

# NORTH DEVON BIOSPHERE RESERVE CATCHMENT MANAGEMENT PLAN 2014



United Nations  
Education, Scientific and  
Cultural Organization

**NORTH  
DEVON'S  
BIOSPHERE**

Part of the  
World Network of  
Biosphere Reserves





### About the North Devon Biosphere Catchment Partnership

The North Devon Biosphere Catchment Partnership is hosted by Westcountry Rivers Trust and Devon Wildlife Trust. The aim of the partnership is to bring together a wide range of stakeholders to secure better outcomes for the environment through our river catchments. The partnership works with a wide range of stakeholders who are committed to improving the condition of our rivers and streams.

This includes the Catchment Restoration Fund, Taw River Improvement Project, North Devon Nature Improvement Area and the Catchment Sensitive Farming partnership to name but a few.

### About the North Devon Biosphere Catchment Action Plan

The aim is to improve the health of the catchment of the North Devon UNESCO World Biosphere Reserve through integrated action that will support environmental, social and economic outcomes that will optimise the ecosystem services it provides. We will adopt the most cost effective measures and seek to use the most efficient means through partnership working.

### Vision for North Devon Biosphere Catchment Partnership

- The benefits that the catchment provides are understood by stakeholders, who are fully engaged.
- Agriculture and water treatment meet the WFD targets, and all bodies and stakeholders work together efficiently
- To have met the challenging targets to improve water quality, water supply and flood protection. Widespread understanding and support of the target has motivated many people to change their practices to make a positive contribution.
- There is increased creation and connectivity of habitats, whilst controlling invasive species
- Regular monitoring and action allows wildlife to flourish in the catchment area
- Communities embrace and celebrate waterbodies in their local environment whilst their enthusiasm and knowledge is sought as part of decision-making processes. Recreational use of water has increased in a sustainable way.
- It is clear to all that the environment of the catchment area has improved and is more resilient to climate change



## Summary of current catchment issues

### Resource Management

- Sediment and Nitrate run off from agriculture

### Water Quality

- In 2009 only 36% of water bodies in North Devon were classified at good ecological status (GES) or better.
- Diffuse pollution accounts for 50% of the water bodies failing. This is linked mainly to agriculture and land management practices
- Pollution from waste water accounts for 25% of the reasons for not achieving good ecological status.
- 95% of nitrate pollution in the estuary is catchment related

### Flood Risk Management and Sustainable Drainage

- Land management is causing issues particularly soil erosion
- Water storage and flow attenuation is not as effective as it could be.

### Recreation and Understanding

- Limited access for the public to the catchment including its water features other than the coastal areas.
- Estuary and coastal areas carry the risk of damaging wildlife disturbance

### Biodiversity

- Non-native Invasive species are perceived to be causing a measurable effect on local biodiversity
- There is a historic trend of fragmenting habitats across the area
- Siltation in the rivers impacting on fish habitat
- There are still significant barriers to migratory fish species
- Freshwater Pearl Mussel population is still moribund.

### Investment

- Significant investment has been put into the catchment through various measures such as Nature Improvement Area, Catchment Sensitive Farming, Taw River Improvement Project, to name but a few. These have been in the order of £8M between 2012 and 2015.
- Recent work has seen an upturn in the status of 7 waterbodies for phosphate
- Similar or larger investment is required in the future to achieve the differences in the water bodies by 2020.



## Goals

To meet the shared vision for the North Devon Biosphere Catchment, our goals are;

**Land Management** Reduce run-off, and soil, nutrient, pesticide loss and link habitats and access

**Waste Water Management** Reduce nutrients and faecal bacteria in watercourses from public and private waste water

**Flood Risk Management and Sustainable Drainage** Reduce and slow run-off and increase aquifer recharge

**Recreation and Understanding** Increase sustainable use of, and learning about, water and wetlands

**Biodiversity** Increase creation and connectivity of habitats, whilst controlling invasive species

**Investment** Increase, combine and attract new funding for projects

To achieve our goals we will encourage and promote:

- (i) Uptake of cost-effective sustainable measures by individuals
- (ii) Targeting of the right measures in the right places for multiple benefits, focussin on the waterbodies with poor status first.
- (iii) Close working between different organisations and groups

By 2027, we want to see:

- Rivers meeting requirements of European legislation and local aspiration
- Nature conservation areas achieving national and European guideline standards
- No raw water supplies regularly at risk of failing drinking water standards





**Mission:** *To improve the health of the catchment of the North Devon UNESCO World Biosphere Reserve through integrated action that will support environmental, social and economic outcomes that will optimise the ecosystem services it provides. We will adopt the most cost effective measures and seek to use the most efficient means through partnership working*

## Resource Management

Reduce run-off and soil, nutrient, pesticide loss and link habitats and access

- Make surface water run-off risk maps available to farmers to help locate effective measure [Obj 13]
- Engage with farmer and their adviser to get their views on effective environmental land management measure and how best to incentivise these [Obj 9, 25]
- Agree with all interest groups, suitable key locations for targeting environmental land management measure to provide multiple benefits [Obj 10, 23, 27, 29]

## Water Quality

Reduce nutrients and faecal bacteria in watercourses from public and private water

- Raise awareness about and address the effects of misconnections, washing products, waste disposal, and septic tank mis-use [Obj 15]
- Ensure consistent regulation of the agriculture and water industries supported by legislation [Obj 1, 25]
- Establish woodland, intertidal, and Grassland creation/conservation to act as sinks for various chemicals [Obj 3]
- Improve low flows in streams for adequate dilution [Obj 11]
- Improve sewage interventions to reduce pollutants entering watercourses [Obj 8, 12]
- Develop Northam Burrows flood and coastal risk management plan [Obj 30]

## Flood Risk Management and Sustainable Drainage

Reduce and slow run-off and increase aquifer recharge

- Manage and create woodland, intertidal habitat and Culm Grassland in locations to attenuate flows and reduce tidal flooding [Obj 2, 3, 4, 14, 16]
- Provide land management advice and support to reduce soil erosion and compaction [Obj 7]
- Bank Profile Assessment will form part of the realignment of flood defences [Obj 18]
- Northam Burrows flood and coastal risk beach management plan [Obj 30]
- Splitting and diverting highway run-off via retrofitting and SUDS which will improve water capacity holding in combined storm overflows [Obj 8]

## Recreation and Understanding

Increase sustainable use of, and learning about, water and wetlands

- Reduction in disturbance to wildlife from recreation too ensure there is more wildlife for all to view and enjoy responsibly [Obj 20]
- Create more opportunities for the public to engage positively with their environment [Obj 19, 21, 22, 24]

## Biodiversity

Increase creation and connectivity of habitats, whilst controlling invasive species

- Improve the connectivity of habitats especially woodland and Culm grassland through land management advice and grant support [Obj 3, 4]
- Reduce invasive species [Obj 4]
- Intertidal conservation and reverting areas back to its natural state [Obj 5]
- Remove barriers to fish migration in the catchment [Obj 26]
- Improve sewage interventions to allow fauna and flora to be in a healthy environment [Obj 6, 17]

## Investment

Increase, combine and attract new funding for projects

- Seek funding opportunities around sustainable catchment management and climate change adaptation, with European partners where necessary [Obj 28]
- To achieve our goals we will encourage and promote:
  - Uptake of cost-effective sustainable measures by individuals
  - Targeting of the right measures in the right places for multiple benefits
  - Close working between different organisations and groups





## Resource Management

*Goal: Reduce nutrient run-off and soil loss and to improve soil management.*

### Issues

Soil being washed from farmland is impacting on the spawning gravels in the rivers and reducing the recruitment of salmon and impacting on the viability of other river species. Nitrates and phosphates running off the farmland are diminishing the water quality of the rivers and the estuary.

### What is Happening

The England has a Safeguarding our Soil strategy which recognises the ecosystem services provided by well managed soils.

### Catchment Sensitive Farming

In 2009 the Taw Torridge and North Devon Streams Catchment Sensitive Farming Partnership was formed by Natural England, Environment Agency and North Devon AONB and Biosphere Reserve. Since 2009, the partnership has carried out work on reducing diffuse pollution from agriculture in the priority catchments within the Biosphere Reserve. Funding has been available via a Catchment Sensitive Farming Capital Grant. There have been combined actions with the Taw River Project and the Nature Improvement Area with interventions on bankside management and field management also. Soil investigations on the Culm have shown that Culm grasslands store twice as much soil organic carbon as intensively managed grasslands. Furthermore, the water quality is significantly better in terms of nitrogen, phosphorus and sediment levels, suggesting that Culm sites can act as natural filters to provide clean water downstream.

### Hartland catchment streams community monitoring group

The Hartland Environmental Action Partnership has agreed to test the water quality in various streams around Hartland by monitoring the invertebrates in the streams to determine a baseline and any changes in water quality. Sampling is done every 2 months as a minimum. Similar work is being done in the NIA with the Riverfly project.

**The Nature Improvement Area** offer three soil aerators which we loan to farmers free of charge to reduce and relieve soil compaction, helping water to infiltrate and reduce run off. They also promote better grass growth and uptake of nutrients. Similar service is offered by the Farming Wildlife Advisory Group have provided new tillage/machinery etc, tyre pressures in the Taw catchment.



## Estuary Management plan

The Taw Torridge Estuary Management plan 2010-2015 seeks to safeguard the sustained development of the Estuary. The plan focuses on the issues affecting the Estuary only, due to their being other strategies supporting North Devon as a whole.

- Support local farms which enter higher-level stewardship agreements
- Continue to promote catchment sensitive farming using leaflets, workshops and farm visits and
- Encourage farms to enter the high level stewardship scheme
- Ensure legal minimum standards are met for sewage discharges appropriate to the use of the receiving water complying with Water Framework Directive
- Continue to promote existing schemes e.g. Environmental Stewardship to encourage a reversal intensification of farmland.

## Action required

- RM1- Water framework directive data gathered and aligned
- RM2- Campaign on leaks and water consumption
- RM3- Landscape scale wetland restoration
- RM4- Farming improvements
- RM5- Retrofit SUDs to Highway Network
- RM6- Invest in peer to peer advice and guidance on effective land management measures and how best to incentivise these
- RM7- Land use capacity studies
- RM8- Ensure EA licensing for reductions are applied
- RM9- Increase storm storage pot for CSO's in and around estuary and treatment
- RM10- Encourage SWW to access the non PR14 funds to address combined sewers areas
- RM11- Make surface water run-off risk maps available to farmers to help locate effective measures





# Water Quality

## Goal:

*To reduce nutrients and bacteriological loading in waterbodies from public and private waste water and improve low flow volumes to improve dilution*

## Issues

Analysis of the estuarine waters suggests that 97% of nitrates in the water catchment are coming from agricultural run-off, 3% is coming from Sewage Treatment Works.

As a tourism area the local economy is very dependant on the water quality for recreation.

Estimates recently put the annual value of water sports in the Area to be around £55million per annum. Instow bathing water is of poor quality and struggles to meet the mandatory standards for the EU Bathing water directive and could be declassified as a bathing beach. However the waters around the beach are used extensively for other water borne recreation.

Other beaches are either moderate to good bathing water quality [\(add map\)](#) and are important for surfing. Scuba-diving is also a key activity in the area. The areas celebrated biodiversity is dependant on good quality water.

Commercial shellfish harvesting for consumption and for restocking other areas also requires that good quality water is maintained. The waters seem to be capable of produce Class B shellfish under the Hygiene directive, but neither consistently nor everywhere. There are shellfish waters that do not meet EU standards.

Development proposals are placing strains on the sewerage capacity leading to downstream impacts either through storm overflows or requiring more dilution from increase summer flow rates.

## What is happening

The Water Resources and Environment Protection Act and other legislation regulate discharges, abstraction, structure and other activities that can affect watercourses and fish.

## Sewage

The Environment Agency are working together with South West Water to address major sewage issues including:

- Targeting misconnected sewers in Combe Martin/Ilfracombe
- Upgrade Lorna Irwin pumping station which deals with household treatment works
- Constructing water interception tanks at Combe Martin
- Works on STWs: Phosphate stripping etc





## Agriculture

- Research is key to improving waste water management for agriculture. North Wyke is integrated with Rothamsted research where they work on demo studies on droughts, structure, crops etc
- There is a wealth of agricultural advice and investment available for example; Catchment Sensitive Farming, Farming and Wildlife Advisory Group, BC, Devon Wildlife Trust, Westcountry River Trust, IYE, Agronomists – each only with target areas, Advice leveraging stewardship schemes and agricultural advice TRIP advice, NIA advice, Working Wetlands group
- The Environment agency target inspections of regulated facilities and farms. They conduct wet weather walk overs of farm land to see how the water is flowing off the land so these areas can be targeted to reduce run off - EA: continued WFD Monitoring and fish surveys

## Action required

- WQ1- Riparian buffer strips (3m – field/woodland scale) – where soil and land management most risky
- WQ2- Establish woodland, and culm grassland to buffer low flows.
- WQ3- Ensure river flow ( Q95 is the flow exceeded 95% of the time)
- WQ4- Ensure guidance and clarity on regulation, legislation and enforcement
- WQ5- Community Engagement and education for better practice – waste; chemicals; septic tanks
- WQ6- Septic Tank, waste disposal, washing products and the effects of misconnections awareness
- WQ7- Training of farm advisors (eg. Agronomists) – reduce unnecessary chemical application
- WQ8- Programme of high quality farm and advice and investment: pesticides; nutrients; soils; compaction
- WQ9- Advice on Woodland management and extraction techniques to reduce sediment issues.
- WQ10- Assess the contribution of inland CSOs and bathing waters
- WQ11- Prevent pollution incident from landfill sites in vulnerable coastal locations





# Flood Risk Management and Sustainable Drainage

## Goal:

*To reduce and slow run-off in peak events to minimise the frequency and extent of flooding of homes and property.*

## Issues

Government demands on Local Authorities to increase development, which puts pressure for growth on inappropriate areas

Land-use and land management is impacting on the rates of percolation and overland flows of water.

## What is happening

### Woodland Creation

The Silvanus trust, with assistance from TRIP, offers free advice to land owners about managing woodland and woodland creation, support with identifying and applying for funding/grants, and outline management plans for next steps and ongoing support

### Flood Defence Improvement

The EA conducted a study for Barnstaple in response to Climate Change and Sea level rise

- Borehole abstraction – unknown scale, impact, abstractors
- Modelling: Flooding maps, surface water flood maps, Catchment Abstraction Management System, Flood studies.. (EA, councils, SWW)

### Culm Grasslands

Exeter University has found that Culm grasslands can store up to five times as much water as intensively managed grasslands, reducing downstream flooding.

**Riparian Buffer Zones** – Westcountry Rivers Trust; Devon Wildlife Trust, Biosphere Reserve and Silvanus have all been involved in giving advice and grants to encourage better management of the riparian zone to install buffers that reduce flows from the land into the rivers.

### **Dartmoor and Exmoor MIRES**

Mires are peat accumulating habitats - such as blanket bogs, valley bogs and fens. The MIRES project main aim is to restore the Mires on both Dartmoor and Exmoor which will have the benefits of water attenuation and improved water quality. Peat acts as a carbon sink, therefore restoration will increase carbon storage and work towards mitigation of climate change. The project started in 2010 and will run for 5 years.

### **Action required**

- F1- Small scale natural flood management – field ponds, woody debris, riparian woods,
- F2- floodplain wood strip, floodplain reconnection, riverbank maintenance
- F3- Flood and abstraction modelling to support funding justification
- F4- Farming improvements – buy in for reducing compaction, change in practice (contour ploughing) rainwater harvesting, yard drainage long term grants (10 years)
- F5- Education – TRIP results etc..
- F6- Bank profiling to enable flow energy to dissipate and flood less valuable sites





## Recreation and Understanding

### Goal:

*Increase sustainable access to, use of, and learning about water and wetlands*

### Issues

Limited access to green spaces and water features other than on the coast  
 Reducing levels of engagement by people with their natural environment  
 Public knowledge of water quality

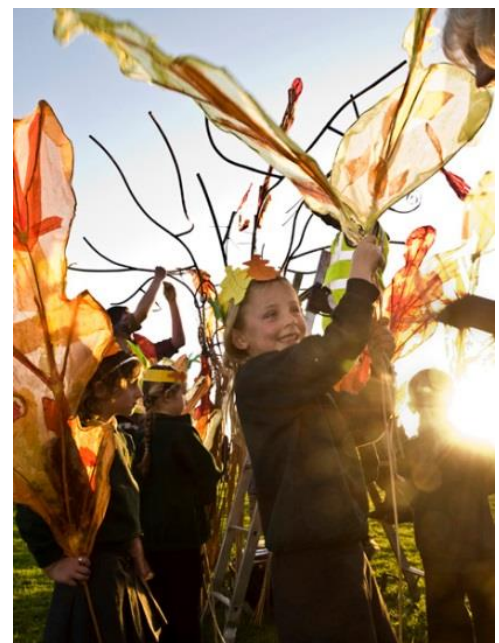
### What is happenng

#### National Parks

The National Parks are being used as a resource to assist Health and Well Being Boards to deliver the public health benefits. The National Park Authorities that administer them, alongside a range of partners are also behind a number of initiatives to promote health and well-being outcomes.

Dartmoor and Exmoor both offer educational days including;

- Exmoor National Park organise training days at the park with a range of topics including; otter surveys, fritillary, night jar, crayfish, and bat surveys etc...
- Bogtastic Open Days
- River activities such as River Dipping





## AONB

Clean Marine Project aim is to engage the community in cleaning their local beaches, and having an ability to react quickly to quickly arising pollution issues, Boat stories, which is a series of ten short documentary films about people whose lives revolve around fishing

## Nature Improvement Area

The Northern Devon Nature Improvement Area (NIA) is one of 12 nationally important landscape scale wildlife schemes across England. So far the project has held 137 community events, taken 47 school groups out on site, and held 32 land management workshops since 2012. As in other areas of the Biosphere Reserve they have been encouraging the development of community groups to learn about their local environment and take care of it.

## The North Devon Biosphere

Manages the Tarka trail and the section of South West Coast Path which runs through the Biosphere.

Over 200 community events

It has delivered a variety of projects to reach out to the community with including;

- Trampler Access – improving and increasing access
- Beaford Arts support
- Outdoor theatre
- Art in the Landscape
- Easy access trails
- Lifes Journey project around the Tarka trail where 1250 hours of volunteer time were given
- 2013 BioBlitz over 250 volunteers and 762 separate species found in the Woolacombe area
- Rolle Canal paths were improved to help people access canal features.



## Actions required

- R1- Engage people with marine and catchment environment through culture and heritage for local and visitors
- R2- Provide information to all on recreation and sport opportunity without disturbing wildlife
- R3- Bathing water – better information
- R4- Coast paths – valuable resource and popular with tourists
- R5- Green infrastructure strategy
- R6- Identify where to plant new woodlands to provide public access and deliver range of ecosystem services through woodlands



# Biodiversity

## Goal:

*To increase the creation and restoration of valued habitats such that their connectivity and viability is increased whilst controlling invasive species.*

## Issues

Habitats have been increasingly fragmented with patch sizes smaller than the viable threshold and functional connections between them being restricted.

There are 5501 Ha of Ancient Woodland in the Biosphere Reserves of which 2583 are superimposed with plantations. Direct connectivity between the sites is weak but secondary woodland is providing some improved connectivity.

Invasive species are gaining ground in the area, though there are no data to formally record their progress. The invasive species are sometimes host to native plant pathogens such as rust fungus and wilt diseases in trees. Species include:

- Japanese Knotweed
- Himalayan Knotweed
- Himalayan Balsam
- Crocosmia
- Parrot's feather within Braunton marsh
- Sargassum muticum in coastal areas
- Rhododendron

## What is Happening

### Culm Grassland

The Culm grasslands are internationally important habitats and are becoming increasingly rare and scarce due to agricultural improvement, particularly in the lower Taw valley. The current known extent of this habitat in the Biosphere Reserve is 4098ha.

- The Nature Improvement Area Project and the Devon Wildlife Trust's Working Wetlands Project is aiming to restore, recreate and reconnect 2040 ha of culm grasslands throughout the Devon area
- Aim is to secure 75% of key existing semi natural features in favourable condition by the end of the project.
- The total for the priority areas is approximately 65,000ha, the majority of which is in the Biosphere Reserve.



## Exmoor and Dartmoor Mire Projects

Exmoor and Dartmoor both have blanket bogs known as Mires. They support a wide range of biodiversity and are important habitats.

To improve and recreate blanket bogs Exmoor and Dartmoor are running a Mires project from 2010-2015 to reinstate blanket bogs.

Extensive vegetation monitoring by the EMRP has revealed that ditch blocking has successfully encouraged an increase in abundance and richness of plant species associated with wetter conditions. Aquatic invertebrates have also benefited from increased pools of water.

## Coastal and Marine

The coastal and marine area of North Devon includes Braunton Burrows, and rare salt marshes, both important areas for biodiversity.

- Minimum landing size is being investigated for Skates, Rays and Seabass by IFCA
- IFCA is working on new byelaws to protect the local fish stocks relevant to Devon
- Seascape assessments to assess, characterise, map and describe the seascape character
- Taw/Torridge Estuary strategy
- Lundy is the first Marine Conservation Zone in the UK, with a no take zone around part of the island. The second tranche of MCZs is being evaluated at present and the Biosphere is hopeful 3 new sites will be created in North Devon
- Coastwise is a local group who monitor intertidal biodiversity and shares records with organisations.

## Rivers

Taw River Improvement Project (TRIP) works with a range of partners, and one its core aims is to improve biodiversity and to return the river to its natural state. This includes fish migration improvements, buffer zones, fencing off the river, gravel cleaning to improve spawning habitat

The North Devon Biosphere Service is arranging surveys to help the survival of the critically endangered freshwater pearl mussel.

## Invasive Species

Various groups have been tackling knotweed by pulling and herbicide treatment. Under the Woodland management grants, Forestry Commission had been funding the removal of rhododendron. *Saragasum* is monitored and removed on Lundy.

## Woodland and Hedges

- Plantations Ancient Woodland Sites restoration – Woodland Trust has project in place to support landowners restore PAWS sites in the area.
- Planting/management – supported by FC grants. Targeted advice has been given through the NIA and TRIP
- Forestry Strategy – Biosphere Reserve has an integrated forest strategy to improve connectivity and the viability of woodlands across the Biosphere Reserve.
- Ward Forester is a programme to give advice to a group of owners



*Image taken from dartmoor-npa.gov.uk*



to achieve economies of scale in forest operations.

- Devon Hedge Group promotes the conservation and good management of hedges and seeks to identify their economic value.

National Trust produces whole farm plans, that include action for habitats and species; and invasive species management

Woodland Trust supports woodland planting schemes and PAWS restoration throughout catchments plus they carry out site management on their own woodlands.

### Actions required

- BD1- Increase the area of good quality culm grassland habitat through supporting long term management plans, scrub clearance and grassland re-creation
- BD2- Improve healthy fish populations through the reduction in invasive species and improved riparian strip management
- BD3- Support woodland creation to provide connectivity and provide cooling in critical areas through a variety of schemes to work with landowners to have riparian planting schemes, and on other suitable land
- BD4- Integrated & co-ordinated effort to improve species and habitats
- BD5- Review effectiveness of current regulation and enforcement (of legislation & incentives/schemes) to protect species and habitats.
- BD6- Improve the health of shell fish populations and estuary fauna by increasing areas of intertidal habitat
- BD7- Improved access to upper catchments for migratory species through the removal of weirs and other obstructions
- BD8- Improve ecological potential in rivers that have been impacted by historic structural modifications through bank reprofiling, managed realignment of flood defence. Modification of structures.
- BD9- Preserve and where possible enhance ecological value of marginal aquatic habitat, banks and riparian zone (Habitat restoration) through the removal of hard bank reinforcement/revetment, or replacement with soft engineering solution.
- BD10- Increase biodiversity potential in river habitats.







## Investment

Goal: Increase, combine and attract new funding for projects and deliver them in the most cost effective approach.

### Issues

Finance for catchment related activity is limited and competing with other government, EU and non-government funds. The partnership has been effective and bringing wise use of funds and collaborations to deliver projects across the area. However the level of future funding is possibly even higher than it has been over the last 5 years.

### What is happening.

Lead applicants for projects are chosen on the basis of most suitable, having capacity and willingness to work in partnership. For example:

- TRIP is a catchment restoration fund project hosted by Westcountry Rivers Trust on behalf of the Biosphere Reserve Partnership valued at around £1.8M
- The North Devon NIA is hosted by DWT on behalf of the Biosphere Reserve Partnership valued at £3.6M
- The Biosphere Reserve Foundation, a charity for sustainable development holds and applies for funds for the Biosphere Reserve partnership.
- The Tarka Trust has been a key provider of funds held in trust to support the TRIP project.

### Actions Required

- IV1- Assess the activity required to deliver the aspirations of the catchment strategy and identify the actions with multiple benefits
- IV2- Identify the funding streams available and agree a fund raising strategy with partners
- IV3- Identify the actors best suited to achieve the actions for the long term.
- IV4- Tackle the poor catchments first, where it is shown to be cost beneficial.



Appendix 1  
The table of actions and objectives

Appendix 2  
Actions and locations inc Maps

