

An Evaluation of the WIAT Challenge Fund

Changing use patterns, the value
of recreation and health benefits,
and lessons learned



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Evaluation of the WIAT Challenge Fund

Executive Summary

- 1 The Woods In and Around Towns (WIAT) Challenge Fund was established by Forestry Commission Scotland (FCS) in 2004 and closed in 2012. It funded operations to improve woodland access and quality in some of Scotland's most deprived urban areas. The Challenge Fund supported the objectives of the national WIAT Programme that included promoting positive changes to individual health and wellbeing and community cohesion, by altering people's attitudes to woodlands and encouraging more people to visit and use these local environmental assets.
- 2 An evaluation of the WIAT Challenge Fund was undertaken in 2012/13 to:
 - i Determine whether the expected outcomes of the WIAT programme were achieved by the Challenge fund supported projects conducting a **non-monetary** assessment of change to key indicators
 - ii Provide an economic **valuation** of the outcomes of the WIAT Challenge Fund supported projects based on the changes observed against the baseline state
 - iii Identify the key **lessons learned** in the implementation and delivery of WIAT projects, particularly the factors supporting achievement of the direct and indirect outcomes.
- 3 Three separate component analyses with differing methodologies were developed to achieve each of the three evaluation objectives. They comprised:
 - i A **quantitative statistical analysis** of changes to perception and behaviour outcome indicators over the course of the WIAT Challenge Fund support
 - ii An **economic assessment of the value** of recreational visits and the value of additional physical health benefits since the start of the WIAT Challenge Fund support
 - iii A qualitative study of **stakeholder experience and opinion** about the WIAT Challenge Fund.
- 4 A cluster analysis using a mix of financial, physical, and socioeconomic variables was undertaken on WIAT project data for 146 project sites. The cluster analysis identified four woodland clusters. These clusters were used as the basis of sample selection of representative WIAT projects and the two different delivery phases of the WIAT Challenge Fund for the evaluation dataset.

- 5 This longitudinal dataset was collated using pre-existing survey data from a variety of different sources, and newly commissioned surveys to cover the period to the end of the WIAT Challenge Fund. This dataset included a counterfactual. Raw data was cleaned and re-coded to ensure consistency of definition and unit of measure between the data from all surveys. The sample size including the counterfactual was 3,965 covering 17 woodland sites, over the period 2006-2012.
- 6 The analysis techniques employed were conservative, based on lowest values, with adjustments applied to increase the stringency of statistical tests or economic values.
- 7 Three different perception measures were tested for changes in average scores across the three time periods. Measures were perceptions of: local environmental quality; local woodland quality; and importance of woodland to the respondent's quality of life.
 - a Overall there were **significant positive changes to the scores assigned to environmental quality and woodland quality**. Average scores for both measures moved from close to "Neutral" to close to "Good". **This stood in contrast to the counterfactual data** where the perception scores for all three measures declined significantly from average scores close to neutral down to **negative scores**.
 - b Woodland quality was seen to improve most in **cluster 2** (small, mixed woodlands in areas of moderate deprivation) **and cluster 1** (small, broadleaved woodland in areas of moderate deprivation).
 - c It was the **C2 and DE socio-economic groups**¹ who showed the greatest significant perceptual change around woodlands being important to their quality of life.
- 8 Overall the **number of visits to WIAT woodlands increased by 20-25%** compared to the baseline.
 - a **55% of visits were by women** and 45% by men, a proportion that stayed roughly the same from baseline through both post-intervention periods.
 - b The greatest increase to the numbers of visits was amongst respondents most likely to have children in the household, i.e. **a 30% increase for early (age 20-39 years) and mid-family (35-49 years) age groups**. The retired also showed significant increase at about 23% more visits compared to the baseline.
 - c There was no change in the number of visits by the AB socio-economic group, but in the target **DE group, visits increased by about 17%**, the greatest increase was amongst the **C1 group, at over 25% more visits** compared to the baseline.

¹ There are several demographic classification systems used in market research. A well established system uses six groups A, B, C1, C2, D and E. These reflect income levels and type of occupation by profession and skill level. The different categories are explained in the table produced by IPSOS-MORI included in Annex 3 on page 63.

- 9 The results show that the frequency of visits increases but the mean duration of visits decreases. In general, compared to the baseline, people are going to woodland more often but spending less time there on each visit. Overall this pattern leads to an increase in the average time spent in woodlands compared to the baseline.
- 10 This was found to be significant for the **C1 and C2 groups who moved from visiting on average once a week to twice a week.**
- 11 The activities being undertaken in WIAT woodlands post intervention appeared more diverse than at the baseline. Although walking (at 59-69%) and dog walking (at 17-18%) were still the dominant primary activities, cycling, horse riding and brisk walking (i.e. often with a push chair, or as walking routes to work) all increased compared to the baseline.
- 12 Economic assessment of the value of recreation estimated that:
- For the 146 projects in the dataset, on average half a million additional visitors came to WIAT Challenge Fund woodlands between 2007 to 2012.
 - The value of recreational visits ranges from £34m (low) to £79m (high) with central estimates of £53m (an average for WIAT I - £42m and WIAT II - £65m) all per year, using 2012 prices. Adjusting to account for the potential presence of alternative locations for recreation which would reduce values on WIAT sites, gives a range of £13m (low) to £26m (high) with central estimates of £19m per year, using 2012 prices.
 - Given that WIAT visits are local and very frequent (and should therefore be assigned lower values), we would recommend using the lower end of this direct outcome estimate, i.e. **that post intervention the recreational value of WIAT Challenge Fund woodlands is £13m per year.**
- 13 Health benefit methods were calculated using Quality Adjusted Life Years (QALYs) monetary values applied to metabolic equivalent of task (MET) hours of exercise. This translates into monetary estimates of £0.53 (low), £1.13 (central) and £1.73 (high) per MET-hour, per week, per person, per year in 2012 prices.
- 14 The results of the economic valuation of additional health benefits estimated that:
- The economic value of additional physical exercise ranges from £0.75m to £8.9m per year, with a central estimate (averaged across two periods of WIAT I and WIAT II) of £3.4m per year. As with the calculations of recreational benefit an adjustment is applied for the potential presence of alternative substitute locations for recreation, reducing these estimates of health benefit to £0.36m (low) to £3.2m (high) with central estimates of £1.4m (per year, in 2012 prices).
 - Following the approach of applying conservative estimates, we would recommend using the lower end of this benefit estimate, i.e. **that post intervention the value of additional health benefits in WIAT Challenge Fund woodlands is £0.36m per year.**

- 15 Looking at the value of two key economic indicators, and given that recreational and health benefits are independent one can sum the values of both benefits to show that aggregated these are worth: £14m (low), £21m (central) and £29m (high) per year using 2012 prices. Following the approach of applying conservative estimates, the lower end of this benefit estimate shows that **post intervention the value of recreation and additional health benefits in WIAT Challenge Fund woodlands is £14m per year**. If this return is compared with the level of investment in the WIAT Challenge Fund over the evaluation period which ran at about £2.5 m per year, this represents a significant positive return.
- 16 The lessons learned study interviewed 19 stakeholders from Local Authorities, civil society organisations (NGOs), community groups and the FC. They were asked about the direct and indirect outcomes leveraged by the Challenge Fund, to identify reasons for success and comment on the administration of the scheme.
- 17 Key points raised by stakeholders were:
- All of those people interviewed agreed that the WIAT Challenge Fund was critical to increasing woodland access and changing patterns of visiting behaviour, since most of the woodland improvement work would not otherwise have happened.
 - All of the direct and indirect outcomes assumed by the model were recognised by stakeholders, however, there was mainly anecdotal evidence supporting these views. Monitoring evidence was scanty and limited, in the main, to ad hoc surveys and the use of visitor footfall counters.
 - Undertaking consultations with communities about the woodland operations that were about to take place, and getting people involved in operations such as tree planting, provided a useful means to initiating community engagement.
 - That the most successful initiatives were those located in areas where community groups with an interest in woodland or using outdoor venues already existed. At sites where there were no such active groups, a significant degree of effort was required to build and maintain use of the woodlands.
 - The increased awareness of the value of woodlands brought about by WIAT had a significant impact on Local Authorities prioritising urban woodland as an important resource in the context of achieving national targets for health and wellbeing.
- 18 In conclusion the WIAT Challenge Fund appears to have achieved the national WIAT Programme objectives in the way that the conceptual model suggested, and represented a good return on public investment. Future schemes should consider:
- Targeting sites and woodlands with greatest potential for delivering social benefits including consideration of the site location, presence of local groups, connection with complementary programmes, and an assessment of the balance of outputs against public resource inputs.

- Maintaining community involvement through low cost “pulsed” interventions designed to refresh interest in local woodlands.
- Improvements to national level promotion including the promotion of exemplar projects and proposals.
- Continuing engagement with Local Authorities as key partners.
- The scope for alternative financial management rules which remove barriers to, for example, community groups and small woodland owners.
- Developing a clear strategic commitment to monitoring and evaluation.

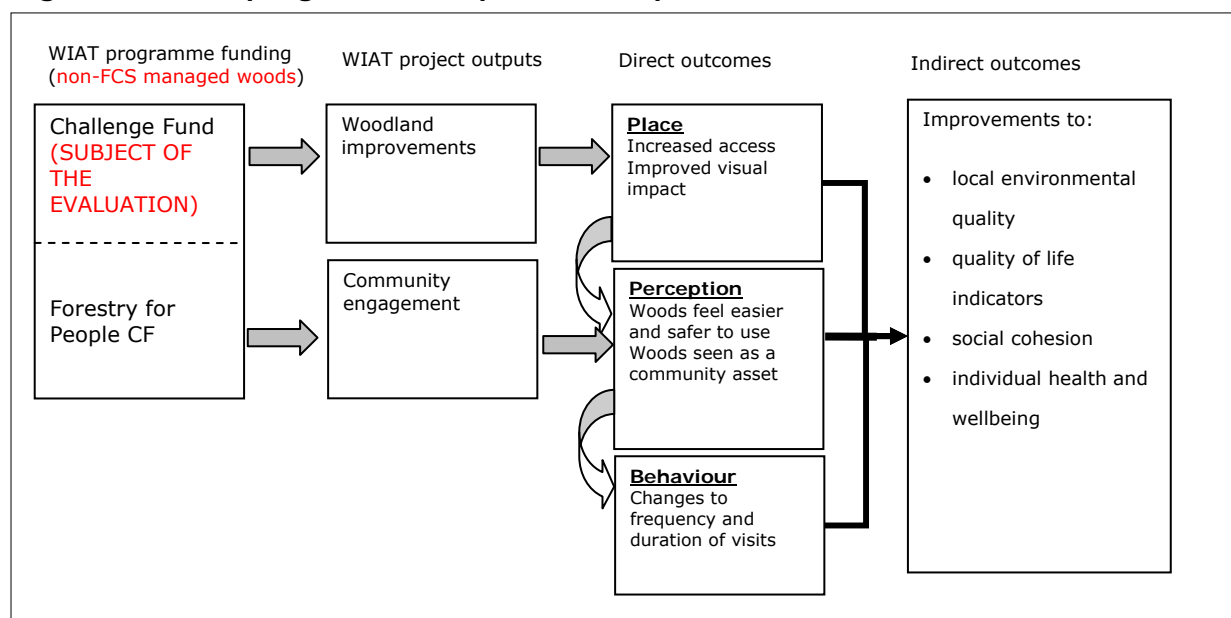
1. Introduction

The Woods In and Around Towns (WIAT) programme was established by Forestry Commission Scotland (FCS) in 2004. The focus of the programme was on woodland within 1 km of settlements in urban areas with a population of over 2,000 people, particularly those located in areas of socio-economic deprivation as defined by the Scottish Index of Multiple Deprivation². The objective was to deliver environmental, social and economic benefits to local communities by:

- creating new woodland
- bringing neglected woodland into active management
- working with people to help them use their local woodland.

The working assumption of the WIAT programme was that increasing and encouraging access to urban woodlands through such actions would lead to a range of public benefits. The programme used different funding streams to achieve different project outputs, which in turn were assumed to lead to different direct and indirect outcomes (i.e. impacts or benefits). The conceptual model shown in Figure 1 adapted from Ward Thompson et al (2013) focuses on funding available for WIAT woods not managed directly by Forestry Commission Scotland. It illustrates the logic underlying the WIAT scheme and the specific place of the Challenge Fund within this. It is the Challenge Fund that is the subject of this evaluation.

Figure 1. WIAT programme outputs and expected outcomes



Source: Adapted from an original in Ward-Thompson et al (2013, p. 3)

The Challenge Fund was directed at physical interventions in urban woodlands, including for example, silvicultural operations and the provision of woodland infrastructure such as

² See <http://www.scotland.gov.uk/Topics/Statistics/SIMD>

paths, bridges and furniture. The Forestry for People Challenge Fund supported community engagement in woodland planning and other woodland-based events and activities. Stimulated by both these funds, project outputs were expected to lead to some specific direct outcomes. It was hoped that improvements to place would alter people's perceptions about the safety and utility of woodlands and lead to more people visiting the woodlands or using them for community-based events and activities. The indirect outcomes the WIAT Challenge Fund aimed to achieve from such behaviour change, were improvements to people's health through increased levels of exercise, or greater social cohesion amongst the individuals, community groups and organisations using their local woodlands as a recognised community asset.

Phase I of the WIAT Challenge Fund ran from 2004 – 2008, and Phase II closed to new applications in March 2012. Forestry Challenge Funds were part of the forestry measures under the Scotland Rural Development Plan.

Evaluating the WIAT Challenge Fund is important to ascertaining how far it has supported the delivery of the WIAT Programme objectives, as well as informing the scope and detail of any future funding support. This document reports on the WIAT Challenge Fund evaluation undertaken by Forest Research during 2012-2013.

This report is split into four main sections: Section 1 has provided an introduction. Section 2 describes the data collection and analysis methods employed by the three components which make up the evaluation, namely, a non-monetary assessment of direct outcomes, an economic assessment of the value of indirect recreational and additional health benefits, and qualitative assessment of lessons learnt implementing the Challenge Fund. Section 3 presents the results from each of these three evaluation components in turn. Section 4 examines the implications of the results and presents some concluding comments.

2. Evaluation purpose and methodology

A scoping study conducted in 2010-2011 (Ambrose-Oji et al., 2011) established what evidence and data was available for conducting an evaluation, which indicators of direct and indirect outcome were most suitable for a national level assessment, and suggested a suitable assessment methodology. In light of the findings of the scoping study, the specific objectives of the evaluation were defined as:

- i Determine whether the expected outcomes of the WIAT programme were achieved by the Challenge Fund supported projects by conducting a **non-monetary** assessment of change to key indicators
- ii Provide an economic **valuation** of the outcomes of the WIAT Challenge Fund supported projects based on the changes observed against the baseline state

- iii Identify the key **lessons learned** in the implementation and delivery of WIAT Challenge Fund projects, particularly the factors supporting achievement of the direct and indirect outcomes.

Three separate component analyses with differing methodologies were developed to achieve each of the three evaluation objectives. They comprised:

1. A **quantitative statistical analysis** of changes to perception and behaviour outcome indicators over the course of the WIAT Challenge Fund
2. An **economic assessment of the value** of recreational visits and the value of additional physical health benefits since the start of the WIAT Challenge Fund
3. A qualitative study of **stakeholder experience and opinion** about the WIAT Challenge Fund.

The statistical non-monetary and economic assessments used survey data, drawn from existing sources, as well as additional surveys conducted during the late autumn of 2012. Section 2.1. reports on the approach taken to construct a common longitudinal dataset. Section 2.2. reports on the specific analytical approaches used in the statistical analyses and Section 2.3. reports on the economic analyses.

The lessons learned study relied on semi-structured interviews with stakeholders. This was collected specifically for this evaluation. The method and analytical approach is described in Section 2.4. below.

2.1. Collation, sample selection and coding a robust common longitudinal dataset

2.1.1. Screening pre-existing data

Pre-existing data available for inclusion in a longitudinal dataset and suitable for use in the non-monetary and economic evaluations came from a number of different sources. These were:

- Forestry Commission Scotland commissioned longitudinal monitoring surveys from a limited number of WIAT project sites (Ward Thompson and Roe, 2010; Ward Thompson et al., 2007, 2008; Ward Thompson et al., 2010).
- Forestry Commission Scotland commissioned surveys collecting data to answer specific policy and operational questions (for example Small Town and Rural Development Group, 2011a, 2011b; TNS Research International, 2010).
- Central Scotland Forest Trust (CSFT) surveys across a broad range of CSFT project sites including WIAT woodlands receiving grant support (Asbrook Research and Consultancy, 2009; Central Scotland Forest Trust, 2007, 2008a, 2008b, 2009, 2011a, 2011b; Social Regeneration Consultants, 2005).

All of these datasets contained similar sorts of survey evidence collected in similar ways, and spanned a period from 2006 to 2011, over more than 30 different woodland sites.

The initial challenge was to develop a method that would identify how best to construct a representative sample from this diverse data. Representation was important in terms of:

- different WIAT phases (the objectives varied slightly in each)
- the full range of years the Challenge Fund was delivered
- woodland site selection over the range of WIAT Challenge Fund projects and locations.

2.1.2. Constructing a representative sample using Cluster Analysis

Cluster analysis was used as the means to characterise WIAT projects and act as a basis from which to select a representative sample of WIAT woodland sites for the evaluation dataset. Data from Forestry Commission Scotland (FCS) grant award records was used to collate a set of 15 social, physical and financial variables that described 146 completed and approved WIAT Challenge Funded projects. A decision to include only those projects in receipt of WIAT Challenge Funds, rather than any projects that only received the Forestry for People Fund Challenge Fund (F4PCF), confined the sample to those projects that had made physical site improvements and could test the programme model. A two-step cluster analysis³ was applied to this WIAT project data using SPSS version 19. This resulted in the identification of four woodland clusters. A summary description of the woodland clusters is given in Table 1. Table 2 provides more detail describing the woodland clusters by the 8 variables identified as key to cluster characterisation. The spatial distribution of the WIAT projects by woodland cluster membership is shown in Figure 2.

Table 1. Summary description of WIAT woodland clusters

Woodland cluster	Description
1	Broadleaved woods, no particular biodiversity value, small in size, in areas of lower population density and moderate social deprivation
2	Mixed, conifer and broadleaved woodlands, biodiversity value good as SSSIs are included within woodland boundary, small-medium in size, in areas of lower population density and moderate social deprivation
3	Mixed woodlands, biodiversity value good as SSSIs within woodland boundary, large in size, in areas of medium population density and moderate social deprivation
4	Mixed and conifer woodlands, no particular biodiversity value, very large in size, in areas of high population and high social deprivation

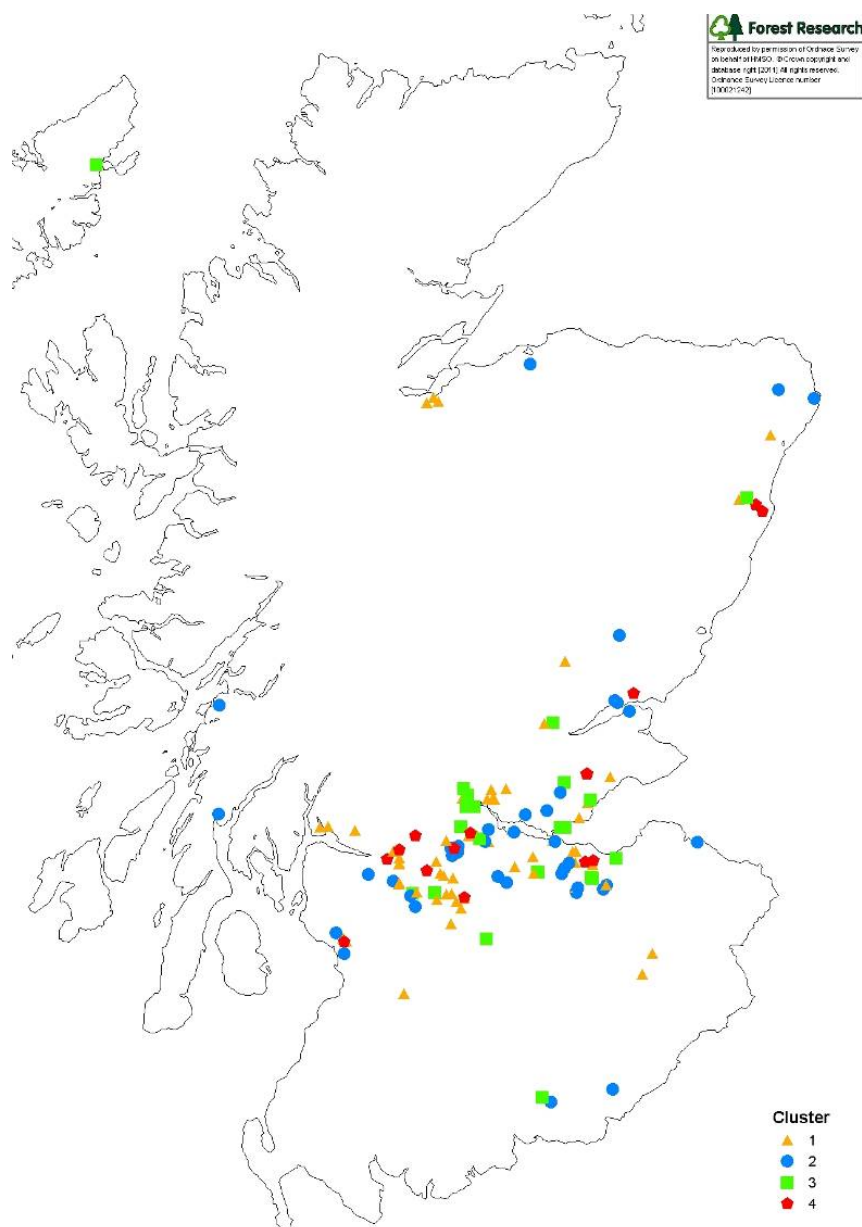
³ There are different kinds of cluster analysis (e.g. hierarchical, 'K' cluster, dendrogram). The SPSS two step cluster analysis was selected as the most appropriate method to deal with the mix of categorical and continuous data and the size of the dataset. The cluster analysis indicates that physical site characteristics, i.e. the presence of SSSIs, woodland type and woodland area have the greatest influence over cluster characterisation.

Table 2. Detail of the variables characterising WIAT woodland clusters

Cluster no.	No. SSSI within boundary	Wood-land type ¹	Mean area (ha)	No. LNR's within 1 km	Mean population within 1 km	Mean WIAT CF grant (£)	Mean SIMD score ²	Mean total project value (£)
1	0	B	20.93	0-4	10,709	35,523	17.87	86,698
2	1-3	B,C,M	47.41	0-6	9,659	24,858	15.91	64,362
3	0-4	M	80.93	0-4	20,057	20,579	14.36	92,995
4	0	M,C	146.41	0	37,420	72,326	23.65	157,106

1 B – Broadleaf, C – Conifer, M – Mixed.

2. SIMD is the Scottish Index of Multiple Deprivation. SIMD scores range from 0.54 to 87.6 (2009 version). By population fifths (quintiles) from 1 (least deprived) to 5 (most deprived) the values in this cluster analysis between 13.50 and 21.16 sit in the Third quintile and values between 21.17 and 33.93 sit in the Fourth quintile.

Figure 2. Distribution of WIAT CF projects by woodland cluster membership (n=146)


The number of WIAT Challenge Fund projects that fell into each cluster is shown in Table 3.

Table 3. Number of woodland projects in each cluster (n=146)

Woodland cluster	No of WIAT CF projects in cluster	Percentage of WIAT CF projects in cluster
Cluster 1	63	43
Cluster 2	41	28
Cluster 3	25	17
Cluster 4	17	12
Total	146	100

There are three different time periods of importance to the evaluation. These are:

- Period 1 the baseline (2006)
- Period 2 covering WIAT Challenge Fund Phase I (2007-2009), and
- Period 3 the WIAT Challenge Fund Phase II (2010-2012).

The baseline year of 2006 was selected because this the first year when Forestry Commission Scotland commissioned surveys were undertaken. Even though the WIAT Programme was launched in 2004, the first Challenge Fund grant claimed was in 2005/6, so 2006 is representative of the pre-intervention period.

Pre-existing data was collected in two different forms, i.e.:

1. **Social catchment surveys** – questionnaires applied to a quota sample of people drawn from within a 500m buffer of the WIAT woodland. This approach generates data from woodland users *and* non-users of the woodland. Therefore, these surveys are able to show any changes in the relative proportions of visitors and non-visitors
2. **Site surveys** – questionnaires applied to visitors in the WIAT woodland sites. This approach generates data from woodland users only.

A representative sample of WIAT projects would need to maintain the proportional spread of projects across the woodland clusters, time period and type of survey data. The sample would also need to capture within-woodland cluster and between-woodland cluster variation.

Counterfactual

Ward-Thompson et al (2007) included a counterfactual case in their original survey design. This site was Milton, Glasgow where no WIAT project was planned. Milton has been maintained as the counterfactual in this evaluation.

2.1.3. The common dataset

A sample of the pre-existing data by site according to coverage by woodland cluster, time period, and type of survey undertaken was selected. Gaps in the coverage were

addressed by commissioning six new catchment surveys and four new site surveys during late autumn 2012.

There was no baseline data for woodland clusters 1 and 2. Even though survey data had been collected for sites in these clusters, the original files were corrupted and could not be repaired. An alternative solution was sought. Milton baseline data was used as the baseline date for woodland clusters 1 and 2. Milton most closely conformed to the characteristics of woodland cluster 1. This does mean that the data has been repeated, but the impact on the analysis looking at change over time is likely to be minimal.

A summary of the sites selected by social catchment and site survey is shown in Table 4 and Table 5 below. This includes the sample sizes by woodland cluster and time period. The proportion of woodland sites included by woodland cluster is shown in Table 6 and the proportion of the survey sample respondents by woodland cluster is shown in Table 7.

Details of the counterfactual Milton sample are shown in Table 8.

The raw survey data from this sample was then put through a data cleaning and recoding. This produced the common dataset which was used in the non-monetary statistical analysis as well as the monetary economic valuation of benefits.

Table 4. Social catchment survey sample included in common dataset

Woodland cluster	Site location	Baseline	Period 2		Period 3		Grand Total
		2006	2007	2009	2011	2012	
1	Cairnhill		63		63		126
	East Dunbartonshire		63		51	301	415
	Greenlink		63		192		255
	Kinneil Foreshore		41	127	98		266
	Pollock Park					312	312
	Roughcastle				144		144
	Shields Glen			250			250
	Westquarter		41	79			120
	Milton	105					105
Cluster 1 Total		105	271	456	548	613	1993
2	Abbotshaugh		41	191			232
	Cumbernauld		63		33		96
	Dunbar					109	109
	Polkemmet				16		16
	Milton	105					105
Cluster 2 Total		105	104	191	49	109	558
3	Aberdeen	118		236		323	677
	Roslin					107	107
Cluster 3 Total		118		236		430	784
4	Drumchapel	110		220		300	630
Cluster 4 Total		110		220		300	630
Grand Total		438	375	1103	597	1452	3965

Table 5. Site survey sample included in common dataset

Woodland cluster	Site location	Period 2		Period 3		Grand Total
		2007	2009	2011	2012	
1	East Dunbartonshire			54	83	137
	Greenlink	48		82		130
	Pollok Park				75	75
	Roughcastle	46				46
Cluster 1 Total		94		136	158	388
2	Abbotshaugh	26	75			101
	Dunbar				76	76
Cluster 2 Total		26	75		76	177
3	Roslin Glen				72	72
Cluster 3 Total					72	72
Grand Total		120	75	136	306	637

Table 6. WIAT sites included in the evaluation dataset by woodland cluster

Woodland cluster	Number of sample sites	Percentage
Cluster 1	9	53
Cluster 2	5	29
Cluster 3	2	12
Cluster 4	1	6
Total	17	100

Table 7. Catchment survey respondents included in the evaluation dataset by woodland cluster

Woodland cluster	Number of survey respondents	Percentage
Cluster 1	1993	50
Cluster 2	558	14
Cluster 3	784	20
Cluster 4	630	16
Total	3965	100

Table 8. Milton counterfactual social catchment survey data in common dataset

Woodland cluster	Site location	Baseline	Period 2		Period 3		Grand Total
		2006	2007	2009	2011	2012	
	Milton	105		211		156	210

Re-coding pre-existing and new survey data

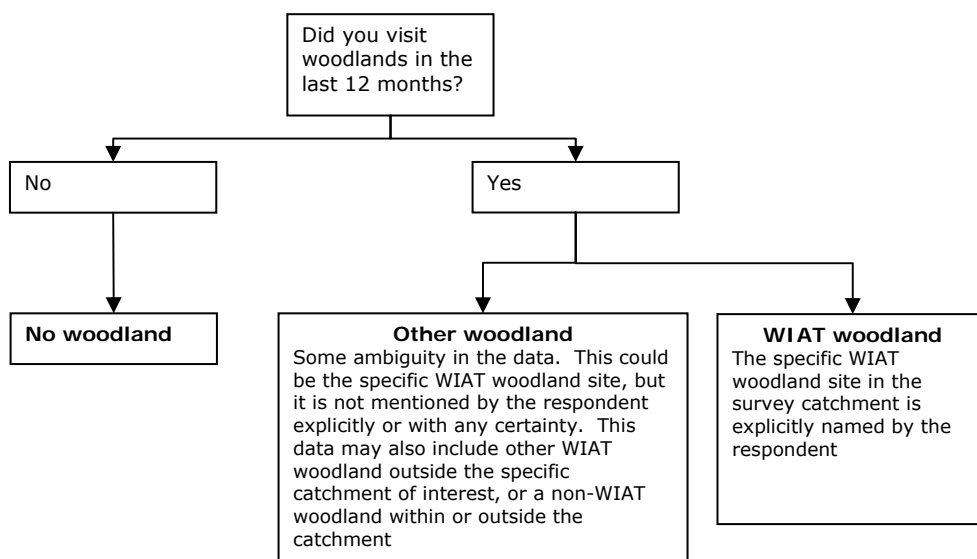
Even though the survey data included in the common dataset was collected by different organisations at different times and for different purposes, there was a high degree of similarity between sampling strategies, survey approach and the type and wording of questions asked. A process of cleaning and re-coding the raw data was applied to both

the social catchment survey and site survey data to ensure all variables of interest shared a common definition and common sub-categories or units of measure. This section reports on the major issues encountered, and any impact on analysis and interpretation.

A key principle in re-coding the data was to work to conservative or underestimates of value measures. New re-coded variables were referred to as “dummy variables”.

The first important issue was dealing with the ambiguity in the social catchment survey data about which woodlands respondents were referring to. Because the evaluation was concerned with understanding the impact of the WIAT programme, it was important that the analysis isolated data about behaviour associated with specific WIAT woodland sites. A filtering question had been used in all of the surveys, and separated those respondents who had visited woodlands with those who had not. However, of those who had visited woodlands, it was not always clear which woodlands they had visited. The process of recoding split woodland visitors into two groups: If respondent’s data explicitly mentioned the WIAT woodland, it was coded as “WIAT”; if the respondent data was ambiguous it was coded as “Other woodland”. This process is summarised in Figure 3. The effect on the analysis would be to underestimate use of WIAT woodlands.

Figure 3. Coding respondent data associated with WIAT woodland



Other decisions were made about how best to adjust the original data into consistent new “dummy variables”. The detail of this was recorded in a coding sheet. The main points of note were:

- Different numbers of visits and different kinds of visitors tend to use woodlands in different seasons (see for example Ward-Thompson et al 2013). Survey data should take this seasonal variation into account. Whilst some of the pre-existing surveys collected data during winter and summer periods, others did not. Not all of the raw data made it clear which season the responses referred to. Therefore all visits were treated as “seasonless”. Where summer and winter visits were discernable, an average value of any variable of interest was calculated for the

dummy variable. The overall impact on the data is difficult to judge but the effect on this analysis is likely to be minimal since the trends of interest are averages over 12 month periods.

- Where surveys used categorical variables to record continuous quantitative data e.g. duration of visit, or time spent undertaking an activity, the mid value of the category was used in the recoded dummy variable. For example, where the category “between 1 and 2 hours” was used to record duration of visit, a value of 90 minutes was applied in the re-coding.
- Recoding respondent ages into a dummy variable presented a particular problem. All the surveys collected this information in the form of categories, but used a variety of different category intervals. Evidence suggests that there are differences in visiting behaviour according to stage in family lifecycle, and whether or not there are younger children in the family (see for example Natural England, 2013). Re-coding based on these factors was applied. However, this was an imperfect mechanism, which included overlapping categories in each of the discrete dummy variables as shown in Table 9. The impact on the analysis was poor reliability of any analysis by age category, and difficult interpretation of results.

Table 9. Recoding the age variable

Original survey categories	Age range (years)	Dummy variable
16-19 16-25 16-24	19-25	pre-family
20-29 25-34 26-34 30-39	20-39	early family
35-44 40-49	35-49	mid family
45-54 50-59	45-59	late family
55-64	55-64	empty nesters
60-69 60-74 65+ 66-75 70-79 75+ 80+	60-80+	retired

- The surveys recorded the activities people were undertaking in woodlands; different methods were used to collect this information. In most of the surveys this generated a long list of many different activities that any single respondent engaged in. For the purposes of this evaluation, only the primary activity was included in the new dummy variable. The primary activity was defined as the activity the person spent most time doing, i.e. most often and for the longest duration. This means that the range of activities and the total time spent in woodlands was underestimated.

2.1.4. Background trends affecting the interpretation of results

There is a significant amount of evidence supporting the view that changes in visitor numbers and visit duration are related to the weather conditions in any given year. In short, when the weather is cold and wet people are less likely to visit woodlands and their visits are likely to be shorter: In addition, colder and wetter conditions mitigate

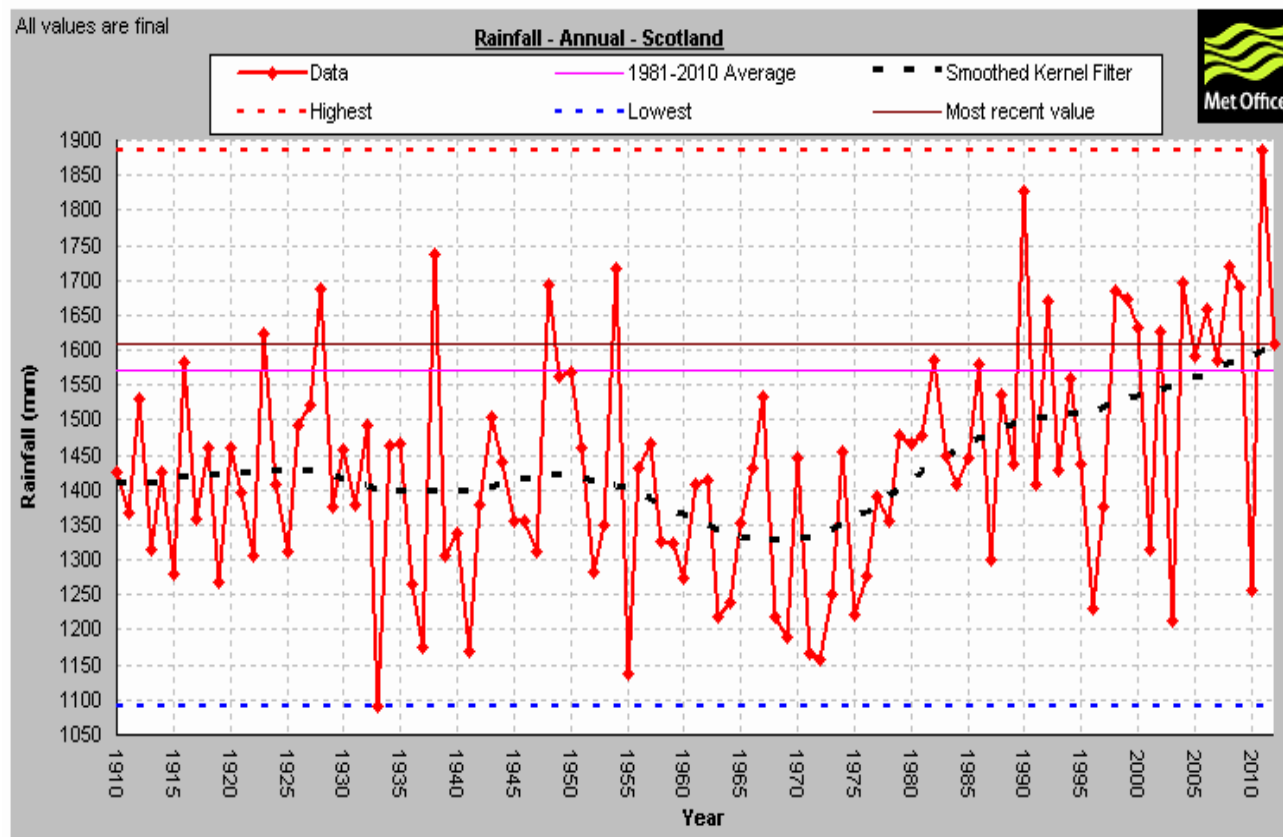
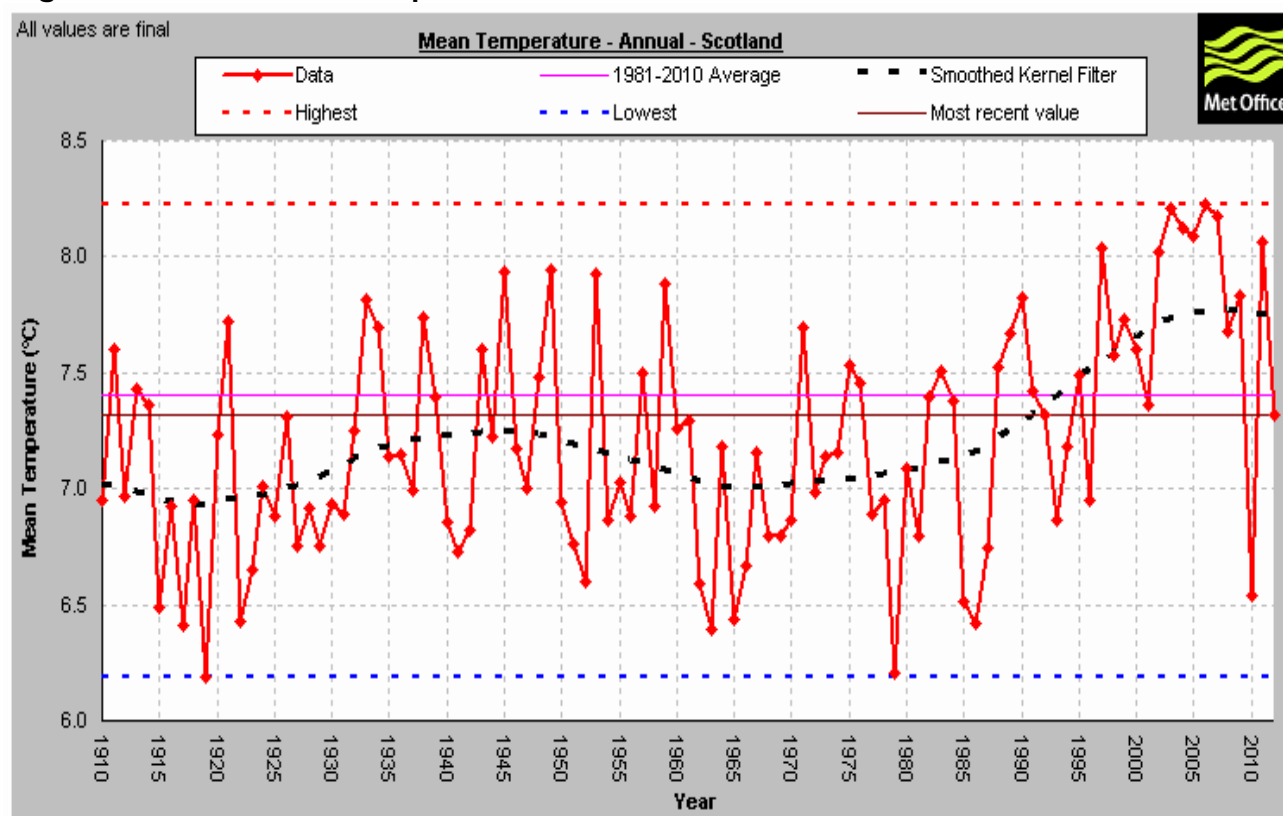
against visitors who are new to, or only use woodland occasionally (see for example Natural England (2013) or Ward-Thompson et al (2013)). It is important then to consider the weather conditions over the evaluation period.

Annual rainfall and average temperature values for Scotland are shown in Figure 4 and Figure 5. Additional data describing winter and summer rainfall and temperatures given by the Met Office website (<http://www.metoffice.gov.uk/climate/uk/>) was also taken into account. The overall pattern of weather affecting the three different time periods examined in the data analysis (i.e. baseline (2006), WIAT I (2007-2009), and WIAT II (2010-2012)) was as follows:

- The weather in the **base year 2006 can be characterised as very warm and dry** and was probably the best year overall in terms of conditions encouraging outdoor recreation. The annual rainfall was just slightly higher than average (≈ 1650 mm). The average annual temperature was well above average for the period at 8.25°C and represented the warmest year in Scotland since 1910. The winter weather in 2006 was warmer (3.4°C) and significantly drier ($\approx 290\text{mm}$) than average. The summer much hotter (13.75°C) and much drier than average (240mm).
- **Period 2 (WIAT I) can be characterised overall as slightly cooler and much wetter** than the base year. The annual rainfall in 2007 ($\approx 1610\text{mm}$) was similar to the base year, but it was much wetter in 2009 ($\approx 1720\text{mm}$) and 2008 ($\approx 1700\text{mm}$) it was about the same. The average annual temperatures ranged between 7.6 - 8.2°C which was above average for the period but slightly below the base year. The winter weather was warm (2.6 - 4.2°C) and wetter than average (≈ 390 - 640 mm). The summer months in 2008 and 2009 were warmer than average (13 - 13.2°C) although 2007 was cooler (12.4°C), and rainfall was much higher than average (≈ 360 - 430mm).
- **Period 3 (WIAT II) can be characterised as much colder and slightly wetter** than the base year. The annual rainfall in was below average in 2010 (≈ 1250) and 2011 (≈ 1600) but above average in 2012 ($\approx 1890\text{mm}$). The average annual temperatures ranged between 6.5 - 8.1°C which was below the base year. The winter weather was very cold (0.4 - 2.5°C) and rainfall values were very variable falling below, around and above average (≈ 280 - 550 mm). The summer months were close to or cooler than average (11.9 – 12.7°C) and rainfall was higher than average (≈ 300 - 390mm).

Since the general pattern in the climate data for Scotland was wetter and colder than the base year which was drier and warmer, visitor numbers to woodlands would be expected to remain the same or decline slightly over the WIAT Challenge Fund evaluation period.

No quantitative weightings or other measures were applied to the common dataset to adjust for the weather conditions. The overall trends observed have been used to explain if any patterns of behaviour change detected can be attributed to the weather.

Figure 4. Annual rainfall in Scotland 1910-2012

Figure 5. Mean annual temperatures for Scotland 1910-2012


2.2. Non-monetary evaluation of direct outcomes

2.2.1. Specific objectives and approach

The objective of this part of the evaluation was to:

*To determine whether the expected direct outcomes of the WIAT programme were supported by the Challenge Fund supported projects by conducting a **non-monetary** assessment of change to key indicators*

The approach was therefore to focus on assessing any direct outcomes of WIAT Challenge Fund interventions, in the form of changes to:

- perceptual indicators, i.e. what people thought or felt about local woods and environments
- behavioural indicators, i.e. changes to what people actually did in terms of the frequency (days per month) and duration (minutes) of their visits to woodlands.

The specific indicators of interest in the common dataset were therefore:

- Scores of environmental quality, woodland quality and significance of quality of life within woodland clusters and by demographic indicators
- Number of visitors to sites within woodland clusters and by demographic indicators
- Frequency of visits to sites within woodland clusters and by demographic indicators
- Duration of visits to sites within woodland clusters and by demographic indicators
- Kind of activities undertaken whilst visiting to sites within woodland clusters and by demographic indicators

The analyses compared these indicators at baseline (i.e. before project intervention) with values for Period 2 and Period 3 (i.e. post intervention). Tests were then applied to assess whether any trends/differences were significant, and might be attributable to the WIAT Challenge Fund. All tests were conducted using SPSS version 19.

Analyses used the social catchment survey data alone. This provided a comparison between the perception and behaviour indicators of people who were using WIAT woodlands with those who were not. It also allowed detection of changes in the relative proportions of the population visiting WIAT Challenge Fund woodlands before and after intervention.

A number of different statistical tests were used. However, in each application of a statistical test the same routine was followed. Data were first checked for normality, and then on the strength of the Kurtosis and Skewness results, either a parametric or non-parametric test was applied.

Following the evaluation approach of using conservative methods, a design factor of 1.5 was applied post hoc to the results of any t-tests. This adjusts the significance values

making them more conservative. Similarly, in the case of ANOVA's a post hoc Bonferroni adjustment was applied which compensates for variability in the data and also produces a more conservative estimate of significance.

Analyses examined these values as:

- figures for the whole sample,

or as disaggregated analyses comparing:

- those people visiting and not visiting WIAT woodlands (see Figure 3)
- woodland clusters (see Table 1)
- respondent socio-economic group (SEG) as defined in Annex 3
- respondent gender
- respondent age category.

No analyses by ethnicity are reported here even though they were run. The small numbers included in the sample invalidated the test results in all cases.

2.2.2. Additional data management issues

No weightings were applied to the data to account for seasonality or demographic characteristics of the population. Weightings were not applied for two reasons. Firstly, the analysis is limited to the sample of woodlands (and associated social catchments) receiving CF funding and not the total population of WIAT sites (nor the total urban population of Scotland). Secondly the quota sample methodology adequately reflected the socio-economic characteristics of the sample populations. With respect to demography, all of the pre-existing and newly commissioned social catchment surveys used quota sampling methods and achieved representative samples at site level. This was confirmed by checking the achieved sample characteristics included in the common dataset against the demographic profiles of the towns and city areas the WIAT sites were located in using the Scottish census data tables⁴. The samples showed little variation from expected distributions of age class, socio-economic category and ethnicity. There was a very slight over-representation of BME groups at three WIAT sites (Aberdeen, Roslin, Cumbernauld), and slight under representation of AB socio-economic groups at two others (Shields Glen, Callender). A design factor (1.5) was applied to the t-tests as noted above as it provides an additional means of accounting for any bias introduced through the quota sample methodology. This is a widely recognised method for introducing conservative adjustments to data collected using non-random sample techniques.

During the recoding exercise the perception measures were converted from LIKERT scales and scores to numeric scores. The range -2 (very poor) through 0 (neutral) to +2 (very good) were applied as a consistent system. The perception measures involved

⁴ <http://www.gro-scotland.gov.uk/census/censushm/scotcen2/reports-and-data/scotcen8.html>
tables KS02,KS06 and Ks14a

survey questions that were similar but not worded exactly the same. If the difference in wording was too great to assume comparability the data was not included.

The total sample size for the catchment survey data was 3965. However, depending on the variables tested and degree of disaggregation applied, the sample size varies. This is because not all respondents had a complete set of data. In some cases they refused to provide the information, in others the survey did not include that variable, and in others recoding was not possible. Differences in the sample sizes are noted throughout.

2.3. Economic valuation of recreation and health benefits

The identification of economic methods suited to an evaluation of the WIAT Challenge Fund at a national level began from an understanding of the available data in the pre-existing data and an acknowledgement of what could realistically be collected in any additional surveys. The review of suitable economic approaches drew heavily on recent research for the UK National Ecosystem Assessment (NEA) (UK National Ecosystem Assessment, 2011), especially the economic chapter and underlying study (Mourato et al., 2010), and a recent critical review of the net economic benefits from greenspace improvement initiatives (Saraev, 2012). From this it was decided that the indirect measures of the WIAT Challenge Fund that could be assessed, were:

- 1 The value of recreational visits to the WIAT woodlands across all projects supported by the Challenge Fund nationally
- 2 The value of the health benefits from additional physical exercise in WIAT woodlands where physical interventions took place paid for by the WIAT Challenge Fund.

The specific indicators of interest in the data were therefore:

- Number of visitors to sites within clusters and by basic demographic indicators
- Frequency of visits to sites within clusters and by basic demographic indicators
- Duration of visits to sites within clusters and by basic demographic indicators
- Kind of activities undertaken whilst visiting to sites within clusters and by basic demographic indicators
- Type and amount of physical activities/exercise (hours/minutes of activities per visit) by cluster and basic demographic indicators.

After testing the site survey data and the social catchment survey data in the common dataset, a decision was made to analyse the social catchment survey data alone. This was to avoid the issue of double counting (there was no guarantee that respondents in the site survey were not the same respondents as those included in the social catchment surveys), and because the social catchment data represented a larger more robust sample. Hence, all the final calculations and tables described in this section are based on an analysis of just the social catchment data.

Some of the calculations of economic value reference back to the cluster analysis sample. This includes 146 of the WIAT Challenge Fund projects; this is not the sum total of all WIAT projects. Calculations have also used 2010 census data. The overall effect of these factors is to produce an underestimate of final values.

Analysis was conducted using R Statistical Software. An outline description of the analysis routine is included in the results section below.

2.4. Stakeholder experience and lessons learned

The objective of this component of the evaluation was to:

*identify the key **lessons learned** in the implementation and delivery of WIAT projects, particularly the factors supporting achievement of the direct and indirect outcomes*

and from this to synthesise recommendations to support the successful delivery of any future WIAT grant funding. The study examined the factors instrumental in the achievement of positive changes, as well as to capturing learning about Challenge Fund administration and implementation and delivery processes.

2.4.1. Stakeholder sample

A purposive sample of WIAT project partners and stakeholders were selected to cover:

- representatives of projects across the four woodland clusters (see Table 1)
- a range of different land owner/applicant types
- a range of different partner organisations
- representatives from WIAT projects with different woodland management and social objectives.

The target number of stakeholder interviews was 20. A total of 24 respondents were contacted and 19 interviews completed. The majority of these (17) were conducted over the telephone, with two conducted face-to-face. A standard set of questions was applied using the interview schedules included in Annex 1 and the organisations involved are listed in Annex 2. Table 10 lists the stakeholder affiliations of the interviewees.

Table 10. Stakeholder affiliations of those interviewed

Stakeholder type	Total
Local Authority	9
Civil society organisations (NGOs)	3
Forestry Commission	3
Businesses	2
Community woodland groups	2
Total	19

2.4.2. Qualitative data collection

Qualitative data was collected through semi-structured interviews (SSIs). The purpose of the interviews was to explore:

- What if any, methods of engagement were used by projects to encourage community access and use of WIAT Challenge Fund sites, how and which methods were more successful at reaching different segments of the population
- The site-related factors influencing this success
- The full range of observable benefits and outcomes brought about as a consequence of the Challenge Fund projects
- Whether any unexpected benefits and disbenefits that came about as a result of the Challenge Fund, and what factors influenced this
- Where the most significant benefits were distributed, i.e. which segments of the population benefitted the most and whether those benefits were maintained over time
- How far stakeholders perceive the Challenge Fund to be critical in achieving the benefits they mentioned or whether they have been achieved by other means
- Stakeholder experiences of managing the WIAT grant process
- What might be done differently in the future to maintain and extend the success of the Challenge Fund.

2.4.3. Qualitative data analysis

Interviews were recorded and transcribed. Content analysis revealed emerging themes and key issues. The most significant challenge during the interviews was separating out the differences between stakeholder experiences of the WIAT programme in general and the use of WIAT Challenge Funds in particular. It was also difficult for interviewees to make clear distinctions between the impacts of WIAT Challenge Fund support and other grants that may have been used in the same woodlands. Consequently, it proved difficult to attribute all of the impacts and outcomes discussed by the interviewees specifically to the WIAT Challenge Fund. A qualitative assessment of additionality attributable to WIAT was not achievable.

Furthermore, it became apparent that a significant portion of the time and effort interviewees had spent on WIAT had been focused on the WIAT grant application process and subsequent project delivery. There was much less effort on monitoring project outcomes beyond ensuring physical operations had been carried out and expected outputs achieved. This means that there was a lack of evidence collected by any of the stakeholders about the impacts of the WIAT funded projects. As one respondent explained:

“we might monitor the physical work done, you know the outputs, but otherwise monitoring is still an afterthought, even if the later WIAT

projects ask for information It's difficult to know what we should monitor it's hard seeing how efforts would evaluate social benefits more widely"

There have been some baseline surveys, some *ad hoc* surveys of visitor numbers and site use, and installation of footfall counters at some sites. However, the consistency and coverage of the evidence is poor. This means that stakeholder views about the direct and indirect outcomes achieved by the individual WIAT projects and overall by the Challenge Fund remained largely anecdotal. It also meant that interviewees had many more comments to make about the administration of the WIAT Challenge Fund rather than the scope and scale of the outcomes, who within local communities benefitted, or the detail behind the factors influencing success.

3. Evaluation Results

The following three sub-sections of the report, present the findings from the three component parts of the evaluation. The non-monetary analysis is presented first, followed by the economic valuation of benefits and finally the qualitative assessment of the WIAT scheme by Challenge Fund stakeholders.

3.1. Non-monetary evaluation of direct outcomes

3.1.1. Changes to perceptions of environmental and woodland quality

Woodland improvements leading to better woodland quality were the direct outputs of WIAT Challenge Fund interventions. One of the assumptions of the WIAT programme conceptual model (see Figure 1), was that the perceptions people have of their local environment affects their behaviour and their understanding of their community assets. Positive perceptions of woodland quality are likely to reassure people and incentivise them to use their local woodland resource. Respondents in the surveys were asked a variety of questions relating to environmental and woodland quality. The common dataset included three consistent perceptual measures. These were:

- **Environmental quality** – a general measure of how satisfied respondents were about the general environmental quality in their neighbourhood
- **Woodland quality** – a measure of the quality of the woodlands respondents knew about in their local area
- **The importance of woodland to quality of life** – a question about how important woodlands are to individuals and their overall feeling of wellbeing

These indicator sets consisted of respondent scores generated against LIKERT type scales as described in the methods section above.

Perception indicators: Testing the whole sample

After testing for normality the results were tested for significance using an ANOVA with a post-hoc Bonferroni adjustment (increasing the stringency of the test). The average scores for all three indicators from the survey social catchment data along with an indication of significance is shown in Table 11, and displayed graphically in Figure 6.

The tests show that the change in scores assigned between the baseline year and Period 3 at the end of the Challenge Fund, was significant for all three indicators ($***p<0.001$), and this was also true for the positive change in average scores between Period 2 and Period 3 ($***p<0.001$). There was a significant difference between the baseline and Period 2 in the case of environmental quality ($*p<0.05$), and woodland importance to quality of life ($***p<0.001$), but not for woodland quality (ns $p=1.0$).

Table 11. Changes in perception scores given for environmental and woodland quality indicators

Perception indicator	Average score (significance value)		
	Period 1 (P1 cf. P2)	Period 2 (P2 cf. P3)	Period 3 (P1 cf P3)
Environmental quality (n=3715)	0.19*	0.35***	0.79***
Woodland quality (n=2596)	0.19 ^{ns}	0.20***	0.73***
Woodland importance to Quality of Life (n=3318)	0.32***	0.83***	0.69***

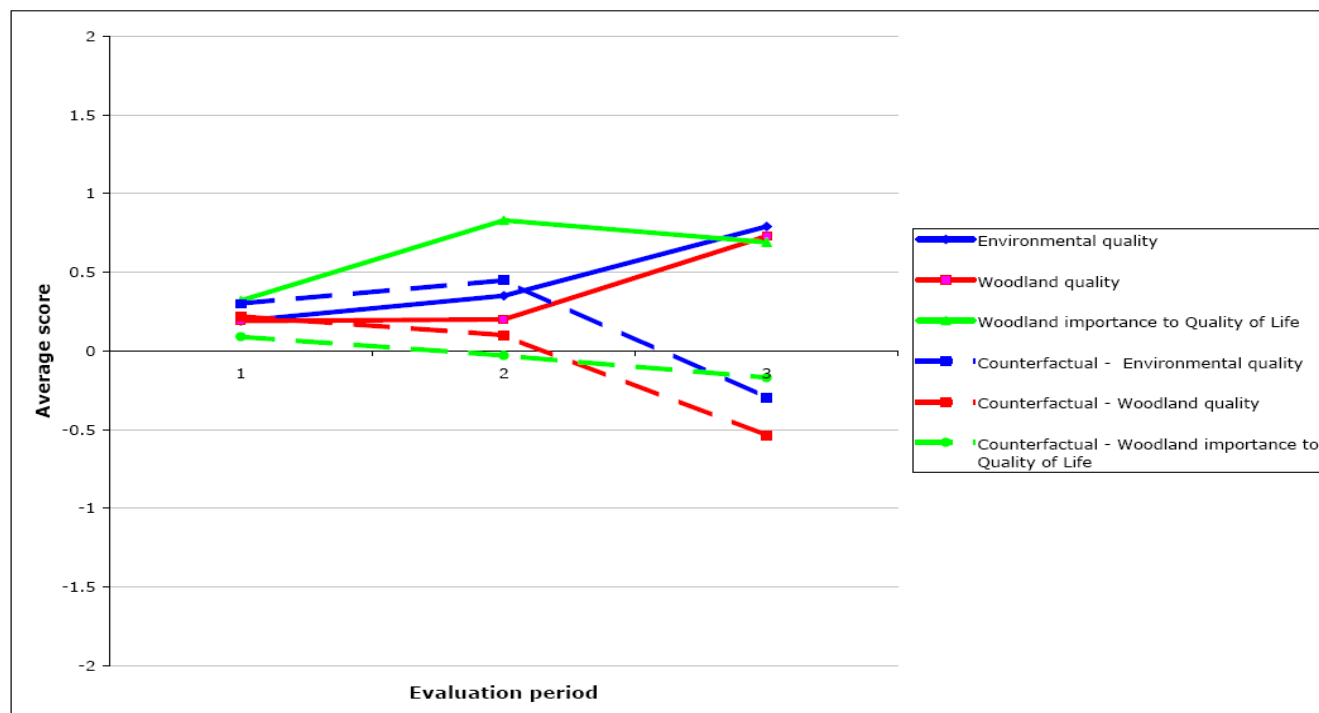
Notes: Significance values = * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 12. Changes in perception scores given for different environmental quality indicators in the Milton counterfactual data (n=210)

Perception indicator	Average score (significance value)		
	Period 1 (P1 cf. P2)	Period 2 (P2 cf. P3)	Period 3 (P1 cf P3)
Environmental quality	0.30 ^{ns}	0.45***	- 0.30***
Woodland quality	0.22 ^{ns}	0.10***	-0.54***
Woodland importance to Quality of Life	0.09 ^{ns}	-0.03 ^{ns}	-0.17 ^{ns}

Notes: Significance values = * $p<0.05$, ** $p<0.01$, *** $p<0.001$

Figure 6. Comparison of changes to average perception scores for different measures between WIAT woodlands and Milton counterfactual site



NB: Axis shows full range of possible scores: 2=Very Good; 1=Good; 0=Neutral; -1=Poor; -2=Very Poor

The same test was conducted on the data for the Milton counterfactual. The results are shown in Table 12 and illustrated in Figure 6. All of the indicators show a pattern of decline in the scores assigned. These were found to be significant in the case of environmental quality and woodland quality. However, the pattern did not prove to be significant in the case of the importance of woodland to quality of life (ns $p=0.918$, $p=0.581$, $p=0.120$).

In summary the results show a significant positive difference in perception scores for the wider sample compared with the baseline scores for all three measures. This sits in contrast with the counterfactual data which shows a negative trend in perceptions scores compared to the baseline for two of the measures, i.e. environmental quality and woodland quality.

Perception indicators: Testing differences between WIAT woodland visitors and non-visitors

The test was run again to compare the average scores given by that part of the sample who were woodland users (i.e. people who had visited woodlands in the last 12 months) and those who were not woodland visitors (see Figure 3). The comparative results and average perception scores are shown in Table 13 and illustrated graphically in Figure 7. The tests showed a positive change in scores assigned between the baseline year and Period 3 at the end of the Challenge Fund: This was significant for environmental and woodland quality indicators ($***p<0.001$), for those people who were visiting woodlands as well as those who were not. The pattern of change in the importance of woodland for

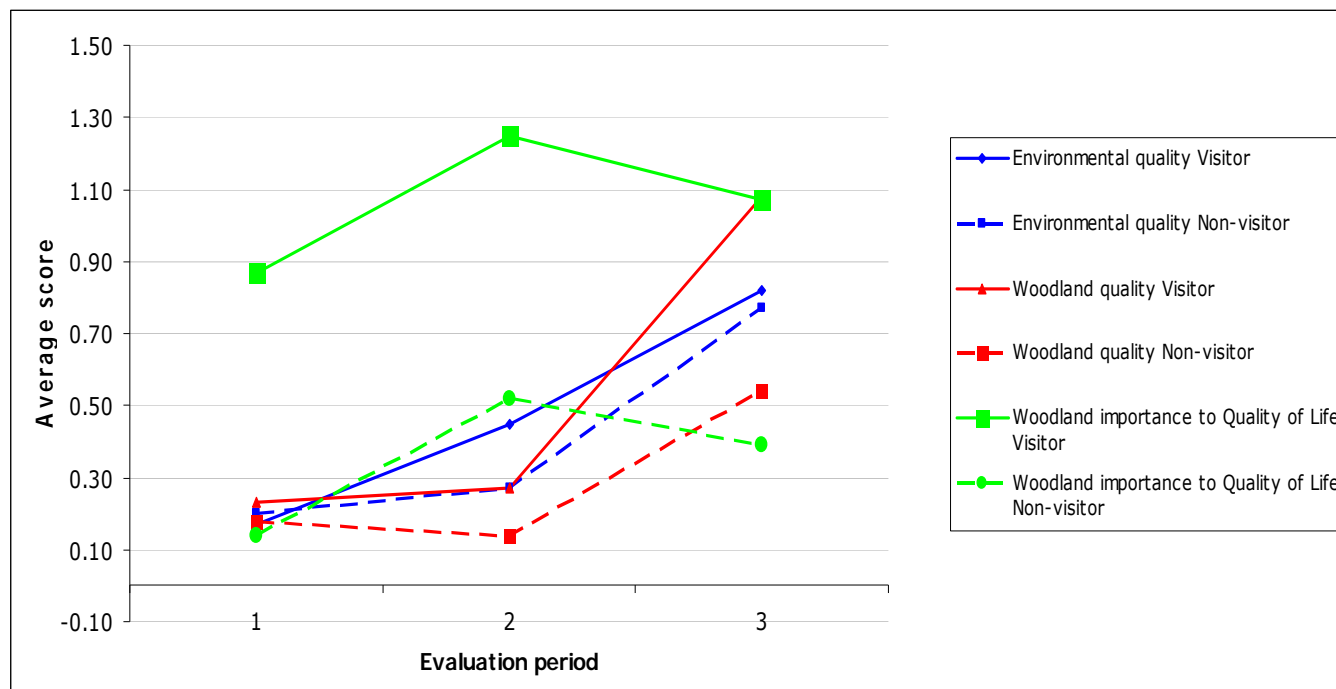
quality of life, showed a slightly greater degree of improvement in the scores assigned by those people not using woodland (an increase of between 0.38 and 0.25 points), than those already using woodlands (an increase of between 0.38 and 0.20 points). This suggests that the WIAT Challenge Fund may have increased knowledge and understanding of the value of woodlands to a target group not in the habit of using woodlands.

Table 13. Changes in perception scores given for different environmental quality indicators by visitors and non-visitors of woodland

Perception indicator	Woodland visitor last 12 months?	Average score (significance value)		
		Period 1 (P1 cf. P2)	Period 2 (P2 cf. P3)	Period 3 (P1 cf P3)
Environmental quality (n=3715)	Yes	0.17 ^{ns}	0.45***	0.82***
	No	0.20 ^{ns}	0.27***	0.77***
Woodland quality (n=2596)	Yes	0.23 ^{ns}	0.27***	1.08***
	No	0.18 ^{ns}	0.14***	0.54***
Woodland importance to Quality of Life (n=3318)	Yes	0.87***	1.25**	1.07*
	No	0.14***	0.52*	0.39***

Notes: Significance values = * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 7. Comparison of changes to average perception scores for different measures between woodland visitors and non-visitors



Perception indicators: Testing by woodland cluster, respondent gender, age category, and socio-economic group

The data was disaggregated further to determine if there was any difference in the scores assigned by people surveyed in different woodland clusters, or from different genders, age categories, and socio-economic groups. ANOVA's were again applied using

the post hoc Bonferroni adjustment. The significant results are described below and summarised in Table 14 at the end of the section. The significance values reported cover the three evaluation periods. Not all significance values are reported where the results for multiple categories are described.

Environmental quality

When testing for differences by woodland cluster, there was a significant increase in scores reported by respondents in all woodland clusters at the end of the WIAT Challenge Fund programme compared to the baseline. The change in mean scores was greatest for woodland cluster 2 (from 0.3 to 1.30) and cluster 4 (from 0.01 to 0.77), and lowest for clusters 1 (from 0.30 to 0.79) and 3 (from 0.19 to 0.62).

There were no notable differences from the general pattern by gender or age category.

When looking at socio economic group, there were no significant changes in the scores given by AB's (ns $p=1.0$, $p=0.117$, $p=0.981$), but the other categories all assigned significantly different positive scores. The greatest degree of change was in the **C2 group at an average increase of 0.7** (from 0.11 to 0.81), **with C1 and DE showing an increase of about 0.57** (from 0.20 and 0.19 respectively to 0.77).

Woodland quality

There was a **significant increase in scores in all woodland clusters** at the end of the Challenge Fund programme compared to the baseline. The change in mean scores was greatest for cluster 2 at an increase of 1.09 (from 0.22 to 1.31) and cluster 1 by 0.75 points (from 0.22 to 0.97), and lowest for cluster 3 at 0.20 points (from 0.31 to 0.51).

There were no notable differences from the general pattern by gender or age category.

When looking at the socio economic groups, there was a significant positive change in scores assigned by all groups, but the **greatest degree of change was shown by the AB's at an increase of 1.49 points** to their mean score (from -0.50 to 0.99), lifting their rating from poor to good/very good ($p=1.46^{ns}$, $***p<0.001$, $***p<0.001$).

Woodland importance to quality of life

The data showed no significant difference in the scores assigned by respondents in woodland cluster 4. For woodland clusters 1, 2, and 3 there were significant differences in the scores assigned compared to the baseline. **The greatest degree of change was in woodland cluster 3** an increase in mean score of 1.04 points (from 0.35 to 1.39), although woodland cluster 2 at 1.00 point increase (from 0.09 to 1.09) and cluster 1 at an increase of 0.77 (from 0.09 to 0.86) came close to this.

There were no notable differences from the general pattern by gender.

The change in scores assigned to the importance of woodland compared to baseline was significant for the **"empty nest" age group** ($***p<0.001$, $**p<0.01$, $*p<0.05$), and the **"mid-family" age category** ($**p<0.01$, ns $p=1.00$, $***p<0.01$). For the

empty nesters values changed from scores of 0.07 at baseline to 0.89 and 0.49 in Period 2 and 3. For the mid family group there was an increase in average score of 0.43 at baseline to 0.83 in Periods 2 and 3.

When looking at the socio economic groups, the **change in scores assigned was significant for the C2 (ns $p=0.32$, *** $p<0.001$, *** $p<0.001$) and DE groups (*** $p<0.001$, ** $p<0.01$, *** $p<0.001$)**, indicating a real change in their attitudes to what woodland could offer to their quality of life. The degree of change in the scores assigned by the C2's was greater and increased 0.68 points in mean score (from 0.04 to 0.72) compared to the baseline. The increase in mean score assigned by DE's was 0.27 points (from 0.32 to 0.59).

Table 14. Summary of differences in mean scores assigned to perceptual indicators by woodland cluster, respondent gender, age, and SEG

	Environmental quality	Woodland quality	Woodland importance to QoL
Woodland cluster	Significant positive change compared to baseline in all clusters. Greatest degree of change in clusters 1 & 4	Significant positive change compared to baseline in all clusters. Greatest degree of change in clusters 1 & 2	No significant change compared to baseline in cluster 4. Greatest degree of change in cluster 3 & 2
Gender	Significant positive change for men and women. No difference in patterns by gender	Significant positive change for men and women. No difference in patterns by gender	Significant positive change for men and women. No difference in patterns by gender
Age	Significant positive change compared to baseline in all age groups.	Significant positive change compared to baseline in all age groups.	Significant positive change compared to baseline in empty nesters and late family age groups only.
Socio economic group (SEG)	No significant positive change compared to baseline in AB group Greatest degree of change in C2 group	Significant positive change compared to baseline in all SEG groups. Greatest degree of change in AB group	Significant positive change compared to baseline in C2 and DE groups only . Greatest degree of change in C2 group

3.1.2. Changes to visiting behaviour, visit frequency and duration

Behaviour indicators: Testing the whole sample for changes in the number of reported visits

An initial test using the Phi Cramer statistic was conducted to identify any positive change (i.e. increase) in the number of reported visits to woodland across the three time periods. Disaggregating by woodland visitor and non-visitor (see Figure 3), the test was applied to unweighted data without using a design factor. The same test was conducted in the same way on the counterfactual Milton site data. **The results showed that there was a significant increase in the numbers of people reporting visits to**

woodland compared with the baseline ($***p<0.001$). This was not true in the case of the counterfactual Milton social catchment data (ns $p=0.343$).

The data was drilled into further to determine whether this change was associated with WIAT project woodlands rather than woodlands in general. The results are shown in Table 15 below. Looking at patterns associated with the WIAT woodland alone, the Phi Cramer test showed the numbers of people visiting WIAT woodlands is significantly different across the three time periods. **There is an increase in the numbers of people reporting visits to WIAT woodlands post-intervention ($***p<0.001$).**

Table 15. Reported visits to WIAT woodland, baseline and post-intervention (n=3965)

	Visit woods last 12 months	Frequency (%)		
		Period 1 (P1 cf. P2)	Period 2 (P2 cf. P3)	Period 3 (P1 cf P3)
Reported visits to woodland	None	331 (75.6)	804 (54.4)	1155 (56.4)
	Other	41*** (9.4)	64*** (4.3)	112*** (5.5)
	WIAT	66*** (15.1)	610*** (41.3)	782*** (38.2)

Notes: Significance values = * $p<0.05$, ** $p<0.01$, *** $p<0.001$

The overall increase in the numbers of people saying that they visit WIAT woodlands after the baseline year is **between 20-25%**. The percentage of the sample reporting visits to WIAT woodland in the baseline year was 15% and over the whole period this increased to an average value of 36%, with a high in Period 2 of 41%. The variation in these figures can probably be attributed to the weather conditions in any given year. There is some evidence that number of visits increase soon after intervention, but, over time, although the increase in reported visits continues, the values fall back to lower total counts. This would reflect the "sensitisation hypothesis" that familiarisation with green space after initial access and a period of enthusiasm, reduces visit frequency.

Behaviour indicators: Testing differences to the number of reported visits by woodland cluster, respondent gender, age category, and socio-economic group

The data was then examined with a Phi Cramer test (on unweighted data with no design factor applied) to determine if there was any difference in the number of visits to WIAT woodlands reported by people of different genders, age categories, and socio-economic groups (SEG).

Differences by gender

The data showed no significant differences in the pattern of visits reported by men and women in any of the three time periods (ns $p=0.741$, ns $p=0.246$, ns $p=0.684$). The percentage of **women reporting visits was approximately 55%** of the sample, higher than men at 45%, at baseline and during the post-intervention periods.

Differences by age

In terms of differences by age, it seemed that it was those age categories most likely to have children in the household, or those who were retired, who showed the strongest degree of increase in the numbers of reported visits to WIAT woods. The test statistic showed a **strongly significant increase in visits for the early, mid and late family categories and the retired** ($***p<0.001$), with a significant value for the empty nesters ($**p<0.01$), and a less significant value for the pre-family category ($*p<0.05$). The number of people reporting visits from the **early (20-39 years) and mid family (35-49 years) categories showed the greatest increase of about 30%** from baseline values of 12% and 17% respectively to averages of 41% and 47% over the period. The **increase for retired people (60 plus) was about 23%** from a baseline of 6.3% to an average of 28% over the period. Problems with consistent coding of age classes (see Table 9), means that these results should be treated with some caution.

Differences by SEG

Looking at the reported visits by socio-economic group ($n=3406^5$), the test showed that there was a significant increase in visits reported by respondents from all SEG categories ($***p<0.001$), other than the AB group ($ns\ p=0.49$). The change in reported visits from the **target DE group was an increase of about 17%**, from 13.3% at baseline to an average of 29.6% over the period. The most marked increase was within the C1 group from a baseline 17.5% to an average of 44% over the period, which is an increase of 27% in the numbers of people from that group reporting visits to WIAT woodlands post-intervention.

Differences by woodland clusters

The data was examined using Phi Cramer to see if there was any difference in the pattern of reported visits between woodland clusters. The test statistic confirmed that the number of people reporting visits to WIAT woodlands showed a significant change compared to the baseline across all four woodland clusters. The level of significance was strongest for clusters 1, 2, and 4 ($***p<0.001$) and visits in each of these clusters increased post-intervention. The increase was **greatest for woodland clusters 1 and 2 at about 38%** from baselines of 5.7% to average values of 43.8% and 42.9% across the period. The change for cluster 4 was smaller at about 9% from 4.5% at baseline to an average of 13.8% across the period.

The level of significance was weaker for cluster 3 ($*p<0.05$), but, in this cluster the numbers of reported visits declined compared to the baseline. The **decline in reported visits for cluster 3 was about 10%** from a baseline figure of 41.5% to an average for the period of 32.3%. Cluster 3 woodlands are those which are larger, mixed woodlands, with greater biodiversity value, in areas of moderate social deprivation, such as Roslin Glen, Aberdeen River Don and which might be considered "visitor destinations", as much as "woodlands on your doorstep". It could be suggested that people alter their visiting patterns, and visit other, perhaps closer WIAT woodlands in response to interventions

⁵ Difference in sample size attributable to no data – 548 respondents, refused - 11 respondents

improving the condition of those. It might also be that if the cluster 3 woodlands were indeed being treated as “visitor destinations”, the poor weather conditions during the evaluation period could have had an adverse impact.

Behaviour indicators: Testing for changes in the frequency and duration of visits people make to WIAT woodland

The next set of tests interrogated the data to find out more about the pattern of visits, to ascertain if there was any change to how often individuals were visiting woodland and if there was any change to the length of time of those visits.

The data was tested for normality, and then the differences in mean values for visit frequency and duration were tested using a t-test on unweighted data, but applying a design factor (1.5) to the standard error (equal variances not assumed) to arrive at a conservative significance value. The results are shown in Table 16.

Table 16. Mean frequency of visits to woodland at baseline and post-intervention

	Visit woods last 12 months- Yes	Mean values		
		Period 1 (P1 cf. P2)	Period 2 (P2 cf. P3)	Period 3 (P1 cf P3)
Mean frequency of winter and summer visits (visits per month)	WIAT	6.31 ^{ns}	7.89 ^{ns}	10.56 ^{ns}
	OTHER	1.49	3.32	8.46
	Woodland visitors (WIAT and OTHER)	4.91 ^{ns}	6.65 ^{ns}	10.09 ^{ns}
Mean duration of visits (minutes)	WIAT	90.30***	104.86***	64.35***
	OTHER	171.66***	140.40***	64.35***
	Woodland visitors (WIAT and OTHER)	113.92***	109.99***	65.01***
Mean minutes per month	WIAT	568.09	827.35	679.54
	OTHER	255.77	466.13	544.40
	Woodland visitors (WIAT and OTHER)	559.35	731.43	655.95

Notes: Significance values = * p<0.05, **p <0.01, ***p<0.001

The results show that the frequency of visits increases but the mean duration of visits decreases. In general people are going to woodland more often but spending less time there on each visit. Overall this pattern leads to an increase in the average time spent in woodlands compared to the baseline. However, as Table 16 shows, this interpretation should be treated with caution. Although the observed differences in duration of visit are significant, those for frequency of visit are not using the stricter parameters set by application of the design factor.

The WIAT visitor data was then tested for differences by the key variables. This was done using a t-test on unweighted data, but applying a design factor (1.5) to the

standard error (equal variances not assumed). A summary of the results is shown in Table 17. Points of significance are reported below.

Differences by age

The pattern across age groups mirrored the general trend of more, shorter visits, apart for the retired group where the frequency of visits declined. These observed trends were shown to be significant for all age groups. There was an increase in the number of visits ranging between 1.5 (mid-family age group) and 6.5 (empty nesters) extra visits per month. The number of visits per month declined by 3.5 for the retired age group.

Differences by SEG

The pattern across socio-economic groups mirrored the general trend of more frequent but shorter visits, apart for the AB group where the frequency of visits declined. The observed trends were significant for the C1 and C2 group. They moved from visiting an average of once a week to an average of twice a week.

Differences by woodland clusters

The pattern across woodland clusters 1, 2, and 3 mirrored the general trend of more frequent but shorter visits. This was found to be significant in the case of clusters 2 and 3. The greatest change was shown in woodland cluster 2 (* $p < 0.05$) where frequency of visits increased from about three times a month to three times a week compared to the baseline.

Table 17. Summary of differences in frequency and duration of visits by woodland cluster, gender, age, and SEG

	Frequency of visits (visits per month)	Duration of visits (minutes)
Woodland cluster	There was a pattern of increase the frequency of visits by in all clusters. This was significant only for clusters 2 & 3. Greatest degree of change in clusters 2 from 3 x a month to 3 x per week.	There was a pattern of decrease in clusters 1, 2, and 3 . The duration of visits increased in cluster 4 . These patterns were all shown to be significant .
Gender	Although there was a pattern of increase in the frequency of visits for both men and women, this was not a significant change compared to the base year.	There was a significant negative change in the duration of visits by both men and women compared to the base year. Visit length declined from between 117-110 minutes to around 65 minutes
Age	There was a significant pattern of increase in the frequency of visits by all age categories other than retired people. The increase was between 1.5 and 6.5 visits per month.	There was a significant negative change in the duration of visits compared to the base year for all age categories. Visit lengths declined between 50 and 26 minutes compared to base year
Socio economic group (SEG)	There was a significant pattern of increase in the frequency of visits by C1 and C2 categories but not for AB and DE . The increase for C1 and C2 was from once a week to twice a week.	There was a significant negative change in the duration of visits compared to the base year for all SEG groups. Visit lengths declined around 10 minutes, but 100 minutes for C2's.

Behaviour indicators: Changes to the kind of activities people are undertaking in WIAT woodlands

Changes to the primary activity (i.e. the main activity carried out on a woodland visit in terms of the time spent) of woodland visitors is summarised in Table 18. Although walking (at 59-69% of primary activity) and dog walking (at 17-18% of primary activity) dominated the kinds of things people were doing in WIAT woodlands in any of the time periods, cycling, horse riding and brisk walking (i.e. often with a push chair, or as walking routes to work) all increased compared to the baseline. The qualitative data associated with the surveys also suggested that walking in woodlands changed in nature, with more family walking taking place. Considering the pattern of weather during the period was generally wetter and colder, it is surprising that the proportion of dog walkers did not increase. One would expect that dog walkers would continue to visit regardless of the weather, but that the other kinds of walkers and activities would decline in relative terms. The evidence suggests that the WIAT Challenge Fund interventions have influenced behaviour.

Limiting the recoding of the dataset to respondents' primary activity, means that it has not been possible to analyse whether the total numbers of activities any one individual undertook (i.e. increased diversity of use) changed over time.

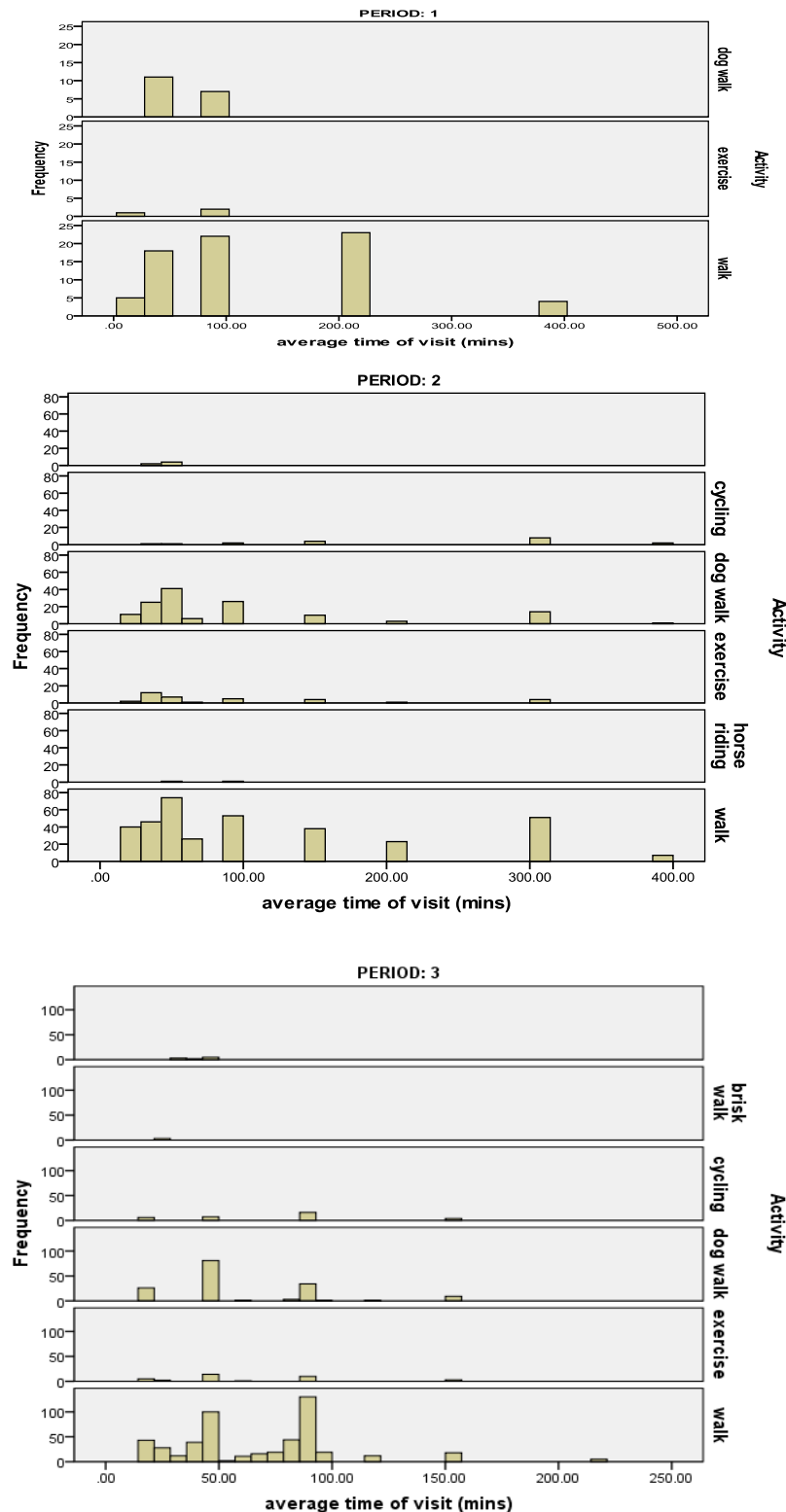
Table 18. Primary activities during woodland visits reported in social catchment surveys at baseline and post intervention (n=1666)

Period	Primary activity	Frequency	Percent
1	nothing	12	11.2
	dog walk	18	16.8
	exercise	3	2.8
	walk	74	69.2
	Total	107	100.0
2	nothing	95	14.3
	cycling	11	1.7
	dog walk	121	18.2
	exercise	43	6.5
	horse riding	2	0.2
	walk	393	59.2
	Total	665	100.0
3	nothing	95	10.6
	brisk walk	4	0.4
	cycling	30	3.4
	dog walk	148	16.6
	exercise	33	3.7
	walk	584	65.3
	Total	894	100.0

An examination of the pattern of frequency and duration of visit associated with each of these activities is shown in Figure 8. It is interesting to note that although the general trend to shorter but more frequent visits is confirmed, an additional bi-modal pattern

may be emerging amongst walkers and dog walkers. This indicates two different visitor segments: those undertaking visits of under an hour and clustered at around 40-50 minutes; and a second group visiting for over an hour clustered around 90 minutes.

Figure 8. Frequency and duration of visits associated with primary activities over three evaluation periods



3.2. Economic valuation of recreation and health benefits

The following measures of value of indirect outcomes were considered suitable for WIAT Challenge Fund assessment at a programme level:

- The value of recreational visits
- The value of health benefits due to physical exercise.

3.2.1. Value of recreational visits

Visitor surveys (including visitor expenditure data), and visitor number statistics are the major tools for assessments of recreational value. In the absence of any expenditure data collected in the WIAT surveys, assigning a monetary value rests on indirect inferences using value transfer from other existing willingness-to-pay (WTP) studies. The most appropriate study identified was Scarpa (2003): He estimated WTP per recreational visit to a woodland in the range £ 0.90 to 2.40 (at 2003 prices). The value range depended on the distance travelled, from less than 10 miles to over 150 miles. An average value of £1.66 was assigned for a day visit. Scarpa (2003) recognised a variation that should be applied depending on how familiar visitors were with a site. The more frequently a visitor used particular woodland the lower the value. Visitors who used the sites frequently, i.e. more than 50 times per year, were only willing to pay 60p per visit (at 2003 prices).

Taking the lowest reported values as the most appropriate to the WIAT Challenge Fund context, means using a range of values from £0.60 to 0.90 (at 2003 prices) per person, per visit. Translating these values into 2012 prices the range is £0.74 (low estimate) to £1.11 (high estimate) with £0.92 as the central estimate.

The value of recreation in WIAT woodlands will be lower if there are substitute locations, and estimates of additional benefits will need to be revised downwards. For example, only about 27% of the gross value estimated for the Mersey Forest recreational benefit was considered truly additional due to the availability of alternative recreational sites in the area (Regeneris, 2009, pp. 22, 30, 37). The cluster analysis of WIAT Challenge Fund projects (Table 2) included the presence of local nature reserves (LNRs) and distance of WIAT woodland sites from LNRs within the key variables. These act as a proxy measure of substitution. Analysis of changes in percentages of people visiting WIAT Challenge Fund sites (see Table 15 and discussion around it) appears to indicate that the majority of new visitors are genuine, and were not displaced from other woodlands. Nevertheless, to stay on the conservative side of estimates we adopt an approach recognising a possibility of substitution effects. The same adjustment as in the Regeneris study (the closest of the published studies with substitution effect similar to that which could be expected in the WIAT Challenge Fund scenario) is applied to total values for woodland clusters 1, 2 and 3 and no adjustment is made for woodland cluster 4 as these sites are not located close to any LNRs.

Calculations of recreational value were therefore based on the number of additional recreational visits, estimated by:

(change in the number of people) x (change to frequency of visits) x substitution adjustment for clusters 1, 2 and 3

Calculating change in the number of visitors

Table 19 presents figures for the total population within 1km of the WIAT Challenge Fund woodlands included in the cluster analysis (n=146), based on 2010 census data. Table 20 summarises the percentage of people visiting WIAT woods as estimated using the catchment survey dataset. The percentage of additional visits brought about by WIAT Challenge Fund interventions is calculated as the difference with the baseline in Period 1 as shown in Table 21. Combining percentage changes with total population numbers yields additional visitor numbers attributed to WIAT Challenge Fund interventions as shown in Table 22. This illustrates that on average half a million additional visitors came to WIAT Challenge Fund woodlands during Period 2 and Period 3, i.e. between 2007 and 2012.

Table 19. Populations within WIAT Challenge Fund site social catchments (n=146 WIAT CF projects)

Woodland clusters	Population (within 1km of WIAT CF site)
cluster 1	674,645
cluster 2	396,035
cluster 3	501,425
cluster 4	636,147

Table 20. Percentage of people visiting WIAT Challenge Fund woodlands by period and woodland cluster

Woodland cluster	Period 1 (2006)	Period 2 (2007-2009)	Period 3 (2010-2012)
cluster 1	5.71	49.93	43.41
cluster 2	5.71	44.75	67.72
cluster 3	41.53	33.90	28.84
cluster 4	4.55	15.91	15.67

Table 21. Percentage change in people visiting WIAT Challenge Fund woodlands by period and woodland cluster

Woodland cluster	Period 2 (2007-2009)	Period 3 (2010-2012)
cluster 1	44.22	37.70
cluster 2	39.03	62.01
cluster 3	-7.63	-12.69
cluster 4	11.36	11.12

Table 22. Additional visitor numbers by period and woodland cluster

Woodland cluster	Visitors Period 2 (2007-2009)	Visitors Period 3 (2010-2012)
cluster 1	298,307	254,318
cluster 2	154,578	245,570
cluster 3	-38,244	-63,622
cluster 4	72,289	70,747
Total	486,931	507,014

Calculating change in the number of visits

An estimate of how often, on average, people visit, i.e. the number of visits per year, together with the additional visitor numbers after WIAT project intervention, yields the additional number of visits to WIAT woodland sites. This is based on actual data from the surveys. In Table 23 below the first two columns show the mean frequency of visits per year for Period 2 and 3 by woodland cluster. The following two columns calculate the number of additional visits per year for Period 2 and Period 3 again by woodland cluster. Table 24 provides estimates of the 95% confidence intervals (CI) for the mean frequency of visit values. These were obtained using bootstrapping, a method for estimating errors associated with data not normally distributed⁶.

Table 23. Mean frequency of visits and total visit numbers (per year)

Woodland cluster	Frequency		Visits	
	Period 2	Period 3	Period 2	Period 3
cluster 1	129	134	38,608,132	34,012,962
cluster 2	14	150	2,107,886	36,778,911
cluster 3	89	94	-3,394,601	-6,011,958
cluster 4	111	85	8,047,673	5,981,398
Total			45,369,090	70,761,313

Table 24. Applying 95% CI for mean frequency of annual visits

Woodland cluster	Period 2		Period 3	
	CI (low)	CI (high)	CI (low)	CI (high)
cluster 1	115.15	145.07	125.94	143.01
cluster 2	9.12	22.22	122.93	182.38
cluster 3	69.37	110.86	77.62	113.95
cluster 4	86.29	144.38	61.16	120.91

Calculating economic value of recreation in WIAT Challenge Fund woodlands

Applying the economic estimates of the value of a recreational visit as discussed above, to the estimates of visit numbers, yields an economic value of recreational benefit. This

⁶ This is a computational statistical method to obtain error estimates (i.e. confidence intervals) see [http://en.wikipedia.org/wiki/Bootstrapping_\(statistics\)](http://en.wikipedia.org/wiki/Bootstrapping_(statistics)) for an explanation. It is a preferred approach when data is not exactly normal and the sample is not large, a situation which applies to some of the woodland clusters. These estimated errors converge to the standard errors for normally distributed variables if the standard statistical theory developed for the normal distribution case is applicable.

is summarised in Table 25 below. The total recreational values range from £34m (low) to £79m (high) with central estimates of £53m (an average for Period 2 - £42m and Period 3 - £65m), all per year, in 2012 prices.

Table 25. Economic value of recreational benefit (low, central and high estimates; £, thousands) for WIAT Challenge Fund woodlands

Woodland cluster	Period 2			Period 3		
	low	central	high	low	central	high
cluster 1	28,570	35,519	42,855	25,170	31,292	37,754
cluster 2	1,560	1,939	2,340	27,216	33,837	40,825
cluster 3	-2,512	-3,123	-3,768	-4,449	-5,531	-6,673
cluster 4	5,955	7,404	8,933	4,426	5,503	6,639
Total	33,573	41,740	50,360	52,363	65,100	78,545

Applying the adjustment to account for the presence of alternative substitute locations for recreation (as discussed above) reduces these figures to £13m (low) to £26m (high) with central estimates of £19m (per year, in 2012 prices).

Given that WIAT visits are very local and frequent, and following this evaluation's approach of applying conservative estimates, we would recommend using the lower end of this benefit estimate, i.e. **that post intervention the recreational value of WIAT Challenge Fund woodlands is £13m per year.**

3.2.2. Health benefits due to physical exercise

The two major streams of health benefits come from:

- the physical exercise created by accessible woodlands, and,
- the non-exercise related exposure to woodlands (for example, the psychological benefits from being able to see woodlands).

The second of these measures (the non-exercise related benefits of woodlands) is calculated using ex-post evaluations based on the size of the area of **new** woodland created, including areas of land restored to woodland. Only a small number of WIAT projects were focused on the creation of new woodland, so this measure was considered inappropriate.

The approach chosen to estimate the economic value of health benefits due to physical exercise involves using indicators of the actual physical exercise undertaken by visitors to the WIAT sites. These data were collected as part of the WIAT social catchment and site surveys. The indicators available in the common dataset were: the main types of physical activities undertaken, the duration of these activities, and the frequency of visits involving these activities.

Calculating the physiological value of exercise during woodland visits

To measure the amount of physical exercise associated with visits to WIAT woodlands the metabolic equivalent of task (MET) concept was used. MET is a physiological concept expressing the energy cost of physical activities as multiples of resting metabolic rate (RMR) and is defined as the ratio of the metabolic rate (and therefore the rate of energy consumption) during a specific physical activity to a reference rate of metabolic rate at rest, set by convention at $3.5 \text{ ml O}_2 \text{ kg}^{-1} \text{ min}^{-1}$ or equivalently $1 \text{ kcal kg}^{-1} \text{ h}^{-1}$ or $4.184 \text{ kJ kg}^{-1} \text{ h}^{-1}$. By convention 1 MET is considered as the resting metabolic rate obtained during quietly sitting⁷. Different MET values are associated with different levels of physical activity. The more vigorous the physical activity, the greater the MET value.

To provide an example, an additional 24 MET-hours per week would be equivalent to: 3 hours of vigorous activity per week (jogging, is about 8 MET per hour); or to 6 hours of moderate activities (brisk walking, i.e. faster than 3.4 mph (5.5 km/h)) at about 4 MET per hour; or 6 hours of leisurely cycling at speeds less than 10 mph (16 km/h), also about 4 MET per hour.

MET values for the range of physical activities undertaken by respondents in the WIAT surveys were drawn from the Compendium of Physical Activities⁸.

Calculating monetary values of exercise by MET hours using QALYs

A recent study undertaken for the UK National Ecosystem Assessment (Mourato et al., 2010) showed how physical and mental health effects associated with visiting greenspace could be assigned monetary value using Quality Adjusted Life Years (QALYs). QALYs are measures of health benefit that combine length of life with quality of life. The quality of life is assessed on a scale where zero typically represents death and one represents full health. QALYs are widely used in the health sector and are commonly estimated on the basis of 'time trade-off' or 'standard gamble' methods (Drummond et al, 1997).

Mourato et al (2010, pp. 78, Table 18) linked changes in health utility score (i.e. physical and mental health effects) due to changes in the experienced environment, with tentative monetary estimates (per person per year) based upon one QALY being valued at £6,414 - £21,519 at 2009 prices (Mason et al., 2009). This provided an estimate that additional physical exercise of +24 MET-hours per week is valued at £12-£39⁹ annually. This translates into monetary estimates of £0.53 (low), £1.13 (central) and £1.73 (high) per MET-hour per week per person per year in 2012 prices. It is important to note that our health benefit analysis is based on additional 'MET-hour per week' units, which are translated into per person per year monetised health benefit.

⁷ Source: http://en.wikipedia.org/wiki/Metabolic_equivalent (accessed 18 August 2011)

⁸ <https://sites.google.com/site/compendiumofphysicalactivities/> (accessed 18 August 2011)

⁹ See above for an example of how to generate +24 MET hours using different forms and levels of exercise

Calculating the economic value of health benefits

The extent of the additional health benefits attributable to WIAT CF programme interventions was elicited by comparison of the figures at the baseline Period 1, between control sites without WIAT interventions and those with WIAT interventions.

All physical activities were categorised into three intensity groups (Light, Moderate and Vigorous) and then assigned MET units as shown in Table 26.

Table 26. MET hours assigned to different activity levels

Activity level	MET units		
	Low	Central	High
Light	1	2	3
Moderate	3	4.5	6
Vigorous	6	10	14

The calculated MET units were multiplied by the duration of respondent's visits to obtain MET-hour units. Next MET-hour units were multiplied by the frequency of respondent visits to derive a MET-hour per week for every individual included in the surveys. The mean MET-hour per week values (calculated by WIAT programme period and by woodland sampling cluster), were then multiplied by the economic values of physical exercise using the QALY/MET system described above. To keep the range of estimates consistent and all-inclusive, the low MET-hour per week values were multiplied by the lower economic value, the high MET-hour per week values were multiplied by the higher economic values, and the central MET-hour per week values by the central economic value.

For example, Table 27 below shows estimations of mean amount of MET-hour per week units for the central scenario values (derived in Table 26 above), with 95% confidence intervals (CI) also presented:

Table 27. Central MET-hour per week (MET-hw) mean estimates by cluster and period and their 95% CIs

	Period 2			Period 3		
	MET-hw	CI (low)	CI (high)	MET-hw	CI (low)	CI (high)
cluster 1	6.52	5.61	7.65	7.42	6.66	8.43
cluster 2	1.80	1.47	2.27	7.89	6.12	9.82
cluster 3	13.51	8.87	26.99	9.85	7.58	13.72
cluster 4	9.42	6.34	14.09	6.43	4.36	11.10

The estimated mean value of health benefits due to physical exercise (£ per person per year, in 2012 prices) is shown in Table 28. Then for each woodland cluster the total value (low, central and high in £ per year) is equal to:

(total population of a woodland cluster) x (share of additional visits) x
(corresponding mean value of MET-hour per week)

Note that the product of first two terms in the formula is equal to additional visitor numbers, which were calculated in the section reporting on value of recreational visits (see Table 22). The last term is a product of physical MET-hour per week units (as, for example, presented in Table 27 above) and the monetary value per MET-hour per week. Next an aggregate value by clusters was calculated, where estimates from all the woodland clusters are summed to yield the total value for the WIAT intervention. The results using 2012 prices are presented in Table 29 below.

Table 28. Health benefits mean value (£ per person per year)

Woodland cluster	Low		Central		High	
	Period 2	Period 3	Period 2	Period 3	Period 2	Period 3
cluster 1	2.04	2.22	7.39	8.41	15.95	18.50
cluster 2	0.56	2.60	2.04	8.94	4.42	18.91
cluster 3	4.37	3.24	15.31	11.17	32.65	23.61
cluster 4	3.00	2.14	10.67	7.29	22.90	15.33

Table 29. Health benefits value, aggregate (£, thousands per year)

Woodland cluster	Low		Central		High	
	Period 2	Period 3	Period 2	Period 3	Period 2	Period 3
cluster 1	610	565	2,203	2,139	4,757	4,706
cluster 2	86	638	315	2,196	683	4,645
cluster 3	-167	-206	-586	-710	-1,249	-1,502
cluster 4	217	151	771	515	1,656	1,085
Total	746	1,148	2,704	4,140	5,848	8,934

The results above show that the economic value of health benefits due to physical exercise range from £0.75m to £8.9m per year, with a central estimate (averaged across two periods) of £3.4m per year.

As with the calculations of recreational benefit an adjustment is applied for the presence of alternative substitute locations for recreation, reducing these estimates of health benefit to £0.36m (low) to £3.2m (high) with central estimates of £1.4m (per year, in 2012 prices).

Following the approach of applying conservative estimates, we would recommend using the lower end of this benefit estimate, i.e. **that post intervention the value of additional health benefits in WIAT Challenge Fund woodlands is £0.36m per year.**

3.3. Stakeholder experience and lessons learned

It is important to note as a starting point that all of those people interviewed agreed that the WIAT Challenge Fund was critical to increasing woodland access and changing patterns of visiting behaviour. Respondents said that most of the woodland

improvement work would not have happened otherwise. Operations that would have been carried out without the WIAT grant were likely to have been confined to the land owners' statutory obligations only, or would have been planned for completion over a much longer time period. Many Local Authorities noted that the WIAT Challenge Fund provided a framework to develop their thinking about urban woodlands and their strategic planning, with the 90% funding rate giving depth and scale to the work undertaken. The interviewees went on to discuss their understanding of the kinds of impacts the WIAT Challenge fund had leveraged, what factors they felt had been instrumental in project success including public engagement, and suggestions they had for improving any similar scheme in future. The following sections describe those results.

3.3.1. Direct and indirect outcomes of woodland improvements

Table 30 summarises the list of direct and indirect outcomes respondents mentioned being wholly or partly attributable to WIAT Challenge Fund monies.

Table 30. Direct and indirect outcomes of WIAT CF mentioned by respondents

WIAT outputs	Direct outcomes	Indirect outcomes
Bringing woodland into active management	Increased amenity values	Quality of Life improvements around WIAT sites
	Increased value of woodland asset and reduced liabilities	
	Increased site safety	
	Increased local interest	
Improved woodland access	Reduction of ASB	Health and wellbeing of visitors and local residents improved
	Increase in green corridor travel to work, school and local destinations	
	Increased numbers of visits and visitors	
	Increased use of green gym and health walk circuits	
	Greater use of woodland as a learning resource	Improved understanding, knowledge and skills linked to woodlands
	Increase in engagement activities organised by community groups	
FC working in partnership with stakeholders	Awareness of woodland value and potential raised amongst partner organisations	Woodland protected from development Success of Local Authority strategies involving outdoor engagement e.g. Outdoor Access, mountain biking, 'Active Travel' Improved woodland and forestry knowledge and skills Value of woodlands recognised by others
	Strategic planning around suite of woodland holdings held by Local Authorities	
	Awards for planning, management and engagement won by WIAT sites	

Respondents were not able to comment on the scale of any of these impacts because of a lack of available evidence. Data about visitor numbers was collected from footfall monitors at a limited number of sites, and one estate now has annual visits of over 70,000 which they attribute to WIAT improvements. Stakeholders were not able to

identify which segments of local communities benefitted the most from the interventions. But by and large this kind of evidence is rarely collected. However, there was general an assumption that socially deprived people were more likely to access WIAT woodlands because of the location of the schemes. Similarly, infrastructure improvements such as hard surfaced paths were assumed to improve access for people living with disabilities, and those with young children and push chairs. Interviewees all agreed that the types of activities people were undertaking in WIAT woodlands had diversified since intervention. There was, they suggested, a marked increase in health and wellbeing groups and clubs (e.g. Braveheart Walking Group in Falkirk, women's fitness clubs in Glasgow) using sites for exercise, with significantly more cyclists and families now present.

About half of the respondents felt that the real value added and scale of benefits leveraged by the WIAT Challenge Funds happened when the work was linked to other engagement programmes, or to other services such as Local Authority Rangers. For example, one Local Authority representative said:

"we could not have progressed our Outdoor Access Strategy and our MTB strategy without WIAT funding, but likewise, because we have those programmes, we will continue to look at the importance of our woodlands and find ways of taking them forward"

Another respondent talking about a small woodland at Hilton said:

"after the WIAT silvicultural and structural work, suddenly it became very heavily used by all sort of forestry for people kind of activities Then the Scottish Government put money in for working with offenders picking up litter and that They do their work ... and then the schools do their visits with forest schools There is a whole chain of projects linking together and that works WIAT can't provide all that and it probably shouldn't do, but those initial works sit best where there is a group of projects to support things going forward"

When asked about any unexpected benefits the Challenge Fund had brought about, a number of respondents mentioned the increased awareness of the value of woodlands and the tangible impact this had. In the case of Local Authorities, for example, involvement in the WIAT Challenge Fund had drawn their attention to the amount of woodland they had, and the potential use they could make of it to achieve particular public health and environmental targets and other key performance indicators. For example, one respondent said:

"there is always a tension between street trees and urban woodland, but woodland has now moved higher up the spending agenda"

Another said:

"this strategic approach to woodland, making woodland spaces safe as well as useful for progressing plans and targets brought about by WIAT,

meant that in a number of examples woodlands were kept rather than lost to development"

For private owners it prompted a consideration of the public benefits that woodlands could generate, and two respondents mentioned that it shifted the focus of woodlands from being about Corporate Social Responsibility to being part of their core business objectives. As one estate manager noted:

" all the woods on the estate were in need of woodland management but there was no business motivation for us to do this – the market was poor and cost of infrastructure outweighed any economic benefits – so WIAT was critical to us. It might not have been as easy if it was a productive and economically viable Sitka spruce relationship, but they were uneconomic, difficult woodlands, so it made a lot of sense. We could really do something useful for the business by opening up the woodlands to the local community"

A few interviewees thought that the most significant impacts were brought about where WIAT created something new that had not previously existed. As one person explained:

"the schemes that delivered most were those that created access linkages that weren't there before because whether or not they are maintained in future, they can't be taken away, and they just wouldn't have been there without the scheme. But many schemes were about re-doing existing paths and the councils will probably just want more money to do the same in due course ... the impact the change just isn't as great"

Somebody else suggested:

"how can you really judge the impacts and the value for money because the knock on benefits over time have not been measured or quantified. How do you value the change from a no-go area to somewhere pleasant and worth visiting?"

When asked about any negative impacts of the WIAT Challenge Fund interventions respondents mentioned increased conflict between different woodland visitors. For example, there was a reported increase in commercial dog walkers with associated dog fouling issues, as well as a general increase in footfall and mountain bike traffic that increased ongoing maintenance costs. Stakeholders also discussed the negative perceptions the public held in connection with any woodland and forestry operations. This represented extra work managing public concerns and reactions to works such as thinning and felling.

3.3.2. Public engagement leveraged by woodland improvements

Although the Forestry for People Challenge Fund had a direct remit to increase public engagement, a key interest in this evaluation is understanding whether, and how far, the woodland operations supported by the Challenge Fund leveraged direct or indirect public

engagement. The links between the Challenge Fund and increased engagement were validated by all of those interviewed, with the most direct routes to public engagement felt to be key to overall success. These are discussed in the following sections.

Engagement directly linked to silvicultural operations

Respondents revealed that the first step in building public engagement was the consultation process they entered into with local communities about the work that was planned for the WIAT woodland. This was often done as part of the WIAT Challenge Fund grant application process, or alternatively, very close to the point at which works were to commence. Consultation took many forms, including community meetings, questionnaires and other baseline studies, and face to face consultations, all of which provided a picture of how local communities viewed and used their local woods and their own ideas for improvements. Although this kind of consultation was considered additional work, the initial period of community contact was felt to be of key significance in building project success. Consultation kick-started interest and discussion about local woods and also doubled up as a kind of awareness campaign advertising improved access to local woods. As one Local Authority representative said:

“WIAT forced us into consultation over the woodland that is what worked best alongside keeping people in the loop after consultation and giving regular updates and interpretation on site explaining what’s going on. Some people have a big attachment to a site so we learned early on not to do any drastic works without contacting people and explaining first ... making them feel they were included in the whole process”

Undertaking the silvicultural and other operations proved another point at which engagement was built. People from the local community could see work going on and it provided opportunities for contractors and others to discuss what was being done and why. Maintaining communication around silvicultural and infrastructure improvement operations after consultation, and then on through the period of working was recognised as essential to building and carrying along community interest. It was also a mechanism for providing news about the progress of the projects and notice of any opportunities for community inclusion.

A number of respondents discussed how interest in WIAT woodlands was built through “action days” linked to the silvicultural work. Once the main works were completed volunteers and others were able to take part in some of the maintenance. This built up a sense of ownership of their woodlands and led into additional engagement activity. Other projects linked WIAT work with volunteer initiatives such as the Woodland Trust’s tree-planting campaigns, and involved the local community in tree-planting days as part of the project. As one person noted:

“if hadn’t been for WIAT we wouldn’t have been able to do felling and restock work so we wouldn’t have been doing tree-planting work and had tree-planting activities with the local community”

Another comment was:

“tree planting is a brilliant way of engaging communities but you have to mix it with other activities so it doesn’t feel like slave labour! There is a broader appeal and it builds a sense of ownership.”

This kind of engagement followed civil society organisations’ own tried and tested methods for getting specific target groups such as primary school children involved in environmental volunteering and conservation work.

Engagement through building community involvement

Nearly all of the respondents provided examples how improving access to WIAT woodlands had enabled them to attract additional projects and funding that built community engagement and community-based activity. Respondents emphasised the importance of these opportunities opened up by WIAT Challenge Funds as important factors in facilitating successful community engagement.

Stakeholders tended to agree that the most successful initiatives were those located in areas where community groups with an interest in woodland or using outdoor venues already existed. In these cases the improvements to WIAT woodlands were welcomed and new opportunities quickly realised. It was still the case that at sites where there were no such active groups, a good deal of effort from Rangers, civil society organisations, consultants and others was needed to begin to build use of woodlands and to encourage continued use of the woodlands. The involvement of Local Authorities in WIAT projects was very important in this respect. Stakeholders talked about the legitimacy Local Authorities brought to projects. Because they were seen to be valuing the woodland, either by active work on site or through local promotion and interest, other agencies and organisations thought that ought to do the same. In so doing they found additional and novel ways of utilising those same woodland sites. Conversely, at a few other sites, Local Authority involvement was seen to legitimise anti-social behaviour by sections of the local community. In these projects, significant additional efforts were essential to prevent, for example, newly planted trees from being pulled up, or other woodland infrastructure from being vandalised.

There was some evidence few a few project sites that work in the woodlands brought about “active citizenship” such as environmental volunteering and the establishment of “Friends Of” groups. This enabled more work to be carried out than originally envisaged. For example, in one case a Community Interest Company (CIC) was established involving local residents and other woodland visitors to take on the community engagement and development work. The CIC has gone on to be awarded the contract to maintain a local woodland estate. As the estate manager said:

“the social cohesion and local community benefits of WIAT should not be underplayed – you can’t put a value on it and it makes life easier as an estate manager and has played a part in the provision of wider benefits. It gives the landowner a ‘warm feeling inside’ but the willingness of the community to work with us is now a key to success and is embedded in what we do.”

In summary stakeholders agreed that the WIAT Challenge Fund work had acted as catalyst to the development of community engagement. On the whole, stakeholders agreed that the most effective engagement methods in this regard were action days and the presence of Rangers or similar 'community liaison' personnel to develop and support community action and community groups. Beyond that, the growing involvement of forest schools and kindergartens, the emergence of Friends Of groups, the use of woodlands by health and wellbeing groups and GP green gym referral schemes were all seen as key to maintaining community interest and involvement in WIAT sites. Use and success is seen to breed further use and success. The greatest challenge seems to be sustaining interest around the sites where community groups have not developed to use and maintain woodlands themselves. There was a general feeling that it is these more difficult sites where continued periodic involvement of public agencies and civil society organisations may be needed to maintain positive behaviour change.

3.3.3. Experience of WIAT Challenge Fund administration

As noted in the methodology section, respondents were able to give very full comment about the overall management and administration of the WIAT CF from their perspective. The key points raised related to:

- eligibility criteria and links to WIAT programme goals and monitoring activity not being explicit enough
- a felt need to streamline the grant application and administration processes
- costing and pricing systems as part of the application process which were felt to be time consuming and acted as barriers to some applicants
- the provision of the right amount and the right type of advice to enable applicants develop proposals likely to be funded
- the development, use and nature of woodland management plans.

Eligibility criteria not explicitly linked to WIAT programme goals and monitoring processes

All interviewees noted that WIAT had evolved quite significantly over the period of its implementation, consequently the objectives and rules of the Challenge Fund had changed over time. None the less the majority of respondents commented on the lack of clarity in WIAT objectives, not at the strategic level, but at the level of translating the key principles into what could actually be delivered at a particular site. Respondents said they would have benefitted from a more detailed explanation of how projects might satisfy strategic ambitions as these were tied with site level operations. This lack of clarity introduced frustration for some respondents who suggested that the logic and merit of WIAT rules were then difficult to understand, and that variations in the grant percentage paid seemed to vary without clear reason. Interviewees felt that these issues made the judging process for applications less transparent than other schemes they had used. As one Local Authority representative explained:

“Other grant programme applications, like Awards for All and Legacy 2014, were so much easier because as an applicant we felt we had more control, you know what the criteria are and what is going forward to be assessed. With WIAT it seemed like the application was very far out of our hands.”

There was also some discussion about the potential for some schemes to contribute significantly to the WIAT programme objectives, even though the sites just fell short of the strict eligibility rules. Examples of this included being just metres outside the geographical boundaries, or three respondents mentioned lack of strategic foresight around sites where it was known that housing development would take place and where woodland parcels would consequently come within the 500m boundary of eligibly large populations. Other respondents felt that opportunities were being missed to support projects that might leverage the greatest benefit in terms of direct and indirect outcomes. The feeling was that individual sites – and the associated project proposals – were not always being judged on their potential to contribute to the strategic impact of the WIAT programme as a whole. Following on from these observations, some interviewees suggested that being provided with the opportunity to present their applications to judges might have been a more effective way of proving the links between site schemes and the aims and goals of the national WIAT programme. This was felt to be particularly important for those applicants without significant forestry project experience.

Administration of the grant

A very clear message from interviewees was that any future grant package would benefit from being simpler, faster and more streamlined in terms of the application and administration processes. The full range of stakeholders described the perception that administration of WIAT and the degree of detail required at each step in the application and implementation process was “*incredibly time consuming, complicated and cumbersome*”. Improving communication throughout the process was also mentioned as important, this would help applicants to plan and increase their confidence, as one person said:

“applicants don’t always want good news, they just want ‘the news’ so they can manage things like cash flow, contractors and other applications”

Costing and pricing system

Respondents argued that the system of applying actual costs, and the requirement for obtaining tendered quotes for each item of work as part of the grant application process, made assessing overall value for money difficult. It also led to significant transaction costs for WIAT applicants and for others acted as a barrier to them applying for funding at all. As one Local Authority representative noted:

“breaking down work into small pieces and getting quotes for all of it before approval when the scheme is competitive so you don’t know if

you'll be successful puts you off trying. Where it is a big scheme it is worth it but not for small ones like this."

There were similar views from representatives of two civil society organisations, who said that:

"It would be a lot easier to make an estimate in the application, sign the contract and then getting quotes and tender. It causes a lot of delays and resulted in work either getting pushed back or not done at all. Also each item has to be tendered for – quotes come back for all the work, but different individual items on these quotes are cheaper with different contractors, how do you manage all that, but it's just more efficient to just have one contractor."

and,

"It's a very onerous process for the small sums of money involved. Level of bureaucracy should match level of funding because for some stuff it's almost not worth it."

A majority of interviewees suggested an alternative to the actual cost system would be to use agreed standard costs across various scenarios where only exceptional items would have to be tendered for. This could reduce the time and effort spent by applicants and potential contractors preparing WIAT applications and bids, streamlining the whole application process. If a system of standard costs could be applied, it would then be useful to consider allowing Local Authorities, business applicants, and civil society organisations to undertake the works themselves. In the case of civil society organisations this could help to enhance or develop community engagement. In the case of local woodland businesses this would overcome one of the major barriers to their participation in the WIAT scheme. Standard costings might also be the best system to properly account for the costs of urban woodland operations which are often significantly more. Local Authorities expressed a view that introducing a mechanism which allowed retention of a percentage of the grant, would be helpful in assuring and managing the quality and completion of contractors work.

For private woodland owners the issue of costs and pricing was important, but more significant were the rules about applying for grant funding for a project excluding the owners from tendering to conduct the woodland work themselves. In the case of small woodland owners this was a strongly felt barrier to applying to the Challenge Fund and taking part in the WIAT programme at all.

Support and advice for a range of potential applicants

Five of the respondents discussed in greater detail their need for support through the grant funding application process. The key issues were: i. that they did not have a great deal of forestry expertise so were not always sure of the best way to develop their ideas; ii. they were unsure how best to describe their plans using appropriate forestry terms and language; and iii. they were not sure of the degree of detail they needed to include about the proposed operations. This is particularly true in the case of community groups

and social enterprises that were very new to developing these kinds of proposals. The help and support provided by Forestry Commission staff was noted as particularly valuable. As one person put it:

“partnering with FCS brought us the expertise we needed – the forms were like a foreign language - but the Conservancy offered lots of advice – this was really useful”

Another person described how transaction costs were greatly lowered where help was made available, and where there was a very clear introduction to the aim, objectives and operation of the scheme:

“the WIAT workshop that was held was massively useful, you should have one every year. The [mentions Local Authority] staff time required to prepare applications and plans is a massive barrier, so that part of the grant enabling additional staff or a consultant was really useful, having a consultant with experience is very useful, they do this stuff all the time so they know how to do it”

Two other respondents mentioned the utility of the workshop which ensured they did not waste time on developing schemes that were unlikely to be successful. Respondents suggested this kind of information should be made even more widely available. They felt that providing examples of successful and unsuccessful projects would be useful tools for applicants. They also suggested that improving the content of feedback on unsuccessful applications, i.e. greater detail in the comments given, would be a useful learning tool for applicants going forward to develop new projects and grant applications.

Management plans and productive woodlands

There were a few comments from stakeholders about woodland management plans. Whilst there was general agreement that plans are a key factor behind the success of WIAT funded initiatives, there was some concern that:

- they were sometimes prepared too quickly and would benefit from a more considered approach, that there could be greater community involvement in their preparation
- evaluation times in terms of judging the merits of any particular plan, particularly where this involved new approaches and different kinds of operations from the norm, were often constrained by the 6 week turnaround timescale for evaluators
- the management plans could look further ahead than the 5 years required
- the scheme should be bolder in what was asked for.

There were a couple of comments that simplifying the style of management plan so that it could be used by non-foresters as much as professional woodland managers could open up greater opportunities for civil society and community involvement.

4. Concluding comments

4.1. Proving the WIAT concept

The greatest degree of change in perceptions about the **contribution of woodland to people's quality of life came from the DE socio-economic group**. Overall the number of reported visits amongst the local communities increased by 20-25% compared to the baseline. In the target **DE group, reported visits (i.e. visitors) increased by about 17%**, but the greatest increase was amongst the **C1 group, at over 25% more reported visits (i.e. visitors)** compared to the baseline. Although visits became shorter in duration they happened more often, so that overall time spent in woodlands increased. The frequency of visits to WIAT woodlands increased most amongst people from **C1 and C2 socio-economic groups, who increased from an average of one visit a week to two visits a week**. Also noticeable was an increase in the diversity of activities. Instead of just dog walking, people started using woods for family walks, playing games, exercising, walking routes to work or school, and riding bicycles. None of these effects were found in the counterfactual case. These effects were also observed despite the fact that the period between 2007 and 2012 was affected by wetter colder weather compared to the baseline year and numbers of visitors would normally be expected to decline rather than increase.

One of the objectives of conducting analyses based on the cluster analysis was to try and draw conclusions about the impacts of Challenge Funds on different kinds of woodland. Both the non-monetary and monetary analyses indicated differences by woodland cluster: There was a decrease in visits to woodland cluster 3 (large, mixed woodlands in areas of moderate deprivation that might be classified as "destination woodlands") and very significant increase to visits in woodland cluster 2 (small, mixed woodlands in areas of moderate deprivation that might be classified as neighbourhood woodlands). The most marked improvement in woodland quality scores were also given to woodland cluster 2. However, interpreting this evidence proved difficult and inconclusive. More work would be needed to understand fully the characteristics of the woodland clusters, and the true effects of Challenge Fund work or other influencing factors on the observed patterns.

Looking at the value of two key economic indicators, and given that recreational and health benefits are independent one can sum the values of both benefits to show that aggregated these are worth: £14m (low), £21m (central) and £29m (high) per year using 2012 prices. Following the approach of applying conservative estimates, using the lower end of this benefit estimate shows that **post intervention the value of recreation and additional health benefits in WIAT Challenge Fund woodlands is £14m per year**.

If this return is compared with the level of investment in the WIAT Challenge Fund over the evaluation period (see Table 31), which ran at about £2.5 m per year, this represents a significant positive return.

Table 31. Level of investment in the WIAT Challenge Fund 2006-20012

Year	Spend (£m)
2005/06	2.4
2006/07	7.8
2007/08	1.9
2008/09	1.2
2009/10	2.4
2010/11	1.2
2011/12	1.1
TOTAL	18
ANNUAL AVERAGE	2.57

In short the WIAT Challenge Fund appears to have achieved objectives in the way that the conceptual model suggested. Investments in woodland quality appear to have prompted behaviour change that leveraged additional health benefits amongst local communities. This represents a good return on public investment, and the model underlying the WIAT programme can be considered a proven concept.

4.2. Lessons for future schemes

In terms of the key message concerning the form, scope and application of any similar schemes in future the following points have emerged from the evaluation.

- **Target projects and sites that deliver the greatest social benefit**

WIAT Challenge Fund developed a robust and systematic approach to prioritising which woodlands should receive grant funding using a population size and social deprivation index. However, additional social benefit could be leveraged by:

- Finding ways to better assess the *potential* social benefits that could accrue at specific sites within the judging process
- Working with partnerships (e.g. CSGN) clearly able to capitalise on the improvements and opportunities the WIAT Challenge Fund provides through the provision of complementary delivery programmes e.g. outreach activities.
- Considering the additional sustainability and value added benefits brought about by working in woodlands where existing groups and engaged communities are ready to capitalise on the opportunities provided by the Challenge Fund (i.e. working with existing capacity may provide better returns than building and maintaining new capacity). The degree to which this approach can realise other policy targets such as finding ways to include the most excluded or socially deprived individuals and communities will need careful assessment. However, the two issues may not be mutually exclusive,

and the returns to public funds in the medium and longer term may be of particular importance.

- **Maintain community involvement through a strategy of “pulsed” (little and often) or refresher interventions and woodland quality maintenance**

Even in situations at sites where engagement is good and there is the capacity for local communities and organisations to make the most of their woodland resource, there is a case for organising low cost interventions which provide a “pulse” of activity which maintains interest in the woodland. This might include action days and similar events.

Consider ways in which maintenance could be built into schemes, either through community level action or through legacy commitments. If woodland quality is not maintained e.g. paths kept in good condition, silviculture work continued, woodlands will not continue to be attractive assets.

- **Improve national level promotion**

Consistent and coherent national level promotion of any future grant scheme will be key to success. This should focus on an inclusive message that demonstrates to community groups, civil society organisations and private woodland owners what the specific benefits are for each of those types of woodland manager, how best they might access the funding, as well as what the public benefits Forestry Commission Scotland is hoping to deliver.

Any future scheme would benefit from a clearer articulation of how national level objectives can be delivered at specific sites. Illustrating this with exemplar projects is important. Although helpful site and project specific case studies are now available on the WIAT website, it is exemplar grant applications that would provide practical illustrations for other applicants. Additional, good practice guidance (e.g. the FC's Public Engagement Toolbox) might usefully form part of this support.

- **Continue to engage with Local Authorities**

Local Authorities have emerged as key stakeholders in the WIAT context. Any future grant support should continue to support the work of Local Authorities. However, stakeholders felt the competitive nature of the Challenge Fund created unhelpful competition between Local Authorities. Finding mechanisms to support Local Authority staff costs associated with developing WIAT woodland projects would also lower barriers to involvement.

- **Consider the scope for alternative means of scheme financial management**

Some private sector organisations and woodland owners and some community groups seem to have found the financial management of the most recent Challenge Fund a particular barrier, both at the initial application stage and during the project delivery stage. For community groups, cash flow was an issue since they did not have significant capital to manage retrospective and seasonal payments and the

amount of evidence required. For private woodland owners the tendering and pricing system presented a particular problem, as did the costs of assigning staff to the development of non-productive social forestry projects. If different forms of financial management were allowed within the Challenge Fund rules this could encourage uptake by a greater range of woodland owners and managers.

- **Develop a clear strategic commitment to monitoring and evaluation**

What became clear from this evaluation process is that there is a significant lack of data on which to perform evaluative analysis. If a funding scheme has clearly articulated objectives a suitable monitoring programme should be established to measure those. It is not unusual for funders to insist that recipients of grants collect a minimum dataset associated with the project investment. This would rely on a consistent set of questions and indicators being identified and promoted.

The evaluation has also demonstrated the value of maintaining a counterfactual example essential to any assessment of the additionality of a scheme. The results in this evaluation would not have been as robust or as convincing without the counterfactual case, even though it was limited to just a single site. This evaluation has also demonstrated how social catchment surveys are more useful than site surveys in tracking changes that can be attributed to the WIAT Challenge Fund supported interventions. Any project level monitoring scheme will need to reflect these conclusions.

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Annex 1. Stakeholder Interview Schedule

Section 1. Interview information

- | | |
|-----------------------|---------------------------------|
| 1.1. Date | 1.4. Respondent position (role) |
| 1.2. Interviewer name | 1.5. Type of applicant |
| 1.3. Respondent name | |

Section 2. Engagement

- 2.1. Can you tell me something about the project background? (tease out broad objectives against which to measure 1. project success and 2. WIAT CF success)
- 2.2. What did you use the Challenge Fund for? Make a note of e.g. site improvements/activities undertaken
- 2.3. Did you do anything to get people involved and draw them into the woodland? (Looking for information here about the engagement methods used and how implemented)
- 2.4. Which activities and engagement methods worked well and which were the most successful? Can you say more about why these methods/activities were successful? (Look to pin-point key lessons)
- 2.5. Did more people come into the woodland after the WIAT CF project anyway, outside of any activities you might have organised? What do you think encouraged them in? (Looking for evidence of continued, informal access by local population)

Section 3. Benefits

- 3.1. What do you think were the most important benefits/outcomes that the WIAT CF funded activities produced? e.g. recreation, health, community cohesion, others (i.e. overall success of the scheme in terms of tangible outputs tease these out and try to pin down with some kind of evidence)
- 3.2.. Which actions/activities were key in bringing about these benefits?
- 3.3. Can you comment on who you think benefitted most? (Looking here for more information about the segments of the community to have gained greatest benefit e.g. BME, age groups, social class, disadvantaged)
- 3.4. Can you say anything about how this stream of benefits has been maintained over time (i.e. look for information about the lasting impact of the WIAT CF rather than just at the point of grant funded activity)
- 3.5. Were there any unexpected benefits or disbenefits as a result of the WIAT CF funded work?

Section 4. Success Factors

- 4.1. Were you successful in achieving your objectives? What were the key factors that enabled this success? Were there any important barriers you had to overcome?

4.2. Going back to the methods/activities you employed to get people involved, what were the key factors that enabled successful engagement? Were there any important barriers you had to overcome?

4.3. Was the WIAT CF fund crucial to achieving your objectives? Could your project have been realised another way?

4.4. What do you think might be done differently in future to either maintain and extend the success of the Challenge Fund? (looking for information about how any future grant might help to provide extensions to current projects or support new projects)

4.4.a. in relation to project delivery

4.4.b. in relation to the way FCS administered the Challenge Fund

Annex 2. Organisations interviewed for lessons learned study

Aberdeenshire Council
 Callander Estate
 Central Scotland Forest Trust
 Dunbar Community Woodland
 Dundee Council
 Edinburgh Council
 Falkirk Council
 Forestry Commission

Glasgow City Council
 Mark Hamilton Landscape Services
 NHS - Ninewells Hospital
 North Lanarkshire Council
 Renfrewshire Council
 Stirling Council
 Woodland Trust (Livingstone)
 Community Woodlands Association

Annex 3. Socio-Economic Group Classification

Social Grade	Description	% population
A	High managerial, administrative or professional	4
B	Intermediate managerial, administrative or professional	23
C1	Supervisory, clerical and junior managerial, administrative or professional	29
C2	Skilled manual workers	21
D	Semi and unskilled manual workers	15
E	State pensioners, casual or lowest grade workers, unemployed with state benefits only	8

Source: NRS 2008 (unweighted sample 37,359, estimated population 15+ (000s) 49,077)

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