

Case studies

Key to symbols used in the case studies



Partners involved



Location of case studies



Date and duration



Mechanism used



Funding source and
amount (where information
is available)

Allan Water Improvement Project

Bridge of Allan, Scotland

Type of mechanism

Advice and technical support

Brief description

The Allan Water drains an area of approximately 210 square km. A range of habitats exist along the river banks including upland moorland, woodland and productive agricultural land.



Over time with growth of urban zones, forestry and agricultural production, changes have been made to the course and morphology of the river which have subsequently led to changes in its character and patterns of flooding.

SEPA commissioned a natural flood management (NFM) scoping study to assess the opportunities for restoring habitats to reduce flood risk from the river. The proposed flood management measures look at the full course of the river and catchment, and aim to slow the flow in the upper sections of the catchment and restore the natural morphology of the river in sections where this is possible.

Details of mechanism

The scoping study investigated factors influencing the ability to implement NFM measures with the ultimate aim of developing an NFM strategy for the catchment. The work was overseen by a Steering Group including representatives from local authorities, government agencies and RSPB.

The following were recorded as the results of the study:

- Comprehensive catchment reconnaissance survey was undertaken;
- A broad scale catchment restoration strategy was developed;
- The most cost effective NFM measures within the Allan Water catchment were identified via a detailed option appraisal;
- The hydrological benefits of each option were tested;
- The NFM measures were considered alongside social, environmental and economic contexts;
- The River Knaik riparian corridor was adopted as a pilot project, with the Allan Water Natural Flood Management Programme (AWNFMP) set up to restore this corridor;
- A secondary pilot project was identified as the restoration of the Allan Water between Greenloaning and Blackford (which had additional scoping undertaken); and
- A monitoring strategy was developed, and compared to the desirable levels for large catchment scale restoration.

Payment/advice structure

The Allan Water Improvement project has the following aims:

- Reduce the speed of flow in the upper parts of the catchment; and
- Restore channel meanders to encourage flooding in manageable areas lower in the catchment.

The measures proposed to achieve these aims are:

- Soil bunds
- Channel alteration
- Ditch blocking
- Tree planting
- Retention ponds
- Wetland creation

There was no capital or annual funding for measures available directly from the scoping study, although the implementation plan proposed that the ground works costs be covered (at least partially), from SEPA's Water Environment Fund. For example, if a Water Environment Fund grant was available, the project team would be able to promote discrete restoration projects by matching funding opportunities with interested land managers and the identified natural flood management techniques. Other funding streams identified included SRDP, LEADER or the Heritage Lottery Fund. These would have to be led by the parties eligible to apply, so there is no single applicant.

Impacts for land manager

This case study focuses on the scoping study as the mechanism. Where the recommendations are taken forward (note that some measures have since been implemented), depending on what is chosen, they would result in some changes to land management. It is expected that capital and potentially annual management grants would be secured to cover some of these costs and the loss of income, particularly in the case of the riparian corridor restoration.

Impacts for the public body

Various public bodies and local authorities were project partners, and SEPA funded the original scoping study. The Scottish Government grant funded the project management, which has now been taken over by the River Forth Fisheries Trust. For any mechanisms to be taken forward, it was suggested that capital and annual grants would be pursued from sources such as SRDP, LEADER, SEPA or the Heritage Lottery Fund.

Barriers

None identified (in the scoping study)

Highlights

Comprehensive scoping study completed, identifying useful funding sources, project management and monitoring ideas. The Allan Water Improvement project is on-going. A project manager, employed by the River Forth Fisheries Trust and funded by the Scottish Government, is working with farmers to implement measures, e.g. woodland planting and managing land drainage.



SEPA, Scottish Government, River Forth Fisheries Trust, Perth & Kinross Council, Stirling Council, Forestry Commission Scotland, RSPB and SNH



River Allan, Bridge of Allan



2011- on-going



Advice and technical support



Scottish Government SEPA

Aquarius: Farmers as Water Managers Aberdeenshire, Scotland

Type of mechanism

Advice and technical support

Brief description

This project aimed to enable farmers and land managers as individuals or in groups to improve water quality and support the development of certain flood management schemes. Work included:



- Climate change review and identification of preferences of local stakeholder (farmers, land managers, local residents etc.);
- Determination of the feasibility of options, identification of demonstration sites and implementation of a pilot site; and
- Inform policy and funding mechanisms on measures required under the Flood Risk Management (Scotland) Act 2009.

The project started in March 2009 and had four phases which involved:

- Establishing the current conditions, predictions for climate change and its impacts, and the preferences of local stakeholders (farmers, local residents, land managers, statutory agencies, fishery interests, etc.);
- Exploring possible options, assessing their feasibility and identifying a possible pilot demonstration site;
- Implementing a pilot site; and
- Evaluating the pilot in order to inform policy and funding mechanisms for measures that will be required under the forthcoming Flood Risk Management (Scotland) Act 2009.

Payment/advice structure

The project did not reach a stage where any payments were issued to land managers or other stakeholders. The project highlighted other funding mechanisms which could fund the type of works required to improve water quality and support the development of flood management schemes.

Impacts for land manager

There were no adverse impacts to the land managers during the project. Land managers were encouraged to meet with partners and discuss how the pilot scheme would be implemented and what measures could lead to improved flood management but no on land activities were ever carried out.

Impacts for public body

In this instance, the local council and research institute provided funding for the pilot study, and also resources by way of advisors, researchers and technical staff. This input would have had budgetary implications. However, as part of the process, the local council would have been made aware of the preferences of local stakeholders in terms of measure type and financial implications.

Barriers

As this was a pilot study, none were identified.

Highlights

The pilot study brought various elements of flood management and water quality to the attention of participating stakeholders. They were also made further aware of climate change issues and the funding mechanisms to be included under the Flood Risk Management (Scotland) Act 2009.



Aberdeenshire Council,
Macaulay Land Institute



Aberdeenshire - Tarland



2009-2011



Advice and technical
support



European Commission,
Scottish Government Rural
Payments and Inspections
Directorate (RPID) and
Aberdeenshire Council

Belford Proactive Flood Solutions Northumberland, England

Type of mechanism

Capital grant via Environment Agency's North East Local Levy

Brief description

Catchment scale natural flood management in Belford, a small town in North East England which has flooded several times, notably between 1997 and 2007. Initially the Environment Agency looked at the feasibility of a traditional flood defence scheme.



The construction of a flood storage reservoir to capture a 1:50 year flood event at an estimated cost of £2.5m was recommended. However, this failed to receive Grant-In-Aid funding due to the low benefit-cost ratio as a result of the low number of properties at risk (30). This along with a perceived lack of space at the site for traditional means of flood defence led to the proposition of an alternative approach which involved the design and construction of 35 Runoff Attenuation Features (RAFTs).

Details of mechanism

The scheme was funded by a £200k payment through the Environment Agency's North East Local Levy, raised by the Northumbria Regional Flood Defence Committee through local authorities. The cost estimate for the RAFTs only was £70-£100k excluding consultancy and research costs.

Payment/advice structure

Compensation was paid to farmers as a one-off payment to cover disruption and the loss of land for farming. This was set at £1,000 per RAFT feature to ensure a consistent approach among neighbours. The project manager closely liaised with farmers to establish a process both parties could agree to. The Environment Agency mechanism involved a simple letter signed by both parties followed by the provision of a cheque to the farmers.

Impacts for land manager

No information has been identified to suggest that there have been significant impacts for land managers. There is only one feature (online pond) which has been recognised as needing ongoing maintenance and a 5 year de-silt agreement is in place with the farmer. Newcastle University continues to study the scheme using a detailed network of scientific instrumentation. Data show evidence of local scale flood peak reductions along with the collection of large amounts of sediment which has saved land managers money and prevented loss of land.

Impacts for delivery partner/LA

A 5 year agreement is in place for maintaining one RAFT with the rest viewed as being maintenance free. The de-silt agreement was negotiated as part of a discussion for new features on the farmer's land with no additional cost. Therefore there are no significant ongoing responsibilities. The Environment Agency Estates and Procurement teams were involved in phase 2 agreements and cheques but there has been no legal input.

Barriers to getting going

It took a significant amount of time to arrange meetings with farmers. Tact and patience are key skills and it is important to avoid being too focused on early delivery. It takes time to sit down with farmers and agree what can be done where. 'Institutional nervousness' is an issue where ongoing maintenance is not firmly defined and agreed. It should be remembered that these are simple features that do not need formal maintenance plans (in most cases).

Barriers to ongoing use

No known barriers to ongoing use.

Highlights

There is no simple recipe for siting or constructing a RAF. It depends on local factors, including land manager preferences and local terrain. The Belford scheme has shown that it is essential to engage with stakeholders, as this may encourage uptake.

Accessibility/applicability to Scotland

Applicable to Scotland - the approach has proven to be transferable to other similar catchments (for example the Newcastle NFM RAF).

References

Wilkinson et al (2010): Runoff management during the September 2008 floods in the Belford catchment, Northumberland. *Journal of Flood Risk Management* 2010, 3(4), 285-295.

Barber and Quinn (2012): Runoff attenuation features: a sustainable flood mitigation strategy in the Belford catchment, UK. *Area*, 2012, 44(4), DOI: 10.1111/j.1475-4762.2012.01099.x.

Nicholson et al (2012): Runoff attenuation features: a sustainable flood mitigation strategy in the Belford catchment, UK. *Area*, 2012, 44(4), DOI: 10.1111/j.1475-4762.2012.01099.x.



Newcastle University,
Environment Agency, Royal
HaskoningDHV, James
Hutton Institute, Durham
University, Northumberland
Rivers Trust, Arup



Belford, Northumberland,
England



1 February 2007 - 20 March
2008



Environment Agency's North
East Local Levy, raised by the
Northumbria Regional Flood
Defence Committee through
Local Authorities



£200k one-off payment for
scheme with a one-off
payment to farmers of £1,000
per RAF

Crook of Baldoon Nature Reserve Project Dumfries and Galloway

Type of mechanism

Land purchase (appeal and Scottish Natural Heritage (SNH) grant aid) and a funding package with RSPB plus match funding contributions from charitable trusts.

Brief description

In 2010 RSPB Scotland purchased 156 hectares of land at the Crook of Baldoon, on the western side of Wigtown Bay within Dumfries and Galloway in south west Scotland. The land purchased is adjacent to Wigtown Bay Local Nature Reserve (WBLNR). The area consists of 98 hectares of saltmarsh, designated as a Site of Special Scientific Interest (SSSI), 32 hectares of intensively farmed grassland and 26 hectares of short rotation coppice willow. In 2012, this area was increased by a further 40 hectares through the acquisition of some additional, adjacent farmland.



Details of mechanism

The initial phase of funding was for purchase of the land. This was primarily done through an appeal in early 2010 together with grant aid from SNH. Once the land was purchased, RSPB Scotland had to internally bid to increase its spend in the region over the two year period so as to secure the go-ahead on the condition that the RSPB could attract match funding. Successful bids to the Heritage Lottery Fund (£36,400), Dunard Fund (£5,000), Nancy Roberts Trust (£500), Barfil Charitable Trust (£1,000) and Gillman Trusts (£5,000) meant an RSPB contribution of £28,079. The Dumfries & Galloway LEADER Programme also contributed £32,000 with volunteer time equating to circa £4,200.

Payment/advice structure

One-off payment for land purchase and package of funds for project delivery.

Impacts for land manager

RSPB's acquisition of the land at the Crook of Baldoon means that the site is safeguarded for wildlife in perpetuity. Grazing on the saltmarsh (merse) has been reduced to improve the condition of the SSSI habitat. Monitoring has shown that the physical structure and floristic diversity of the merse has improved during the RSPB's ownership. The work to revert the improved grassland to wet grassland for waders and other wildlife is improving the site for wildlife of many kinds. For example, tadpoles, damselflies and dragonflies have been sighted in the new wetlands and various wading birds and wildfowl have bred. New community facilities have been created and numbers of visitors are increasing.

Impacts for delivery partner

As the RSPB has a long standing involvement in the management of the adjacent WBLNR since its inception, this project has essentially extended the area of conservation. It should also be noted that considerable discussions have taken place between RSPB, local wildfowling, local accommodation providers and others in reaching agreement on the levels of wildfowling that will occur next to the reserve. This has been necessary in order to avoid compromising the development of the reserve, whilst not adversely affecting other local recreational and economic activities.

Barriers to getting going

Time and effort in securing charitable funding to match funding from RSPB Scotland.

Barriers to ongoing use

Long term management and maintenance of the site will require further funding.

Highlights

Much of the work was carried out by staff, volunteers and local contractors. In addition to delivering the project outputs and benefits, this work also provided direct economic spin-offs for the local economy through local employment opportunities and attracting further tourism to the area.

References

RSPB (2013): Crook of Baldoon Nature Reserve Project. Final Report to Dumfries & Galloway Leader Programme, January 2013.



RSPB Scotland, Scottish Natural Heritage, numerous charitable trusts



Crook of Baldoon, Dumfries and Galloway



2010 until 2013



Land purchase and a funding package from a variety of contributors



£112,179

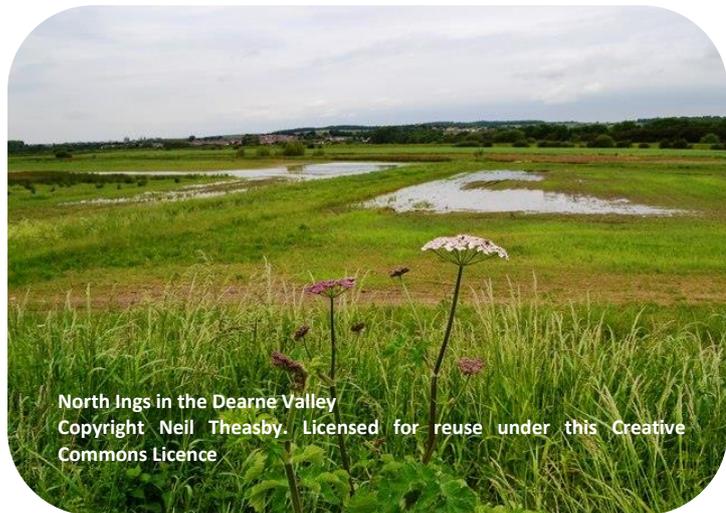
Dearne Valley Green Heart Yorkshire, England

Type of mechanism

Combination of advice, land purchase and lease transfer

Brief description

The Dearne Valley Green Heart (DVGH) is a Nature Improvement Area (NIA) located close to Barnsley, Yorkshire. The site is on a former coalfield and is made up of a mixture of farmland, wetland and woodland. Management of the NIA is undertaken by the DVGH partnership (Natural England, the Environment Agency, RSPB, wildlife conservation organisations, local authorities and communities); land within the NIA is owned by a number of the DVGH partners and private land managers.



The aim of the DVGH partnership is to restore, improve and create habitats within the NIA; these areas not only provide valuable ecological habitats, but also in many cases provide natural flood management (NFM) opportunities. To implement the measures and actions needed on private land, strong partnerships have been built up and compensation mechanisms are used. The Partnership provides targeted advisory work to encourage the restoration of woodland and farmland habitats. In addition to this, tenancy transfer and land purchase have also been used.

Details of mechanism

Targeted Advisory Work

Working with a range of organisations means that the DVGH partnership is able to draw on a variety of skills to provide a targeted advisory service to land managers. The partnership provides farm and land management advice to assist land managers coming out of Countryside Stewardship Scheme agreements. The partnership also has a dedicated NIA Riparian Mammal and Habitat Adviser to undertake land manager engagement and provide expert advice. The partnership holds monthly implementation meetings to address any issues and identify opportunities.

Within the Deane Valley a local farmer was using an area of land to grow corn for animal fodder; the RSPB was able to advise the farmer on how to switch to grazing pasture which would provide more biodiversity benefits. At the same time, as part of the NIA programme of work, the local council was reviewing the mowing regimes on its publicly owned and managed land. The council had previously been mowing 13 times a year as a part of a generic maintenance plan; this was a costly operation and was providing little biodiversity benefits. The RSPB provided free advice on an alternative mowing regime that would produce a more biodiverse annual hay crop, whilst also being cheaper to operate. By bringing both elements together, the local farmer was paid to undertake management of the new mowing regime and allowed to take the hay crop to replace the corn he had lost through switching to grazing pasture.

Land purchase

Within the Dearne Valley several land sales have been undertaken between public and private bodies. Typically during land purchase the purchasing body will approach the land manager and enquire about purchasing the land. The land can then be valued by an independent land valuer and negotiations can proceed.

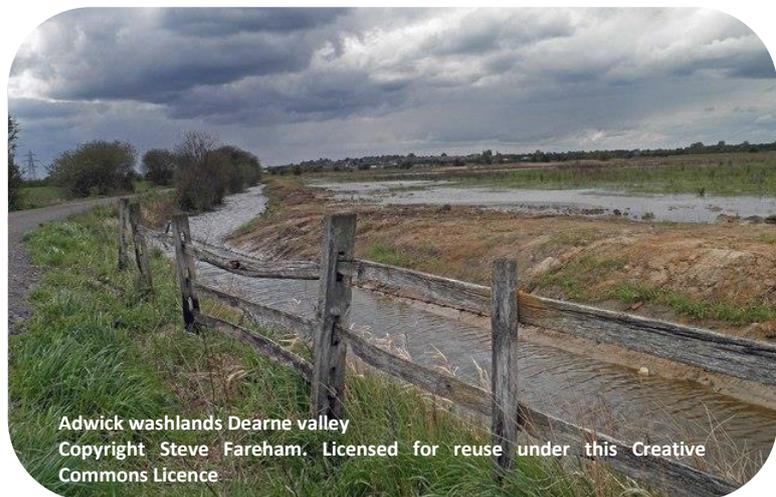
Land purchase has been used by a number of the partners such as the Garganey Trust, Environment Agency and the RSPB. However, land purchase is increasingly expensive and hard to achieve. In the Dearne Valley, the NIA has been a vehicle for the partners to work together to manage land in partnership, delivering multiple benefits more efficiently.

Tenancy transfer

Adwick Washland is owned by the Environment Agency and is a flood storage washland (the area takes excess water from the river when flows are high). It was leased to five farmers and drained to keep it dry for agricultural production.

Within the Deane Valley, the RSPB has secured long term leases (ca.100 years) on land to create nature reserves and restore habitats.

The RSPB and Environment Agency identified Adwick as a potential nature reserve and discussed the possibility of the RSPB taking over the lease. For the RSPB to secure the lease for the land, the Environment Agency had to negotiate with the tenant farmers to buy out and surrender their lease. The Environment Agency had the land independently valued and then factored in the existing lease terms (how long left to run for example). Initial offers were rejected but increased incidents of summer flooding and gradual waterlogging of the land, meant agricultural production became less economically viable for the farmers. The original offer made by the Environment Agency was eventually accepted and the lease was transferred to the RSPB. Although the lease has been transferred to the RSPB, the Environment Agency still retains the rights to use the area as a controlled washland and the RSPB habitat creation scheme took this into account, with the RSPB and Environment Agency working together to ensure that the scheme delivered enhanced flood storage capacity to help protect nearby communities.



Adwick washlands Dearne valley
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Payment structure

Land purchase requires a one-off payment agreed between the buyer and seller.

Lease transfer at Adwick Washland required a one-off payment (approximately 90% of the freehold value) to the tenant farmers to buy out the tenancies. The new tenant (in this case the RSPB) is required to make an annual payment to the land owner for the duration of the tenancy.

Impacts for land manager

Lease transfer – to transfer the lease the land manager had to buy out the current leaseholder, this required a one-off payment. Whilst information is not available on the details in this case, the process would have incurred additional costs through the independent valuation service. In the Adwick Washland example, the Environment Agency was able to include controlled washland rights in the new tenure agreement.

Land purchase – for a typical land purchase, solicitors are required for the transaction. Once sold, the previous owner relinquishes all rights to the land.

Impacts for delivery partner/LA

Lease transfer – to secure the transfer of a lease, the delivery body has to pay an annual rent on the land. In this particular case, the land was only available with restrictions attached (relating to the use of the area as a controlled washland); the RSPB's habitat creation scheme took these into account. However, in other situations, such restrictions may limit the delivery body's intended use of the land. It is also possible that at the end of the tenure, a land manager may not wish to re-lease the land.

Land purchase – when purchasing land for natural flood management, the transaction requires a financial outlay (by the delivery partner), along with solicitors and a land valuer.

Barriers to getting going

In general, negotiations for land purchase can take time and are dependent upon the current land manager or tenant wishing to hand over the land. Lump sum payments are needed along with land valuation. Limited or constrained budgets can make this option less feasible.

Barriers to ongoing use

Although not an issue for this case study, terms imposed on a lease can restrict the intended use of the land making ongoing use difficult or challenging. Short leases can also create a barrier to ongoing use.

Highlights

Projects like the DVGH that provide multiple benefits can encourage greater participation and facilitate partnership working. This in turn provides a project with a greater range of skills to draw upon for advice and support.

Use of an independent land valuer can reassure individuals that they are getting a fair price.



Natural England, the Environment Agency, RSPB, wildlife conservation organisations, local authorities and communities



Yorkshire, England



Ongoing since 2002



Combination of advice, land purchase and lease transfer



Mixed funding sources

References

Per. Comms Pete Wall, Project Manager RSPB. February 2015.

Elgin Flood Alleviation Scheme Moray, Scotland

Type of mechanism

Land purchase

Brief description

Elgin is one of Scotland's oldest towns and has grown along the banks of the River Lossie for over 900 years. The River Lossie, drains an area of approximately 270km² to the sea at Lossiemouth. Flooding in Elgin is not a new problem. The River Lossie has a documented history of flooding dating back 250 years.

The Elgin Flood Alleviation Scheme is Scotland's biggest ever flood scheme. The scheme fund extends to £86 million. The scheme involves a series of set-back flood embankments and flood walls.

The Elgin Flood Alleviation Schemes was confirmed by Scottish Ministers in December 2010, with construction starting in April 2011. It is due for completion in autumn 2015.

Details of mechanism

The primary mechanism employed was land purchase. This mechanism was used to secure land to undertake engineering works and structures such as set-back flood embankments, flood walls, bridges and flood channels.

Payment/advice structure

The scheme includes a vast amount of mitigation works to protect the town of Elgin from flooding. Construction of the scheme includes:

- 5km of set-back flood embankments to create a natural flood plain;
- Replacement of flood walls with earth banks;
- Creation of 21 hectares of lowered flood plains;
- Improvements to the water's edge and bank habitats;
- Creation of 300m of flood relief channels;
- 180m new diversion channel to protect New Elgin from the River Lossie backing up;
- Construction of three bridges; and
- Demolition of five residential properties and twelve commercial properties to create the space required for the new, wider river corridor.

The combination of set-back defences and lowered flood plain should allow flood flows to pass safely through Elgin. The scheme is designed to provide a current-day standard of protection of 1 in 200 years.

As well as alleviating the risk of flooding, the scheme also creates riparian wet woodlands, wet meadow habitats and increased amenity value of the water edge.

The project itself was completed with funds from the Scottish Government and Moray Council. Land managers were compensated by negotiation (and compulsorily if necessary) under the headings set of the Lands Compensation Act 1973.



In terms of the payment structure, land purchased for the engineering works would have provided compensation for the land managers under the headings of land take (i.e. capital value), plus additional sums for injurious affection, severance and disturbance, to be offset by any betterment as a result of the works. Significant levels of tree planting were proposed under the scheme, but it is unclear from the evidence available how this was funded and by whom.

Impacts for land manager

The compensation mechanisms for land purchase mean that the land manager is paid a sum based on the value of their property in a 'no scheme' situation. Any reduction in efficiency and viability from day-to-day operations are compensated for, so whilst in practical terms there may be extra working time, or profits from a smaller area, compensation is provided for these impacts. There are land managers potentially downstream who may suffer more as a result of these works, and it is understood that Moray Council made provision to compensate such affected interests based on the depreciation resulting from these changes.

Impacts for the public body

Such a major project had budgetary and resourcing impacts, as well as public relation impacts, planning costs and the legal costs of inquiries. However, the benefits of the business case for the scheme were valued at £88m, with an estimated whole life cost of £64m, providing a benefit: cost ratio of 1.4:1. The reduction in repair works, re-housing, assisting with flood damage, etc., and the reduced administrative burden form part of the cost savings to Moray Council.

Barriers

The main barrier relates to physically undertaking the works due to objectors to the proposed scheme, in terms of time, losses in the interim and associated costs of inquiries.

Highlights

The scheme will provide major benefits to the Elgin community, by improving transport links, reducing disruption due to flooding and subsequent damage, and protecting a large number of business and domestic properties. The ability of householders to access affordable insurance through Flood Re as of 2015 will be another benefit of the project.



Moray Council, Royal HaskoningDHV, Morrison Construction and EC Harris



Elgin, Moray



2011-2015



Land purchase



Moray Council and Scottish Government funding

Holnicote Exmoor, England

Type of mechanism

Advice and support, indirect payments and compensation payments

Brief description

The National Trust owned Holnicote Estate is situated in Exmoor National Park and stretches from the moors down to the coastline; the estate covers 90% of the total catchment area of two rivers. In 2009, Defra agreed to fund a multi-objective flood management demonstration scheme led by the National Trust and supported by the Environment Agency, JBA, Penny Anderson Associates Ltd, Exeter University and Wessex Water.

The aim of the project was to implement land management changes at the catchment scale such as moorland restoration, best practice land and soil management and interventions in flow pathways. The estate contains 14 tenant farms and 170 tenant cottages, so community buy-in to the scheme was essential for implementing the measures successfully. The tenant farms were held mainly under old tenancy agreements with no obligation to adopt the land management changes suggested by the National Trust.



Credit: National Trust

Details of mechanism

Demonstrations

To demonstrate to the community and farmers how land management changes could reduce flooding, 2D models were developed by JBA. These showed the current catchment flooding during different rainfall events and how this would change with different management options. This enabled the farmers to see exactly what actions could be achieved on their land. This helped to remove some of the uncertainty and provide reassurance.

Face-to-face/“kitchen table” discussions

Once farmers were interested, face-to-face or “kitchen table” discussions could begin. This was an engagement process utilising the strong and established relationship between the tenants and the National Trust. These discussions allowed both parties to put forward ideas, concerns and how to address them.

Compensation payments

One key project that developed past the discussion phase was the creation of storage bunds on a livestock farm. It was agreed that the bunds would be built during summer in fields that the farmer usually used for grazing and for cutting silage. The building of the bunds meant that the farmer would be unable to use the fields for grazing for nine weeks. Also, a small amount of that year’s grass would be lost. It was agreed that the farmer would be compensated for the loss of grazing and grass with a one-off payment.

The same farm suffered from soil poaching in riverside fields during wet periods in winter. Cattle could not be kept indoors because the existing barn was not big enough. It was agreed that the provision of a larger barn would enable cattle to be kept indoors and thus improve the soil management of the farm. Discussions were held to determine how much each party could contribute to the building of the new barn. It was agreed that the farmer, National Trust and the project would each contribute a third of the costs and that the farmer would be responsible for the future maintenance of the barn.

Free surveys

The project commissioned individual soil condition/management surveys for each of the 14 tenant farms. The resultant reports were sent out to each farm with suggestions on how soil management could be improved. Overall, the reports and free advice received a positive response with some farmers purchasing specialist equipment to help implement the recommendations, improving water holding capacity of the soil.

Indirect payments and funding recommendations

One arable farm growing wheat was identified as being susceptible to surface runoff and discussions were held as to how to change the cropping pattern. The project officer was able to suggest Natural England's Higher Level Stewardship scheme as a potential funding source for reversion to permanent grassland and woodland. This did have implications for the National Trust, because the farm rents are set partly on farm productivity. One consequence of this change from wheat production to grassland was a loss in farm income. To compensate for this the National Trust agreed to reduce the farm rent to reflect the income foregone.

Payment/advice structure

Most payments were offered as a one-off payment for either disruption or investment in equipment (barn for livestock). Annual monetary payments were considered at the beginning of the study; however these would have locked the National Trust into long term payment plans and were not considered suitable given funding restrictions.

A dedicated project officer was on hand to provide advice to the farm tenants and other stakeholders as and when needed. In addition to this, during the construction of the bunds the site/construction manager spoke to the farmer every day to share ideas and maintain a good relationship.

Impacts for tenants/landholders

None of the compensation mechanisms used is thought to have caused any long term impacts to the landholders.

Impacts for delivery partner

The National Trust avoided direct annual payments, so there are no ongoing financial commitments. Whilst the decrease in rental income is a cost, this is thought to be a small impact compared with the benefits resulting from the change from arable to grassland.

Barriers to getting going

There was some hesitation and at times negative responses to the advice given by the project.

Highlights

The key to implementing changes to land management and agreeing on suitable compensation mechanisms is establishing a good relationship between all parties based on open and transparent discussion.

References

Per. Comms Nigel Hester, Projects & Grants Manager National Trust. January 2015.



National Trust, Environment Agency, JBA, Penny Anderson Associates Ltd, Exeter University and Wessex Water



Exmoor, England



2009 - Ongoing



Advice and support, indirect and compensation payments



Funding from Defra and National Trust's own funds

Whole catchment management incorporating natural flood management on the Long Philip Burn, Selkirk

Type of mechanism

Capital grant/payments and land manager contributions.

Background

The town of Selkirk has a history of damaging floods deriving from the Ettrick Water, the Yarrow Water and the Long Philip Burn. In May 2003 the Bannerfield part of the town was inundated when severe flash flooding from the Long Philip Burn resulted in flooding of approximately 400 properties and millions of pounds of damages. This event also caused severe erosion within the upper catchment. A second flood event from the Long Philip Burn occurred in August 2004 and although this was of a lesser scale, it still resulted in extensive damage.



Flood waters through the Bannerfield housing estate (left) and at Selkirk Rugby Football Club (right). Photo credit: Southern Reporter, 2003.

The Long Philip Burn is a small burn with high energy rising in the hills directly adjacent to the town. It has a catchment size of 7km² and an elevation change of 400m over a length of approximately 3km. The upper reach of the catchment had been seriously degraded due to years of close-cropping from sheep-grazing and 'muirburn' from game-bird management. The lower reach had been canalised, flowing through bridges with low capacity in immediate proximity to urban development. The underlying geology of the catchment is mostly glacial gravels. These factors combining with the power of water during flash-flooding type events resulted in steep scars in the upper catchment delivering high volumes of gravel into the system; causing an additional problem to the flood water inundation.

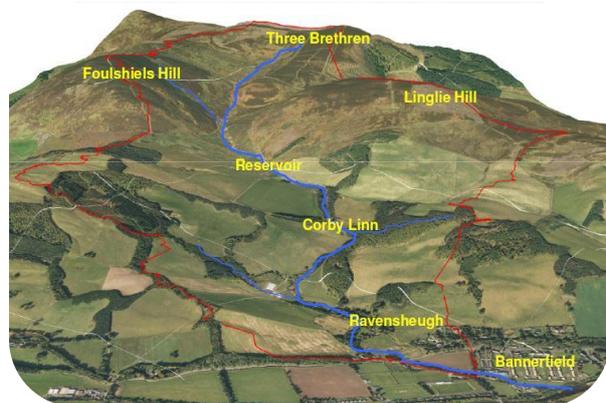


Photo credit: Selkirk Flood Protection Scheme

Brief description

The £31.4M *Selkirk Flood Protection Scheme 2012* was the first major scheme designed under the Flood Risk Management (Scotland) Act 2009. This scheme embraced the ethos of the new act and has been designed in an environmentally acceptable and sustainable way. It strove to incorporate natural flood management (NFM) into its design and this has resulted in both major-scale (e.g. river restoration as core engineering) and minor-scale (e.g.

riparian fencing and log-jams) NFM measures. The scheme developed a suite of planned interventions throughout the catchment to reduce flood risk from just above the 1:2 year flood event (i.e. a bank-full event) to above the 1:200 year (plus an allowance for climate change) flood event. This combination of measures will allow approximately 400 properties to be removed from the list of properties at risk of the 1:200 year flood event.

In the lower reach the scheme will deliver major flood protection defences, replace and remove bridges and deliver approximately 1.1km of river restoration to realign the burn and create a new 3-stage river channel with space for flood waters. This space will also provide a new park designed within a planning framework to link and upgrade earlier urban development and proposed future developments. The scheme is being delivered during 2015 and 2016. In the upper reach the scheme comprises a series of NFM interventions that are being delivered by Tweed Forum and the land managers over time to upgrade and restore the condition of the denuded landscape. Some of these were delivered during 2013.

In the middle reach the scheme provided a series of NFM measures designed to manage the high sediment load moving through the system. This gravel was reducing channel and bridge capacity in the lower reach. The gravel was also trapped in the burn due to the historical canalisation and other physical impediments to flow. The NFM measures were designed and delivered in 2009 (as an advanced part of the scheme) to reduce flood risk present since the 2003 event and simultaneously initiate the natural healing of the environment. The measures were later incorporated as a core part of the design of the scheme's other flood protection defences and river restoration i.e. during construction.

The erosion and sediment management NFM measure included: (i) sediment control at source via re-vegetating of steep slopes and riparian fencing to exclude stock; (ii) log sills and engineered log-jams to reduce the risk of further channel incision, slow gravel movement downstream and catch woody debris; and (iii) construction of an offline sediment retention basin immediately upstream of the problematic bridges designed to target the detention of gravels and cobbles to capture coarse sediments during high flows.



The designed sediment basin empty in summer 2013 (left); and with gravel/sediment after a high flow event in winter 2013 (right). Photo credits: Selkirk Flood Protection Scheme.

Riparian planting and the creation of log-jams and log sills placed over approximately 1km in the middle reach and above the sediment basin have resulted in the recovery of bank-side vegetation, healing of scars and stabilisation of the river-channel in general. Over the next ten years, the NFM measures are expected to reduce the input and through-put of gravel significantly. The sediment basin should then revert to functioning only during major flood events when gravel is again, potentially, mobilised in large volumes.

Details of mechanism and payment/advice structure

The lower reach works (river restoration and engineered flood defences) is funded through capital grants with 80% provided by the Scottish Government and 20% by the Scottish Borders Council. The total cost of the scheme operations through the lower reach of the Long Philip Burn is approximately £3M.

The middle reach works (NFM sediment management measures) were constructed during the summer of 2009 at a cost of approximately £70,000. These works were entirely undertaken on the land of one land manager (estate) and a single compensation payment of approximately £20,000 was agreed to cover all losses and future servitudes. These costs were wholly funded using Scottish Borders Council capital grant funding. There is an ongoing cost to the operation and management of the sediment basin which is 100% funded from the Scottish Borders Council Operation Flooding Budget. This is approximately £5,000 per year.

The upper reach (NFM and land management measures) is owned by two large land managers (an Estate and the town's Common Good). Both farms are managed by tenant farmers. The various NFM measures that have been delivered were funded from the SRDP with complementary monies from both land managers/tenant farmers. The delivery of these measures was entirely managed by Tweed Forum.

Impacts for land manager

In the lower reach all land is being purchased by the scheme in recognition of the fact that this land is hereafter permanently removed for flood management. The previous land managers are therefore not disadvantaged in-so-far as the land was purchased at market value. In the middle reach there is some loss of land for farming within the boundaries of the riparian planting and associated loss of production. This is offset however by potentially reducing the loss of land to river-slope collapse and/or gravel out-wash onto arable land during flood events. It will also result in environmental improvement in general with the maturing of the riparian planting.

There is also loss of land for farming within the boundaries of the riparian planting in the upper reach and associated loss of production (reduced stocking on hill-slopes adjacent to the burn). As in the middle reach, it is the aim that this will be offset by reducing the loss of land to river-slope collapse. With riparian planting maturing, there should also be environmental improvement.

Impacts for delivery partner/LA

In the lower reach, there is a general requirement to manage the flood protection scheme. It also means that as the new land manager, the Scottish Borders Council must take responsibility for management of the land it has purchased. There is a general requirement to manage the scheme including operation and management of the sediment basin. This will be undertaken by the Local Authority as the new land manager. The log-jams and riparian planting in this reach will revert to the land manager after approximately 15 years. In the upper reach, riparian planting and NFM measures are only secured through the life-time of the current SRDP grants. Thereafter the land reverts to the land manager and this means there is a potential for these measures to be lost.

Barriers to getting going

The main barriers were the huge expense of developing a formal flood protection scheme; the reluctance of land managers to become involved and to provide land for NFM measures; and difficulties in preparing applications for grants and ultimately securing grants.

Barriers to ongoing use

Short-term life span (relatively speaking) of grant mechanisms such as the SRDP.

Highlights

It is now over 5 years since the NFM sediment management measures were put in place (in the middle reaches) and it is felt that they have been a huge success. The sediment retention basin is emptied on an approximate annual basis through a controlled and easily managed process. The basin is filled by both coarse and fine gravels during the high-energy bank full events that occur every winter. Another key highlight is the availability of money from agricultural type SRDP for measures that deliver multiple benefits e.g. environmental improvement, habitat creation, flood risk reduction, water quality improvement, stabilisation of eroded river slopes, etc.

References

Selkirk Flood Protection Scheme details obtained from: Scottish Borders Council Flood Risk Management Team, CH2M Hill (formerly Halcrow Group Limited)
Contact: Conor Price - Project Manager, tel: 01835 826765, email: conor.price@scotborders.gov.uk



Selkirk Flood Protection Scheme, Scottish Borders Council Flood Risk Management Team, CH2M Hill (formerly Halcrow Group Limited)



Selkirk, Scottish Borders



2009 to 2016



Capital grant/payments, land manager contributions



Various amounts from the Scottish Government, the Scottish Borders Council, and the Scottish Rural Development Programme (SRDP). Also contributions from land managers and tenant

Nigg Bay Managed Realignment Scheme

Cromarty Firth

Type of mechanism

Land purchase, Government grants and Heritage Lottery Fund (HLF).

Brief description

Nigg Bay was the first planned realignment in Scotland and involved making two 20m-wide breaches in existing sea defences to allow the top of the tide to flood a 25ha field. The scheme, undertaken by the Royal Society for the Protection of Birds (RSPB), aimed to create important habitats for wildlife at Meddat, while also reducing maintenance requirements for the existing and failing defences.



Details of mechanism

The RSPB purchased the land in 2001 in order to undertake the coastal realignment project. The RSPB applied for and received grant funding from the Heritage Lottery Fund (HLF), Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA). The project was also part funded by a legacy payment from Miss EMP Scott Will Trust.

Payment/advice structure

The HLF project was a 3 year project to breach the sea wall (coastal realignment). As the land was purchased, there was no payment to land managers or others. The coastal realignment site is now managed as an integral part of the RSPB Nigg Bay nature reserve.

Impacts for land manager

The impacts for RSPB as a land manager are positive. A total of 25ha of new intertidal habitats has been created, which partially compensate for past losses in Nigg Bay and potential future losses due to sea level rise and climate change. The habitat provides feeding and roosting areas for internationally important numbers of wintering waterbirds, adjacent to the Cromarty Firth Special Protection Area (SPA). There will also be benefits for coastal flooding management by reducing pressure on sea walls elsewhere in Nigg Bay.

Impacts for delivery partner/LA

The secondary sea wall defences were built up to 1 in 50 year defence levels, and RSPB plan to monitor this wall to ensure that it continues to prevent flooding of neighbours' land.

Barriers to getting going

There were several planning requirements and consultation issues that needed to be worked through, under regulations such as the Coast Protection Act 1949 (CPA), Food and Environment Protection Act 1985 (FEPA) and the Habitats Regulations (1994). All appropriate licences and consents were obtained within three months.

Barriers to ongoing use

The grant aid from HLF/SNH/SEPA (as the 'mechanism') funded the project works to undertake the studies required pre-breach and to do the physical works. As such, there is no 'ongoing use' of the mechanism as the project works have been completed.

Highlights

From an environmental point of view, habitats that are regularly used by large numbers of internationally important wintering waterbirds have been created. The habitats that these birds use elsewhere in Nigg Bay are likely to be lost in the future due to sea level rise, and so new habitats need to be created for them before those existing areas are lost.

There have not been any incidences of sea flooding from the coastal realignment site onto neighbouring land in the 10+ years since the realignment was undertaken.

References

Chisholm et al (2004): Identifying, developing and implementing coastal realignment projects in Scotland: Lessons learned from Nigg Bay, Cromarty Firth.



RSPB, SEPA, SNH, HLF



Nigg Bay RSPB reserve



March 2001 to March 2004



Land purchase and project funding through HLF, SNH and SEPA grants as well as a legacy from Miss EMP Scott Will Trust



Excluding staff costs and land purchase, the whole scheme cost £53,840 to complete

Pumlumon Project Wales

Type of mechanism

Capital payments (non-government), Economic instruments (service payments) and advice and support

Brief description

Established in 2007, the Pumlumon project is a pilot Payment for Ecosystem Services (PES) scheme. The project is located over two counties in Wales (Powys and Ceredigion) where the primary

economic activities are farming, forestry and tourism. The Montgomeryshire Wildlife Trust is leading the project which aims to pay land managers for providing ecosystem services such as carbon storage, flood regulation and erosion control through a model similar to agri-environment payments (such as the Welsh Glastir scheme).



Credit: Montgomeryshire Wildlife Trust

Details of mechanism

The Trust sent letters to 50 land managers within the 40,000ha watershed area explaining what the project was and what they wanted to do. The Trust sent an agricultural ecologist to the interested land managers to explain the aims of the project. From there, if the land manager was happy to continue, a survey of the entire holding was carried out by the agricultural ecologist and a senior ecologist to determine what management options could be done in line with the project's aims. These options were presented to the land manager and the land manager selected the options they were happy to implement on their land.

Once the land manager chooses a land management option, the Trust negotiates with them to get the capital works completed; the Trust pays for 100% of capital works. An annual payment figure (usually per ha) is calculated by the Trust's economist using several variables/data sources (such as carbon price and storage capability of soil/peat); on average land managers can be paid £265 per hectare per year to restore upland blanket bogs (High Nature Value Farming, 2014). A management plan and payment schedule is drawn up outlining what the payment amount will be, what needs to be done to achieve this payment and the length of the agreement; currently, the length of the agreement is dependent upon how long funding is available for.

Payment/advice structure

Advice and Support

Each interested land manager receives an ecological survey and tailored land management options. If the land manager is willing to implement the land management options, the Trust will fill in the paperwork for them; this saves the land manager time and, in cases where the land manager would have used an agricultural advisor, money.

Capital and PES Payments

All capital payments are agreed with either the land manager or contractor (dependent upon whom is carrying out the works) and paid upon completion of works. The PES payments are made annually for the lifetime of the contractual agreement; the payments will only be made if the land management options are maintained. For example, if a land manager is receiving an annual payment for peatland restoration, the ditches must remain blocked for the lifetime

of the contact, the land manager can unblock the drains at any time but the payments will be stopped as the contract will have been broken.

Impacts for land manager

For the Pumlumon Project, the funds come from a charity (non-national or EU sources), so there are no state aid issues to consider. All land management options are designed to provide additionality and thus do not compete with other existing grant payments the land manager may be in receipt of; this minimises losses to the land manager. It is made clear to the land manager that they can reverse the works at any time and this provides added security.

Impacts for delivery partner

Because the mechanism is a payment scheme which can be ended at any time, there is a risk that the desired outcomes may not be achieved. In addition, to keep the Pumlumon Project going and to keep land managers on-board funding is constantly needed.

Barriers to getting going

As the project is based upon providing a financial payment to land managers, funding is crucial to getting a project up and running. Working with statutory organisations proved to be an issue due to their risk adverse nature. This meant it was more difficult to get the support of certain organisations at the beginning of the project.

Barriers to ongoing use

Funding has also been identified as a key barrier to the ongoing use of this PES scheme. It is likely that many of the land management options will only be implemented by farmers if they receive an annual payment.

Highlights

Good agricultural knowledge is needed to understand how the land options might impact the farm and how to determine a payment.

A payment system is agreeable with land managers as it is similar to other agreements they are used to and it still allows their farm to be viable.

It makes sense for a land manager to continue to receive payments into the future as they will continue to provide goods/services. It is important that land management options are not seen under the 'profit foregone' or 'not farming properly' label but instead be seen as payments for farming water/carbon/air quality, etc.

Accessibility/applicability to Scotland

If a PES was used by local authorities in Scotland to implement NFM measures, they would need to consider the legal and financial implications of funding which would most likely come from national sources. This may increase the resources needed to implement the mechanism. Consideration of existing agri-environment payments (SRDP) the land manager may be in receipt of will be needed, as works will need to be additional (to avoid double payments).



Montgomeryshire Wildlife Trust, Natural Resources Wales



Pumlumon, Wales



2007 – Present



Capital and annual grants



Fund raising from public, private and charitable sectors

References

High Nature Value Farming (2014): Farmers working together to restore important habitats and ecosystems in the Cambrian Mountains of Montgomeryshire. Accessed at: <http://www.highnaturevaluefarming.org.uk/case-studies/farmers-working-together-restore-important-habitats-ecosystems-cambrian-mountains-montgomeryshire/>.

Sustainable Land Management Incentive Scheme – Scottish Water

Type of mechanism

Capital grants and annual payments – EU, Government, Lottery, Agencies

Brief description

Scottish Water created the Sustainable Land Management Incentive Scheme (SLMIS) to work in partnership with land managers and tenants to protect drinking water sources from diffuse pollution within six priority catchments across Scotland, including the River Deveron and River Ugie catchments in the North East.



The scheme finances measures to protect drinking water sources within these catchments. The main aim of the scheme is to improve drinking water by implementing measures on farm land. The scheme part finances changes to be made which exceed regulatory compliance.

Pesticides are being detected in the drinking water in the Ugie and Deveron catchments, therefore management of pesticides is the key driver of the scheme. There are some options available in the scheme which may also reduce flood risk.

The maximum annual financing per business is £20,000.

Details of mechanism

Funding of Farm Water Environment Management Plans

Water Environment Management Plans are 100% funded under the scheme and their main objective is to identify and provide solutions and recommendations to eliminate or minimise the sources and pathways of pollutants into the water environment. Each plan must be produced by a qualified advisor who is chosen by the applicant. Scottish Water is very keen to ensure the plan is used as a farm management tool by the farm business applying for this option. The majority of plans completed under the scheme within the River Deveron catchment have highlighted issues with livestock using watercourses for drinking water therefore causing pollution of the watercourses, cultivating too close to watercourses, and runoff from silage pits and the farm steadings, as well as issues with the use of pesticides. The main pathways of pollution in the River Ugie were found to be cultivating too close to watercourses, soil erosion, and ineffective use of pesticides. The River Ugie Catchment is an arable dominated area, whereas the River Deveron is predominantly a livestock area. This is very much reflected in the sources of pollution found at the farm audits carried out as part of these management plans.

Technical Support

Technical support is available under the scheme; this may be 100% funded depending on the type of support applied for. This option includes support and advice outside the scope of the water environment management plan. The most common items or options which have been funded are testing of sprayers through the National Sprayer Testing Scheme (NSTS) and funding the cost of training days. Testing the sprayer under the NSTS is the most common option applied for under Technical Support within the Ugie and Deveron Catchments. This acts as an MoT service for the farm sprayer to ensure it is in full working order.

Capital Grants

There is a wide range of eligible items available under the incentive scheme, some of which include:

Description	Payment Rates	Finance Level
Stock fencing	£4/m	60% or 75%*
Water trough	£195/trough	60% or 75%*
Management of over-winter tramlines	£10/hectare	60% or 75%*
Cultivate and drill along slope contour	£15/hectare	60% or 75%*
Loosen compacted soil layers	Negotiable	60% or 75%*
Gate re-location	£140/gate	60% or 75%*
Check dams	£110/dam	60% or 75%*
In-ditch seepage barriers	£150/barrier	60% or 75%*
Grip Blocking	£120/dam for medium corrugated plastic dam	60% or 75%*

*Finance level is 60% for farms outside the Less Favoured Area and 75% for farms within the Less Favoured Area.

Each application is assessed on a case-by-case basis. Factors taken into account include, for example, the proximity of the farm to the Scottish Water extraction point, the severity of the problem and the risk of pesticides entering the water environment.

Within the Deveron catchment some business have been successful in receiving capital grants for fencing and water troughs to exclude livestock from the watercourses to prevent faecal contamination of the river, and others have received funding for the costs of SEPA licences to carryout out dredging works to prevent the risk of flooding of adjacent arable land.

Within the Ugie catchments a small number of businesses have applied for funding to create biobeds to capture sprayer washings and other dirty yard water, specially designed pesticide loading areas and pesticide substitution. The only pesticide substitution that Scottish Water can fund is the cost difference between Ferric Phosphate and Metaldehyde slug pellets. Therefore, this option has been not widely applied for.

Payment/advice structure

Most payments were offered as a one-off payment for materials, labour and management. A Catchment Liaison Officer must approve all applications before the land manager receives consent to carry out works under the scheme and they will return once works are complete to inspect capital items before a payment can be made. In some circumstances it may be determined that not all capital items in the applications are required and in this situation the application may be financed in part.

Impacts for land manager

The compensation mechanisms will impact on land managers – depending on the options chosen and funded – by reducing their risk of inadvertently causing pollution, increasing their awareness of pollution issues via undertaking the Water Environment Management Plan and assisting with the costs of training and undergoing sprayer testing.

Impacts for Scottish Water

Scottish Water has appointed Catchment Liaison Officers to review and approve all applications for grant funding under the scheme. This involves an initial site visit to assess applications and a final site visit once approved works have been completed to ensure they have been completed to the required standard.

It is anticipated that the main impact of the scheme on Scottish Water will be a reduction in filtration costs at water abstraction points as there will be less pollution reaching the water environment. This outcome is being met by making available significant capital grants, so there will have been budgetary impacts for the utility company. There will also be positive effects on the utility if they can be seen to be improving drinking water quality.

Barriers

The number of applicants is restricted by their location in proximity to the catchments. There is an overall budget ceiling for the entire scheme, and also per farm. The scheme is entirely voluntary. Some plans with a variety of chosen options which would benefit the catchment were only part funded due to priority being placed on pesticide replacement, proximity to problem areas and the severity of the problem.

Highlights

Scottish Water officers spent a good deal of time and effort promoting the scheme, including face to face site visits with farmers and land managers. Several key areas received grant funding to tackle specific issues. The scheme was also widely promoted by the local consultancy community.



Scottish Water working in partnership with land managers



Various catchments:

- River Ugie Catchment
- River Deveron Catchment
- Loch of Lintrathen Catchment
- Loch Ascog Catchment
- Dumfries Basin Aquifer
- Lochgoin Reservoir Catchment



2013 - Ongoing



Capital grants and annual payments – EU, Government, Lottery, Agencies



Funding from Scottish Water

Scottish Rural Development Programme (SRDP) Scotland

Type of mechanism

Capital grants and annual payments – EU, Government, Agencies



**Scottish Rural
Development
Programme**

Brief description

The Scottish Rural Development Programme delivers Pillar 2 of the EU Common Agricultural Policy (CAP). The most recent version of the programme will run from 2014-2020. It funds economic, environmental and social measures for the benefit of rural Scotland. There are a number of schemes available under SRDP and each has a list of available options.

Details of mechanism

Annual Management Options

There are a number of annual recurrent management options available under the Agri-environment and Climate scheme and the Forestry Grant Scheme that may be relevant to flood management in Scotland. These options are available to rural businesses dependent on the farm/business location. The options are split into categories such as grassland, arable, upland and wetland. The options available are predominantly land based management options including Management of Flood Plains, Managing Water Margins, Wetland Management, Lowland Bog Management, Converting Arable at Risk of Erosion or Flooding to Low-input Grassland. The options are normally paid on a per hectare basis, and will only be available as part of a five year management contract which would likely include a variety of different management options spread across the farm. Example annual payment rates for a selection of the available options are listed in the table, below:

Management Option	Annual Payment Rate (£ per ha)
Management of Flood Plains	£57.43
Water Margins in Arable Fields	£495.62
Water Margins in Grassland Fields	£123.42
Wetland Management	£90.03
Wetland Management (creation of)	£284.80
Lowland Bog Management	£89.75 (with grazing) / £37.41
Converting Arable at Risk of Erosion or Flooding to Low-input Grassland	£284.80

Capital Grants

There is a wide range of eligible capital items available under the SRDP. The items detailed below have been selected from the comprehensive list of capital items due to their relevance to flood management. These items can be funded alongside the annual management options that require capital investment to ensure that the appropriate management regime is implemented (e.g. the sowing of grass strips in arable land at risk of erosion or flooding).

Item	Grant Rate
River Embankment Breaching, Lowering or Removal	Payment on actual cost
Restoring (Protecting River Banks (Willow Spilling)	£185/m
Restoring (Protecting River Banks (Plant Roll Revetment)	£210/m
Restoring (Protecting River Banks (Hurdle and Coir Matting)	£65/m
Restoring (Engineered Log Jams)	Payment on actual cost up to maximum of £210/m
Ditch Blocking – Peat Dams	£13 per peat dam (minimum of £300)
Ditch Blocking – Plastic Piling Dams (Small, Medium and Large)	£62, £151, 385.16 per dam (depending on width)

Moving or Realigning Ditches	Payment on actual cost
Rural Sustainable Drainage Systems - Swale	£21.75/m ²
Rural Sustainable Drainage Systems – Sediment Traps and Bunds – to excavate and form sediment trap	£10.50/m ²
Rural Sustainable Drainage Systems – Sediment Traps and Bunds – to create bund	£7.20/m
Rural Sustainable Drainage Systems – Retention Pond	£15.00/m ²
Rural Sustainable Drainage Systems – Wetland (with proprietary lining)	£9.00/m ²
Rural Sustainable Drainage Systems – Wetland (with soil lining)	£5/m ²
Creation of Grass Strips and Water Margins in Arable Fields	£333.51 per hectare

Knowledge Transfer and Innovation

The Knowledge Transfer and Innovation fund has been created to promote skills development and knowledge transfer in the primary agricultural sector. This will be achieved through providing funding to organisations to deliver vocational training, coaching, workshops, courses and farm visits designed to develop skills and transfer knowledge. On-the-ground improvements in agricultural competitiveness, resource efficiency, environmental performance and sustainability will also be targeted under this scheme. The aim of this fund will be achieved by meeting the running costs of operational groups seeking to implement innovative projects in these areas. Operational groups can be made up of different individuals or organisations within agriculture who are working collaboratively. Support is available to organisations that have an interest in the primary agricultural sector and wish to promote projects that support skills development, knowledge transfer, explore new ways of working and improve performance. The types of groups, individuals or organisations that may be able to access the fund may include the following:

- Public sector organisations;
- Private sector organisations;
- Constituted not-for-profit organisations;
- Research institutions;
- Farmers;
- Researchers;
- Advisors;
- Non-government organisations; and
- Private sector businesses involved in the agricultural sector.

Payment/advice structure

Payments for management items will be received once per year, in arrears, and likely to be paid in the April of the year following the contract start date. The items are declared and claimed on the applicant's Single Application Form in May each year. Capital grants are paid under either standard costs, or actual costs, depending on the option chosen, and are usually one-off payments. These are paid after the works are complete and a claim has been submitted and approved by the Rural Payments and Inspections Division (RPID).

Applicants using an agent or consultant can get a grant towards their costs.

Impacts for land manager

This is not a compulsory scheme and each land manager will choose whether they want to apply to the scheme. If successful, applicants must agree to a five year contract.

Impacts for the Public Body

The Scottish Government's Rural Payments and Inspections Directorate (RPID) funds most SRDP works, although the Forestry Commission and Scottish Natural Heritage may also be

involved. Their budget is supported by funds from Pillar 2 of the CAP budget. The impacts relate mostly to the resources of staff to process, monitor and make payments for the scheme, although they must also abide by EU audit procedures. They also need to undertake mid-term and full term evaluations of the impacts of the SRDP funding.

Application Process and Monitoring

The process can only be done online. Applicants must register their business with RPID, and appoint an agent in this way if they choose to do so. The vast majority of applicants will use an agent to complete their application. The process includes the need for a Farm Environment Assessment of the applicant's land, preparation of a Diffuse Pollution Steading Assessment (if necessary), a Farm Environment Table describing the farm and its habitats and a Farm Management Map detailing the management options and their locations for which funding is sought. Depending on which options are chosen, applicants may need to obtain relevant statutory consents, check for protected species and supply quotes for capital works which are eligible for an actual cost grant.

The process, for 2015 in the first instance, will begin with the farm Environment Assessment, followed up by the preparation of the other maps, obtaining consents, etc. prior to applications being lodged by 29th May 2015 at the latest (at the time of writing). The applications are considered by an Assessment Committee, with contracts for successful applicants issued and implemented by 1st January 2016, so in effect it is almost a 12 month process from start to finish. The contracts will last for five years. In future years, the application window is intended to be from 1st January to 31st March in the year preceding the contract start date. Each claimant may receive an inspection by RPID following a valid claim being made; this may be to check on management option prescriptions being followed or to check on the standard and extent of capital works. There has been monitoring carried out by RPID on the success or otherwise of previous schemes, and it is highly likely this will continue under the new SRDP as it relies largely on EU funding.

Barriers

The SRDP scheme has a limited budget, and is therefore entirely competitive. The scoring process will take into account national priorities, the scale of the management proposed, how it links with other habitats, value for money, and if there is any collaboration.

The application process can be complex, it is all done online (a barrier to those who are not computer literate nor have suitable broadband access), and applicants are effectively planning 12 months in advance for funding. There can be significant capital elements to any contract that is awarded. There is only one application round per annum.

Highlights

The 2014 – 2020 scheme has only just opened, so it is difficult to say what benefits there are of the scheme. It is spatially targeted (for example, capital funding for embankment removal is restricted to certain areas where it will have a flood risk management benefit). The budget provides a secure five year income stream to farmers and land managers, and they will effectively be tested on their knowledge of the contract they are about to enter into before it is offered, to minimise the risk of future financial penalties on inspection.



Scottish Government and the EU



Rural businesses in Scotland



2014-2020



Capital grant and annual payments – EU, Government, Agencies



Pillar 2 of the Common Agricultural Policy

Land buy back scheme

State of Victoria, Australia

Type of mechanism

Sale and leaseback, land buy back scheme

Brief description

Following severe floods in Australia in early 2011, the Government in the State of Victoria established a simple scheme to buy land, which is valued by the state valuer, and then resold with flood covenants attached. The covenants may prevent irrigation or require the land to be managed as extensive grassland.

Details of mechanism

The \$12 million (AUD) buyback scheme, part of a wider \$21 million pledge for rural flood assistance, was made to properties that were worst hit by the floods in 2011. It was established to either (i) buy properties from land managers who wanted to voluntarily sell and relocate somewhere else to reconfigure flood courses on that particular land, or (ii) pay land managers prepared to give up their land. In the latter case, compensation for the change in value of each property was offered, with a covenant placed over the land to be a designated flood path in the future. The scheme enabled land titles to be reconfigured and there were no insurance prerequisites for the offer. The buyback price was the pre-flood market value. The program ran from 1st July 2011 for twelve months with buy backs managed by the Rural Finance Corporation.

A year on, it was estimated that about 20 farming families took advantage of the scheme, leaving the district. In spring 2013, a buyer signed a deal with Rural Finance to buy a package of farming lots in Benjeroop taking the figure of land sold through the buyback scheme past 1,000 hectares. While it was suggested that another 1,000 hectare farming lot was due to go on the market in 2013/ 2014, recent progress and the implications of this scheme are not well documented.

Payment/advice structure

One-off payment

Impacts for land manager

Sale of land and loss of production (voluntary), detrimental impact on community spirit with Benjeroop regularly reported in the local press in 2012 as “fast becoming a ghost town”.

Impacts for delivery partner/LA

Resistance from farm and land managers deciding to stay may have affected local support for the government.

Barriers to getting going

Convincing local people about the scheme. Max Fehring, a local mayor thought that a key problem was that the buyback scheme had not been properly explained.

Barriers to ongoing use

There is a lack of a clear picture regarding the scheme's benefits and drawbacks. There is a longer term financial implication of the scheme given that the area targeted is thousands of square kilometres in extent. Evidence suggests that buy backs should be based on reliable estimates of probable flood damages (a combination of flood risk, the probability of a certain flood occurring), and the value and type of assets that will be affected by any flooding.

There is an apparent lack of a comprehensive floodplain strategy behind the buyback scheme.

Highlights

Those who wished to leave were paid at the pre-flood market value, allowing them to vacate their land quickly.

The scheme has led to a change in the land use in the catchment within a relatively short time period.

Accessibility/applicability to Scotland

Yes – as a pilot scheme it could be applicable to Scotland depending on the Government's stance.

References

Predominantly local press articles

Beedell J et al (2012)



State of Victoria
Government, Rural Finance
Corporation



State of Victoria, Australia



1st July 2011 for one year,
with further buy back
agreements made in 2013



Sale and leaseback, land
buy back scheme



\$12 million (AUD) – initial
one year pilot funding only

Sussex Flow Initiative

Sussex, England

Type of mechanism

Advice/technical support and capital support (provision of plants)

Brief description

The Sussex Flow Initiative is a two year partnership project that has evolved from the Trees on the River Uck project (TrUck). The Sussex Wildlife Trust, Woodland Trust and the Environment Agency are working together to implement Natural Flood Management (NFM) options to decrease the impacts of flooding in Uckfield and Lewes.

The project focuses mainly on woodland and hedgerow creation, but also the use of scrapes, washland meadows and woody debris to reconnect the floodplain and increase flood storage in rural settings. In the coming year there will be an increase in focus on urban areas and SuDS (Sustainable Drainage Systems) creation.



Credit: Trees on the River Uck

Details of mechanism

To incentivise land managers to plant woodlands and hedgerows the project provides free trees and hedgerow plants alongside a planting service. The project does not offer monetary payments for implementing NFM measures, thus the land that is usually offered for use is less productive marginal land. Models and other data are used to identify low risk areas and less productive land for NFM measures. Targeted land manager mailouts are combined with events where the additional benefits of woodland and hedgerow creation can be explained. Land managers have shown particular interest in the benefits of harvesting wood fuel and use of trees for animal fodder (tree hay).

Once a land manager has agreed to have trees and/or hedgerows planted, the project will provide the plants and protective guards and can organise the planting. The land manager must agree to look after the plants through a 12 year planting agreement.



Credit: Trees on the River Uck

The project has had particular success with implementing NFM measures on land where productivity is less of a focus, such as smallholdings and amenity land (e.g. hotels, etc.). Because there is minimal/no annual income generated from productivity, non-monetary incentives such as eco-accreditation or the production of wood fuel are enough to encourage participation; no income is lost but tangible benefits can be gained.

In cases where the provision of plants is not enough to incentivise participation but a grants scheme could (such as the Forestry Commission's England Woodland Grant Scheme), the project can provide help and assistance with making applications.

Payment/advice structure

The project provides advice and support to land managers throughout the engagement and planting stages. Land managers can also contact the Woodland Trust for advice on maintenance.

Impacts for land manager

As many of the options are implemented on marginal land there are usually no impacts for loss of productivity. However, there may be financial responsibilities associated with the long term maintenance of the woodland and hedgerows.

Participating in the project can bring about additional benefits for land managers; these can include (but are not limited to):

- Eco-accreditation, this can be particularly attractive to amenity land such as hotels
- Production of wood fuel or tree hay which can reduce other costs such as heating or fodder, or can bring about additional income if sold
- Shelter for crops and livestock reducing helping to reduce wind chill
- Reducing diffuse pollution and river stress
- Enhancing wildlife and Ecosystem Service provision

Impacts for delivery partner

As the project provides 100% of the funds for the plants, the initial financial outlay lies with the Woodland Trust.

Barriers to getting going

Due to the project not using annual payments, it can be difficult to implement NFM measures on productive land as farmers are less incentivised to relinquish land that provides an annual income. Land managers can also be less willing to give up large areas of land and thus planting is often carried out on a smaller scale.

Barriers to ongoing use

Responsibility for maintaining the woodland, hedgerow or other NFM measures lies with the land manager. Sites are often small in size and may take time to become functional. There needs to be wide scale adoption to boost flood benefits.

Highlights

- Partnership working brings together different skills/knowledge and funding sources.
- Range of different measures that can be tailored to the location and needs of the land manager.
- Project team members are aware that implementing NFM measures on productive land can be less desirable from a land manager's perspective and have therefore developed a successful strategy for incentivising NFM measures on less productive or amenity land.
- The project utilises additional benefits (beyond NFM) such as wood fuel / tree hay to incentivise participation.



Sussex Wildlife Trust,
Woodland Trust,
Environment Agency
and Royal Bank of
Canada.



Sussex, England



2 year project (2014-
2016)



Advice/technical support
and capital support



Woodland Trust (100%)

Tweed Forum Scotland and England

Type of mechanism

Broker/agent providing facilitation and enabling implementation of NFM measures.

Brief description

Tweed Forum is a charitable trust based in the Tweed catchment, Scotland and Northumberland with a remit of integrated catchment management. It has built up a track record of working with land managers to bring about practical works that deliver multiple benefits.



Tweed Forum has carried out many Natural Flood Management (NFM) and land management projects, including: the Eddleston Water Project, Eye Water, Gala Water and Restoring the River Till. Tweed Forum is seen as a trusted intermediary by both the agencies and local authorities, and those that own and manage the land. It has shown that it is possible to implement NFM works at the catchment scale whilst not affecting the working landscape and also keeping capital and revenue costs to a minimum. The Forum undertakes land manager engagement, scheme design, sourcing funding, tendering, overseeing works, post-implementation monitoring/reporting and ongoing maintenance.

Examples of mechanism used

Eddleston Water Project

The Eddleston Water Project is a partnership between several organisations, including Scottish Government (main funder), SEPA, Dundee University, British Geological Survey, Forest Research and the Scottish Borders Council, aiming to reduce the flooding risk in Eddleston and Peebles and improve the ecological quality within/alongside the river. Tweed Forum held discussions with communities, land managers and other organisations to identify measures and actions that could provide multiple benefits. These included one-to-one meetings with land managers as well as evening meetings with the community council and other interest groups. Discussions focused on scoping NFM opportunities that would not disrupt or affect farm income and operations and were generally cost neutral to both the land manager and the local authority. Work was carried out on 12 different farms, amounting to some £400k. Measures included 70ha of woodland, 16,000m of fencing, 13 wetland retention features, 56 woody debris flow restrictors, 1.8km of re-meandering and planting of 70,000 trees.

Eye Water

The Eye Water project has been undertaken in partnership with SEPA to tackle land management issues contributing to diffuse pollution (in particular faecal pollution from livestock) in the Eye Water catchment. SEPA identified several areas where improvements in land management could reduce diffuse pollution. Tweed Forum was brought in to engage with over 20 farms in the catchment. As a result of this, riparian fencing and tree planting have been carried out on 11 of these and the waterbody has since improved in status.

Gala Water (£150k)

Tweed Forum is working with the Scottish Borders Council and the developers of Dun Law Windfarm to implement NFM measures to help reduce peak flood waters and

create/enhance the habitat. Tweed Forum contacted over 20 farmers in the Heriot area during 2011; five have gone on to implement tree planting, pond creation and conservation grazing with support from Tweed Forum, SRDP (Scottish Rural Development Programme) funding and wind farm offset monies. This included 30ha of planting on one farm alone that has led to more efficient farming whilst slowing down flows and increasing water storage.

Restoring the River Till (circa £800k)

Tweed Forum is working in partnership with Natural England and the Environment Agency to implement restoration measures along the River Till. Whilst this intervention is primarily about improving biodiversity, it includes measures such as removing embankments and wetland creation that will have flood attenuation benefits. The restoration is run by a steering group with consultations, drop-in sessions and one-to-one engagement with land managers. Having a dedicated individual on the ground providing one-to-one support to land managers is a key factor for the project.

Facilitation and payment structure

Tweed Forum is funded by a number of different agencies to deliver their strategic goals on differing fronts. This allows Tweed Forum to provide targeted, one-to-one advice and support to land managers to bring about practical measures.

Impacts for land manager

There are minimal impacts on farming operations, as Tweed Forum tends to focus NFM measures on marginal land, and the works are generally cost neutral to the farmer. If SRDP or carbon monies are involved, there is the potential for extra income to be generated.

The implementation of certain NFM measures can bring about additional benefits for land managers, such as improved sporting opportunities (shooting/fishing) and increasing the resilience of the farm business to more extreme climatic events.



Credit: Tweed Forum

Impacts for delivery partner/local authority

Using an experienced intermediary body such as Tweed Forum provides multiple benefits for the delivery partner/local authority. Firstly, it enables the local authority to achieve a huge amount with relatively little outlay. The authority is generally left with no ongoing maintenance or financial obligations (thus there are no impacts for the revenue budget). In addition, having an intermediary body reduces the amount of local authority resources (e.g. staff time) needed to organise and service any works. In many cases, there are also no legal obligations for the local authority as these will lie with the land manager.

Barriers to getting going

In Tweed Forum's experience, there are several barriers to engagement. Land managers may:

- Have entrenched views e.g. on drainage, land management;
- Feel that they a duty to maintain productive land;
- Have concerns about loss of income;
- Have concerns about loss of capital value (for example, if land use is significantly changed or altered);
- Be worried about losing control and flexibility to adapt land management plans; and
- Be expecting bureaucratic hassle, including concerns over whether implementing NFM measures will add to the administrative burden.

Tweed Forum has identified several tactics and/or skills that can help overcome barriers:

- Having NGO status (i.e. non-agency/regulatory/local authority status). Being separate from established authorities enables Tweed Forum to get involved and approach land managers in ways which may not be open to local authorities;
- Having a personable messenger. Carrying out engagement and building up trust is vital when implementing NFM measures. Having someone with the right skills is therefore key;
- Farming knowledge is fundamental. This enables any organisation wishing to undertake NFM measures to recognise the concerns and pressures felt by land managers, and help mitigate them;
- Approach a local 'ambassador' first. Getting an open minded or interested land manager involved in the implementation of natural flood management provides an example for other land managers to see and potentially follow;
- Know the individuals in the area and what motivates them. Recognising whether a land manager is focused on running a commercial farm, managing their land for shooting/fishing, or is keen on planting trees is important when identifying who to approach and what to talk about;
- Talk about funding sources and money, and work out how to make the intervention add up financially for the land manager;
- Minimise the amount of paperwork the land manager has to do; and
- Manage the delivery of the works. This covers keeping the land manager informed and involved, but not expecting them to attend every meeting and update. Land managers want to know what is going to happen on their land, but they do not necessarily want to deal with the all the associated administration. Minimising disruption to day-to-day activities is important.

Barriers to ongoing use

The interventions that can be achieved with agri-environment measures and other existing funding streams are limited, especially when dealing with more valuable land.

Highlights

Using a trusted intermediary such as Tweed Forum has significant benefits in terms of engaging land managers and keeping both organisational costs and the land manager payment costs down to a minimum.



Credit: Tweed Forum

Having the right messenger and developing good relationships between all those involved in a catchment is key.

Care needs to be taken to ensure that the right measures are carried out in the right places at the right scale.

Seeking multiple benefits will help buy-in and associated funding opportunities.

There needs to be caution around cash payments. Work by Tweed Forum has shown that advice and support from trusted intermediaries can help to avoid the use of cash payments, although this is not always the case.

References

Per. Comms Luke Comins, Director Tweed Forum. February 2015.



Tweed Forum, Scottish Government, SEPA, Dundee University, British Geological Survey, Forest Research, Scottish Borders Council (and others depending on the particular project)



Scotland and England



Projects are ongoing



Tweed Forum is a broker/agent providing facilitation



Tweed Forum is funded by a number of different agencies

Upper Garnock Flood Prevention Scheme

North Ayrshire, Scotland

Type of mechanism

Land purchase, compensation in kind

Brief description

Kilbirnie, Glengarnock and Dalry have all had a long history of flooding with events occurring at an average frequency of around 25 years. Since the 1990s the frequency of flooding has increased with six flood events in 17 years. A range of options was looked at to mitigate the impacts of flooding including dredging, property-level protection, natural flood management, flood warning, direct defences and upstream storage areas. After the option appraisal process, the options developed for Kilbirnie and Glengarnock were:

- Direct defences on the Garnock;
- Upstream storage (on-line on the River Garnock);
- Formalising a training wall on the Powgree Burn; and
- Direct defences (flood walls) at Dalry.

As a result, it was necessary to identify the land managers in the area. There are two farms identified in the Upper Garnock where the on-line storage will be located. In addition, there is a land manager impacted by the construction of flood walls around properties at Dalry.

Details of mechanism

North Ayrshire Council will be applying for funding for the Upper Garnock Flood Protection Scheme from the Scottish Government fund for projects under the Flood Risk Management (Scotland) Act 2009. The construction cost for the project is estimated at £14.5m.

Payment/advice structure

The Council is in negotiations with the land managers to agree a compensation package.

Impacts for land manager

The land managers will experience short term disruption to the land production during scheme construction.

Impacts for delivery partner/LA

Land is only being purchased where the dam is being formed. Elsewhere, a compensation package will be offered to land managers.

Barriers to getting going

There are no known barriers in getting so far. Discussions with land managers are ongoing.

Barriers to ongoing use

Not applicable - yet to be constructed.

Accessibility/applicability to Scotland

The approach is likely to be useful for similar catchments in Scotland.

References

North Ayrshire Council (nd): Upper Garnock Flood Protection Scheme. Available at: <http://www.north-ayrshire.gov.uk/council/consultations/upper-garnock-flood-protection-scheme.aspx>



North Ayrshire Council, SEPA, SNH



Upper Garnock, Kilburnie, Glengarnock and Dalry. North Ayrshire.



To be confirmed



Land purchase and compensation in kind



Upstream Thinking Initiative

South West, England

Type of mechanism

Advice, capital payments and reverse auctioning

Brief description

South West Water has provided the Westcountry Rivers Trust with funding to improve water quality at Wimbleball and Roadford Lakes, and in the Exe, Tamar and Fowey catchments under their flagship programme Upstream Thinking. The Westcountry Rivers Trust is able to provide one-to-one advice, farm plans and capital grants to assist land managers adapting land management practices to improve water quality.

Details of mechanism

Advice

The Westcountry Rivers Trust will visit a farm and assess current agricultural pressures that may be impacting the local water quality. From this, a farm action plan can be produced that provides recommendations for the provision of improved farm infrastructure and agricultural practice. The capital works usually recommended are for the improvement of infrastructure that is legally compliant but increases agricultural pressures that lead to pollutants such as faecal matter entering watercourses.

Capital grant scheme

If the land manager wishes to carry out the changes to farm infrastructure that are recommended in the tailored farm plan they can apply for assistance through a capital grants scheme run under the project; the project offers to cover up to 50% of the costs of capital works. The land manager will be required to obtain quotes for the works, such as fencing or covered holding areas. If the quotes are accepted by the project, the grant agreement has to be signed by the farmer, South West Water, the Westcountry Rivers Trust and the lender. If the grant offered is over £5,000, the land manager is required to agree to a contract and 10 or 25 year covenant; at this point the work can be undertaken. The works have to be approved and signed off before the grants payment can be received (Westcountry Rivers Trust, nd A).

Auctions

Within the Fowey catchment the Trust has used reverse auctioning to distribute £360,000 (Westcountry River Trust, nd B) of Upstream Thinking Initiative funding to land managers. In 2012 the Westcountry Rivers Trust contacted 150 farmers to inform them of the Fowey River Improvements Auction. They explained the aims of the project and listed a number of capital projects (such as fencing and storage covers) that would be eligible for funding under the project; each farm could submit a bid up to the value of £50,000. If a land manager was interested in the project they could submit a sealed bid containing what works they wanted to carry out and the funding needed; this bid would be evaluated against the other bids and the best value for money bids selected. Land managers were encouraged to add value for money to their bids by including changes to land management practices. From the 150 farms contacted, 42 bids were received with 18 being successful in receiving between 38% - 100% funding for their projects (Westcountry Rivers Trust, 2013).

Payment/advice structure

Payment for the capital works is received after the work has been undertaken and approved by the Westcountry Rivers Trust.

Impacts for land manager

When taking part in the auction project, the land manager has to spend a proportion of time completing the forms and getting quotes, this does not however guarantee that they will be successful in obtaining funding.

The contract locks the land managers in to a medium term agreement which they have to agree to uphold before being able to receive funding. The covenant is likely to show up on the title of the property should it be sold in the future, however, it is thought that in most cases the capital works (such as a covered storage area) will add value to the land/farm.

As the money received for the capital works is from a non-national/EU source it is thought there are no state aid issues to consider.

Impacts for delivery partner

Providing farm visits and creating management plans can be very labour and resource intensive with no guarantee that the land management options will be adopted. Running a grants scheme can also create resource pressures. The use of a quotes system and eligibility criteria can help reduce this.

Barriers to getting going

None currently identified

Barriers to ongoing use

None currently identified

Highlights

Longevity of the project is secured through a contract and covenant, these provide some security for the delivery body that the actions implemented will be maintained for a minimum period of time.

There needs to be a good relationship between the seller and buyer, however this can be improved by the use of a broker such as the Westcountry Rivers Trust.

Accessibility/applicability to Scotland

It is possible that within certain catchments, Scottish local authorities could work with Scottish Water to deliver land management changes and natural flood management measures. If local authority funds were to be used, state aid implications would need to be considered.

References

Westcountry Rivers Trust (nd, A): Formalising the scheme: Delivering improvements. Presentation prepared by Hazel Kendall –Grants administrator Westcountry Rivers Trust. Available at:

<http://www.theriverstrust.org/seminars/archive/water/Formalising%20the%20scheme%20-%20Delivering%20improvements%20-%20Hazel%20Kendall.pdf>

Westcountry Rivers Trust (nd, B): Land Management, Upstream Thinking. Available at:

<http://wrt.org.uk/activities/land/>

Westcountry Rivers Trust (2013): Upstream Thinking Catchment Management Evidence Review - Water Quality. Available at: <http://www.slideshare.net/NickWRT/upstream-thinking-catchment-management-evidence-review-water-quality/>



South West Water,
Westcountry Rivers Trust,
University of East Anglia
and Environment Agency



South West England



Upstream Thinking
initiative is ongoing



Advice, capital grants and
auctioning



South West Water

White Cart Water Flood Prevention Scheme

South Glasgow, Scotland

Type of mechanism

Land purchase; land purchase and lease back; one-off compensation and compensation in kind

Brief description

White Cart Water Flood Prevention Scheme consisted of two phases of work, the first of which was works in the upper catchment, whilst the second was works to the urban defences. This case study specifically refers to the first phase of works in the upper catchment where land was required for flood storage and access during construction and maintenance.

Details of mechanism

White Cart Water scheme works included land required for dams and access and land required for flooding. For the proposed dam structures and access to the dam sites, land was purchased by Glasgow City Council from the land manager; however, the land is situated in a neighbouring local authority district, East Renfrewshire.

The land purchase required for flood storage was a complicated process. There were up to 40 land owners involved in the scheme area. For the majority, a one-off payment was provided for the inconvenience of the flooding that would occur once the scheme was in place. Identifying land managers took several years and the last payment for the land was signed off in 2014, three years after completion of the works. For the most part, the one-off payment was structured dependent on land value and use. The majority of the land was low grade agricultural land used for grazing farm stock. There were two exceptions to the one-off payment structure. The first exception was land that belonged to a farmer of a pedigree dairy herd. This land was impacted during the construction of the works. An agreement was struck to provide an annual payment for the loss of the land during the four years of construction works. The second exception was land that was acquired by Glasgow City Council for flood storage; in this case the land is leased back to the land manager. Glasgow City Council also acquired a new area of land for the land manager, in exchange. In addition, compensation payments in kind were provided to accommodate changes in working processes resulting from the implications of flooding areas of land. Some of these were provided through the main works contract for the construction of the flood storage areas.

The final part of the White Cart Water scheme land compensation was for land not used for the works or for flood storage but through which site access was required. For this, Glasgow City Council paid an access rent, provided a temporary road to support the construction vehicles, and reinstated the ground when the access was no longer required. Finally, there is an existing private road that is used for maintenance access. For this, Glasgow City Council rebuilt a bridge, but also built a temporary bridge to maintain access as required. Temporary stock pens were also provided to the land manager for the livestock during the busiest period of access.

To take these compensation mechanisms forward, Glasgow City Council provided the funding as part of the White Cart Water scheme. Land managers were the principal beneficiaries. The compensation was facilitated by Glasgow City Council with extensive support from the District Valuer and solicitors for negotiations and legal agreements.

Payment/advice structure

A variety of payment structures were used for White Cart Water Scheme:

- One-off payments;
- Annual payment during construction works;

- Compensation in-kind arrangements; and
- Access rental agreements.

Impacts for land manager

During construction land managers experienced some loss of production when the land was not available for grazing by their stock; this was the main concern raised by the manager of the pedigree dairy herd. For other land managers who have received a one-off payment, or have received compensation in kind, the land may be flooded during high flows, the frequency of which is determined by the rainfall and catchment response.

There was a low impact on the environmental accreditation of the area as there were no existing environmental designations. Trash screens that have been installed as part of the works are cleared by Glasgow City Council as part of a maintenance contract.

Impacts for Glasgow City Council

For the long term Glasgow City Council is required to continue payments to a contractor for maintenance of existing works. As noted above, solicitors and the District Valuer were required during the negotiations for approximately five years to set up legal agreements with the land managers.

Barriers to getting going

Glasgow City Council found that the main barrier was finding and making initial contact with land managers. This and agreeing the approach for the land compensation took time and resources from the Council team.

Barriers to ongoing use

Glasgow City Council indicates that there are no significant barriers to the ongoing use of the compensation mechanisms as they were one-off payments.

Highlights

The key points that led to a successful negotiation and agreement of compensation was the need for a good negotiator, who understands agricultural issues, how to talk to farmers, agricultural land managers and their land agents, together with a knowledgeable solicitor. To this end the services of the District Valuer were invaluable.

The key lesson learnt from White Cart Water is not to underestimate the potential difficulties in working with land managers and the time required to deliver mutually agreeable outcomes.

Accessibility/applicability to Scotland

This case study of compensation is applicable to other local authorities in Scotland.

References

Bill Douglas, Principal Civil Engineer, Flood Risk Management, Glasgow City Council.
 White Cart Water Flood Prevention Scheme
<http://www.whitecartwaterproject.org> Copyright
 Halcrow Group Ltd and Glasgow City Council



Glasgow City Council, SEPA, Scottish Natural Heritage, Land managers.



White Cart Water: Kittoch Bridge and Kirkland Bridge, South Lanarkshire/ East Renfrewshire, Blackhouse East Renfrewshire, Scotland.



Design and construction from 2006 to 2011 (operational in 2010).



Land purchase; land purchase and lease back; one-off compensation and compensation in kind.



Funders include Scottish Government, Glasgow City Council. £53m scheme. £3.5m for compensation (£5.3m for both phase 1 and 2).

Wild Penwith (Upstream Thinking Initiative) Cornwall, England

Type of mechanism

Advice and capital grants

Brief description

Led by Cornwall Wildlife Trust, the Wild Penwith project encompasses the Penwith peninsula located on the south-west tip of Cornwall. This area covers around 9,000 hectares of land comprising farmland and semi-natural habitats. The Wild Penwith project



began in April 2009 and aims to work alongside farmers and the local community to encourage good management of the landscape to deliver a variety of benefits. Funding for the project is currently provided by South West Water but previous funders include the Environment Agency, Tubney Charitable Trust, Natural England and West Cornwall Local Action Group.

The Wild Penwith project incentivises land manager participation through the provision of free ecological surveys to assess the condition of wildlife habitats, advice for positive management, free soil and nutrient testing, capital grants for projects that will improve water quality, and free practical help from the project's Wild Penwith Volunteers group.

Details of mechanism

Capital grants

Through the project, Cornwall Wildlife Trust is able to provide small capital grants aimed at addressing water quality issues (e.g. farm infrastructure such as separation of clean and dirty water). Assessment criteria have been developed, these are used to mark each application to ensure that the capital works are meeting the aims of the Upstream Thinking objectives and where possible providing multiple benefits. The grants scheme can provide up to 70% of the total capital works cost, with a maximum grant available of £2,100 (Cornwall Wildlife Trust, nd A).

Advice

The Wild Penwith project provides a range of advice services to land managers; these include free training events/workshops, one-to-one farm advisory visits and assistance with Environmental Stewardship applications. If a land manager is interested in the project they can request a one-to-one farm advisory visit from a member of Wild Penwith team. During this, a survey of the farm is undertaken to produce a 'whole farm plan' which outlines the best way to manage the farm's wildlife and habitats (Cornwall Wildlife Trust, nd B). Wild Penwith also carries out free soil and nutrient tests to identify any potential issues that could be addressed to both the farmer and the environment's benefits (e.g. soil compaction increases the risk of run-off into streams and is also inefficient and costly to the farm business). The project can also help identify potential agri-environment grant schemes that farmers might be eligible for and assist with the applications.

Penwith Volunteer Group

The Penwith Volunteer Group works to maintain and restore wildlife habitats. Such activities also provide managers of smaller land holdings with much needed assistance as they often do not have the funds required to undertake certain aspects of land management. Volunteer tasks include:

- Clearing heathlands and wetlands of scrub and bracken;

- Helping to rebuild Cornish hedges to act as refuges and corridors for wildlife; and
- Removing invasive plants from streams to encourage native biodiversity and diminish soil erosion.

Payment/advice structure

Wild Penwith's grant scheme is funded by South West Water. Project staff broker the grant application with the farmer and an agreement is signed between the recipient and South West Water. Grants are paid for works that will address water quality issues through farm works or infrastructure e.g. fencing of watercourses or water harvesting. Once works have been completed, they are inspected and signed off by Wild Penwith staff and a one-off payment is given to the farmer.

Impacts for land managers

No negative impacts on land managers are expected to result from this project. Many land managers are in fact able to benefit from volunteer activities that will help them maintain their land and are therefore likely to save time and money; between 2010 and 2012 the Wild Penwith Volunteers project was estimated to have a total value of £40,000 across the whole Wild Penwith project area (Cornwall Wildlife Trust, nd C).

Farmers also stand to benefit from the free soil and nutrient tests provided by Wild Penwith, which help identify on farm issues that once addressed stand to benefit both the farm business and the environment, e.g. more efficient use of fertilisers resulting in reduced spend for farmers as well as reduced run-off. Capital grants can also bring cost savings to the farm business e.g. harvesting rain water for livestock saves on water mains costs, as well as the costs of spreading from the reduction of dirty water entering the slurry store.

Wild Penwith can assist land managers with applications to agri-environment schemes such as ELS and HLS (Entry and Higher Level Stewardship); this has the potential to save the land manager a significant amount of time and money, and bring additional income into the farm.

Impacts for delivery partner

None identified currently

Barriers to getting going

None identified currently

Barriers to ongoing use

None identified currently

Highlights

Long term presence of the Wild Penwith team and repeated visits to farmers over the past five years of the project have enabled staff to develop meaningful, trusting relationships with farmers. The provision of free farm workshops and use of the Wild Penwith volunteer group have also helped encourage farmer involvement. Being a non-regulatory body offering confidential farm visits, Cornwall Wildlife Trust's Wild Penwith staff were in a good position to discuss sensitive issues such as potential diffuse agricultural pollution issues with individual farmers.



Cornwall Wildlife Trust, South West Water and land managers



Cornwall, England



2009–ongoing



Advice and capital payments



Funding is currently provided by South West Water

References

Cornwall Wildlife Trust (nd A): Drift Reservoir catchment: Wild Penwith Capital Grant supports positive catchment management. Available at: http://www.southwestwater.co.uk/media/pdf/2/e/WP_-_Upstream_Thinking_-_Capital_grants_-_Final.pdf

Cornwall Wildlife Trust (nd B): Wild Penwith farmer's view. Available at: http://www.cornwallwildlifetrust.org.uk/Resources/Cornwall%20Wildlife%20Trust/PDF%20Documents/Cornwall_Wildlife_Trust_Wild_Penwith_farmers_article_from_Wild_Cornwall_Summer_2012_issue_118.pdf

Cornwall Wildlife Trust (nd C): Community engagement: helping hands support 'Upstream Thinking'. Available at: http://www.southwestwater.co.uk/media/pdf/2/7/WP_-_Upstream_Thinking_-_Volunteers_-_Final.pdf

The Woodland Trust UK

Type of mechanism

Tailored advice, capital funding (provision of materials) and delivery support/project management.

Brief description

The Woodland Trust seeks to provide support as necessary to bring an individual or organisation to a point where he or she plants trees. The Trust acts in a range of ways to achieve this from direct delivery, project management and ethical brokering to providing physical resources. The Trust recognises multiple motivations for planting as well as multiple benefits including flood risk management, aesthetics and wildlife. The trust undertakes small and large projects, working in partnership with other organisations (such as Natural England, Local Rivers Trusts and Community Groups, etc.) and land managers to implement sustainable tree and woodland schemes.



Credit: Woodland Trust (Kinniside, West Cumbria)

Details of mechanism

Capital Grants

Small scale: The Woodland Trust currently runs the MOREwoods scheme aimed at woodland creation (of 1.25 acres or more) on private land. The scheme provides up to 60% of the project costs if a land manager wishes to plant the trees themselves or up to 50% of the project costs if the land manager wishes to use a contractor. The funding is not provided as cash but as trees and protection tubes. Once the trees have been planted there is an agreement in place between the land manager and Woodland Trust that the trees are the responsibility of the land manager. This scheme has proven to be successful and has led to the creation of 1,100 ha of woodland since 2008. The scheme is widely promoted within the UK, but interested land managers have to approach the Woodland Trust to use the scheme; this means that the audience is already interested in tree planting and requires little to no encouragement to plant trees. This combined with the fact that land managers have to contribute a minimum of 40% of the costs means that the schemes are often successful and the trees are protected and maintained.

Large scale: The Trust also undertakes partnership projects with other bodies such as Natural England, the Environment Agency and Rivers Trusts. These projects often involve the partnership identifying areas where tree planting would be beneficial and the mechanisms they can call upon for delivery. The land manager will be approached by the partnership about tree planting on their land. In many cases the land manager will not have considered tree planting; this often means that the land manager requires greater incentive to participate. In these projects, alongside the advice and evidence, funding can be offered which approaches 100% of costs delivered over a number of seasons.

Tailored advice

The Woodland Trust provides a tailored advice service where an advisor can discuss planting options and maintenance needs. The Trust is building up an evidence base of the benefits planting trees can provide land managers including potential business opportunities

arising from game cover and wood fuel. As the evidence for the benefits of planting trees grows, the Woodland Trust is hoping that the need for financial incentives will reduce.

Example projects

Tebay

Tebay is a common of some 1,040 ha. It is both owned and subject to registered common rights. The Trust is working with Natural England to support the land manager and those farmers with registered grazing rights over the common to undertake work to restore some 12% of the common. Tebay Common suffered heavy overgrazing during “headage payment” years leaving the original upland vegetation in a very ecologically poor state and much of the area susceptible to landslip and erosion. Initially a scoping study was conducted to gauge the interest of the farmers and to show how the Higher Level Stewardship (HLS) could provide additional income to cover for areas put aside for non-grazing. Several management options were identified as being eligible under HLS including



cattle grazing, reductions in sheep numbers and tree/shrub planting in livestock exclusion zones. Commons legislation requires that before any new enclosures are constructed (to exclude livestock) all interested parties must be consulted and approved by the Secretary of State. The Woodland Trust was able to use their position as a trusted broker to engage commoners in the consultations. In addition to this they were also able to source appropriate trees for the shrub planting and fund exceptional items in the scheme. This support provided the land manager and farmers with an

incentive to agree to the works as little financial outlay was required and through the HLS farmers could receive a baseline single farm payment, plus additional payments of £100 per hectare for livestock exclusion and £100 per hectare for tree/shrub planting. To date 69,126 trees have been planted over 126 ha around the western edge of the Howgills. The Trust is now looking at funding elements of the maintenance for the next 10 years to ensure the trees grow.

Payment/advice structure

Within the MOREwoods scheme, the Trust can make a one-off payment (in the form of provision of trees) equating to 60% - 50% of the scheme costs. In partnership projects this can rise to 100%. In certain projects the Trust can also provide the funds for fencing if this makes the project more viable.

Advice from Woodland Trust advisors is available as an ongoing service.

Impacts for land manager

Tree planting takes up land and is often viewed, therefore, as reducing the amount of land available for production. However, trees have significant benefits for land managers including (but not limited to):

- Shelter for livestock reducing wind chill and exposure in winter – important for outdoor lambing and stock in exposed areas;
- Shade for livestock in summer – reducing heat stress in livestock boosting feed conversion and reproduction rates;

- Shelter for crops – tree belts and hedges improve water efficiency and protect yields in droughts and act as a natural barrier to reduce soil erosion;
- Trees improve the infiltration rates of soils, improving drainage and reducing the incidence of water logged fields helping to prevent health issues such as lameness and liver fluke;
- Production of wood fuel which can reduce other costs such as heating or can bring about additional income if sold;
- Provide a premium where associated with, for example, “Woodland Eggs”; and
- Provide shooting cover and game reserves.

Added social benefits include:

- Reducing diffuse pollution and river stress; and
- Enhancing wildlife and ecosystem service provision.

Impacts for delivery partner

The initial financial outlay lies with the Trust, since it provides elements of funding for advice, support, consultations, trees and, in some cases, for fencing and maintenance.

Barriers to getting going

There can be a lack of incentive or interest amongst some farmers when approached about planting trees; the Trust tries to overcome this with their evidence base and funding scheme. Further issues can arise if the land manager is receiving funding provided under an agricultural payment scheme; often the payments for woodland creation are less than those for production thus making tree planting a less attractive option especially on productive land. In the new scheme concerns are raised that areas taken out of production under the old scheme are now ineligible for payments – meaning that farmers doing “the right thing” have been penalised.

Traditional views are a barrier too. Sheep farmers in particular view trees negatively – an open fell is their preference despite the loss of shelter and shade afforded by woodland.

It was noted that in schemes where the Trust works with local authorities, procurement rules can be restrictive when acquiring quotes for works, including fencing. The Trust has limited restrictions and can therefore search for the most economic quotes; local authorities can be restricted to a particular pool of suppliers and therefore increasing costs.



Credit: Woodland Trust (Kinniside, West Cumbria)

Barriers to ongoing use

Undertaking projects can be a resource intensive task and as the Trust is a charity, funds can be limited dependent upon the donations received and the economic climate. It is hoped that as the Trust continues to provide capital funds for projects the evidence of the additional benefits will increase and be reported, eventually reducing the need for capital funding.

Highlights

The woodland Trust is often seen as a trusted intermediary by many land managers and is therefore well placed to advise and support.

The Trust is a charity so funding can be unpredictable. However they have the ability to fundraise which can give them more flexibility that is not available to others giving them the potential to be useful project partners.

To successfully engage with land managers (particularly farmers) it has been highlighted that wide and sound knowledge is essential. An ability to deliver on promises is also essential.

Accessibility/applicability to Scotland

The Woodland Trust is active throughout the UK and the MOREwoods scheme can be accessed in Scotland. The Trust has worked in partnership with organisation in Scotland (such as the Tweed Forum) to deliver natural flood management measures.

References

Pers. comm. Peter Leeson and Diane Millis (The Woodland Trust), February 2015.



The Woodland Trust
(open to partnering
with other
organisations)



UK wide



Ongoing



Tailored advice, capital
funding (provision of
materials) and delivery
support/project
management



Charity funds