical-recovery measure for the main investment actions.

This is the most direct result indicator for **Strategic Objective 1** and should be measured annually.

2. Hectares of Palmeral irrigated thanks to the rehabilitation works and improved hydraulic connection.

This indicator captures one of the most concrete territorial effects of the Plan: the extent to which hydraulic recovery and improved water distribution translate into irrigation functionality for the UNESCO-linked landscape.

3. Hm³ of regenerated water used annually for irrigation of the Palmeral.

This should be one of the flagship indicators of the Plan, because it links heritage conservation directly to circular water management. It provides a clear measure of the effectiveness of the water-reuse strategy and can be monitored through annual technical data.

4. Estimated annual irrigation-water savings linked to the use of regenerated water and improved system efficiency.

This indicator complements the previous one by showing that the Plan is not only increasing reuse, but also contributing to more efficient irrigation management.

5. Electrical conductivity of irrigation water at defined control points in the Acequia Mayor system.

This indicator provides a practical and technically credible measure of irrigation-water quality. It is especially important because the Plan's circular-water strategy depends not only on volume, but on water quality suitable for the Palmeral and traditional huertos.

6. Breeding bird abundance in predefined transects, expressed as kilometre-based abundance during the breeding season.

This should be the main biodiversity indicator. It links directly to the environmental and citizen-science dimensions of the Plan and can be monitored through predefined transects, with support from specialised partners and, where appropriate, citizen-science participation.

7. Total breeding bird diversity in the monitored transects.

This complements the abundance indicator and gives the Plan a second biodiversity measure linked to the ecological quality of the irrigated landscape.

8. Annual use of interpretation, education and public activation services linked to hydraulic heritage.

This should capture the cumulative public use of the Plan, including guided visits, school programmes, workshops, Water Week and other recurring activation lines.

9. Percentage of survey respondents reporting stronger understanding of, or connection to, Elche's water heritage.

This is the main perception-based result indicator and should be measured through the proposed biennial citizen and stakeholder perception survey.

10. Stakeholder assessment of coordination and implementation progress.

This indicator should be based on the same biennial survey or on structured stakeholder review and should track whether the governance model is perceived as improving cooperation, clarity of roles and implementation capacity.

Together, these indicators create a coherent Plan-level picture across:

- heritage recovery,
- irrigation functionality,
- circular water use,

- water quality,
- environmental effects,
- public use,
- civic perception,
- and governance performance.

Main data sources

The framework should also specify the main data sources:

- **Municipal administrative and project-management data** for implementation, expenditure and public services
- **Aigües d'Elx technical systems** for regenerated water use, water quality, irrigation performance and relevant operational data
- **Irrigation-community data and field verification** for irrigation continuity and hectares effectively served
- **Environmental field monitoring and citizen-science records** for biodiversity
- **Attendance records, booking systems, school participation logs and digital analytics** for use and activation
- **Biennial citizen and stakeholder surveys** for perception, awareness and governance-related results

Where possible, the system should rely on **existing data systems and routine records** in order to avoid excessive administrative burden. New data-collection requirements should be focused only on the dimensions that are genuinely essential and not already captured elsewhere.

Link to governance and decision-making

The evaluation framework must be linked directly to **decision-making**. Monitoring has little value if it does not influence implementation.

The governance link should therefore be explicit:

- **Annual monitoring reports** should be reviewed by the municipal coordination structure led by Heritage.
- Results should feed into **implementation review meetings** with the relevant lead actors and partners.

- The **ULG** should review the social, participatory and public-value dimensions of findings.
- Monitoring and evaluation results should inform:
    - annual prioritisation and sequencing,
    - budget adjustments,
    - refinement of implementation methods,
    - and the preparation of funding applications for later phases.

This creates the necessary feedback loop between **evidence and action**. It ensures that the Plan remains a **living management framework** rather than a fixed list of projects.

In summary, the monitoring and evaluation framework for the Elche Investment Plan is designed to be **selective, practical and decision-oriented**. It focuses on the indicators that matter most for this Plan, groups smaller actions where appropriate, links monitoring to governance, and combines technical data with public-value evidence. In doing so, it supports both the implementation of the current investment portfolio and the longer-term capacity of Elche to manage hydraulic heritage as a living territorial system.

Core Monitoring and Evaluation Indicator Matrix

No.	Core indicator	Baseline	Target	Owner	Main source	Update frequency
1	**Hydraulic heritage rehabilitated and reactivated** (km / stretches of canals or acequias rehabilitated; number of key hydraulic assets restored or activated)	**Baseline to be defined**	**Target to be defined**	**Ayuntamiento de Elche – Heritage**	Municipal project-management records; technical certificates; completion reports; asset activation records	**Annual**
2	**Hectares of Palmeral irrigated thanks to rehabilitation works and improved hydraulic connection**	**Baseline to be defined**	**Target to be defined**	**Ayuntamiento de Elche – Heritage**, with **Comunidad de Regantes de la Acequia Mayor del Pantano** and **Aigües d'Elx**	Irrigation-community records; technical verification; GIS / irrigation service mapping	**Annual**
3	**Hm³ of regenerated water used annually for irrigation of the Palmeral**	**Baseline to be defined**	**Target to be defined**	**Aigües d'Elx**	Aigües d'Elx operational and metering systems; water-use records	**Annual**
4	**Estimated annual irrigation-water savings linked to regenerated water use and improved system efficiency**	**Baseline to be defined**	**Target to be defined**	**Aigües d'Elx**, with support from **Ayuntamiento de Elche**	Irrigation system data; operational comparisons; efficiency calculations; technical monitoring records	**Annual**
5	**Electrical conductivity of irrigation water at defined**	**Baseline to be defined**	**Target to be defined**	**Aigües d'Elx**	Water-quality monitoring systems; laboratory	**Annual** (or more

	control points in the Acequia Mayor system	at agreed control points			analysis; control-point records	frequently operationally, with **annual reporting**)
6	**Breeding bird abundance in predefined transects** (kilometre-based abundance during breeding season)	**Baseline to be defined** through first monitoring campaign	**Stable or improving trend** by 2030;	**Ayuntamiento de Elche**, with **UMH** and citizen-science partners	Field monitoring; predefined transects; citizen-science records; expert validation	**Annual** (breeding season)
7	**Total breeding bird diversity in monitored transects**	**Baseline to be defined** through first monitoring campaign	**Stable or improving trend** by 2030;	**Ayuntamiento de Elche**, with **UMH** and citizen-science partners	Field monitoring; species records; biodiversity database	**Annual** (breeding season)
8	**Annual use of interpretation, education and public activation services linked to hydraulic heritage** (guided visits, school programmes, workshops, Water Week and related activities)	**Baseline to be defined** by consolidating existing attendance and participation records	**Target to be defined** after first full year of integrated programming	**Ayuntamiento de Elche – Heritage**, with **Aigües d'Elx** and **Fundación Proyecto Puçol**	Attendance records; booking systems; school participation logs; event records; digital analytics	**Annual**
9	**Percentage of survey respondents reporting stronger understanding of, or connection to, Elche's water heritage**	**Baseline to be defined** through first biennial perception survey	**Target to be defined** after first survey wave	**Ayuntamiento de Elche – Heritage**	Biennial citizen and stakeholder perception survey	**Biennial**
10	**Stakeholder assessment of coordination and implementation progress**	**Baseline to be defined** through first biennial stakeholder survey / structured review	**Target to be defined** after first survey / review cycle	**Ayuntamiento de Elche – Heritage**, with ULG support	Biennial stakeholder survey; structured stakeholder review; meeting feedback	**Biennial**