



## Darwin Initiative Annual Report



**Important note:** To be completed with reference to the Reporting Guidance Notes for Project Leaders:

*it is expected that this report will be about 10 pages in length, excluding annexes*

**Submission Deadline: 30 April**

### Darwin Project Information

Project Reference	20-018
Project Title	Pesticide Impacts on Biodiversity in Ethiopia & Agroecological Solutions
Host Country/ies	Ethiopia
Contract Holder Institution	PAN UK
Partner institutions	PAN Ethiopia; Addis Ababa University; Institute for Sustainable Development, Ethiopian Wildlife and Natural History Society, Ethiopian Institute of Biodiversity,
Darwin Grant Value	£299,565
Start/end dates of project	Apr 2013 – Mar 2016
Reporting period	Apr 2013 – Mar 2014, Annual Report 1
Project Leader name	Keith Tyrell
Project website	<a href="http://www.pan-uk.org/projects/pan-uk-project-tackling-pesticide-impacts-on-biodiversity-in-the-ethiopian-rift-valley">http://www.pan-uk.org/projects/pan-uk-project-tackling-pesticide-impacts-on-biodiversity-in-the-ethiopian-rift-valley</a>
Report author(s) and date	Keith Tyrell, Tadesse Amera

### 1. Project Rationale

Diversity and abundance of Rift Valley migratory birds are declining, particularly wetland species. National experts implicated excessive pesticide use in nearby flower, cotton and vegetable farming, aerial spraying of *Quelea* birds and effluent from caustic soda and pesticide formulation factories (where POPs are still produced, amongst others). Data on pesticide volumes entering aquatic systems is lacking, leading to National Parks and the Ethiopian Wildlife & Natural History Society prioritising ecosystem assessment of contamination and bird declines. However, they lack capacity to conduct monitoring adequate to establish a link.

National policies on food security and agricultural exports have increased reliance on agrochemicals, but without adequate measures to avoid side-effects on human and environmental health. Farmers and policymakers are unaware of the economic costs from pesticide harm (e.g. disruption to pollinators and biological pest control); few Rift Valley stakeholders understand how agro-ecological farming methods which conserve biodiversity can reduce poverty by improving farm income and supporting ecosystem services; local communities remain unheard in conservation and agricultural policy forums; many cotton smallholders are in debt as poor yields fail to cover their high production costs; and an ecosystem approach to tackling these related issues and highlighting potential ways forward (e.g. TEEB approaches) is weak

Addressing these problems by building capacity for ecotoxicology monitoring and ecosystem assessment will help Ethiopia deliver its NBSAP, implementing CBD Articles 7 (monitoring

activities impacting on biodiversity) and 13 (promoting biodiversity) and PoW on Agricultural Biodiversity.

The project is being implemented in two areas of Ethiopia's Rift Valley, close to the towns of Ziway (on Lake Ziway) and Arba Minch (Chamo lake, opposite the Nechisar National Park which is also one of the Endemic Bird Areas of the World).



## 2. Project Partnerships

As the Lead Institution, PAN UK has signed partnership agreements with PAN Ethiopia, the main host country partner; and with scientists from the UK-based Natural Resources Group. PAN Ethiopia has then entered agreements directly with the rest of the Core Darwin Team (CDT) members including Institute for Biodiversity Conservation, Institute for Sustainable Development, Ethiopian Wildlife and Natural History Society, and Addis Ababa University.

The above partners were all involved in project planning and decision making, through a partner kick-off workshop held in the UK in August 2013 (*Indicator 1.1: 4 representatives from 4 institutions achieved against 3 planned*); during CDT field scoping and training visits (*Indicator 1.2: 23 individuals & 13 institutions involved in local level Steering Groups including Ministry of Agriculture, Local bureaus of Agriculture and Health, and high schools in the project areas*) Decision making is jointly by all partners, and coordinated through emails, a shared Dropbox and online collaboration tool (wiggio.com).

The partners all bring their own expertise and resources to the project – the government EIB methodology for vegetation monitoring; the EWNHS methodology for bird monitoring, ISD training school environment clubs in ecosystem approach and agro-ecological solutions to synthetic pesticide problem, and PAN Ethiopia existing Farmer Field School pest and natural enemy monitoring formats. The main challenge faced is reliance on intermittent internet-based communication and coordination mechanisms, resulting in weeks of no contact between UK and Ethiopian teams. This is partly addressed by supplementing remote contact with face to face visits (held in February 2014 and planned for July 2014). Another major challenge faced this year was the sudden passing away of one of the CDT – Dr Emiru Seyoum from Addis Ababa University (AAU). The team will miss his expertise and personal contributions; however Dr Habtie Tekie will replace him on the CDT, and the project has also made contact with the Horn of Africa Regional Environmental Network based at AAU. Alternative arrangements are currently being finalized to cooperate with the Ministry of Agriculture pesticide analysis laboratory established under Japanese cooperation for technical work.

## 3. Project Progress

### 3.1 Progress in carrying out project activities

#### Output 1 – Capacity building

**Activity 1.1** was a UK-based training session for the Core Darwin Team (CDT) which was completed in August 2013. Four Ethiopian partners (PAN Ethiopia, Addis Ababa University, Institute for Biodiversity Conservation and Ethiopian Wildlife and Natural History Society) were invited to the UK for a 2 week training and inception event (15-27 August 2013), split between

project inception and confirmation by the partners (London); and ecotoxicology and ecosystem approach training (Commonwork, Kent). This activity was delayed compared to the original timing, by lengthy visa procedures for the participants and delays in receipt of the Darwin funds. The delay was not significant, as the Ethiopian partners used the time to collect baseline data and prepare their input to the workshop, as outlined in the final report.

Final report & supporting documents shared with partners, and the Executive Summary is attached to the first Annual Report to DEFRA (*PAN UK (2013) Inception Event: Planning and Training for the Ethiopian Capacity Building Core Team*).

Since the training, the Natural Resources Group have provided 61 days ongoing support to the team at a distance and during a field visit.

**Activity 1.2** was for the CDT to establish local monitoring groups at the two project sites (Ziway and Arba Minch in the Ethiopian Rift Valley). PAN Ethiopia is already well established in both regions and organised Scoping Visits to both sites in October 2013, which included Ecosystem Walks with local stakeholders that will form the Monitoring Groups. A total of 23 members from 13 local institutions were involved including high schools and their environment clubs, plant health clinics, and local ministry of agriculture, who delegated staff members to be permanent members of the local monitoring groups, as well as farmers who were engaged in the previous FFS training of the TRAID project.

The Ziway monitoring programme will be delivered by a Masters student supervised by partners in Addis Ababa University and steps have already been made to identify a potential student at AAU to conduct biological monitoring in collaboration with the Horn of Africa Regional Environmental Network under the Demand Driven Research theme.

**Activity 1.3** to develop the monitoring programme for the field work is in progress, with the desk assessment now in final draft (currently being revised by the NR Group - *Desk Assessment: Pesticide Impacts on Biodiversity in Ethiopia and Agro-ecological Solutions*). The Monitoring Plan will be finalized over the coming months for two sites – a) monitoring pesticide impacts at the site of the Share flower farm on Lake Ziway and b) assessing agroecological solutions via monitoring selected relevant indicators of biodiversity and ecosystem services within different agricultural systems around Arba Minch including commercial farms, normal smallholder farming practices; IPM: organic smallholder practices and natural forest ecosystem. The latter will be completed and in place in time for the start of the cotton season in May 2014, to allow baseline data to be collected before pesticide applications begin in the summer.

Training of the local Monitoring Groups (**activity 1.4**) was done by the CDT in the October Scoping Visits; and further developed during the February 2014 field visit by the NR Group consultants, including leading ecosystem service walks, reviewing assessment by CDT of pesticide hazards, in-situ pesticide hazard

**Box: Activities at selected monitoring sites**

**SITE 1: Share Flower Farm, Lake Ziway**

Where: The effluent stabilisation channel and outflow of the Share Flower Farm draining to the lake. A second uncontaminated control site under review by CDT - still needs to be selected

What: Analysis of pesticide residues to assess spatial contamination in the vicinity. Biological monitoring options identified - Aquatic invertebrates (both micro and macro invertebrates), and the behaviour of piscivorous and insectivorous birds near the lake – based on the ecological monitoring handbook

Who: Pesticide residue analysis – Dr. Tarekegn at Jica/MoA Lab; Biological/ecotox monitoring - candidate M.Sc. student

**SITE 2: Arba Minch: in & beyond agroecosystems**

Where: a. Three TRAID organic cotton production plots and three smallholders cotton farms  
 b. Three commercial cotton farm and one organic cotton plot in one of the commercial farms (Amibara) –  
 c. Three commercial vegetable farms to be compared with three smallholder vegetable farms or home garden vegetables  
 d. Forest close to Arba Minch town

What: In crop: herbivores/pests and natural enemies/beneficials (inc. pollinators). Outcrop –Plant and bird biodiversity

Who : In crop: PAN-Ethiopia field agents based in Arba Minch and the local monitoring group (including Arba Minch Plant Health clinic people and other agricultural office people), using bedsheets counting of FFS  
 Forest: professionals from among the CDT (IBC and EWNHS), with give training to the local monitoring group

observation/assessment, demonstrating chemical (Ziway) and biological sampling techniques, and facilitating Monitoring Team workshops at Ziway (17 Feb 2014) and Arba Minch (24 Feb).

The cotton Farmer Field Schools (FFS) will start again in May 2014, and will also be expanded to plantations in the Arba Minch area - FAO protocols for monitoring pollinators in Farmer Field Schools (FFS) have been reviewed; the project is likely to use alternative simpler pollinator monitoring methods which are easier to integrate into the existing FFS. A field visit by Dr Williamson is planned for Q1 of year 2 to review and integrate selected monitoring protocols. PAN Ethiopia has contracted the Institute for Sustainable Development, an Ethiopian NGO with many years' experience working with high schools in the region, who will train high school students on IPM and ecotox monitoring (especially birds and vegetation) following protocols to be shared by CDT members IBC and EWNHS.

#### Output 2 – Baseline and ecotox data

**Activity 2.1** to prepare a baseline survey of cotton production practices has been moved to Output 3 (see below).

Baseline and impact surveys on biodiversity components (**Activity 2.2**) are included in the Desk Assessment (Activity 1.3). Analysis and assessment of the effluent from the Share flower farm in the Ziway area is being prepared (see Activity 2.4.) to establish the spatial extent and severity of pesticide contamination and aid the final decision making on siting and selection of potential biological monitoring methods and programme. A preliminary baseline record of lakeside bird fauna was made along the shoreline bordering the Share Flower farm near Ziway, during February 2014 (attached). Three or four bird species (Pied Kingfisher, Little Bee Eater, two plovers) possibly suitable as indicators of pesticide impact on their diet were observed near the stabilisation channels and drainage to the proximal reed beds. Simultaneously, several aquatic habitats were sampled at random in the vicinity of the flower farm and shown to support a range of macro-invertebrates that will be suitable for use as bioindicators of aquatic health. Similar habitats sampled along and across the lake have the potential to be employed as comparative sites (residue analysis to confirm suitability).

At Arba Minch, under guidance of an ornithologist from EWNHS, bird species lists were assembled by local monitoring groups at TRAIID sites (organic cotton, Shelle Mella), commercial cotton farms (Lucy and Amibara), and lacustrine forest bordering Lake Chamo and are attached to this report.

Ecotoxicology monitoring data as outlined above has not yet been collected (**Activity 2.3**). The timing of project start up meant that we were not able to establish and collect data before and during the pesticide use season in cotton during year 1 (June - October); and the monitoring plan took a lot longer to complete than anticipated, partly due to the lack of data on field impacts of pesticides in Ethiopia. The project has collected basic pest and predator monitoring data from the FFS conducted in May – Oct 2013 which indicates that the food spray being used could manage the pest predator balance in cotton fields in such a way that the pests did not cause damage. The quantitative data on pests and natural enemies is not yet available in consolidated form for inclusion in the ecotox monitoring reports, but these formats will be developed in Y2.

The project has identified a suitable laboratory (international standard and awaiting accreditation – ISO 17025) for pesticide residue analyses (**Activity 2.4**) operated by the Ministry of Agriculture with support from the Japanese bilateral funds. A contract is being negotiated to provide residue analysis of environmental samples in the vicinity of the Share flower farm at Ziway.

#### Output 3 – Cotton IPM

This output is largely supported by a parallel PAN Ethiopia / PAN UK project financed by TRAIID which has trained 90 farmers in organic and IPM cotton production in Arba Minch and vegetable production in Ziway, since January 2013 (**Activity 3.2**). A baseline survey on pesticide use and cotton production (**Activity 2.1**) was done in September 2013 in smallholder communities practicing IPM, and in February 2014 in communities using pesticides in a 'conventional' manner (see section 3.2 below for results).

PAN UK has provided support on enriching the TRAIID FFS curriculum (**Activity 3.1**) with pollinator monitoring and awareness exercises. Important next steps are to establish a data collection protocol for monitoring both pest control practices and relative costs, learning from similar experience of organic farmers in Benin.

In March 2014, a workshop was held with Solidaridad to link organic and IPM producers (including a greatly increased number expected after the major expansion of cotton production planned by the Ethiopian government) to supply chains (**Activity 3.4**).

**Output 4** on communicating and engaging local stakeholders is not scheduled for Year 1, as it requires the ecotox monitoring results to be available. The local engagement already conducted relates to working with specific groups to develop capacity to contribute to the monitoring which is described under Output 1 above, including local plant protection bodies and their personnel, local public health bodies and their personnel, local schools and, in the Arba Minch study area smallholder farmers and their communities. This early and participatory engagement is building a foundation for a much wider dissemination of results as they become available.

Progress on **Output 5** on the policy stakeholder group has been focused on preparatory work to assess the priorities and options for future policy advocacy based on the project results. The first meeting of the proposed National Biodiversity & Agriculture Stakeholder Group (NBASG) has been postponed to Y2 to enable more comprehensive planning, including as a result of a new Birdlife International/ GEF/ EWNHS project on the impact of agriculture on migratory birds ("Mainstreaming Conservation of Migratory Soaring Birds along the Rift Valley/Red Sea Flyway"). The significant potential overlap with the Darwin project (and particularly on the policy output) provided an opportunity for the DI project to act as a 'vehicle project' for this larger regional GEF project, releasing \$0.5-1m for parallel work. EWNHS and PAN Ethiopia jointly developed a policy situation analysis outlining the institutional and regulatory arrangements for agriculture in Ethiopia, which will serve as a baseline in developing the policy objectives and workplan (*Wondafrash 2013, Situation Analysis of the Agriculture sector*). A preliminary regional workshop in April 2014 will explore the common development of these initiatives.

Finally, activities under **Output 6** are similarly not scheduled for the first (and probably second) years pending availability of the ecotox monitoring results.

### 3.2 Progress towards project outputs

**OUTPUT 1:** The project has successfully established project teams at the national (the CDT) and local levels (Monitoring Teams) and already greatly increased capacity at both levels for ecotoxicology monitoring and the ecosystem approach.

Capacity in the national level CDT was increased initially through the Inception training, with average 40% improvement in assessment scores pre- and post-training and certificates awarded to all four participants, exceeding Output Indicator 1.1 for three partners. Following the initial training, the NR Group consultants and PAN UK have continued to build capacity in designing an ecotox monitoring plan and implementing a field monitoring programme in practice. This is currently not reflected in the logframe so we have proposed adding an indicator on number of days and type of support given to capture this process, which will continue throughout the project. In 2013/14, support was provided at a distance in providing document outlines, revising drafts, sharing information from the conventions and other international sources (e.g. PAN website on pesticide properties, <http://sitem.herts.ac.uk/aeru/ppdb/en/index.htm> for pesticide profiling – and together with face to face visits in February, increased CDT confidence in understanding physico-chemical properties, toxicology and environmental fate of chemicals etc.). The Handbook<sup>1</sup> and copies of pesticide risk assessments expedited in the southern rift valley were provided as a model for the desk assessment of pesticides used locally. The impact of these efforts includes the active contributions of all the CDT in finalizing the Desk Assessment, which includes information on pesticide hazards (PAN E), birds (EWNHS) and vegetation and application of an Ecosystem Approach to the design of the ecotox monitoring programme (*EIB Proposed Framework for ecosystem approach to design of Pesticide impacts*

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<sup>1</sup> GRANT, I.F. AND TINGLE, C.C.D. (eds) (2002) Ecological Monitoring Methods for the Assessment of Pesticide Impact in the Tropics. CTA/DFID/NRI. Natural Resources Institute, UK. pp 266 and 77 methods' sheets ISBN 085954 543-1 [Reprinted 2008]

on biodiversity in Ethiopian Rift Valley and agro-ecological solutions; Review and analysis of hazards to biodiversity in the southern and middle Ethiopian Rift Valley).

Locally, the partners and project built capacity in Monitoring Teams in both Ziway and Arba Minch. Following the inception event, the CDT organised 2 scoping visits in Ziway and Arba Minch with participation of 13 institutions (Indicator 1.2) in Ecosystem Services Walks and local meetings with Ministry of Agriculture and local government officials. In February 2014, a second visit to each area with the NR Group consultants included training workshops and more detailed assessments and selection of specific monitoring sites.

**OUTPUT 2:** The process of developing the Desk Assessment has revealed the extent of data gaps but also been an opportunity to systematically assess pesticide use and possible impacts on biodiversity in the Rift Valley. The Assessment includes both biodiversity information on Ethiopia and the Rift Valley project sites, and detailed ecotoxicology and use data on the highest priority pesticides including those banned in Ethiopia and Europe.

**OUTPUT 3:** The TRAIID project has trained 90 smallholder farmers in year 1 (Indicator 3.1) and collected data through the participatory FFS approach, as well as through baseline surveys in September 2013 and February 2014, (Indicator 3.2) of both trained and non-trained farmers showed important differences in the two groups, as summarized in the table below.

	Trained	Untrained
Survey details (location, date, respondents)	Sept 2013; 72 farmers in Arba Minch Zuria & Mirab Abaya	Feb 2014 107 farmers in Shelle Mella and Chamo Mille in Arba Minch; and Faragossa in Merab Abaya district
Use chemicals	19%	36.45%
Use PPE	23% (of the 19% above)	2.6% (of the 36% above)
Use IPM practices	91.7%	2.8%

The indicator 3.3 on alternative pest control techniques will be further refined during the next year to describe which kinds of practices are more easily and immediately adopted by farmers. The Food Spray technique has been adopted by 90 farmers in the first year, who report 100% increases in cotton yields – this result needs to be confirmed by monitoring over multiple years. The project will also focus in 2014/5 on developing robust and user-friendly formats for regular monitoring of farmers practices including economic data, to allow full reporting against these indicators.

Major international retailers including H&M have shown interest in buying any organic and/or BCI certified cotton that the TRAIID project can produce, an important element of developing farmer commitment and interest in learning about and applying ecosystem approach production methods.

One assumption that was not explicitly identified for Output 3 was that the IPM FFS is sufficiently well established (curriculum, familiarity of farmers with the approach, skilled facilitators) to permit the existing programmes to be adapted to include extra ecotox monitoring elements such as pollinator monitoring; and that suitable protocols for such new elements exist. In practice, the review of the FAO protocol (*FAO 2011, Protocol to Detect and Assess Pollinator Deficits in Crops – a Handbook for its Use*) indicates that it may be too demanding for the more informal and demand-led approach of the FFS.

**OUTPUT 4:** Engagement of wider local stakeholders will start after monitoring results become available in Y2 and 3. The project has engaged with key stakeholders involved in the monitoring plan. Experimental IPM vegetable plots have been agreed with the two high schools via ISD, and school students and teachers are included in both local Monitoring Teams.

**OUTPUT 5:** While the NBSAG has not yet been established, progress has been made in analysing the institutional and regulatory environment and links made with other regional efforts, both in pollinator monitoring and wider impacts of agriculture on migratory birds (see GEF project described above).

### **3.3 Progress towards the project Purpose/Outcome**

The project has already increased capacity in Ethiopia for quantitative and systematic assessment of pesticide hazards and impacts based on the Ecosystem Approach. The Desk Assessment completed by our Ethiopian partners, especially in EIB and PAN Ethiopia, demonstrates use of verifiable sources of information (e.g. for pesticide hazards) and the systematic application of the Ecosystem Approach. A specific example of the capacity built is also evident by comparing the two Ecosystem Walks conducted in the Rift Valley – by the CDT in Sept/Oct 2013 and again with the NR Group in Feb 2014. During the February field trip by the NR Group all members of the CDT committed to using ecosystem service walks as a mechanism for demonstrating an ecosystem approach to their colleagues and all stated that they felt they could and would use this tool as part of the project, hence building capacity in adopting an ecosystem approach. To illustrate the difference in capacity, only the major (visible) services like food and fuel, primary production and soil formation, flood and disease regulation etc. were mentioned during the September ES walk, while in February/2014 participants listed out the different services as well as different habitats. An example of improvement in understanding relates to a church in one of the sites in Ziway area which the participants mentioned as a cultural service; understanding that the church, as a spiritual element constructed by human beings, is not the ecosystem service per se, but rather the fact that people find the location suitable for constructing a church. This brought a big change on how the people think about ecosystem services.

In terms of adoption of ecosystem approaches in agriculture, trained cotton farmers not using chemicals already after the first year of TRAIID project, but equally importantly, the local agriculture department has been closely involved in the project and now officially promotes these techniques.

### **3.4 Goal/ Impact: achievement of positive impact on biodiversity and poverty alleviation**

The project will contribute to the effective implementation by Ethiopia of the Conventions on Biological Diversity and the Conservation of Migratory Species. It will help reduce adverse impacts of pesticides on aquatic ecosystems and improve ecological quality of water resources, thus reducing impacts on migratory bird species, and protect and foster active community participation in reducing environmental pollution.

It will promote the wider adoption of profitable, agro-ecological farming practices that reduce reliance on expensive agrochemical inputs and conserve agro-biodiversity and ecological services, thereby improving the livelihoods, food security and health of rural communities in the Ethiopian Rift Valley.

The project has already compiled available data and identified specific gaps on chemical impacts on biodiversity in the Rift Valley through the Desk Assessment, including through using international technical data on pesticide ecotoxicology to prioritise chemicals of concern and field survey data to map areas where these chemicals are highly used. Initial steps have been taken to fill these gaps, including the species list of birds seen at Ziway lake for example. Local community involvement has been established very early on in the project, including with regional agricultural, health and local government services and high school students and teachers, and joint decisions have been made on selecting and prioritising sites for monitoring.

The parallel TRAIID project has started promoting non-chemical alternative agricultural methods for cotton and is already collecting evidence of the neutral or even positive effect of adopting these in terms of yields and income. The project partners are also exploring and promoting policy and projects at national level aimed at massively expanding the areas of IPM and organic cotton cultivation during the important years of planned agricultural expansion under Ethiopia's Agriculture Led Industrialisation policy.

## **4. Project support to the Conventions (CBD, CMS and/or CITES)**

This project contributes to CBD Article 7 (monitoring activities impacting on biodiversity) and Article 13 (promoting biodiversity) and Ethiopia's National Biodiversity Strategy and Action Plan, in providing support and resources for research into environmental monitoring and participatory research to establish the knowledge base on biodiversity. It particularly supports

the CBD Programme of Work on Agricultural Biodiversity, applying the ecosystem approach to monitor impacts of agriculture on wider ecosystems, their goods and services; and increasing biodiversity within agro-ecosystems. It contributes to strengthened capacities, biodiversity-friendly agriculture policies, dialogue with farmers and local stakeholder and community participation. Under Article III (General Conservation Measures), paragraph (e), of the Africa-Eurasian Waterbird Agreement, the government is obliged to investigate problems that are posed or are likely to be posed by human activities and endeavour to implement remedial measures.

The project has provided training to the CDT linking the biodiversity and chemicals conventions that pesticides & chemicals focussed organisations (such as PAN Ethiopia) are more familiar with. The six project outputs reflect common areas between both chemicals and biodiversity conventions (ecosystem approaches, capacity building, environmental monitoring, policy and communications) and in providing technical support for capacity building, the project has promoted and used the CBD tools on Ecosystem Approach methodology, plus the draft Ecosystem Approach toolkit under development by DEFRA and also promoted various TEEB materials on valuing ecosystem services.

The project is cooperating with FAO and Birdlife International to bring out synergies between these two areas. The Birdlife International GEF-funded project on migratory soaring birds which this DI project has got off the ground as a 'vehicle project' seeks to identify and mitigate the impacts of agriculture on birds, which in the case of the Ethiopian Rift Valley, includes a major impact of deliberate as well as indirect pesticide poisoning. Another important partner is the Ethiopian government's Ethiopian Institute of Biodiversity which is responsible for the conventions at national level, whose technical capacity the project is strengthening.

## **5. Monitoring, evaluation and lessons**

In checking, refining and agreeing on the project logframe with the project partners, the project employed Stakeholder Mapping and Outcome Mapping techniques to identify 'expect to see', 'like to see' and 'love to see' changes for the project, which confirmed the proposal outcomes and helped refine the indicators and intended changes at different levels (Inception workshop report).

Since the project inception, a list of more detailed 'sub-indicators' are in the process of being established to increase internal learning and recording of experience. These indicators are still quite fluid as we try and use data that will be collected anyway by partners (especially relating to the ecotox monitoring field data). PAN UK will provide additional support to PAN Ethiopia in establishing MEL data presentation and storage formats for this and the TRAIID cotton project in 2014/5.

Information sharing and communication between the four organisations of the CDT and the UK based partners has been a challenge in year 1, partly due to the problems of poor internet connectivity which have hampered the use of various internet based collaboration tools (such as Wiggio and Dropbox).

Another lesson is on the feasibility of establishing robust ecotoxicology monitoring practices in FFS, which may not be sufficiently consistent (e.g. timings, participation) to allow a very scientific method to be used. In addition, the FFS curriculum is typically quite busy already; limiting how many new methods and concepts can be added. However simpler methods better adapted to the informal and participant-led format of FFS are already available; and the project hopes to demonstrate how these existing experimental activities can be incorporated into a wider ecotox assessment for more immediate use for policy making.

## **6. Actions taken in response to previous reviews (if applicable)**

N/A

## **7. Other comments on progress not covered elsewhere**

The tragic loss of one of the key members of the Ethiopian team in Jan 2014 (Dr Emiru Seyoum) may affect one of the assumptions of the project, which was that there was a solid



corps of trained individuals in Ethiopia with knowledge to implement ecotox monitoring in practice. As one of the three project individuals with the necessary previous experience, the project will undoubtedly miss his expertise. Our partners are in the process of making arrangements to involve a participant in the previous Training of Trainers project to take a more active role in the project, who is based at the Ministry of Agriculture research laboratory.

In addition to this change in the project team, the Horn of Africa Regional Environmental Centre and Network (based in Addis Ababa University) has also been invited to participate and support the project activities which lie within its remit, which includes a €10m project in central Ethiopian Rift Valley which supports among others, a shared lab in Ziway where they monitor lake water nutrients (N&P) and plankton, farmer training on chemical use, and plans to develop citizen science for biodiversity monitoring. Through their Demand Driven Research scheme, they will support a master's student in biological monitoring and eco-toxicological monitoring in our project area in Ziway.

## 8. Sustainability

The project is developing both farmer capacity but also commercial aspects for cotton production, by engaging with international supply chains for sustainable cotton including both organic and IPM. PAN's contacts through the Better Cotton Initiative and other supply chain work are involved in expanding sustainable cotton product and represent a sustainable route out of poverty and pesticide exposure for farmers. The Ecosystem Approach taken by the project is highlighting how agroecological approaches can provide environmentally, socially and economically sustainable opportunities (particularly evident within the Arba Minch study area), whilst ecotox elements of the project will help raise awareness of disadvantages of inappropriate pesticide use for sustainable agricultural production and demonstrate the advantages of sustainable production and assure political support toward expansion of sustainable, not conventional, cotton.

The long term strategy for the biodiversity and ecosystem service awareness among the communities is to engage them early in the project, ensure the project addresses their priorities and also to give them the opportunity to be active participants. The monitoring will be largely done by the local monitoring teams including high school students and local institutions who have a duty and mandate for these issues.

## 9. Darwin Identity

At the partner inception training there was a presentation of the DI and its objectives to the CDT, who have also included it in their presentations to the community. The Darwin logo is used on all project documents, as well as PAN UK and PAN Ethiopia publications including websites and Annual Review.

## 10. Project Expenditure

**Table 1 project expenditure during the reporting period (1 April 2013 – 31 March 2014)**

Project spend since last annual report	2013/14 Grant (£)	2013/14 Total actual Darwin Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)			0	
Consultancy costs			-1.67	
Overhead Costs			0	
Travel and subsistence			7.45	we underspent on travel because air fares were lower than expected
Operating Costs			41.18	in October 2013 we agreed with Darwin secretariat to transfer £4000 into next year's budget – this reduce

				this budget line to £5000 and variance against revised budget is therefore 5.88
Capital items (see below)			83.73	in October 2013 we agreed with Darwin secretariat to transfer £3000 into next year's budget this reduced this budget line to £1000 and variance against revised budget is therefore 34.92. underspend was down to securing good value on the field equipment
Others (see below)				
<b>TOTAL</b>				

**11. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here)

[n/a this year](#)

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2013-2014

Project summary	Measurable Indicators	Progress and Achievements April 2013 - March 2014	Actions required/planned for next period
<p><b>Goal/Impact</b></p> <p>The project will contribute to Ethiopia's effective implementation of the Conventions on Biological Diversity and Conservation of Migratory Species. It will help to: reduce adverse impacts of pesticides on ecosystems in the Rift Valley wetlands, including the food chains on which key migratory birds depend; improve ecological quality of water resources; and foster communities' participation in addressing environmental harm.</p> <p>It will help show how productive, agro-ecological farming practices that reduce reliance on expensive agrochemicals can conserve wildlife and protect ecological services while increasing farmer incomes, thereby improving the livelihoods, food security and welfare of rural communities.</p>		<p>Identification of data gaps on ecosystem services in the Rift Valley, and baseline surveys to compile available data.</p> <p>Success in demonstrating agroecosystem approaches and in documenting the differences with conventional production</p>	
<p><b>Purpose/Outcome</b></p> <p>Improved capacity of Ethiopian farming communities, government agencies and other stakeholders to (a) identify and understand the harmful environmental effects of agrochemical use close to biodiversity-rich wetlands (b) develop and implement practical solutions based on agroecological farming and (c) align agricultural policies with biodiversity conservation goals.</p> <p>Farming communities around the Rift Valley Lakes will benefit from safer and sustainable pest management, better water quality and ecosystem services. Government agencies and conservation bodies will gain the skills to monitor pesticide impacts jointly with rural communities and feed robust evidence into policy</p>	<ol style="list-style-type: none"> <li>1. Capacity strengthened in Ethiopia in use of an ecosystem approach to pesticide impact monitoring in the field, with data collected on key species in aquatic food chains.</li> <li>2. Farmers trained in IPM and organic methods are implementing by year 3 more sustainable pest management using less pesticide, while maintaining crop yields and earning better net returns.</li> <li>3. Enhanced understanding at farmer and national levels of the value of biodiversity and the indirect costs of pesticide effects on wildlife and ecosystem services helps ensure that agroecological farming strategies become mainstreamed into national policies on agriculture and environment.</li> </ol>	<p>Big strides already made in building capacity of the Core Darwin Team, demonstrated by their production of a draft Desk Assessment and pesticide risk assessment in the region based on evidence.</p> <p>First year of IPM training has shown big gains in using food spray techniques compared to conventional, including yield improvements of up to 100%.</p>	<p>Continuation of the IPM production training, with added elements on ecosystem services such as pollinator and nutrient cycling exercises. Establishment of data collection and reporting formats.</p> <p>Finalisation and implementation of the Monitoring Plan for the 2 sites at Ziway lake and Arba Minch agricultural areas.</p> <p>Establishment of vegetable IPM in schools and training of student clubs to monitor birds and vegetation.</p>

forums.			
<p><b>Output 1.</b> National capacity built in ecotoxicological monitoring, with a focus on pesticide use in the Ethiopian Rift Valley, enabling assessment of pesticide contamination and impact on wildlife and food chains of which migratory birds are part</p>	<p>1.1 <i>Core group of staff from at least 3 different government agencies and NGOs trained and enabled to conduct robust monitoring programme and assess the results.</i></p> <p>1.2 <i>Effective multi-stakeholder steering group established to provide oversight and contribute to monitoring activities</i></p>	<p>We have exceeded the indicator with 4 key institutions participating in the Core Darwin Team, and a possible fifth to be added in the coming year. Capacity has been developed during training and support in producing the draft Desk Assessment of pesticide risk to the Rift Valley ecosystem</p> <p>The steering groups have been established at the two project sites, but as well as providing oversight, will be actively involved in conducting field monitoring. We propose to reword this indicator as highlighted in red.</p> <p><b>For all output indicators, the project is developing a set of quantitative sub-indicators along with a data storage and reporting system (excel-based). This is in progress and has been used to some extent to report this year, but will be finalized over the first half of Year 2.</b></p>	
Activity 1.1	Prepare and run training session in UK for core Ethiopian participants Ecotox ToT course on design principles for field monitoring under an ecosystem approach.	Complete. Executive Summary of the training report attached to this Annual Report.	
Activity 1.2	Set up and train monitoring group in Ethiopia	11 members recruited for 2 monitoring teams at the 2 project sites (Ziway and Arba Minch). 9 institutions represented, including high schools, plant health clinics, and others. (see Scoping Visit reports by PAN Ethiopia, Oct 2013; and NR visit report from Feb 2014).	
Activity 1.3	Design monitoring programme for sampling by trained stakeholders and by communities	Desk (Risk) Assessment complete, including pesticide hazards and ecosystem services.  Monitoring sites and components selected (Ziway & Arba Minch)  Detailed monitoring plan and protocols will be finalised for each site separately; for Arba Minch before cotton season (May 14) and Ziway once lab contract is finalized for residue analysis.	
Activity 1.4	Train local participants in community-based monitoring principles and reporting using FFS methodology,	Monitoring Team workshops held in Ziway (17 Feb 2014) and Arba Minch (24 Feb)  FFS for smallholders at Arba Minch will start in April 2014.	
<p><b>Output 2.</b> Baseline understanding compiled of current biodiversity, pesticide use patterns and effects on key species in aquatic ecosystems, to enable changes in status to be evaluated later</p>	<p>2.1 <i>Baseline data collected in Years 1-2 on: aquatic food chains and biodiversity in Rift Valley wetlands; pesticide use in surrounding farmland and contamination levels in lakes and wetlands; cotton production costs, yields, returns and pest management methods</i></p> <p>2.2 <i>Results and quality of data generated on pesticide impacts on ecosystem processes</i></p>	<p>Questionnaire and Survey of pesticide use in two regions of the rift valley completed (Desk Assessment).</p> <p>A monitoring plan is in development which will guide the data generation on ecosystems in Y2.</p> <p><i>The red highlighted text is proposed to move to Output Indicator 3.2 which partly duplicates this information anyway.</i></p>	
Activity 2.2	Agree baseline survey methods/tools for biodiversity related data,	Part of the Monitoring Plan – to be finalized in Q1 of Year 2.	

	then collect/compile data, in collaboration with conservation NGOs involved	
Activity 2.3	Trained staff and community groups carry out repeated ecotox monitoring sessions	Due in Year 2.
Activity 2.4	Analyse pesticide residues in samples and estimate contamination levels in Rift Valley ecosystems	Due in Year 2. Laboratory has been identified for these analyses and a contract is being discussed.
Activity 2.5	Summarise results into suitable formats for discussion with different stakeholders	Due in Year 2/3
Activity 2.6	Assess key findings with steering group, project collaborators, UK experts, and farmers and community groups involved in monitoring	Due in Year 3
<b>Output 3.</b> Increased uptake of agro-ecological farming methods by trained farmers in cotton-growing project sites (smallholder + plantations)	<p>3.1 <i>Number of smallholder farmers and plantation managers and farmworkers trained in IPM/ organic methods</i></p> <p>3.2 <i>Data on pesticide use; yields; income/profit of trained versus untrained farmers</i></p> <p>3.3 <i>Number of farmers adopting at least some alternative pest control techniques</i></p>	<p>3.1 90 smallholders trained. Large farms training will start in Y2</p> <p>3.2: Trained farmers use of pesticides:</p> <p>3.3 To be monitored and reported after Y1 training.</p>
<b>Activity 2.1</b>	<b>Agree baseline survey method/tools for pesticide use and cotton production, then conduct surveys with smallholders and large farms and annual compilation of data with smallholder groups and large farms on changes in practices, yields and income</b>	<p>Two surveys done in 2013: 72 trained farmers and 107 untrained farmers responded (11% and 25% women respectively)</p> <p>The baseline surveys didn't collect data on cotton production costs, yields, returns, but this will be monitored in the FFS for the 90 trained farmers in Yr 2. The baseline surveys for large farms will be conducted in Q1 of Year 2.</p>
Activity 3.1	Incorporate simple elements of biodiversity awareness-raising and ecotox monitoring and into FFS training curriculum so that FFS farmer groups better appreciate the value of beneficial insects and other biodiversity and can later monitor their progress in reducing pesticide contamination.	<p>The FAO pollinator monitoring protocol has been reviewed for possible adoption by large farms in Yr 3. More simple protocols and FFS methods for pollinator monitoring will be introduced into the FFS for smallholders in Yr 2.</p> <p>FFS data on pests and natural enemies will be incorporated into the ecotox monitoring</p>
Activity 3.2	Conduct FFS training sessions in 3 sites with 90 smallholder farmers on agro-ecological methods to improve pest and crop management	Smallholder FFS conducted in Apr – Oct 2013 with 90 farmers
Activity 3.3	Conduct FFS training sessions on agro-ecological and biodiversity principles and IPM methods for 2 large cotton farms, including farm managers and workers.	Planned for Y2
Activity 3.4	Link trained smallholder groups with organic supply chains & large cotton farms with BCI supply chains	Visit in March 2014 by BCI and Solidaridad

<p><b>Output 4.</b> Enhanced awareness by rural communities, government agencies and other stakeholders of the adverse effects of pesticide use on Rift Valley aquatic ecosystems and farming livelihoods and of the measures needed to address these</p>	<p>4.1 <i>Number of local community members (men, women, school groups) attending project events (workshops, field days, etc) and involved in monitoring</i></p> <p>4.2 <i>Local level recommendations and action plans developed after monitoring results are discussed</i></p> <p>4.3 <i>Changes in attitude and practices of stakeholders to reduce pollution from pesticide use</i></p> <p>4.4 <i>Community representatives collaborating with government agencies to address specific pesticide contamination problems</i></p>	
<p>Activity 4.1</p>	<p>Conduct 2 workshops (one at local and one at national level) to disseminate findings from ecosystem monitoring</p>	<p>Year 3</p>
<p>Activity 4.2</p>	<p>Run one awareness-raising meeting for local stakeholders whose activities may impact on the wetland ecosystem (tour operators, industrial plants, commercial farms) on water contamination effects on aquatic ecosystems, the economic costs of harm and measures to reduce contamination.</p>	<p>Year 3</p>
<p>Activity 4.3</p>	<p>Run two agro-ecotourism field days for policymakers and other stakeholders to visit trained farmers using organic methods</p>	<p>Year 3</p>
<p>Activity 4.4</p>	<p>Produce leaflets, posters and briefings in local language to raise awareness of the economic value of biodiversity and the economic costs of adverse pesticide effects Activity 2.1.</p>	<p>Year 3</p>
<p><b>Output 5.</b> National Biodiversity &amp; Agriculture Stakeholder Group established to provide supportive policy environment for sound agricultural practices that conserve biodiversity</p>	<p>5.1 <i>NBASG set up with at least 7 organisations represented covering relevant Ministries, conservation bodies, farmer associations and community groups</i></p> <p>5.2 <i>NBASG advocates for agroecological farming as part of national policies on agriculture, biodiversity conservation</i></p> <p>5.3 <i>NBASG deliberations include ecotox monitoring results, the external costs of pesticide harm and the role of pesticides in food security</i></p>	<p>Year 2</p>

Activity 5.1	Help relevant government agency to set up National Biodiversity & Agriculture Stakeholder Group (NBASG) with representation from relevant stakeholders, including community and farmer groups.	Situation Analysis of the Agriculture Sector prepared with the GEF soaring birds project
Activity 5.2	Help conduct at least 5 sessions using methodology to enable full participation by community representatives and identifying a coherent work plan. Ensure recommendations from ecotox monitoring and awareness-raising events feed into NBASG and other policy forums.	Year 2
Activity 5.3	Build support and access funding for implementation of Action Plans based on monitoring programme results and community-level recommendations.	Year 3
Activity 5.4	Liaise with NBASG members and others to assess positive changes made towards better alignment of agriculture and biodiversity policies.	Year 3
<b>Output 6.</b> Project training methods, monitoring results and lessons emerging are made available to relevant stakeholders elsewhere in Ethiopia and beyond,	<p>6.1 <i>Ethiopian partners disseminate findings, action plans and policy recommendations through their networks</i></p> <p>6.2 <i>Project lessons and guidance on community participation in ecosystem approaches disseminated via relevant meetings of CBD, CMS, PIC, POPS and other chemical conventions.</i></p> <p>6.3 <i>Project findings, methodology and lessons disseminated to global research, conservation, donor and NGO audiences.</i></p>	Year 2-3
Activity 6.1	Share results and lessons within Ethiopia through the end of project workshop and via the networks of partners and collaborators and local and national media.	Year 2
Activity 6.2	Present findings in appropriate international forums, including CBD, CMS, PIC and POPs Conventions and other MEAS and chemicals-related initiatives (through partners' existing participation in these forums).	Year 3
Activity 6.3	Disseminate findings more widely to research, conservation, donor and NGO audiences. Submit at least two peer-reviewed papers and at least three articles in conservation and development international magazines and web media, as well as briefings on partner websites	Year 3

## Annex 2 Project's full current logframe

<b>IMPACT (100 words)</b>	<p>The project will contribute to Ethiopia's effective implementation of the Conventions on Biological Diversity and Conservation of Migratory Species. It will help to: reduce adverse impacts of pesticides on ecosystems in the Rift Valley wetlands, including the food chains on which key migratory birds depend; improve ecological quality of water resources; and foster communities' participation in addressing environmental harm.</p> <p>It will help show how productive, agro-ecological farming practices that reduce reliance on expensive agrochemicals can conserve wildlife and protect ecological services while increasing farmer incomes, thereby improving the livelihoods, food security and welfare of rural communities.</p>		
<b>1 outcome (100 words)</b>	<b>INDICATORS</b>	<b>SOURCES (publications, surveys, project notes, reports, tapes, videos etc.)</b>	<b>ASSUMPTIONS</b>
<p>Improved capacity of Ethiopian farming communities, government agencies and other stakeholders to (a) identify and understand the harmful environmental effects of agrochemical use close to biodiversity-rich wetlands, (b) develop and implement practical solutions based on agroecological farming and (c) align agricultural policies with biodiversity conservation goals.</p> <p>Farming communities around the Rift Valley Lakes will benefit from safer and sustainable pest management, better water quality and ecosystem services. Government agencies and conservation bodies will gain the skills to monitor pesticide impacts jointly with rural communities and feed robust evidence into policy forums.</p>	<p>1 Capacity strengthened in Ethiopia in use of an ecosystem approach to pesticide impact monitoring in the field, with data collected on key species in aquatic food chains.</p>	<p>Ecotox curriculum and training reports; survey data, monitoring data and chemical analysis reports; stakeholder assessment notes.</p>	<p>Physical and political conditions permit effective monitoring in Rift Valley.</p>
	<p>2 Farmers trained in IPM and organic methods are implementing by year 3 more sustainable pest management using less pesticide, while maintaining crop yields and earning better net returns.</p>	<p>programme data and farmers' feedback on training success, changes achieved in pest management methods, reductions in pesticide use, yields, production costs and income</p>	<p>Physical and political conditions permit effective training in Rift Valley. Farmers motivated to take part and alternative pest management methods are effective.</p>
	<p>3 Enhanced understanding at farmer and national levels of the value of biodiversity and the indirect costs of pesticide effects on wildlife and ecosystem services helps ensure that agroecological farming strategies become mainstreamed into national policies on agriculture and environment.</p>	<p>Quantitative and qualitative data from training, workshops, discussion and policy forums on changes in awareness of pesticide effects on biodiversity, changes in stakeholder perceptions on the role of pesticides and their costs and benefits.</p>	<p>Government agencies, conservation bodies, Rift Valley communities and others are committed to the project and make active use of the findings.</p>



OUTPUTS		INDICATORS		SOURCES	ASSUMPTIONS
1	National capacity built in ecotoxicological monitoring, with a focus on pesticide use in the Ethiopian Rift Valley, enabling assessment of pesticide contamination and impact on wildlife and food chains of which migratory birds are part	1.1	Core group of staff from at least 3 different government agencies and NGOs trained and enabled to conduct robust monitoring programme and assess the results.	Training curriculum; evaluation notes from trainers and trainees; feedback from NRG experts on draft monitoring programme designs developed by trainees	Appropriate staff selected for training and remain in post.
		1.2	Effective multi-stakeholder steering group established to provide oversight to monitoring activities	Meeting reports of steering group; range of organisations involved	Government agencies, NGOs and other stakeholders maintain commitment.
2	Baseline understanding compiled of current biodiversity, pesticide use patterns and effects on key species in aquatic ecosystems, to enable changes in status to be evaluated later	2.1	Baseline data collected in Years 1-2 on: aquatic food chains and biodiversity in Rift Valley wetlands; pesticide use in surrounding farmland and contamination levels in lakes and wetlands; cotton production costs, yields, returns and pest management methods	Survey data reports; chemical analysis reports; existing literature on Rift Valley biodiversity;	Physical conditions permit adequate data to be collected and trained staff gain the skills to assess data properly.
		2.3	Results and quality of data generated on pesticide impacts on ecosystem processes		Training and involvement of local people in monitoring activities
	Increased uptake of agro-ecological farming methods by trained farmers in cotton-growing project sites (smallholder + plantations)	4.1	Number of smallholder farmers and plantation managers and farmworkers trained in IPM/ organic methods	Training reports	Smallholder farmers and large cotton farm owners and managers are motivated to take part in training and then make changes in their farming practices Farmers are convinced that they can obtain clear economic and/or other benefits by shifting to agro-ecological strategies
		4.2	Data on pesticide use; yields; income/profit of trained versus untrained farmers	Relevant survey data from Output 2	
		4.3	Number of farmers adopting at least some alternative pest control techniques	Survey data reports, feedback from farmer workshops, data from organic certification bodies	
4	Enhanced awareness by rural communities, government agencies and other stakeholders of the adverse effects of pesticide use on Rift Valley aquatic ecosystems and farming livelihoods and of the	3.1	Number of local community members (men, women, school groups) attending project events (workshops, field days, etc) and involved in monitoring	Reports from community-based monitoring and stakeholder workshops; informal feedback from local NGOs, community groups and government agencies	Local community groups are motivated to take part in monitoring and developing measures to address problems.
		3.2	Local level recommendations and action plans developed after monitoring results are discussed		Government agencies, NGOs and other stakeholders maintain commitment.

	measures needed to address these	3.4	Changes in attitude and practices of stakeholders to reduce pollution from pesticide use		
		3.3	Community representatives collaborating with government agencies to address specific pesticide contamination problems		
5	National Biodiversity & Agriculture Stakeholder Group established to provide supportive policy environment for sound agricultural practices that conserve biodiversity	5.1	NBASG set up with at least 7 organisations represented covering relevant Ministries, conservation bodies, farmer associations and community groups	NBASG meeting participant lists, reports and recommendations	Appropriate government agency takes the lead in convening NBASG and stakeholders motivated to continue participation
		5.3	NBASG advocates for agroecological farming as part of national policies on agriculture, biodiversity conservation		
		5.2	NBASG deliberations include ecotox monitoring results, the external costs of pesticide harm and the role of pesticides in food security		
6	Project training methods, monitoring results and lessons emerging are made available to relevant stakeholders elsewhere in Ethiopia and beyond	6.1	Ethiopian partners disseminate findings, action plans and policy recommendations through their networks.	Project reports, publications, presentations at national and international forums	
		6.2	Project lessons and guidance on community participation in ecosystem approaches disseminated via relevant meetings of CBD, CMS, PIC, POPS and other chemical conventions.	Toolkits, training manuals, case studies. Peer-reviewed papers, articles in conservation and development journals and websites, partners' publications.	Stakeholders at national and international levels express interest in the findings and policy implications.
		6.3	Project findings, methodology and lessons disseminated to global research, conservation, donor and NGO audiences.		

## Annex 3 Standard Measures

Please expand and complete Table 1: new projects should complete the Y1 column and also indicate the number planned during the project lifetime. Continuing project should cut and paste the information from previous years and add in data for the most recent reporting period. Quantify project standard measures over the last year using the coding and format from the Darwin Initiative Standard Measures (see website for details: <http://darwin.defra.gov.uk/resources/>) and give a brief description. Please list and report on relevant Code Nos. only. The level of detail required is specified in the Standard Measures Guidance notes under 'definitions' column. Please devise and add any measures that are not captured in the current list. Please note that these measures may not be a substitute for output level objectively verifiable indicators in the project logframe.

**Table 1 Project Standard Output Measures**

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Number planned for reporting period	Total planned during the project
Established codes							
2	Masters qualification - Ziway field work			1	0	0	1
6a	4 Ethiopian nationals attended inception training in UK	4			4	4	4
6b	2 weeks inception training each for 4 ppl = 8 person weekd	8			8	8	8
7	Training and awareness materials for dissemination		5	10	0	0	15
8	2 British ecotoxicologists visited Ethiopia for 2 weeks in Feb 2014 = 4 person weeks	4	4	2	4	4	10
10	Field guides for communities and farmers to monitor ES		3			0	0
11a & B	Peer reviewed papers of ecotox results			2	0	0	2
14 A & B	Conferences for dissemination		1	3	0	0	4
18 A & C	National and local TV coverage in Ethiopiai		4	4	0	0	8
19 A & C	National and local radio coverage in Ethiopia		3	3	0	0	6
23	Resources from TRAIID & JJ projects; Resources from GEF Bird project for which DI is 'vehicle project'	£92,810 0	Tbc	tbc			
New - Project specific measures							

**Table 2 Publications**

Type	Detail	Publishers	Available from	Cost £
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(eg journals, manual, CDs)	(title, author, year)	(name, city)	(eg contact address, website)	
Report * <i>Exec Summary included</i>	PAN UK (2013) Inception Event: Planning and Training for the Ethiopian Capacity Building Core Team	PAN UK, London	<a href="http://www.pan-uk.org">www.pan-uk.org</a>	0
Report	Baseline Survey Results of the Cotton IPM Project, September, 2013	Pesticide Action Nexus Association (PAN-Ethiopia)  Addis Ababa, Ethiopia		

## **Annex 4 Onwards – supplementary material (optional but encouraged as evidence of project achievement)**

This may include outputs of the project, but need not necessarily include all project documentation. For example, the abstract of a conference would be adequate, as would be a summary of a thesis rather than the full document. If we feel that reviewing the full document would be useful, we will contact you again to ask for it to be submitted.

It is important, however, that you include enough evidence of project achievement to allow reassurance that the project is continuing to work towards its objectives. Evidence can be provided in many formats (photos, copies of presentations/press releases/press cuttings, publications, minutes of meetings, reports, questionnaires, reports etc) and you should ensure you include some of these materials to support the annual report text.

Executive summary – Inception report

Draft Desk Assessment

Baseline Survey Results of the Cotton IPM Project, Pesticide Action Nexus Association (PAN-Ethiopia), September 2013, Addis Ababa, Ethiopia

Baseline Survey Results of the Cotton IPM Project, Pesticide Action Nexus Association (PAN-Ethiopia), February, 2014, Addis Ababa, Ethiopia

List of Birds

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You need not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
<b>Do you have hard copies of material you want to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number.	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	