Ardroy Recycle Project

Climate Challenge Fund

Final Report

CCF- 3396

Ardroy Outdoor Education Centre
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Registered Charity Number SC04259

Background

AOEC TRUST LTD was formed in 2011 in response to the closure of Ardroy Outdoor Education Centre by Fife Council. The centre was reopened later that year as a registered charity, utilising any revenue generated to cover the costs of running the centre. Since re-opening we have moved from strength to strength, finding the funding and resources to purchase and improve the centre and its buildings.

We are an educational facility, utilising residential outdoor experiences to facilitate various learning outcomes. Our activities are integrated in to the Scottish Curriculum for Excellence and we are one of the leading providers of the John Muir Discovery and Explorer awards.

We provide experiences that deliver various aspects of education including:

- Personal and Social Development
- The benefits of Community and skills required for working with others
- Practical environmental lessons including river and biodiversity studies
- Carbon reducing activities including managing food waste, recycling, energy conservation and buying habits
- Conservation and land use
- Risk management and challenging perceptions

Working closely with Schools, teachers and youth leaders we provided residential courses for nearly 3000 School Children and Young People.

Starting Point

Outdoor centres and impact:

As an outdoor education facility it is naturally our responsibility to engage young people in discussing our impact on the environment. We are passionate about keeping wild places wild and we hope that we encourage others to develop a sense of responsibility when considering the protection of our environment. This can be difficult when one considers the irony that we do, in fact, have a relatively high environmental impact ourselves.

As a centre we cater for thousands of young people every year. Through the nature of our courses and having inherited several outdated buildings from which to work from we had several key areas in which our environmental impact needed addressing:

- Energy Usage: The centre utilizes a dated electric heating system which generally has to run throughout the winter at a high energy cost. Further to this we have to run three large drying facilities which require electric heating 24/7 throughout most of the year. Being in continuous use, these kit drying facilities are a significant drain on energy. Having no mains gas supply our water is also heated on an inefficient electric system.
- Food waste: We have a lot of mouths to feed. Ardroy has always composted any waste food and asked the young people who visit us to reduce their waste but the potential for engaging young people in the issues surrounding food waste had not been explored for many years.
- Textile waste: This was a key issue for us. In order for there to be no barriers to participation we provide all our participants with a full set of outdoor PPE including fleece, wellington boots, waterproofs. Further to this we use a huge range of equipment at the centre including wetsuits. Due to the nature of our activities this clothing and equipment gets damaged or wares out very quickly. Some wetsuits can become too damaged to use after only two months. We then have to make the decision as to whether we throw away the equipment or simply continue to use it despite it's damage. The result is a large amount of kit is thrown away each year. This is a common problem for outdoors centres and activity providers.
- Washing: We have a huge demand on our washing machines. It is not uncommon to find the need to wash hundreds of items of waterproofs and fleeces in a week. We originally had a small and inefficient washing machine that would generally be in constant use for most of the year.

The above issues are common in most outdoor centres. With help from funding from the CCF we decided to tackle some of these areas with a view to showcasing a lower carbon approach to running an Outdoor Education Facility. When considering that Schools are often at the heart of their community we felt that interacting directly with them would be an immensely effective platform to bring about changes in those communities.

Project outcomes

We received funding from the Climate Challenge Fund to deliver the following outcomes:

CO2e Outcomes:

- To trial the use of Polytunnels as a zero energy requirement commercial drying facility.
- To create an onsite repair and recycling facility. This facility will be used to unsure that all worn or broken equipment at the centre is repaired rather than replaced if possible, with the resulting reduction in production demand and landfill.
- To source further equipment/materials from other centres and organisations that can be repaired and re-used by either ourselves other youth organisations.
- To examine further ways that we, as a centre, can further reduce our carbon footprint and make the centre run more sustainably and efficiently.

Community outcomes:

- To engage children and young people in activities that promote developing an awareness of current environmental issues and empower them to make changes at home or in School.
- To show young people practical examples of a lower carbon approach for example by recycling, repairing, re-using and reducing energy consumption.
- To engage other outdoor centres in discussion on the benefits of adopting a more sustainable and environmentally friendly approach to the way they run their centre.

Headline achievements

- 5829 Children and Young People engaged in environmental awareness and carbon reducing behaviours lessons and workshops over the two funded years of the project.

- First successful trial in converting polytunnels in to zero energy requirement drying facilities for outdoor and sport centres.

- Successful installation of a repairs facility aimed at reducing landfill by increasing the lifespan of outdoor equipment and PPE.

- 0kg of outdoor clothing textiles and equipment sent to landfill by our organisation since the project began

- Projected CO2e savings of 26 tonnes over the ten year lifespan of polytunnel drying facilities.

- Projected CO2e savings of 109.37 tonnes over ten years due to kit repair facilities.

- The development of a wide variety of educational programmes aimed at engaging children and young people in discussing the issues surrounding climate change, waste, human impact on biodiversity, littering, land use, conservation and community carbon reducing activities.

- Several tonnes of materials diverted from landfill to create team building and adventure activities.

- A drop in repair system for children and young people to have their personal clothing and belongings repaired.

- Notable changes in children's habits and behaviours within the Schools that we interact with. Several Schools taking up their own good environmental practices including food gardens, litter picks, outdoor classrooms, composting facilities and food waste reducing initiatives.

- The permanent employment of a Repairs Operative in a small community that has relatively few employment opportunities.

Outputs

Community outcomes:

"Ardroy gave us plenty food for thought regarding how we live our lives. The children have focussed on wasting as little food as possible as they now understand the impact this has in the environment."

Keith Morton, Class Teacher
N Queensferry PS

As a busy Outdoor Education Centre we have the unique advantage of being able to interact with young people from a number of communities. As such we define our community as simply being School Children and Young people from all over the UK as well as our local Community of Lochgoilhead and Carrick villages.

The main focus of our project was to engage our team in developing a range of educational activities and workshops that engage our visitors with the current issues regarding climate change, littering, energy use, landfill, waste reduction and even on saving money.

With around 2500 to 3000 children and young people visiting us each year we felt little need to organise specific community events and instead focus on how we can best take advantage of the large numbers of people we interact with to encourage changes in attitudes and behaviours. This perhaps sets us a little apart from other CCF funded projects in that we have not had a focus on setting up events in order to reach our communities.

We have found that our particular strength has been in our ability to show practical examples of how a young person can realistically make changes to lower their own impact both at School as well as in their homes and communities. We tie this in with outdoor experiences which immerse them in the environment they are trying to protect and give a little context to the lessons and discussions we are engaging them in.

Our staff meet regularly to discuss and develop our environmental programme and ideas for adapting or developing our programme are implemented by the CCF funded development officer.

Some of our activities are detailed below to give a flavour of the work we now carry out with young people.

Conservation:

Since the project began we have involved over 1000 children from 12 schools in conservation tasks through our delivery of the John Muir award programme. Ardroy is one of the leading providers of the John Muir Award and has spent considerable time developing a two year programme in which the Schools utilise the John Muir Award to integrate outdoor learning into their curriculum. Through a series of School visits and residentials at our centre we have assisted Schools to develop a programme which encourages the children to develop an appreciation for wild places and to take ownership over protecting and conserving wild places in their local communities. We have been very successful in these endeavours with Schools organising local projects such as utilising their School grounds to grow food and adopting areas of woodlands to look after through litter picks.

As a part of this programme the children visit us twice. During both visits we organise formal conservation events which are backed up with lessons on biodiversity and human environmental impact. Our key areas for learning encompass the issues surrounding invasive rhododendron, littering and invasion of self seeded sitka spruce in Atlantic oak woodlands. Through our work with School groups we have cleared several acres of invasive rhododendron and several tonnes of litter from beaches in Loch Goil, Carrick and Arrochar areas.

Leave no trace camping:

Problem wild campers and antisocial behaviour is become an increasing problem, both in the National Parks and nationwide. The issue is currently highlighted in national news due to the extension of the camping ban in the

Lomond and Trossachs National park. Current access legislation is becoming increasingly under threat due to issues mostly surrounding the litter left behind by weekend wild campers. As Ardroy is passionately pro access we believe in an "education rather than legislation" approach. For this reason we have taken care to utilise our work with the English Challenge Network group, various Scottish high schools and other similar groups to develop a "leave no trace" camping programme for 14 to 17 year olds.

During their stay at Ardroy the young people learn about the issues surrounding access, littering, fire damage and even the problems with tents being left behind at festivals. They take part in their own camping expedition and learn how to spend a night in a wild place whilst managing litter, fires, toileting and erosion in a sustainable way. They are also involved in the care an maintenance of the equipment, demonstrating that there is no need to throw away this equipment after a single use and that it doesn't take much effort to make things last.

To date we have worked with 988 young people in this manner.

Environmental education and food waste:.

We have worked closely with schools to develop a programme of environmental education which has been integrated in to our evening activities. During their stay all of our participants are engaged in lessons, workshops and quizzes which develop a greater understanding of the role that they can play in reducing their own impact at home.

Further to the above activities we have significantly expanded food waste awareness campaign. Our participants take part in a lesson topic after each evening meal, addressing the impact of food waste by covering topics such as food miles, landfill, CO2 output and cost. They are challenged to produce as little waste as possible and shown methods that can be used at home to reduce their own waste in the future. We have expanded our methods of composting and have introduced examples of home composting systems that

our participants are encouraged to use throughout the week. The participants also have access to our veggie gardens which utilise the compost produced.

We challenge our participants to take these ideas back to School with them. We are able to offer advice and assistance to Schools who would like to take on board their own food waste initiatives. Through advice and visits to our site we were able to assist Balfron High School in their application for funding to start a Rocket Composting System for their pupils for example.

Up-cycling and Activity Construction:

We used a proportion of our time sourcing waste materials that can be re-purposed for use in constructing activities around the centre. We are keen to showcase what can be achieved on a budget for outdoor centres which are operating within tight budgets as charities and trusts. Further to this we can reduce landfill and provide a little inspiration to our participants as they use the activities.

We have saved quite a bit of useful building materials that would have gone to the skip including a fair amount of ply, sawn timber, piping etc. This has been sourced from local renovations and contractors. We have even built up a good relationship with an offshore rigging safety contractor who have donated a large amount of ropes, nets and rigging equipment that would otherwise be thrown away. All of the above materials have been used to create various team building activities and obstacle courses around the centre.

Further Development:

We have continued in our efforts to reduce our impact as a centre and to showcase a lower carbon approach. Further to our projects funded by the CCF we have extensively upgraded the centre with improved insulation, roofing and heating systems as well as the addition of extra recycling bins.

Polytunnels:

As far as we can tell, Polytunnels had never been used before as a commercial drying facility for clothing. We had been researching lower energy alternatives to our drying facilities for some time and came across the idea to trial polytunnels from observing that some log firewood sales companies use polytunnels to accelerate the drying process for their logs. Using funding from the CCF we decided to trial whether or not Polytunnels would be an effective, zero energy, system for drying large volumes of equipment in Outdoor Centres, football clubs, sailing centres etc.

When designing, building and using the system there were various factors to consider including the type of outer covering, drainage, flooring and ventilation.

Over the last two summers we have tweaked the designs of our tunnels several times and have learned several lessons that can be passed on to other organisations looking to adopt a similar system. Some of the factors we advise other centres to consider include:

(a) Ground works: Ample drainage needs to be provided. A poorly draining floor creates a sauna like effect and prevents the drying process from occurring. We trialled both concrete and slate flooring and found a floor made from a layer of hardcore topped with a layer of recycled, crushed roofing slates and finally a layer of beach gravel to be the most effective. The slates

have the added benefit soaking up heat which can be released slowly overnight, much like a storage heater.

(b) The doors need to be open during the day to allow moist air to ventilate then closed in the evening. Our tunnel with doors that face the prevailing wind builds less heat than the tunnel which faces away from the prevailing wind.

(c) We found little difference in heat generated between a clear or a diffused covering although a diffused covering does provide greater security as it obscures the items placed in the tunnel.

This turned out to be a very successful trial, with all of our powered drying rooms now turned off from spring through to mid autumn. We have found that most of our equipment will be dry by the following day, even in overcast conditions.

We have had a small number of other organisations showing an interest in adopting similar systems for themselves. Feedback has consistently brought up the fact that the initial cost is a concern but we believe we have demonstrated that considerable overall savings can be made when the ten to fifteen year lifespan of the tunnels is considered.

Repairs Facility:

The bulk of our CO2e outcomes centred around the use of a dedicated repairs facility to ensure that our impact through the high turnover of outdoor equipment and clothing was reduced. As we had no available vacant building within which to place the repairs equipment we opted to repurpose a shipping container in to a workshop. This had the added advantage of being relatively easy to install, minimal ground works and the ability to move the facility if required. The facility was sourced, converted, installed and outfitted over the first four months of the project.

A sample of notable achievements gained as a result of the repair facility include:

- Not a single item of clothing or equipment has been thrown to landfill the since the facility has been operational.

- We have developed a system of repairing wetsuits that have significant damage to high ware areas. Previously only small tears could be repaired and if significantly damaged a professional repair company wouldn't carry out a repair at all. We are able to more than double the life expectancy of a wetsuit under heavy centre use.

- Up cycling of materials from the renovation of Dunoon Church. A LWB Transit van full of materials destined for landfill due to a local Church renovation were recovered and repurposed including a large numbers of rusty chairs which have been completely re serviced and either used by ourselves or passed on.

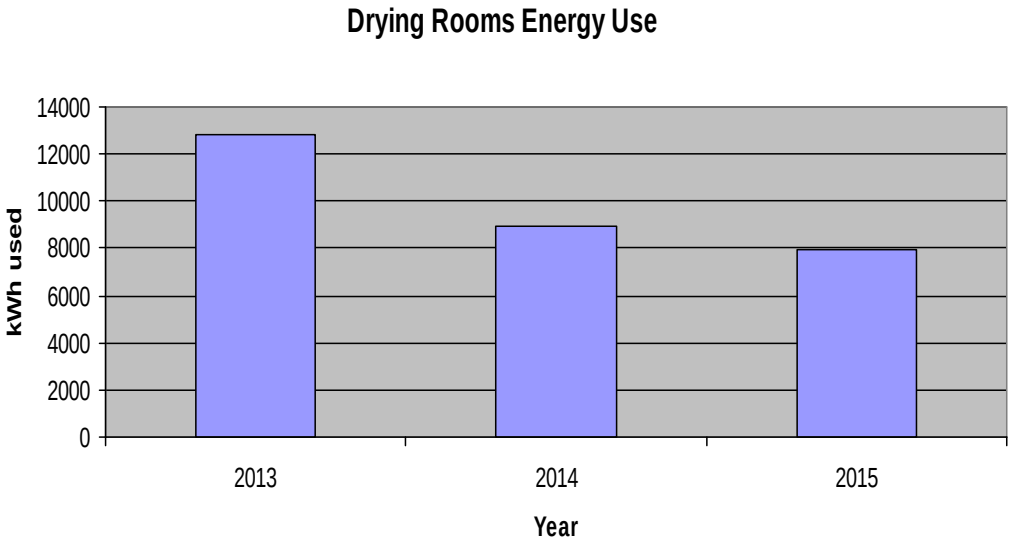
- A drop in repair system for the young people who visit us so that their personal items can be repaired if necessary. We use this in conjunction with one of our lessons on waste reduction in the home to encourage an ethos of repairing and mending rather than buying new.

- Successful repair system for camping equipment developed. We are now able to source used or abandoned camping equipment for repair and re-use buy ourselves or to pass on to other similar organisations.

Output Grid	
Advice/information centres Is your project running a drop-in centre open to the public? Please tell us if this is an independent centre, or a part–time surgery held in other premises. Tell us the number of centres/surgeries.	
Training sessions - Please give numbers of sessions where skills and/or information were passed on – e.g. composting training, cooking workshops, etc. Please give the number of training sessions	**Weekly workshops (see above)**
Events Held - Please tell us the number of events which your project has held, e.g. information fairs, open days, etc. Do not include events held by other organisations which you have attended Number of events	
Qualifications Achieved - Tell us about the numbers of staff, volunteers or community members which have achieved qualifications through the project – e.g. City & Guilds Energy Awareness, Trail Cycle Leader, etc	
CCF Employees - Please list the number of people directly employed by the project. Tell us the full-time equivalent number of employees (e.g. 3 days per week = 0.6 FTE).	**2 x 0.5 FTE**
Long Term Employment - Please tell us if the project is supporting the development of any long-term jobs which are not dependent of CCF Funding	**1**
Project Participants/beneficiaries - Please tell us how many people are actively involved in your project – attending groups & workshops, using the project facilities etc.	**2800+** **Per Year**
Project Volunteers - Please tell us the numbers of people who give their time and energy to keeping the project going – don't forget the members of your management committee or board.	**1**
How many **schools** are involved in your project?	**Circa 50 per year**
How many **community-owned buildings** have been refurbished?	

Overview of Outcomes

CO2e Outcomes:



Summary of savings due to poly tunnel drying facilities

Year	kWh saved	CO2e Reduction/Kg	Cost Saving/£
2014	3920.16	2313	464.54
2015	4891.68	2886	579.66
Ten Year Estimate	44059.2	25995	5221

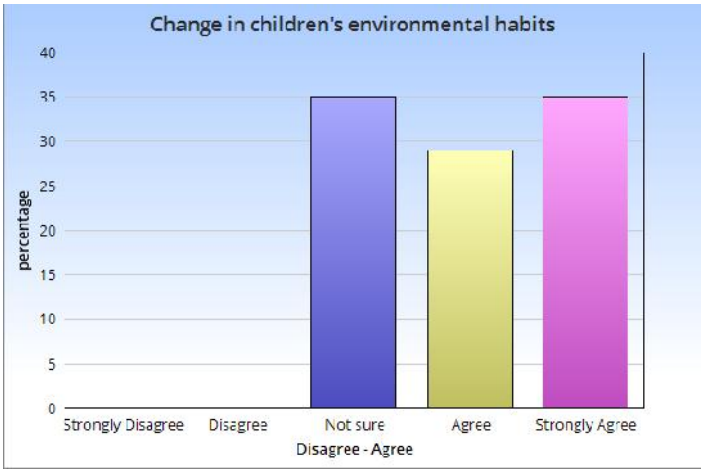
Summary of savings due to kit repair facility

Year	Material (various) diverted from landfill/Kg	CO2e Savings/Kg
2014	414.33	9474.48
2015	574.98	12388.9
10 Year Estimate	4946.55	109316.9

Community Outcomes:

This is slightly harder to quantify as our community outcomes are essentially educational. We have found that surveying is the best option available to us.

A survey covering 14 Schools and representing over 300 children suggests that 65% of the classes that come to us are showing an improvement in their environmental habits after visiting our centre. These surveys are taken at least three weeks after their visit which would suggest that there is a good level in attainment of the knowledge and skills we are passing on to the children.



Summary of participants engaged in activities and workshops

Year	No. of 15 to 17 year olds engaged in leave no trace camping activities	No. of School Children engaged in carbon reducing educational activities	Total
2014	519	2351	2870
2015	469	2490	2959
Estimate for 10 years	4940	24205	29145

Learning and Reflection

The outcome we were least able to deliver on was the involvement of other Outdoor Centres in our activities. We came across barriers when trying to engage other centres in the practices we are trying to promote. A summary of unsuccessful activities are detailed below:

- Donations of used tents from Scottish festivals. We found it near impossible to gain any response from a number of Scottish music festivals to allow us to recover abandoned tents for repair and re-use by ourselves or given free to any other organisations interested. Despite much time emailing and being passed around on the phone we were unable to gain any formal permission required.

- Sourcing equipment for repair from other Outdoor Centres. Despite much discussion we have convinced relatively few other centres to either participate in their own repair activities or indeed pass on any equipment that can be repaired on to us rather than sending it to landfill. While there was some initial interest in sending us old wetsuits for repair, in practice this interest has fizzled out despite our best efforts. A frustrating amount of time was wasted here.

- Low cost Camping equipment scheme for Duke of Edinburgh Award participants in Argyll. We had hoped to start a project in which the cost barrier of hiring or buying camping equipment can be reduced by utilising our repair facilities to create a low cost or free equipment loan alterative. Despite discussions with the Award Scheme we were unable to get this idea running.

On reflection projects like these may have been easier to initiate by attending more networking events and meeting other organisations in person during a designated time when their ears are more open to development ideas. During the early stages of the project we attended a greater number of these events but tended to find them less useful than other organisations as the nature of our project was very different to that of most of the other contacts we made. We often returned to work with the feeling that the day had been wasted as relatively few useful contacts had been made. This tended to put us off proportioning our time towards these events.

Finance and Administration

There were some difficulties in projecting the costs for the project building works. This lead to number of changes in funds allocated to particular budget headings. These changes are summarised in the table below;

Budget Heading	Originally Awarded	Actual Spend	Under Spend	Over Spend
Admin + Recruitment	1500	600	900	
Workshop	4950	6891.39		1941.39
Sewing Workstation	2340	4407.11		2067.11
Storage Racks	1320	3181		1861
Washing Machine	5640	4258.8	1381.2	
Polytunnels	3645	3830.8		185.8
Site Prep + Installation	12728	13379.29		651.29
Partnership Agreement	5000	5000		
Climate Development Officer	28925	26140.35	2784.65	
PPE	920	387.3	532.7	
Travel	1950	23.84	1926.16	
Equipment	1000	719.43	280.57	
Repairs Operative	14500	14745		245

Changes occurred mostly due to installation costs being generally higher than anticipated and with the installation of an extra poly tunnel. In order to allow for these costs funds were diverted by reducing the salary cost of the development officer, installing a lower spec washing machine and covering most of our travel costs with our own funds.

The repairs operative salary had to be slightly increased due to the rise in national minimum wage. We felt that the salary needed to change to keep it in line with other similar positions at the centre.

Report completed by Cameron Rivers and Martine Cherry

Supporting information attached:

CO2e reduction figures 2014
CO2e reduction figures 2015