Waters of LIFE

Workshops to Develop a Pilot Results-Based Payments Scheme for High Status Rivers

Final Facilitator's Report

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1 Introduction

1.1 Overview

Waters of LIFE is an EU LIFE Integrated Project that aims to help reverse the deterioration of Ireland's most pristine waters. Waters of LIFE will be piloted across five catchment areas, with a sixth catchment area acting as a control. Four workshops were held as part of a series of consultation sessions with experts from various academic disciplines and professional backgrounds to co-design the framework for a results based payments scheme(RBPS) for farmers and foresters, which is a the key element of the Waters of LIFE project. The workshops were held on the 12th & 26th May and the 9th and 20th June 2023 in the Midlands Park Hotel, Portlaoise. This report presents the output of these workshops. It offers the key agreements on different elements of the RBPS suggested by participants, and illustrates models and options for the implementation of those agreements. A list of the organisations who participated in the workshops is given in Appendix I.

1.2 Summary of Findings

Overall, a key recommendation of these workshops was that the Waters of LIFE RBPS be locally-led and locally adapted using a hybrid payments system, with payments for both outcomes and supporting actions (non-productive investments). The project should adopt an integrated land management based approach, and be clear on how it balances different environmental objectives: achieving improved water quality along with associated benefits for biodiversity, climate and human society is a key objective and crucial to the project's vision for high status catchments. These wider benefits of high water quality will be communicated to local communities and landowners through on-the ground and face-to-face engagement strategies. Similarly, advisors and other stakeholders will receive project-specific training and guidance.

In terms of financing, the project will use its budget to maximise engagement efforts and to ensure that objectives are tailored to local environmental conditions. Appropriate measures will be used in any given context so that objectives are achievable, impactful and measurable. Where possible, private financing will be secured to support the project, particularly for large-scale capital investments.

The hybrid results-based payments scheme will use scorecards to record a participant's scores across a number of metrics appropriate to their land. A series of scorecards will need to be developed to enable scoring across varying environmental conditions. The project team, in conjunction with agricultural advisors, will support landowners to score their own land through simple and accessible scoring systems. Scores will be verified through standard assessment and the trialling of new technologies. The importance of compliance will be communicated in catchment areas and non-compliant participants will receive support and advice.

The project itself will be guided by a Steering Group and Advisory Group, comprised of representation from local groups, state agencies, and other key stakeholders. Mechanisms for feedback, review,

dispute resolution and knowledge transfer will be built into the governance, payments and monitoring structures of the project, in order to ensure transparency and fairness. The project will collaborate with other stakeholders in order to maximise engagement and identify best practices and novel solutions. Project learnings will be shared with others and used to support the scaling of the project at a national level, particularly through a centralised database that is in line with GDPR and other data management standards.

1.3   Report Structure

The purpose of this report, is to present an overview of the output from the four workshops. After each of these consultation sessions, summary reports were written that presented key findings and themes. This final report outlines the key agreements and recommendations put forward by workshop participants. Furthermore, it provides details on the models and options for how these agreements and project elements could be implemented at both national and local levels.

The first part of the report presents the vision and objectives statement for the project, which was co-designed by participants in the first workshop. The second section of the report describes the key agreements and recommendations made by participants under different headings of the project structure.

These agreements and recommendations represent the common points of consensus or near consensus agreed by participants across the four workshops. Based on these, the third part of this report examines potential options for the implementation of the Waters of LIFE RBPS. These options derive from suggestions put forward by participants, but were not necessarily common points of agreement. It is important to note that, while some options are mutually exclusive, others could be implemented together under their respective headings.

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2 Vision and Objective Statement

2.1 Overview

In the first workshop, all five tables developed their own vision statements for Waters of LIFE. The vision statements had common elements including: objectives, key components of the scheme and outcomes and impact. After presenting a first draft of the vision statements, participants had the opportunity to borrow content from other vision statements in order to refine their suggestions. After doing so, vision statements were read out, and the most endorsed vision statement was selected by a show of hands. Based on the vision statement that received the most votes and common points of agreement between all five visions statements, the vision and objectives was produced.

2.2 Vision and Objective Statement

Waters of LIFE aims to connect people together in order to restore, improve, and protect Ireland's most pristine waters, providing vibrant, healthy, and thriving places for people and nature, that are resilient to climate change. The scheme will adopt a locally adapted and integrated land management approach across five catchment areas, with good practice being scaled nationally in the future. Waters of LIFE will aim to ensure integration at systems and community level, empowering people to monitor and take action to attain high water quality where they live and work.

This project will aim to:
- Achieve and maintain high status waters in all five pilot catchments within five years
- Maintain and improve the social and economic status of local communities
- Capture hearts and minds of communities to build a culture of water protection
- Build an understanding of water quality terminology and raise awareness of the benefits of clean water to the environment and human health
- Share best-practices and learnings of the project
- Co-design the project results based payments scheme (RBPS) with local communities
- Develop a RBPS which can be scaled to a national level
- Ensure integration of the project with other environmental policies and their objectives.

The project will achieve these objectives by:
- Identifying catchment level issues and developing localised plans to address these
- Engaging and supporting land managers with locally-tailored advice and support, such as targeted incentives to achieve specific actions
- Developing and continually updating best practice guidance
- Creating a robust communications plan that clearly articulates project objectives, purpose and process in easily understandable language
- Ensuring good governance and operational structures that provide fairness and transparency
- Implementing appropriate indicators for measurement
- Rolling out innovative solutions for monitoring and verification through technological solutions

- Co-creating the RBPS with stakeholders to support the sharing of knowledge.

This project will cement Ireland's reputation in the pioneering of result-based approaches to environmental management. By protecting and restoring water bodies as well as nature, Waters of LIFE can nurture conditions for vibrant, healthy and thriving communities in Ireland. Its successful implementation will lead to deeply impactful co-benefits for water, landscapes, climate, biodiversity, as well as for wider society, both now and into the future.

3 Agreements and Recommendations

3.1 Overview

This section presents key agreements and recommendations generated from the four workshops. These are the major points of consensus or near consensus among participants on the different elements of the Waters of LIFE Results Based Payments Scheme (RBPS). In the next section of this report, potential options for implementing these agreements, as suggested by workshop participants are described in further detail.

3.2 Agreements on Governance

In terms of project governance, it was agreed that:

- **A National Steering Group and Regional Advisory Groups** (or catchment committees) should be established to oversee the project. These should bring together a broad range of stakeholders, such as statutory agencies, local farming representatives, foresters, advisors, angling, business, industry and researchers, thereby improving communications between all stakeholders and giving the Waters of LIFE project team the necessary support when required.

- **Some recipients receiving payments should be part of a local advisory group**, along with relevant agencies to address issues, prioritise action and encourage communication. There should be representation from local catchment committees on the National Steering Group, and a forum for these representatives to meet.

- **For project participants, fairness and transparency are essential**. This means that records on all decisions are available to participants (while respecting any possible GDPR implications), and there is an appeals' process in place. Participants should receive communication on threshold criteria e.g. terms and conditions, data sharing agreements and payments scheme information. Mechanisms should be in place for ongoing review and monitoring in order to develop good governance structures.

- **The project should be locally-led and locally adapted**, by working with local coordinators and champions, who have credibility with local stakeholders, recruited to exemplify good practice and to encourage project participation. Stakeholders should be consulted from the outset of the project. Local advisory teams should be established to support implementation. These advisory groups would have representation from land managers, business, local project-leads, and other stakeholders and would coordinate with the project team. This locally-adapted process should be flexible and capable of changing approach in different contexts.

3.3 Agreements on Project Goals and Indicators

Approach:

It was agreed that a **_locally adapted hybrid approach_** should be adopted as the basis for the design of the project RBPS. This approach should be supported by substantial investment in appropriate measures/ non-productive investments so that desired results are achievable.

Participants recommended that the project should adopt **an integrated land management approach** to structuring and designing objectives, indicators and measures.

Goals:

A 10/10 (i.e. ideal) catchment area would have the following goals:

1. High quality riparian zones. These zones should be capable of meeting protection and restoration objectives, while providing crucially important ecosystems services in an interconnected network of nature corridors.
2. Provide best quality water for downstream waterbodies e.g. Nutrient loads should not impact estuaries.
3. Retain the natural flow and shape of the river or restore these where necessary
4. Contain high status waterbodies that are 10 / 10 across a given set of metrics.
5. Have 10/10 farms that are efficient, with reduced nutrient use that leads to lower levels of nitrates and phosphates in waterbodies, thereby preventing degradation.
6. Implement solutions that are tailored to specific problems in a given area, ensuring that measures are appropriate to the environment in which they are installed.
7. Maintain healthy peatlands that do not contribute to declining water quality
8. Support conditions for favourable conservation status of protected habitats and species within the catchment.

Indicators:

- Indicators used by the project to measure outcomes should be appropriate to conditions in the local area.
- Across catchment areas, baseline conditions should be established so that the success of the project can be measured.

3.4 Agreements on Compliance, Monitoring, and Verification

Compliance:

1. The role of the project team and of other stakeholders involved with the project in relation to compliance with basic conditionality, should be clearly defined and communicated to project participants
2. The approach to compliance should be coordinated, integrated, and streamlined. It should be made clear that the project team does not have a role in enforcement.
3. The importance of compliance with minimum requirements should be communicated to all landowners within the catchment area, including non-project participants
4. Where compliance issues are identified, the project team should provide tailored advice so that landowners have an opportunity to rectify those issues

Monitoring:

In terms of monitoring, the project should:

- Enable landowners to score their own land, which will increase buy-in by fostering a sense of ownership for participants in the scoring process
- Establish a centralised database containing all relevant information which can be shared or accessed by participants or members of the community
- Explore the use of technology to assist in monitoring, such as drones for visual assessment, thermal imagery and remote sensing technology
- Conduct appropriate monitoring of water quality outcomes based on a choice of metrics that are suitable for local conditions and project timescales in order to assess effectiveness of measures.

Verification:

Establish an appropriate system for verification and dispute resolution. It was agreed that this system could use existing methods of verification while exploring the use of different IT solutions such as apps, maps and score calculators.

3.5 Agreements on Finance and Payments

Finance:

- The project requires sufficient resourcing in order to be effective
- Sources of private finance should be explored as a potential option to supplement the project budget and support project objectives
- Finance is required on a long-term basis to sustain the project.
- Capital investments from government and other sources should be used to provide this source of long-term funding.

Payments:

- A hybrid results-based payment system which incorporates funds for non productive investments, is required
- A necessary level of financial incentives for landowners should be provided to enable and encourage participation in the project

3.6 Agreement on Project Supports

The project will provide a wide range of supports to its staff, advisors and to the communities in which it operates . The agreed project supports for these various stakeholder groups are as follows:

Advisors:

Advisors have a pivotal role in engaging project participants and promoting the achievement of project goals. Advisors should be supported through:

- Project specific training and guidance, with an emphasis on connecting to local communities and with the objectives of Waters of LIFE

- Ongoing support, including assessment of advisor performance and opportunities for advisor feedback and coordination with the project team.

Peers and Community:

Members of local communities and professionals associated with the project should benefit from opportunities to share learnings and receive appropriate guidance throughout the project's duration. This includes:

- Adoption of best practices and utilisation of learnings from previous schemes and European Innovation Partnerships (EIPs).
- Continual adaptation and improvements with learnings gained, recognising that environmental payments schemes need to continually evolve if they are to continue to deliver.
- Facilitation of shared learning through peer-mentoring schemes and cross-catchment networks, as well as design of an online platform with short instructional videos.
- Local project staff should receive targeted supports such as practical training.
- Recruitment of support staff is necessary to ensure the operation of the project.
- Mechanisms for ongoing review of project guidance based on learnings, stakeholder feedback and developments in wider policy environment.

Training:

Participants require guidance and training in order to increases awareness and understanding of the scoring and payments system. This should be achieved through:

- Dedicated training and education materials on the scoring system that will be used on their own land
- Providing information on the markets for environmental services
- Developing an online platform with training materials through interactive tools.

3.7   Agreements on Coordination and Collaboration

Collaboration and coordination with other projects, existing legislation and key stakeholders related to Waters of LIFE is critical for success. In particular, it was agreed that:

- Integration of goals and objectives between government departments and agencies should be prioritised
- Integration of environmental objectives should be transparent in how a balance is reached between these objectives e.g. between the goals of biodiversity, water quality and climate.

3.8   Agreements on Communications and Engagement

Effectively communicating the tangible benefits of the Waters of LIFE's objectives is crucial in generating engagement from landowners and the local community. Communicating learnings and outcomes of the project is important to encourage innovation and demonstrate results. Communication and engagement efforts should therefore focus on:

- Clear, consistent and readily understandable communications through:

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- o An annual public communication of project monitoring results and learnings;
- o A project newsletter;
- o Documentary videos on local area.
- Supporting coordinated actions at a community level
- Promotion of shared place-based learnings with an emphasis on community pride and the uniqueness of places where people live
- Emphasis on the link between water quality and human health, highlighting the societal impact of improved water quality for biodiversity, tourism, recreation and quality of life.

3.9 Agreements on Project Scaling

A priority of Waters of Life is to agree what aspects of project RBPS are or are not scalable. It was agreed that the project's approach to scaling was to:

- Identify scalable practices
- Document evidence based best practices to inform future projects and scaling
- Adopt a long term approach to project planning, with consideration of the environmental and policy contexts of 2030 and beyond
- Build resilience of systems in the context of climate change
- Develop an IT system that integrates existing and new data sources to ensure consistency in inputs, provide a centralised database and allow for real-time analysis of results to support payments
- Engage further and higher education institutions to position catchment science and management as a career pathway for graduates
- Work with other stakeholders to develop a vision of working towards the next CAP with an overarching plan that integrates schemes, proposes solutions and sets clear goals for landowners

3.10 Agreements on Technology

Technology can offer innovative and novel supports for different elements of the project. New technologies can provide an opportunity for use in scoring, monitoring and verification, as well as in areas of community engagement and training. It was agreed that the project would:

- Trial innovative technologies in the areas of scoring, monitoring and verification
- Develop digital resources for scoring, education and training
- Develop data management systems that will facilitate easy sharing of information across the project team and all stakeholder. Interfaces will be simple and streamlined, as far as is possible.

4 Models and Options

4.1 Overview

This section summarises ways that the agreements and recommendations for Waters for LIFE could be implemented. These models and suggested options for elements of the Waters of LIFE RBPS were based

on suggestions by participants from the four workshops. For some sections, particular models have also been included to demonstrate potential ways to implement measures, goals or procedures. It should be noted that for each numbered option, the reader is not required to choose one at the expense of another. Instead, the list of options for each project element offer a range of possible ways for moving forward.

4.2   Governance

Procedures and Structure

Options for Steering Group Meetings:

1.   Meetings could be held when the need arises
2.   Meetings could be held biannually
3.   Meetings could be held quarterly

Options for Personnel:

1.   Designate a Data Protection Officer / Liaison
2.   Recruit minimum of one or two communications staff
3.   Add an advisory staff person to look at joint actions with other sectors e.g. healthcare

Options for Groups and Committees:

1.   Link groups and committees to project-specific outcomes / objectives
2.   Review the number of committees and sub-groups to reduce the risk of duplication
3.   Rename 'Regional Catchment Committees' to 'Catchment Committees'
4.   Refer to EU LIFE for recommendations on project economics and financing.

Additions to Governance Groups

Options for additional Steering Group members or representatives:

1.   Inland Fisheries Ireland
2.   National Parks and Wildlife Service
3.   Private sector representation e.g. Irish Cooperate Organisation Society, Glanbia etc.
4.   Experts with a nature-based, biodiversity or climate change background
5.   Environmental economist, potentially from National Capital Ireland
6.   Representation from community groups

Options for additional Stakeholder Advisory Group members:

1.   Additional representation from the forestry sector
2.   Representation from a stakeholder of the catchment area
3.   Representation from community groups.

Additional Sub-Groups:

A number of options for governance sub-groups were suggested during workshops, including:

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1. A Project Management Sub-Group to manage project related risks and finances:
   a. Membership limited to project partners and guests invited based on expertise
   b. Meets bi-annually.
2. A Data Protection Sub-Group to resolve GDPR / data sharing policy issues and guide data agreements, with GDPR expertise (e.g. member of Data Protection Division)
3. A Science and Technology Advisory Sub-Group which would undertake research, examine gaps and find potential technological innovations:
   a. The National Steering Group may refer topics to this group
   b. Membership would include environmental scientists, catchments scientists, LAWPRO, land advisor representative and a local landowner.
4. A Scaling Sub-Group, with responsibility for developing scaling approach and identifying solutions in IT, data and human resources. Membership to include:
   a. Project partners, Irish Centre for High-End Computing (ICHEC) and an IT representative or lead from the Department of Agriculture.
5. A Local Stakeholder Sub-Group which would allow for information sharing between landowners and Steering Group on progress and project feedback
   a. Meetings once a year OR meetings are quarterly OR meetings held as needed
   b. Specific working groups will engage landowners through advisors
   c. Membership is open for local groups
   d. Outreach to representatives is targeted based on set of predefined criteria
6. A Stakeholder Advisor Sub-Group with members from the National Biodiversity Data Center, social geographers, Economic and Social Research Institute (ERSI), Water Quality Unity, Bord Bia and Macra
7. An Advisory Sub-Group to establish time-limited and issue specific working groups to take actions in areas such as participant engagement, training and hydromorphology
   a. Meets twice a year
8. A scientific and operational panel with themed subgroups (e.g. education, forestry etc.)
9. Monitoring, integration, technical, policy and financial advisory sub-groups

4.3   Goals and Indicators

Based on the vision of a 10/10 catchment, explained in Section 3.3. of this report, a series of goals and indicators were designed by participants across catchment, farm and forest levels. These indicators and metrics were identified by working through the five project demonstration catchments. In this section, options for setting goals are dependent on the representative catchment area and ways of measuring those goals, using appropriate indicators, are set out across those three levels. It is important to note that not all goals and indicators set out here will be applicable in any given catchment in Ireland. Goals and indicators should be tailored to the areas in which they are used.

Catchment Level Options

Goal	Action/Indicator
Improve quality of water bodies	- Algae - Dissolved Organic Carbon - Phosphate levels - Nitrate levels
	Q Values
	E. coli levels
	Turbidity levels
Reduce sediment / siltation	Percentage of drains vegetated
	Sediment capture in ditches
	Turbidity levels
	Real time silt monitoring
Reduce hydromorphology impacts	Water table management & Flow measurement
	Water level in drains and ditches
	Level of vegetation on banks (to prevent bank erosion)
	Number of leaky dams in streams and ditches
Enhance biodiversity	Fish numbers at catchment level
	Species richness
	Levels of excess sediment
	Specific species population (e.g. freshwater pearl mussel) ,.)
Improve channel characteristics	Level of natural flow
	Level of drainage
	Channel morphology (i.e. meandering or straight)
	Natural hydrography and modification
	Substrate composition
Develop and enhance resilience through buffer / riparian zones	Quality and quantity of riparian zones i.e. age, structure, diversity, ecological connectivity
	Proportion of water courses with high quality riparian margins and size and diversity of those zones
Develop a riparian scorecard	Quality, diversity, and structure
	Quality and quantity metrics (i.e., number of farmers with riparian zone *and* quality of those zones)
	Woodland per unit of length of watercourse in kilometres
Identify, reduce and eliminate invasive species	Control measures for invasive species.
Address waste water treatment plants	Near zero nutrient output and reservoir / drinking water source quality

Reduce sewage seepage from domestic wastewater treatment systems	Inspections of domestic sewage treatment systems and improvement works where needed.
Protect, restore and enhance blanket bogs	Measure of blanket bog condition
Maintain all areas with good and high status	Width, length and extent of riparian zone
	Composition of vegetation, habitat and condition.
	Flow
	Bank structure
	Presence or absence of drains (natural drainage is acceptable).
	Presence or absence of flood defences.
	Bare soil (should be minimal)
	Chemistry levels
	Resulting load calculations
	Phosphate and nitrate levels
Increase levels of forestry	Proportion of woodland to river length
	See Rivers to Woodlands scheme, Space for Nature scheme, and Woodland for Water scheme
	Proportion of riparian zones with trees
Protect Salmonids	Increase in research connectivity on topics: • Data from IFI noting hotspots • Nutrient concentrations • Fish Status
Effective animal management	Deer density (i.e., through annual surveys of the population)
	Sheep numbers (i.e., manage to a level that would not make a negative impact i.e.10% reduction per year to an optimal level which would be defined based on a habitat)

Farm Level Options

Goal	Indicator
Manage peatlands to reduce water degradation	Dissolved Organic Carbon load
	PH levels
	Light detection and ranging (LIDAR) to map gullies and predict level of overflow as a measure of stabilised hydrography
	Erosion control and water table management (dams etc.)
	Revegetation / restoration of eroded areas
	Conservation condition

Create functioning riparian zones	Structure of zones
	Biodiversity levels
	Number invasive species
	Level of drainage through zones
Reduce nutrient load	Phosphates levels
	Nitrate levels
	Ammonia levels
	Develop a 'Safe Fertiliser Index' based on the level of sales recorded in the Fertiliser Register. This would measure sales compared to: - Use of sulphur and fertiliser - Level of ammonia emission - Level of NO_2 and CO_2 - Leaching
	Total sales of fertilisers and use of nitrates as financial proxy for nutrient loss
	Evidence of targeted support for individual farms
Achieve high status hydromorphology	Morphological status.
	RHAT Assessment
Remove artificial drainage	Amount of artificial drainage
	Raising the water table in peatland
Improve drinking water quality	Pesticide use in line with standards
	E.coli levels
Achieve high ecological status	Soil function review and monitoring
	Bee population as a metric of pesticide and insecticide use
Appropriate dry heath and grassland management	Appropriate sward management
	Reduce bare soil and erosion (i.e., stock and vehicle use)
	Promote extensive livestock farming
	Promote mixed grazing with different livestock types
	Level of vegetation diversity
Maintain good quality status	Flow, drainage, interceptors presence, soil losses etc.
	Habitat
	Riparian zone maintenance and interconnectivity
	Water course and whole farm assessment
Achieve optimum soil fertility	pH levels
	Phosphorous levels - No index 4 - Where stocking rate is low, target for level 2
	Fertiliser register

Forest level:

Goal	Indicator
Manage peatlands to reduce water degradation	Dissolved Organic Carbon load
	pH levels
	Light detection and ranging (LIDAR) to map and predict level of overflow as a measure of stable hydrography
	Erosion control and water table management (i.e., dams etc.)
	Revegetation / restoration of eroded areas
	Conservation condition
Conversion to native woodlands	Fell existing woodland in an appropriate manner
	Replanting native trees
	Appropriate buffer strips
	Creation of clearing within woodland
	Establish monitoring procedure
	Implementation of a 30-40m riparian zone in restructured legacy forest plantations
Create functioning riparian zones	Refer to the Forestr Service to identify relevant indicators
Assess impact of forestry on water volume	Rate of impact of forestry (i.e.trees using water, drains diverting water) on water quantity measured

4.4 Scoring, Monitoring, Verification, and Compliance

Scoring:

1. Participants score their own land at least every year
2. The project supports participants to score their own land
   a. Offer training to landowners in:
      i. Results-based payments
      ii. Habitat recognition
      iii. Water quality
      iv. Biodiversity
      v. Kick sampling
3. Participants are supported to self-score their own land in Year Two and Year Four of the project
4. Develop field scoring systems for water quality
5. Engage landowners and advisors in scorecard development
6. Bring updates on scorecard to landowners
7. Scorecards should include:
   a. Compliance factors
8. Schedule periodic review of scorecards to assess effectiveness
9. Determine the spatial area that is to be scored

Monitoring:

Given that it has been agreed that landowners should be able to score their own land, any monitoring system should consider the following:

Options for Monitoring Measures:

1. Using existing methods to monitor outcomes
    a. Increase the number of monitoring stations
    b. Catchment Officers carry out annual check-in with landowners to communicate progress and receive feedback
    c. District inspectors should monitor forestry, not landowners
2. Trial innovative methods for monitoring such as:
    a. Implementing simple scorecards that capture compliance
    b. Landowners could grade local rivers
    c. Pilot MQi in specific areas
3. Monitor attitude and engagement of project participants

How Technology and Data can Support:

1. Integrate existing information that is currently available
2. Ensuring any technology used is accessible
3. Agree data sharing agreements between other agencies and the Waters of LIFE

Verification:

Suggested options for further development of the verification system includes:

1. Using existing methods to verify outcomes:
    a. Use Earth Observation Data to verify quality of scorecard assessment
    b. On the ground verification of actions
2. Explore novel means of developing a system for verification, potentially including:
    a. Trialling inputs such as Planet (satellite imagery) with project team for verifying results
    b. Trial Arificial Intelligence to assess consistency of self-assessments
    c. Satellite technology
    d. Unmanned Aerial Vehicles (UAV's)
    e. AgriSnap
        i. Check removal of invasive species
        ii. Handle minor queries
        iii. For all verification
    f. Encouraging citizens' science for monitoring and verification.
3. Develop a project database with real time information for verification of results. This database should:
    a. Be open access for stakeholders and community

b. Have a professional area to support interagency coordination

c. Integrate information currently available

Compliance

Options for Communication:

1. Give clarity on what participants should expect in terms of monitoring, and verification and highlight the importance of compliance with basic conditionality within the project:

    a. Clearly communicate what actions landowners need to take in order to be compliant through easily understandable information

2. Raise awareness of impact of activities on land among farmers (e.g. education, national campaign)

3. Individual scientists and advisors should be responsible for communication around compliance

Options for Managing Non-compliance:

1. Non-compliant landowners that do not meet minimum requirements or have larger issues should not be able to apply to join the project until issues have been rectified

2. Non-compliant participants should be supported by information which identifies complementary actions and advisor support to implement those actions.

3. Landowners must meet the minimum requirements set by CAP

4.5 Finance

Public Finance Options:

1. Public finance for the project is directed towards funding the results-based payments

2. Private finance will be used to invest in capital actions or non-productive investments.

Private Finance:

Potential options for sources of private finance which warrant further investigation are:

1. **Green Bonds:** a system of bonds that sources finance to generate positive environmental outcomes for water quality, biodiversity and forestry management. Different bonds could be offered for specific environmental outcomes. Clarity is required on governance and operationalisation of bonds and on data required to provide appropriate metrics for assessing if desired environmental outcome has been achieved (or not).

    a. Potential stakeholders: Pension funds, National Treasury Management Agency, National Asset Management Agency, dairy industry and local co-ops.

2. **Ecosystem Services:** secure private investment by providing ecosystem services through flood risk management, drinking water protection and biodiversity promotion. Information is required on implementation costs of actions, interest of potential investors and financial impact of supplementing farming activities with ecosystem services.

    a. Potential stakeholders: Local Authorities, insurance companies, Office of Public Works and dairy industry.

3. **Impact Investments:** seek direct private investment to carry out actions in catchment areas. Investors would benefit from brand association with tangible actions that are carried out e.g. rewetting of bogs, tree planting or flood mitigation. Some investors could also benefit from green / sustainable labelling as a result of products being produced in a high status area.
    a. Potential stakeholders: Local co-ops, dairy industry, tech and pharmaceutical companies.
4. **Value Chain Approach:** approach companies involved in supply chain to pay project participants a higher price for the eco-system services they provide and for sustainable branding of their products.
    a. Potential stakeholders: dairy industry .
5. **Philanthropy:** direct private funding from philanthropists that is tailored for the local area and appropriate for delivery local objectives.
    a. Potential stakeholders: General Atlantic Investments.
6. **Credit System**: offer a credit-based payments system for the private sector to generate investment. Payment could be offered on an annual arrears basis and measured on indicators for greenhouse gases, water quality and carbon capture.

4.6 Payments

Workshop discussion on payments was based on the five project demonstration catchments where the Waters of LIFE RBPS will be piloted. Therefore, payment options reflect different models tailored to their specific context. In this section, general options for payments are presented. The report on Workshop No. 2 outlines the specific models developed by table groups for each area.

Targeting Options:
1. Prioritise targeting landowners in high status areas
2. Target landowners who require supporting action
3. Prioritise targeting based on degree of impact achievable in catchment
4. Target areas in which hydromorphological conditions can be improved

Participation Options:
1. Participants are targeted and approached for participation
2. Participation is open to all
3. Participation is open to all, with a priority ranking system based on catchment assessment applied where the project is oversubscribed.

Prior Data and Investigation Options:
1. Complement existing data from catchment assessment with river walks
2. Develop innovative monitoring systems.

Number of Participants Options:
1. 50 to 75 per demonstration catchment

2. 75 to 100 per demonstration catchment

Duration Options:

1. 3 years
2. 4 years
3. 5 years.

Pay level Options:

1. €2,375 to €5,000
2. €2,500 to €7,500
3. €2,500 to €10,000+
4. 50 / 50 split in payments between restorative and protective actions.

Pay Structure Options:

1. Implement digressive payments
2. Lower payments to landowners in low pressure areas
3. Frontload payments
4. Offer collective bonus at catchment level
5. Review payments regularly.

Advisor Fee Options:

1. 20%
2. 10 to 15%
3. 15% to 20%
4. Negotiated on case-by-case basis by landowners.

4.7 Supports

Options for Advisor Recruitment:

1. Waters of LIFE recruits and pays for professional advisor services for participants:
   a. Advisors could be recruited from college and specifically trained to project standards
2. Waters of LIFE do not hire advisors. Instead, advisors are hired by landowners directly.
3. Develop a hybrid approach of the above options. This could be conceptualised as:
   a. Waters of LIFE works with advisors to agree project aims and confirm appropriate levels of knowledge. Local advisors can be hired where there is a lack of capacity
   b. Follow the ACRES procedure so that advisors undergo project specific training and are required to be SOLAS approved (formerly FAS)
   c. With an agricultural scientist who manages advisors, implement a triangulation recruitment strategy to recruit local advisors who are deemed suitable for the project by three others

d. Landowners could negotiate a fee with an advisor and then nominate that advisor to the project team. Where this nomination was successful, the project would then pay that fee.

Options for Advisor Role and Criteria

Role of Advisors:

1. Advisors should support the recruitment of landowners for the project
2. Where advisors support recruitment of a participant, they should receive a percentage of a participant's payment
3. Advisors apply for payments on behalf of farmers, completing application forms and paperwork as well as certifying work on land
4. Advisors should guide participants through scoring process, with view to enabling self-scoring by participants
5. Advisors lead farm discussion groups in catchments, with the support of Waters of LIFE
6. Advisors should be sensible to the sense of community and pride of landowners in order to build trust and allay any concerns.

Desirable Experience of Advisors:

1. Local advisors should have experience and have already worked with local communities
2. People from a broad range of backgrounds should be selected in a competitive process

Advisor Training and Education Options:

1. Standardised and comprehensive training from the project team
2. Tailored training which complements LAWPRO training
3. Guidance on importance of learning about local places, histories, and families
4. Project training provided in conjunction with Teagasc
5. Training will be provided for both project advisors and local advisors simultaneously
6. Training on project scorecards
7. Catchment assessment training with emphasis on appropriate environmental measures in a given area

Advisor Review and Feedback Options:

1. Pre-hiring assessment and training for advisors
2. Ongoing assessment procedures to review advisor progress under established guidelines
    a. Score advisor performance in first year, and every two years thereafter
3. Accountability mechanisms for poor advisor performance and accompanying sanctions e.g. deductions
4. Feedback mechanism for learnings to be shared between project team and advisors

Community and Peer Support Options:

1. Establish a local champion role, which would be supported by:

      a.   Payments to attend farmer groups and promote the project

      b.   Payments to cover expenses plus 20 hours worked per week

      c.   Pay local champions €10,000 a year

2. Agree a dedicated budget for community and peer support

3. Engage local LEADER companies and businesses

4. Hold meetings and training events in local catchment areas

5. Support community groups to make application to community funds

6. Build ownership for project participants who go through training, advice, and support

7. Host training at landowners' land in conjunction with LAWPRO

8. Create demonstration sites and pay for landowners to attend

9. Support use of Citizen Science

10. Develop online resources

      a.   Website with videos and short instructional manuals

11. Incorporate feedback from community

      a.   One-to-one meetings with advisors / project officers

      b.   Collective feedback from catchment group meetings

Social and Behavioural Research Options:

1. Develop a research project with a social / behavioural scientist. This could be:

      a.   Tracking change overtime in participant knowledge and engagement

2. Involve social scientists in developing project storytelling to promote engagement and build pride in natural environment

3. Approach universities to establish a research projects for PhD candidates

4. Fund a research project to conduct comparative studies on community engagement

4.8   Coordination and Collaboration

Policy Formation Options:

1. Host workshops to develop policies and share learnings with other agencies

2. Advocate for an integrated land management approach to be included in the next Programme for Government

3. Map existing regulatory instruments

4. Recognise shared outcomes for biodiversity and farming in policy documents

5. Allocate time and resources to evaluate existing policy effectiveness

6. Develop a national level vision with other stakeholders for water quality

7. Advocate for a centralisation of leadership for water quality improvements

Interagency/interdepartmental Strategic Options:

1. Clear communication and definition of project objectives and roles between project team and government departments

2. Pre-defined and aligned targets between project team and department teams

3. Standardised meeting agendas
4. Annual review meetings between project team and stakeholders, with representation from workshops
5. Periodical shared learnings workshops, similar to initial consultation sessions held in May and June 2023
6. High level departmental group to progress integrated approach through scoping exercise of challenges and opportunities
7. Cross-governmental approach with a 10 year plan for implementation of specific goals
8. Co-ordination with Department of Agriculture, Food, and Marine (DAFM), to avoid double payments to project participants

Local and Regional Operations Options:
1. Work with local communities to identify and fill gaps in capacity
2. Engage landowners on policy recommendations from the outset
3. Build relationships with landowners through consistent contact overtime
4. In communications, emphasise the locally-led/locally adapted aspect of project continuously
5. Develop an interagency group to share learnings and challenges:
    a. Members include: Local Authority Waters Programme (LAWPRO), Teagasc, Inland Fisheries Ireland, Coillte, and National Parks and Wildlife Service (NPWS)
6. Coordinate with local authorities, DAFM, and NPWS to achieve higher levels of compliance through inspections
7. Catchment officers offer impartial advice on integrated land management, with reference to projects other than Waters of LIFE:

Cross-Agency Data-sharing and Communications Options:
1. Trial an IT solution to allow for information and data sharing between all project stakeholders:
    a. Data access and management functionality included
    b. Share solutions to IT challenges amongst all project stakeholders
    c. Integrate existing information with pilot project datasets
2. Agree data-sharing procedures amongst all stakeholders involved in project:
    a. Agree at project outset
    b. Agreement is valid for the duration of the project
3. Implement the federated data spaces and data lake framework proposed by the Irish Centre for High End Computing (ICHEC)
4. Agree procedures in relation to GDPR
5. Share and retain monitoring data so as to assist in scaling
6. Approach the Environmental Protection Authority (EPA) to coordinate on water quality reporting

4.9 Communications and Engagement

Options for Engagement of Landowners:

1. Communicate in plain language the objectives of the projects and benefits from project outcomes being achieved through:
   a. Story maps
   b. Vision
2. Celebrate successes and share good practices:
   a. Establish demonstration sites
      i. Open farm events
   b. Develop peer learning networks
      i. Peer to peer learning facilitated by Catchment Officer
      ii. Host meeting between local landowners
      iii. Organise cross-catchment visits and events
   c. Give guidance to participants on monitoring and self-scoring
   d. Landowners currently involved in other projects should be invited to speak to potential project participants about their experiences
3. Project team travel to local areas to engage in outreach:
   a. Ask advisors to gather questions from landowners in advance of team outreach
   b. Collect baseline data on attitudes and initial engagement through advisors
4. Establish local project offices for landowners to drop-in and seek advice
5. Develop a website page with a list of advisor details

Options for Community Engagement:

1. Establish physical project sites in catchment area:
   a. Local office to act as community hub to provide updates and guidance
   b. Demonstration sites for showcasing best practice
      i. Organise field trips to demonstrations sites
2. Organise events and outings for local community members:
   a. Farming for nature competitions
   b. Local voluntary ambassador programme / community ambassadors
   c. Ask landowners to provide guided tours of land and host events
3. Wider community engagement with families and young people:
   a. River walks
   b. Barbeques
   c. School projects
   d. Youth sports competitions
4. Blanket community engagement efforts:
   a. Physical signage along rivers about local projects and water quality
   b. Develop project design and branding
   c. Create project newsletter

d. Actively meet people in community

   e. Incorporate community feedback in catchment action plan

   f. Pilot an urban space project.

5. Training and education on water quality for community members:

   a. Develop short documentary videos of local area

   b. Develop catchment evaluation in urban areas

Local Champions:

1. Recruit local individuals to be champions for the project:

   a. Recruit people based on interest, ability to be a local advocate and demonstrate best practice

   b. Champions would:

      i. Communicate benefits of project objectives to others

      ii. Celebrate good examples and demonstrate feasible solutions

Local Groups:

1. Support local groups and initiatives by:

   a. Offering assistance in accessing community funds

   b. Match funding offered by community funds

   c. Promoting locally led-initiatives

   d. Hosting events for / with local groups

   e. Support to develop short documentary videos

2. Encourage the establishment of group water schemes

3. Establish a group to facilitate discussion between local politicians and local groups

4. Engage community groups

   a. Tidy Towns

   b. River Trusts

5. Deliver community based environmental projects

6. Offer training with local community development companies (LDCs) and LEADER.

Other Projects/Schemes:

1. Promote existing schemes and encourage uptake

2. Coordinate with other projects to maximise engagement resources

3. Involve other project expertise or agencies where needed.

Budgeting and Expenses:

1. Financially reward demonstration farms that demonstrate good practices

2. Financially support local community groups:

   a. Include time to work with community groups as part of the budget for catchment officers

3. Cover costs of engagement including:
    a. Transport
    b. Venue hire
    c. School projects
4. Reduce budget for advisor training where materials are already developed (e.g . LAWPRO Catchment Science and Management training for ACRES Cooperation Project teams)
5. Include funds for inter-catchment learning as part of community meetings in project budget
6. Secure complementary funding to develop networks in communities
    a. Time for researching other funding sources should be budgeted for.

4.10 Scaling

Best Practices:
1. Prioritise a locally-led/adapted approach while bringing local capacity into a national framework with established limits
2. Work with small cohorts to clarify systems and discover practices that can be scaled later
3. Ensure that the ratio of project team members to landowners is sustainable for the achievement of project objectives

Payments Options:
1. Disperse payment times

Support Options:
1. Extend SOLAS training to ecologists and other project team positions
2. Build on existing project capacity elsewhere
    a. Increased seasonal capacity in Winter in ACRES
3. Develop a long-term workforce plan
    a. Include strategies to secure expertise from agriculturalists, ecologists, project managers, administrators, IT specialists
4. Establish mentoring / peer to peer initiative for project team
5. Develop Waters of LIFE into a career pathway for third-level graduates by working with higher and further educational institutions to:
    a. Approach department heads
    b. Attend career fairs
    c. Market shortterm contracts.

IT and Technology Options:
1. Work with stakeholders to determine IT infrastructure needs to scale the project model
2. Establish a forum for data owners to develop data sharing agreements (including common data rules and principles) and strategies, involving ICHEC.
3. Designate an IT liaison between the DAFM and project team

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4. Deploy software that can be sustained, upgraded, and integrated in the future with other systems
5. Develop participant dashboard for reporting
    a. Tailored for different stakeholder groups.

Collaboration and Coordination Options:
1. Produce a report mapping stakeholder interests and point of disagreement to inform strategic actions to encourage alignment
2. Establish a monitoring group to perform ongoing evaluations and facilitate feedback between the project team and local stakeholders

4.11 Technology and IT

Options for Technological and IT Solutions:
1. Integrate data into a centralised database that can be shared with stakeholders:
    a. Adopt a model to harmonise data sources (similar to Irish Cattle Breeding Federation's approach)
2. Review how other projects have implemented technological solutions
3. Work with the Department of Agriculture to identify appropriate administrative systems
4. Trial novel technologies for the purposes of monitoring and verification:
    a. UAV's for visual assessment
    b. Thermal imagery
    c. Remote sensing
    d. Chem-catchers
    e. Auto-samplers
    f. Light Detection and Ranging (LiDAR)
    g. Data loggers for nutrients
    h. Satellite Imagery e.g. Planet
    i. Artificial intelligence/Machine Learning
    j. Geographic information system (GIS)
    k. AgriSnap
5. Develop digital applications:
    a. Digital scorecard app with standardised scorecards
    b. Digital scorecard app with tailor-made scorecards
    c. Virtual training materials, including videos and manuals
    d. Real time data of local area linked to remote sensors
    e. Pesticide app to track incidents
    f. Website page for each catchment with visuals, targets, and resources
    g. Signs in local communities that can display real time data
6. Coordinate the use of different technologies to effectively asses their utility and impact.

5 Report Summary

Given the importance of water quality to nature, production and communities, Waters of LIFE has an important role in developing clear objectives that will provide tangible benefits to the people and landowners within each of its catchment areas. Furthermore, through its success, the project can demonstrate how an integrated and flexible results-based approach can be scaled at a national level with impacts for society.

This initial consultation effort has highlighted options for various key elements of the project's results based payments scheme (RBPS) . It will be a locally-led, locally adapted integrated approach, empowering landowners and their communities to take ownership of protecting and restoring the nature that surrounds them. The objectives of promoting and maintaining high status waterbodies will be achieved through measurable indicators that are appropriate to contexts in which they are used.

The project RBPS will not only be tailored to local environmental conditions for the purpose of measurement but also be cognisant of other local factors or characteristics. It has been recommended that consultation with people at a local level be an important aspect of the project. Robust governance and review structures ensure the voices of community members are heard. The flexibility of this long term project will be critical in the context of responding to changing environmental conditions and policy contexts.

Waters of LIFE aims to pioneer technological solutions that will respond to the challenges with monitoring and verification; by trialling innovative solutions that give landowners ownership of scoring their own land. The importance of compliance will be emphasised and complemented with ample support, training and advice mechanisms.

The effectiveness of the Waters of LIFE RBPS will depend on close coordination and collaboration with partners from local groups, national agencies as well as Government Departments. Within this cooperation, the project will actively trial and identify best practices that can be scaled to a national level, supporting the future development of other projects and schemes that will safeguard and celebrate Ireland's most pristine waters and the communities that rely on them.

The next step in this process is to bring these recommendations, models and options for implementation to the attention of other stakeholder groups. It is expected this next phase will expand upon and enrich the content of this report, and will ensure the project objectives and purpose are shared with those that it seeks to work with.

Appendix 1

List of Organisations that Participated in Workshops

Local Authority Waters Programme

Department of Agriculture Food and the Marine

Department Housing Local Government and Heritage

University College Dublin

The Forest Service

ACRES West Connaught

ACRES Donegal

The Farm Peat EIP

IRD Duhallow

Environmental Protection Agency

National economic and social council

Teagasc

Waters of LIFE Project Team

National Parks and Wild Life Service

National Biodiversity Data Centre

Burren Programme

An Forum Uisce

Irish Centre For High End Computing (ICHEC)_