

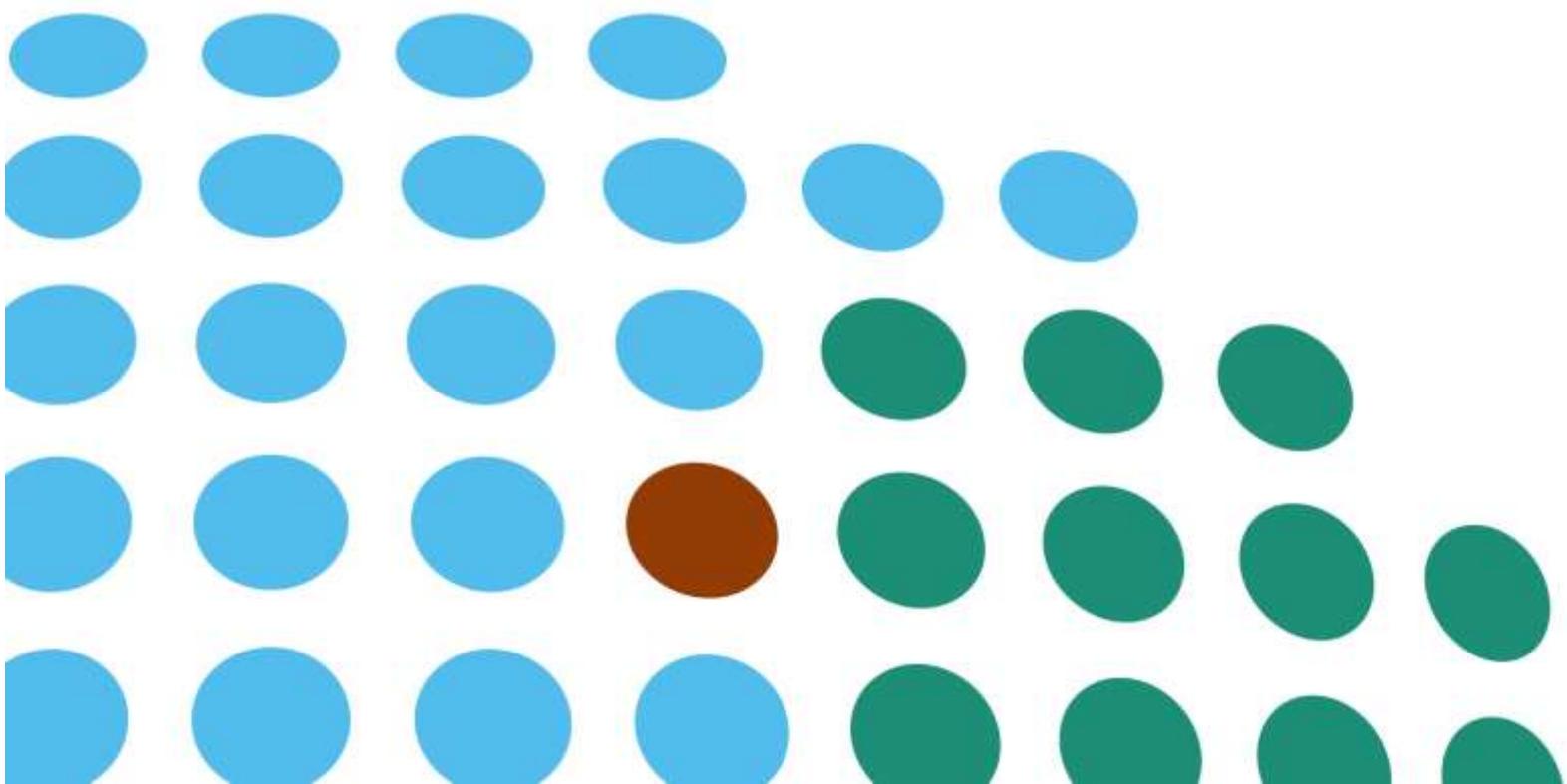


Climate  
VISION

Turning environmental problems  
into enterprising solutions

# Leaf Litter Project Report Update

February 2015



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# 1 Executive Summary

## 1.1 Project Update Outline

Climate Vision built on the previous two years of the Leaf Litter Project (LLP) of using the Community Payback Scheme to prevent flooding and reduce the cost of public services. We focussed on improving the use of resources to meet the requirements and recommendations of Defra's Pitt Report and improve the overall sustainability of the project.

## 1.2 Adding Value

Delivery through partnership working was integral to the project between Climate Vision, the Highway Authority, the local community, and the newly named Dorset Devon and Cornwall Community Rehabilitation Company (DDC CRC). The final year of the project facilitated and strengthened the following:

- Engagement between offenders and society, in this case: the communities the Offenders helped, this allowed them to be thanked for their hard work
- Invigoration of community spirit
- Increased partnership working between public sector organisations
- Increased profile raising (through good news stories in local news media) for all professional partners involved
- Increased flood resilience in vulnerable communities

## 1.3 New Outcomes

Climate Vision created a programme of regular interactions between the flood victims and the Offenders at work. We assessed who in the community would lead a repeat of the project, this includes; volunteers in the leaf clearing operations, the distribution of the mulch and finally the gathering, capturing and retaining of local knowledge regarding past landscape management.

## 1.4 Key Recommendations

- **Offender involvement:** Consider opportunities with government to increase Community Payback Sentences to favour expensive climate resilience work.
- **Media coverage:** This is a good news story easily publicised with significant benefits to all partners, but could be included in the National Press to increase participation.
- **Consultants for Project delivery:** could add value when rolling this project out to other communities through their motivation and experience in this project's conception and delivery.
- **Training:** Negotiation will be needed to secure:
  - Resilience Training (Climate Change & Flood Prevention) and Compost Training

- Labour in the form of the Offenders from DDC CRC, bought by Working Links from 01/02/2015, who will receive Highways, Climate Change (1:1) and Composting training with Community Payback workers.
- **Soil Conditioner Quality:** The final product could be tested to ascertain if it can be used on soils for food crops to give it a higher value and provide increased funds to go back into the project.

## 2 Introduction

Defra provided funds for projects that enhance community resilience and this project was made possible as part of the £238K available for such work in Cornwall.

This project works effectively to meet the principles of sustainable development as set out by the Government in their policy paper: *Securing the future: delivering UK sustainable development strategy*. It works towards a strong and sustainable community, protecting and enhancing the physical and natural environment, using resources and energy as efficiently as possible and holding carbon management at the heart of its design.

This project has been built on knowledge and experience gained within the three identified communities during and since the previous Lostwithiel Pilot Project 2011/2012. In this first pilot: Climate Vision reduced flood risk through leaf clearance in Lostwithiel and helped the Devon & Cornwall Probation Trust (now called the Dorset Devon and Cornwall Community Rehabilitation Company (DDC CRC)) to affect the individual reform of offenders on the Community Payback Scheme. Offenders provided labour to reduce community flood risk by clearing leaves to increase the efficiency of roadside drainage. Again we recognised the importance of this project as an engagement opportunity to inspire and empower low-risk offenders in this second pilot project. Offenders would now help across 3 local communities (Par, Lostwithiel and St Blazey) and gain new knowledge and certified training on how to alleviate flood risk under the pressures of climate change. These 3 communities were all in close proximity to each other so transport costs were kept to a minimum. We communicated the importance of the work in a changing climate to all involved and affected by the project and the offenders continued to offer a low cost solution to some of the flooding issues within these communities. The DDC CRC benefitted again from the highly promotable work streams for their Community Payback Scheme and the Highway Authority would continue to get expensive work done that they couldn't straightforwardly deliver themselves. The people would see offenders working as a team to reduce flood risk in their community and have a chance to engage, if they wished, with them and thank them for a job well done.

To date: in this project Climate Vision has successfully led a leaf clearance project in 3 communities for 3 autumns in Cornwall, using offenders from the Probation Trust's Community Payback Scheme.

## 2.1 Increasing Flood Risk

According to the Met Office: in the UK we are seeing an increase in both the intensity of rainfall events and the total rainfall overall in response to climate change. All types of flooding have increased in the UK, and throughout the world, due to land management practices increasing the amount of surface runoff. The land has become less able to soak up heavy rain as it falls so it flows over the surface of the land. Relatively small rain events can also trigger surface water and flash flooding if the ground is particularly saturated from persistent rainfall in the preceding weeks or months. This was the case across the South West of England during the 2012/2013 flooding where surface water caused significant damage to communities across the region and currently 3 million properties remain at risk from flash flooding across England. Flash flooding is rapid flooding of an area that occurs in response to a single rainfall event, with or without a river. Surface water flooding does not involve rivers at all; but temporary watercourses created by water flowing over the land without significantly soaking into it.

The Pitt Review final report (Defra, 2007), identified a need; to reduce the risks of highway related surface water floods, to have a better understanding of each local authority's drainage and watercourse systems and ensure clear responsibility for these systems is held by the local authorities. However, with current reduced government spending it is difficult to enhance the current service economically to provide necessary, additional time and location critical clearing activities within the existing contracts, especially in expansive rural parts of the country. However, this work is essential to reduce risk from surface water flooding. Without this important service communities are being left more vulnerable to this increasing surface water flood risk. This project offers an affordable, low-carbon and sustainable alternative to minimise flood risk from leaf litter hindering roadside drainage on a local level, whilst also meeting the government strategy: Securing the Future.

## 2.2 Tried and Tested

The project work outlined in this toolkit has been executed by Climate Vision with excellent results: During the original pilot, six Met office 'Yellow' (be aware) alerts were issued, for two events, one of which became an 'Amber' (be prepared) alert. While it is essential to note that Lostwithiel during these times, unlike neighboring areas, **did not flood** and neither have any of the communities since their involvement in the project to date, there are many causes and contributing factors to flooding events in addition to effective drainage. However, the following week the Lostwithiel community began to visit the offenders while at work and thanked them, telling them about their flooding experiences. This was unexpected and made a significant difference to offenders and other staff working on the project.

The Community Payback Scheme offered labour for the project, with offenders removing and composting the leaf litter. Climate Vision also worked with residents from the communities, the Local Councils, Waste Management contractors, local Highway Authority and the Highways Agency to make this project possible. The work

answered policy demands for all of the professional partners and the current project has added additional value by including 3 nearby communities with similar flooding issues in the project. They could all be serviced simultaneously by the same project team. Also, each of these communities had flood plans and this project significantly reduced the work required by the community to reduce flood risk in their area.

### 2.3 Sustainability

We wanted to compost the leaf litter again to keep the project's sustainability credentials as high as the pilot, to do this we worked with the local Councils, the communities and the Environment Agency to find and use appropriate locations. This compost became a useful locally produced-resource that was once a flood risk to the community. Using manual labour was also a low-carbon solution to clearing leaf litter as no machinery was needed other than to transport the workforce. The leaf litter became mulch for use as soil conditioner in parks, roundabouts and the flowerbeds of local residents. It is also possible that the leaves *could* provide mulch useable for food production but more data is currently needed to confirm that heavy metal contamination from road surface water runoff is not at significant levels as to be an issue. The project was also an opportunity to raise flood and climate change awareness in these communities, and among the offenders. The project later found offenders wanting to use their new skills and knowledge on climate change and flood prevention by putting them to use as flood volunteers in their own communities.

Cost of running the project needs to be examined when considering future sustainability. Costs of training were absorbed by the Highway Authority in the original Lostwithiel pilot but due to spending cuts they charged £500 during the second year, only to absorb the cost of training again in the third and final year 2014/15. This is expected to be absorbed in future by highway authorities having witnessed the costs they are saving from the leaf clearance work being done. All participation by project partners (Highways Agency, Cormac Ltd (contracted by Cornwall Council for local highway maintenance) and DDC CRC) was given free of charge. Labour costs of the actual Offenders also need to be considered. During the 2014/15 clearances this new company providing the offenders (DDC CRC) did not charge, but elsewhere are charging a nominal fee for labour services at £50+VAT per day (for one supervisor +van + tools +equipment and up to seven offenders per session). Labour has been free throughout the three year project due to the added value of the work and therefore may vary from region to region depending on the Probation Service's chosen regional management company so costing would need to be considered on a project-by-project basis.

## 3 Project

### 3.1 Site Identification

During consultation with partners and site assessment prior to 2014/15, clearance in Par Lane was considered unsuitable for offenders to clear by the DDC CRC due to local traffic conditions needing “Stop and Go traffic management”. Although the Highway Authority made funds available for additional training, Cormac questioned the need as another site could be chosen to still achieve the goals of the project in Par whilst avoiding the additional training and the associated time and cost implications. The experience in the offender workforce was at this time, also, reviewed by the project partners and an alternative site was selected due to lower traffic levels with the final three sites as follows:

1. Par: Driving Lane
2. St Blazey: Cornhill
3. Lostwithiel: Castle Hill

On 22/10/14 Lostwithiel Town Council (LTC) asked Climate Vision to provide a written undertaking that all leaf detritus, mulch and residue storage sacks would be cleared from the site by April 2016 and the site to be re-instated to pre-project condition. The purpose of the project was to demonstrate a sustainable model for communities to adopt annually to reduce flood risk and create a useful by-product. Therefore Climate Vision could not accept liability for the removal of all leaf detritus at the composting site as the site would need to be re-used annually. Climate Vision subsequently withdrew from the Lostwithiel site during the 2014/15 project after a final leaf clearance on 09/11/2014. This freed up valuable resources and enabled Climate Vision to increase delivery of the project in Par and St Blazey and notified LTC that the project in Lostwithiel would cease on 08/11/14, but due to the high leaf fall and bad weather forecasted, 108 bags were collected on 09/11/14. It was noted, however, that there is a groundswell of support for the project in Lostwithiel, with 10 residents and one local council (taking the residual mulch 11/12/14), using the compost so Climate Vision is optimistic that the community will recognise the utility of the project and wish to continue participate the 2015/16 clearances.

The collections amounted to the same total distance as previously covered (*e.g. 1 Mile requiring attention in the 35km<sup>2</sup> area of landscape assessed by Climate Vision*), clearing: (1) Driving Lane, Par (2) Cornhill, St. Blazey, while remaining flexible to suit the landscapes.

## 4 Outputs 2013/14

Throughout the project Climate vision has delivered the following outputs:

### 4.1 Output One: Assessment Phase:

In liaison with stakeholders, we produced a detailed assessment of the drain network within the three identified communities to identify those drains susceptible

to blockage by leaf debris during the autumn and winter months. These were prioritised by potential flood risk impact.

#### 4.2 Output Two: Planning Phase:

We created a routine drain clearing schedule for each of the three communities along with a response plan to minimise the impact of an extreme weather event likely to lead to flooding in any of the three project communities.

#### 4.3 Output Three: Delivery Phase:

We produced working methods to include proposed workforce numbers, supervision, training, Personal Protective Equipment requirements and equipment in the form of the toolkit.

#### 4.4 Output Four: Monthly reports:

Interim reports on drain clearance activity were produced to include routine and response drain clearances and quantities of leaf debris removed.

#### 4.5 Output Five: Output Final report:

This final report has been written (with executive summary).

##### 4.5.1 Output Five Secondary Outcome:

Evidence within the target communities of improved resilience to flooding has been provided. This also led to enhanced community engagement and individual participant progressions, as a consequence of contributing to the project.

## 5 Output 2014/15

### 5.1 Output Six: Engagement

By creating a programme of regular interactions between the flood victims, potential volunteers and the offenders at work, based on the significant effect on the offenders in the previous two years and guided by at least three recommendations from [Defra's Pitt Report](#) (Table 1), the community felt more resilient.

*Table 1: Guidance used from Defra's Pitt Report:*

1.	<i>ES.15 This government leadership must extend to a coherent operational approach. Perhaps the most significant feature of last summer's events was the high proportion of surface water flooding compared with flooding from rivers. Currently, no organisation is responsible for overseeing and planning for surface water flooding, creating problems which were particularly evident in places like Hull and parts of Sheffield. There are no warnings for this type of flooding, which can occur very rapidly, and people, including the</i>
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	<i>response organisations, were not well prepared.</i>
2.	<i>RECOMMENDATION 1: Given the predicted increase in the range of future extremes of weather, the Government should give priority to both adaptation and mitigation in its programs to help society cope with climate change.</i>
3.	<i>ES.98 The public need to be educated about flood risk.</i>
4.	<i>ES.99 Increased risk awareness is important but it must sit alongside advice on effective actions to limit the impact of flooding, otherwise all that may be achieved is a heightened sense of anxiety and helplessness.... The Government should decide which flood prevention and mitigation advice is essential and it should brand this as the definitive advice via a public information campaign</i>
5.	<i>RECOMMENDATION 60: The Government should implement a public information campaign which draws on a single definitive set of flood prevention and mitigation advice for householders and businesses, and which can be used by media and the authorities locally and nationally. Different people responded to different kinds of contact.</i>
6.	<i>RECOMMENDATION 64: Local Resilience Forums should continue to develop plans for door-knocking, coordinated by local authorities, to enhance flood warnings before flooding and to provide information and assess welfare needs once flooding has receded.</i>
7.	<i>ES.108 most striking impacts of the summer floods. It has considerable potential for the future. In a wide area emergency, the authorities are overwhelmed and people have little choice other than to help themselves.</i>
8.	<i>ES.111: Psychological impacts included increased levels of anxiety during periods of rainfall, and as a result of temporary living arrangements, dealing with insurers/ builders and financial difficulties.</i>
9.	<i>ES.115: But evidence shows that there is a continuing and significant detrimental effect on families' mental and physical health when they have to stay out of their homes for months at a time. Technological improvements can be made to speed up the process of building recovery, and these should be urgently pursued.</i>

The interactions between offenders and members of the public was highly successful. It resulted in offenders taking great pride in their work, learning about climate change and flood prevention and being appreciated by the local community. By talking with the community they were able to make the connections between their work and preventing the trauma caused by flooding to the families previously affected. On top of the arranged meetings with the community, the Probation Trust Supervisors stated several members of the community would stop and speak to the offenders every week.

In turn the community that met the offenders were surprised by their presence and indeed the work they were undertaking. Having spoken to the offenders and learnt from them a little more about Climate change, the drainage network and flood prevention, the community felt inspired, relieved and pleased that a flooding solution was in place. The training that was provided by Climate Vision had been proven to work as the offenders were able to pass on some of their learnt knowledge to members of the community.

## 5.2 Output Seven: Involving Community Volunteers

The decision to involve community volunteers in the operations and distribution of the mulch was to:

- Establish the general feeling of the community and assess if they would participate
- Be prepared for the new changes in the DDC CRC after April 2015, should the Offenders not be a viable option for the workforce
- To encourage the local community and develop awareness regarding the bi-product of this flood prevention project (the mulch) and its potential value

Ideally, all the roles fulfilled by Climate Vision and the project partners, including the offenders, could now be executed by members of the communities themselves. A single individual could take the project management role of Climate Vision with supporting volunteers within the communities to clear the leaf litter and perform composting and compost distribution services. Any revenue accumulated from the sale of the mulch could be reinvested in the project or help to remunerate the project manager.

### 5.2.1 Discussion

By seeking local answers on how to provide a sustainable project, with members of the community undertaking the project in the future and collecting and managing the distribution of the leaf litter mulch, the sustainable outcome of the project has been partly established. The community generally felt their Town or Parish Council should take on the role of inviting groups or individuals to Project Manage future leaf litter projects. Climate Vision invited the ten people/groups who collected mulch from the Lostwithiel site, to consider becoming involved as volunteers in the operations and distribution of the mulch in the future and the responses were recorded.

## 5.2.2 Results

*Table 2: Of the ten members of the communities interviewed regarding the recruitment of local volunteers, the most recurrent comments were recorded.*

<b>Comment</b>	<b>Number of times recorded</b>
Likely to have a lack of participation/Recruiting volunteers extremely difficult	3
Just need to get a few people interested then form a group <i>“Once someone starts to own the project and once someone starts to own a problem they put their mind to solving it”</i>	3
<i>“Doesn’t hurt to ask/Would think so”</i> (this in response community member hypothetically being asked to volunteer to distribute leaf mulch)	2
Great way to get people more aware of climate change	1
Working with Offenders may put people off	1
<i>“Yes, no problem at all, needs to be put in local freebie paper”</i> (Clearing the leaves from drains) (this in response community member hypothetically being asked to volunteer to distribute leaf mulch)	1
Don’t have time and too old (over 70)	1

### 5.3 Output Eight: Handover of the Project to the Communities

Assess and survey who in the community would lead a repeat of the project to ensure its sustainability and who would undertake the leaf clearing work schedule project if the offenders needed replacing. Essentially the last project involved 6-12 men per Sunday, totalling 520 man hours spent overall during the peak need in November/December, whereas the project needs to run mid-Sept to mid-Jan and volunteers would be needed for the duration.

Group	Number of Suggestions
Transition	3
Tywardreath Gardening Club	2
Lostwithiel Gardening Club	1
Lanhydrock Allotments Association	1
Par Lane Developments	1
Community Shop, St. Blazey (next to Co-Op)	1
A revitalised Town Council or PPC	1
Flood Wardens	1
Lostwithiel Environment Group	1
Lostwithiel Garden Society	1
Duke of Edinburgh Awards	1
Young Farmers	1
Eden Project	1
Royal Cornwall Duchy Nursery	1
Rotary	1
Royal Horticultural Society	1
Cornwall Council	1

*Table 3: Suggestions of groups to be considered for the role:*

## 5.4 Output Nine

In order to, test and inform a section of The Somerset Levels and Moors Flood Action Plan involving enhancing the role of voluntary ‘rhynsmen’, also known as ‘linesmen’ the community were asked if they remembered aspects of historical maintenance men and landscape responses to bad weather in the locality. This enabled the Project Manager to capture and retain relevant local knowledge.

*Table 4: Of the ten members of the communities interviewed, the most recurrent comments were made.*

<b>Comment</b>	<b>Number of times recorded</b>
<i>Pre-1974 all Boroughs were responsible for Highways and had these people to do the maintenance work</i>	4
<i>Highways used to, but no longer due to cuts</i>	3
<i>Assumed the role still exists “Most towns have a ‘man’ and indeed Lostwithiel has a chap employed by the Town Council who sweeps the streets and empty’s litter bins etc” “St. Blazey has a part-time handyman who does street cleaning and keeps an eye on the toilets”</i>	2
<i>Assumed Highways still cleared drains</i>	1
<i>A pensioner friend in Herefordshire has this part-time, well-paid County Council job “he drives around checking what needs to be done and does it”</i>	1
<i>Yes, stopped due to Health &amp; Safety</i>	1

*Table 5: Valuable Discussions:* The most valuable comments have been retained in this section rather than in the appendices to note the value of the comments and draw out conclusions that could be of use to the body who may take on the Flood Prevention Project.

<i>As a result of discussion, member of community thought that a “linesmen’s role could be increased to include the clearance of leaf litter”</i>
<i>“Would need a Councillor to champion it”</i>
<i>“They used to dredge the pond at the bottom of Driving Lane {project site}, every five years as the rainfall brings down sludge and farm soil, fills the pond and it floods”</i>
<i>“It was going to be used as a municipal dump. It has always been a watery spot; this is called Driving Lane because the cattle used to be driven down to the water and moved by water to another location from the bottom of the lane. Hence around the corner is East Cliff Road”</i>
<i>“When they weren’t busy ‘they’ did something like housekeeping, it was not dignified, and an odd-job person did it. The roads weren’t busy then, it was easy to do it, the roads weren’t being destroyed by 50 tonne lorries. The streets were empty, they had children playing in them –they’d be mown down today. Now road sweepers can do twenty times what two men could do on foot”</i>
<i>“I remember when we were children, a man with a hook and a stick – mum would give him a cup of tea, he was part of the community. He was an ordinary little man, I’m sure lots of people would want to do that”</i>
<i>“That’s going back a bit. The Roadmen were employed by the council, they cleared the ditches, and they were not paid much. People’s expectations were less. The landscape was also better kept and not cut up by big machinery”</i>
<i>“You’re 100 years after your time! Men were employed to keep gutters clear, trim the hedges, post-war in the 50s. I used to talk to them; I was 10, in Monmouthshire. Every 5 miles there were 4 men. It was a big job, didn’t have flayers (all done by hand), what were they called... You waved at them as you went past. Council would have paid them. Kept all the drainage channels clear”</i>
<i>“Mr. Bunney in Lostwithiel emptied the bins, did all the odd jobs”</i>
<i>“Now there are a lot more trees. Before the Romans arrived (Somerset), trees were cut for farming and domestic –purposes. Talk to Phil Treleaven {Lostwithiel Old Cornwall Society}. Shortage of timber here in Medieval times. Landowners banned collection of wood, ‘by hook or by crook,’ you couldn’t pick off the ground but you could take it dead from a tree. 1300s they smelted tin using charcoaled turf (from moors) not done with wood due to shortage”</i>

## 6 Elsewhere in the Country

Clearly the landscape is managed and maintained in extremely different ways than during the time of the original Linesmen (workers who clear roads), but the emphasis in the evidence is broadly based on landscape response and living with it.

Attaining local knowledge is essential when considering the local landscape response and delivering projects that can be replicated and inform imminent projects elsewhere in the country.

The Somerset Levels and Moors Flood Action Plan is a 20 year plan for a sustainable future. Within it a £10k project running through 2014/5 is stated to explore reducing the duration and/or frequency of flooding enhancing the role of voluntary rhyesmen to inspect, undertake small scale maintenance activities and liaise with the Internal Drainage Board (IDBs) and Somerset County Council (SCC) to identify where riparian owner works are required. This would ensure local knowledge of drainage network is captured and retained. By exploring the opportunities on a smaller scale through the Leaf Litter Project it became clearly evident everyone had a useful recollection that could enhance future maintenance planning in some way.

## 7 Monitoring Offenders in the Field

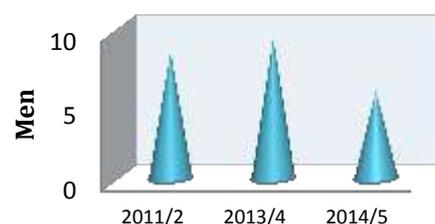
The Devon & Cornwall Probation Trust were issued with 'Working on the Highway Margins' certificates for all Offenders who underwent training. During the third year Offender numbers were 38% lower than the second year (30% lower than the first year) for a variety of reasons within the justice system.



## 8 Non-Project Volunteers

During the final 2 months of the 2014/5 project, members of the community met the workers, considered the future of the project and shared local knowledge about similar activities enacted in the past. In summary, all those who met the Offenders enjoyed conversing with them and sharing opinions. Every community member had an interesting and useful story to tell about the past landscape management and roles. With the exception of one, all Offenders enjoyed being involved with the project and could see the value of participating. However, only one member of the community volunteered to do the leaf-clearing work but everyone made suggestions about groups that may be interested. Due to the nature of the project so far a full scale recruitment drive of community volunteers has not been needed or attempted but, based on the good levels of volunteering seen for Community Emergency and Flood Plans there is

Figure 1: Average Weekly Offender Presence



reason to be optimistic about much improved related volunteer numbers in the absence of Offenders as labour.

## 9 Media Coverage

Every year over the three years the project has captivated the press as described in the main report, both locally and nationally, in newspapers, on radio and on television.

There were several significant dates on which the local media engaged with the project:

- 3/11/13 Offenders met members of the media.
- 10/11/13 Offenders assisted in weighing leaf litter and met local flood victim.
- 24/11/13 Offenders underwent flooding, climate change brief discussion with video footage of area during 2010 flooding event, followed by pre-survey questions.
- Positive media coverage with Radio Cornwall on site 3/11/13 reporting locally throughout the following day, making BBC Internet news website <http://www.bbc.co.uk/news/uk-england-cornwall-24800779>. Further coverage in local newspaper, with article in the Cornish Guardian 6/11/13.
- 27/4/14 ITV West Country Filmed Offenders and Stakeholders at the Lostwithiel Site, shown on the 6pm programme 28/4/14.

This was to promote the project and all parties involved in the project. It was seen as a good opportunity to promote the work that was considered to be very palatable to the media and public alike. Raising the profile may also lead to the rolling out of the project in other locations to further save money for the public and the Public Sector. Promotion mainly occurred at the beginning of the leaf clearance work to coincide with actual visible work being carried out and also to get the responses and stories from the offenders pivotal to the project and also from the residents of the communities involved.

As a result of this year's press coverage the Project Managers have become the go-to source of information regarding community flooding and different streams of interest are currently requesting copy for articles or attendance for presentations, e.g. UKCIP and Exeter University.

- The project has enjoyed positive media coverage throughout all the local press December 2014, covering a visit from Robbie Craig from Defra during the final leg of building a toolkit to roll out across the country <http://www.westbriton.co.uk/City-finds-use-towns-fallen-leaves/story-25718038-detail/story.html>.
- All media coverage is available on the Climate Vision website <http://climatevision.co.uk>

## 10 Evaluation

### 10.1 2013/14 Leaf Litter Clearance

Leaf litter collection commenced on the 3rd of November 2013 after training was completed on 27th of October 2013 and the final scheduled operations ceased on January 12th 2014. A final reactive leaf collection was made on 2/3/14, from two drains identified as in need of cleaning to minimise flood risk. Average weight of bags and number of bags was counted each week 9.15t of leaves were collected during the project. Of the 3 bags of leaves collected on the final day, 12th of January: 50% of the content consisted of silt.

Climate Vision monitored the sites to review the situation if needed, throughout January 2014. Most leaves had fallen by 5/1/14. New Year Site visits were made on the 5th, 12th and 14th of January and also on the 1st and 27th of February 2014.

A deep pot clearance was needed and the Highway Authority responded to the request, originally made by Offenders working and made the clearance themselves with heavy machinery. *It may be useful to see data relating to the level of major blockages necessitating clearance with heavy machinery and see if there is any reduction with the running of leaf clearance projects to potentially identify further savings emerging from the project work.*

### 10.2 2014/15 Leaf Litter Clearance

Leaf litter collection commenced on the 2/11/14 after training was completed on 12/10/14 and the final scheduled operations ceased on 11/1/15. The average weight of bags was taken 7/12/14, and the number of bags was counted each week with 10.3t of leaves being collected in 695 bags during the 12 week project. Most leaves had fallen by 11/1/15 but Climate Vision monitored the sites throughout January 2015 to review the situation if needed.

A deep pot clearance was needed this was requested by the Offenders working at the time. The Highway Authority responded to the request and made the clearance with heavy machinery.

#### 10.2.1 Leaf clearance in the 3 communities:

##### 10.2.2 Driving Lane, Par

Between 07/10/2014 and 13/11/2014 Climate Vision consulted the stakeholders to re-assess the original three project sites. Lower Driving Lane in Par met the most significant need being a location of flooding on a regular basis. It also had a low enough traffic count for workers to clear the built up leaves from the drain at the bottom of the hill and work upwards to clear and maintain in the time remaining.

Figure 2: Lower Driving Lane, before collections with lower drain completely covered



Figure 3: Lower drain



Figure 4: Lower drain on Driving Lane fleeced by mid-Autumn, cleared to indicate depth (2/11/14)

Figure 10: Working in Driving Lane



Figure 6: Leaves bagged up to leave to compost down

### 10.2.3 Castle Hill, Lostwithiel

Castle Hill was cleared until 22/10/14 when Climate Vision volunteered to withdraw from the project on 08/11/2014 due to the composting site re-instatement issues mentioned in Section 3.1. The site was the Council Allotment used for the mulching during the first two years of the project. However, due to the high leaf fall and bad weather forecasted, a further 108 bags were collected on 09/11/14.

### 10.2.4 Composting

During the first two years of the project, Climate Vision paid a composting expert to train the workers on the first day of collections. Due to the positive coverage of the project and the recognition of its value, a local resident with expert composting experience volunteered to train the offenders and was given the opportunity to have some mulch in return. Ten residents responded to advertising to collect the project leaf litter mulch. All members of the public who used the mulch signed a form to ensure the mulch would not be used in the food chain, under the new regulations from the Environment Agency (Appendix 2). The opportunity was advertised in the local media and amongst community members met during the project and events attendance to promote the project e.g. The Lostwithiel Garden Fair.



*Figure 7: Learning about the composting process by a local volunteer*



*Figure 8: Fleece drain prior to collections (2/11/14) on Castle Hill, Lostwithiel*



*Figure 9: Local resident visiting site and workers to discuss project*



*Figure 10: Worker weighing leaf litter to create average weight of bag for the day*



*Figure 11: Speaking to Media on site with Workers and Probation Staff*

#### 10.2.5 Cornhill, St. Blazey

Cornhill did not require clearing until 30/11/14; it had been subject to some highways resurfacing and clearance. However on that day 112 bags were collected. 100 metres above the site clearance area, the Cornish Stone Hedging showed signs of significant deterioration. Climate Vision has suggested to stakeholders from the beginning of the project that that heavy rainfall in a rural landscape is likely to see further breakdown of soil mechanics which will increase debris on roads and increase drain blockages.



*Figure 1 Leaves fell later on Cornhill*

#### 10.2.6 Engagement

Once asked, residents were really keen to discuss the project and talk to the workers. With the exceptions of one, the workers valued the work, enjoyed meeting the public and media, had learnt a about climate change and flood prevention and beyond the highways and composting training got involved in the data analysis of the project.



*Figure 2 It was important to note the hedges had deteriorated significantly since the previous year*



*Figure 3 New leaves bagged up for the mulch site*



*Figure 4 Workers discuss the project during their breaks*



*Figure 15: Refuse sacks, punctured and containing composting mulch*

## 11 Survey Data

The survey, although having a small sample size, was an opportunity to determine what the offenders thought were the driving factors behind flood risk and also their awareness of flooding as a local issue. However, the data may be of most use in understanding how offenders felt about the work itself. The key findings have been identified as follows:

1. Do you feel this type of unpaid work is worthwhile/better than expected/fair/inappropriate?

- a. **7/7**: A good and worthwhile activity for people doing unpaid work/fair thing to do
  - b. **0/7**: An inappropriate unpaid work activity
2. If your community were prone to flooding, would you get together to sort it out?
    - a. **5/7**: YES
    - b. **1/1**: NO
    - c. **1/7**: Don't know
  3. Would you have felt like that before this work?
    - a. **1/7**: Yes
    - b. **5/7**: No
    - c. **1/7**: Don't know

The results of the survey on the participating offenders seems illustrative of many positive outcomes regarding their education about the nature of flood risk, the project itself and how they felt about such work now and in future.

In conversations with the public, workers were led to think about different aspects of the work and contributed their own ideas. Useful comments are described here:

- *Worker H was surprised when he heard a member of the community describe her fear when “the heavy rain brought stuff down, the muck was so heavy it started to take walls down”. They smiled together as she also described the time after the event, when everyone was safe and how it was “good fun, the police turned up and there was a lot of excitement in the community as everyone was being so brave” Worker H was aware of the role of the roadman and thought it still existed.*
- *Discussions were had with workers based on the question “Why do you think we have rainfall like this/freaky weather” Worker H was very well informed and enjoyed taking the conversation to the next stage and working his opinion out 1:1 with a climate scientist. He described becoming a perfectionist in his work and described him and as his fellow workers as “liking the work and helping people”.*
- *When asked “Why aren't people better prepared?” Worker J thought people didn't expect it as they had bought a house, but did not realise it had been built on a flood plain.*
- *Upon discussing with workers about preferences over receiving fines or community payback hours, Worker H considered it more economical to do something the community needs and that it provided the offenders with an opportunity to not be a further cost to society. Despite his views, he would have preferred to have been given a big fine and pay it to finish the sentence sooner and thought it would be good to include the offender in the decision. Worker B was pleased to do the hours because*

*of the type of work, “For once we are actually helping the community”.  
Worker L had taken pride in his work, “We’ve walked the dog to the site  
to see where we work and show the family”.*

## 12 Recommendations

### 12.1 Adding Community Value

Work further with the Highway Authority to train local community volunteers to perform the labour involved in leaf clearance: Some communities have pre-existing networks of volunteers involved in community emergency plans. These networks can be tapped for already willing volunteers to reduce recruiting times and therefore also overall setup times of the project. We can add value to these networks by integrating some of the tasks needed for project execution that are already fulfilled by these existing community volunteer groups. Again, based on good levels of volunteering seen for Community Emergency and Flood Plans we would be optimistic about community involvement in the event of full scale promotion of a project needing community volunteers.

### 12.2 Consultants for project delivery

A consultancy with experience in managing such a project will be well placed to ensure that the work is completed to deadline; although the toolkit provides signposting on who to approach and where to find the resources, experience of already doing so will greatly improve the prospects of getting the program up and running in time for autumn leaf fall.

The use of consultants for start-up and continued delivery has also been recommended in the toolkit due to consultants having the:

- Experience from designing and executing the project
- Relationships with professional partners and community members
- Dedicated time to ensure the schedule is met

Climate Vision could re-deliver the project in communities already running it.

### 12.3 Training

Although “Working on the Highway Margins” training cost the project in 2013/14, in 2014/15 it was provided free of charge (valued £500) through the Highway Authority. This delivery could be enhanced if the DDC CRC, recently brought by Working Links (01/02/2015), were able to ensure the number trained were long-sentence offenders who would be co-ordinated to stay with the project through its duration. Retention of Offenders throughout the project is not always possible due to low numbers of Offenders mainly driven by location and low population density. These are factors particularly relevant in Cornwall but also a potential challenges in other, geographically similar parts of the UK.

Offender training for 2014/15 took place at the Guildhall in Lostwithiel, on reflection Supervisors felt the training would be more efficient if held at a DDC CRC building in the future. This also meant there would not be a cost of hiring a hall to meet for the project to commence.

In 2013/14 Composting Training was provided by a consultant at cost to the project but Climate Vision identified a cost saving through using a community volunteer experienced in composting. This really helped the project as the local knowledge imparted to the Offenders made the training more interesting. Likewise the Trainer was able to talk to people in the community about the project and his role in it. Again, no cost was incurred to the project as the keen gardener was more than happy with free mulch.

Climate Change & Flood Prevention Training was provided by Climate Vision on three occasions, focusing on the necessity of the work at the start, middle and end of the project.

A similar pattern has occurred each year: when the Offenders at first are not interested in being in the wet and windy roads at the onset. However, they soon start to realise the importance of the task as they hear how events unfurled during the day of the big Lostwithiel flood and subsequent floods. This coupled with meeting members of the community who shared learning about climate change with the offenders, not only enabled them to understand the trauma they experienced, but the value in developing our knowledge about the complex subject of climate change. Climate Vision could continue to deliver the training or provide training material for those in other areas to use.

#### 12.4 Offender Workforce

As Offender numbers were 38% lower than the second year (and 30% lower than the first year) but despite these challenges, the project continued to deliver on clearing the selected roads with the reduced resources available during 2014/15 clearances. This is an encouraging sign that the project toolkit provides a robust plan to reduce flood risk under difficult circumstances. It should also be noted that lower numbers were not indicative of reduced commitment of the DDC CRC to provide offenders in the future. Climate Vision has discussed the use of Offenders in projects such as this one and the Deputy Chief Executive, Ian Clewlow, has said that his community rehabilitation company *“remains committed to finding solutions in the community that can stop offenders from re-offending, and our relationship with Climate Vision is one such solution”*.

#### 12.5 Soil Conditioner Quality

The Project requires a small part-time position to oversee future use of the model; it is advised this role should be steered by the Parish or Town Council. The successful applicant for the voluntary role of Project Manager could take on further work to ensure the mulch produced at the end of the project could be further tested to see if it could be suitable soil conditioner for food crops. It should be noted that, at this

stage, enthusiasm remains within the Environment Agency to proceed with such testing to see if mulch from the project can indeed be used for this purpose but they may need further persuading to do so. This could dramatically increase its use in communities and generate a greater income than the value of mulch (Locally valued at £15-20 per tonne, collected from site). The possible future revenue could contribute towards funding a part-time position to oversee the organisation of the project in future years using the Toolkit or could become a 'bonus' for the Volunteer.

The 9 tonnes of leaves collected in 2013/14, created well-rotted leaf mulch. After ten local residents collected some for their own use, Truro City Council (TCC) collected the remainder, as seen in the news <http://www.westbriton.co.uk/City-finds-use-towns-fallen-leaves/story-25718038-detail/story.html>. TCC consider the mulch to be a valuable resource and output from the project, particularly the mulch from the Lostwithiel site.

The mulch from the St. Blazey site, was contaminated due to an Offender error; depositing waste sacks in the mix, and the growth of brambles into the compost reduced the efficiency of mulch removal at the end of the process. Points to consider in future could therefore include erecting barriers around composting sites and also highlighting the importance of correctly executing the composting procedure at the beginning of the process to avoid wasted mulch.

## 12.6 The Project Manager

The toolkit, above all can be flexible, different regions will have different challenges and opportunities. The Project Manager should be seen as a pivotal role and may need to be a paid position each year. A number of funding streams can be examined for this purpose and ideally a consultant with a strong background in securing funding from the Public Sector should be used for this purpose. This would ensure getting the project off the ground under community driven and Offender driven models on time and ready for autumn leaf falls.

## Appendices

### Appendix 1: Quick Start Guide for the Leaf Litter Project.

This Quick Start Guide was created for Defra as a an abridged version of the toolkit

How to start a Leaf Litter Project	
Town or Parish Council	Attend a meeting in the Spring to ask <u>if the Council would support a volunteer to undertake the autumn project with partners. Once their approval is gained, having previously</u> circulated the Leaf Litter Report and presented on the Leaf Litter Toolkit at the meeting, set up meetings with local Probation Officer, Highways Authority, Environment Agency and Local Flood/Community Group.
Members of the community can deliver	<p>The Report and Toolkit is designed to allow partner supported volunteers <u>with project management experience to undertake the project, potentially with some expert help. The volunteer will be driven and may benefit from the sale of the mulch the following year.</u></p> <p><u>Training of Offenders in Flood Prevention &amp; Climate Change</u> is essential to value of the project and would need to be paid for by the Probation Service or undertaken voluntarily by the volunteer having researched the subject.</p> <p><u>Training of Offenders to work in the Road by the Highways Authority</u> is expected voluntarily in return for clearing the highway. In return Probation are expected to supply workers voluntarily for the value of the training.</p> <p><u>Training of Offenders to learn about composting</u> is expected to be done voluntarily by a local gardener who can benefit from the mulch.</p>
Following the Toolkit	<p><u>Identifying the Sites, Feasibility and Risk Assessment</u></p> <p><u>Assembling the Workforce</u></p> <p><u>Emergency Response</u></p> <p><u>Disposal / Composting</u></p>

Method	<p>The toolkit is designed to identify key steps needed to reduce flood risk in communities at risk from surface water flooding caused by leaf litter obstructing proper drainage.</p> <p>Starting in July, with effective engagement with the community and strong working relationships with professional partners: getting offenders trained and ready to start work on routine and emergency leaf litter clearance during the autumn is highly achievable.</p> <p>Getting Started: Scope the Project</p> <p>As communities are usually the first to identify the need for local flood prevention, community engagement is essential. Local knowledge from the community is necessary so, bring together all the outside expertise and manpower, having clearly identified the initial scope of the project to effectively improve drainage and reduce flood risk.</p>
Resources	<p>Once the preparation has been done once, contacts made and sites identified maintaining the project year on year will require less resource.</p> <p>The value-swapping exercises that combine to make this model effective also make it cost effective, potentially cost-free. Training budgets within the Ministry of Justice could ensure Climate Change Training is delivered. Revenue generated from the by-product the mulch, could provide a bonus to the volunteer project manager.</p>
Outcome	<p>Primarily, the project should be successful in clearing the drains of leaf litter and in making the community more resilient by increasing their awareness of flooding risk management.</p> <p>Since the original project has been running there has been no surface water flooding at the selected sites that normally flood. Residents were convinced of the success of the project in helping to increase roadside drainage and reduce surface water flooding as a result.</p> <p>Offenders should gain the opportunity to really understand</p>

the importance of their work to the local communities in which the project was run. Previously this came from members of the communities thanking the offenders and telling them about their flooding experience within the community.

The Highway Authority gained free and effective labour to perform valued highway maintenance work.

The Community Rehabilitation Company (formerly known as Probation Trusts), benefit from a work stream that is highly visible to the public to engage offenders on their Community Payback Scheme and according to the original product has reduced re-offending rates.

The project successfully increases partnership working between public sector organisations and also created some excellent publicity for those organisations through the promotion of the project by Climate Vision, which could in turn be done by the volunteer.

The toolkit should ensure the model can be replicated in other communities, where flood risk of this nature is an issue.

Risk Table			
potential risks	likelihood	impact	Mitigation
Working on the roadside has inherent risks and to maintain a strong ethos on health and safety.	High-Medium	Fatality/Injury, residual Risk – Low	With stakeholders, Climate Vision produced a Method Statement, Risk Assessments and a Training package. This ensured the correct personal protective equipment requirements were used in the project and health and safety requirements were met.
Co-ordination of the partners	Medium	Failure to prevent flooding	Keeping stakeholders communications as needed

<p>The project relies on Highways and Probation maintaining their agreement to provide free training/labour</p>	<p>Medium</p>	<p>Risk for long term roll-out of project.  Current project budget allowance.</p>	<p>Ensuring new management understand the nature of the project and its history.</p>
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### **Leaf Litter Mulch as a result of the Flood Prevention Leaf Litter Project**

Leaf litter plays two key roles in wooded area ecosystems: firstly, leaf litter fall is an essential part of nutrient and carbon cycling, and secondly, leaf litter forms a protective layer on the soil surface that also regulates microclimatic conditions (Sayer, 2005). In this case we are concerned with leaves on drains contributing to flash flooding. Rather than remove, transport and landfill the leaf litter, a double carbon negative in this process, we aim to try and restore the above process through collecting, storing and mulching through this project.

Autumn leaves collected from roads if composted should not be used on allotments where it is likely to get in the food chain. This is because of possibilities of fuel contamination from the road.

**Leaves collected from the road cannot be used for composting, for use in the food chain or where children play due to the possibilities of contamination from the road.**

The mulch is currently in perforated black sacks kindly donated by CORY. If you would like to collect some mulch for use on your land as indicated below, and reply by return to this email agreeing these stipulations, you are invited to help yourselves to the bags of mulch that have been collected and mulching down since October 2013 in Lostwithiel. **In return you will be provided the location of the mulch, which must be collected by Sunday 26<sup>th</sup> October.**

You are asked to place any black sacks that may become loose in the bin provided.

Feedback will be welcomed.

#### **Usage Checklist**

- Must not be for use in the food chain/allotments.
- Keep away from water courses
- Used as a mulch and close to where it is produced
- Mulch shrub borders, to feed your plants along with nourishing the soil as the leaf litter returns much-needed nutrients to the ground.

#### References

Sayer, E. J (2006). Using experimental manipulation to assess the roles of leaf litter in the functioning of forest ecosystems. *Biol. Rev.*, 81, pp. 1–31. Cambridge Philosophical Society

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