

# Darwin Initiative Main and Post Project Annual Report

To be completed with reference to the "Writing a Darwin Report" guidance: (<http://www.darwininitiative.org.uk/resources-for-projects/reporting-forms>). It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2019**

## Darwin Project Information

Project reference	24-016
Project title	Sustainable community-based stewardship of freshwater resources in the Northern Philippines
Host country/ies	Philippines
Lead organisation	Zoological Society of London (ZSL)
Partner institution(s)	Bureau of Fisheries and Aquatic Resources (BFAR); Department of Environment and Natural Resources (DENR)
Darwin grant value	£378,174
Start/end dates of project	1/7/2017 to 31/12/2020
Reporting period and number	Apr 2018 – Mar 2019: Annual Report 2
Project Leader name	Dr Matthew Gollock
Project website/blog/Twitter	<a href="https://twitter.com/ZSLMarine">https://twitter.com/ZSLMarine</a> <a href="https://www.facebook.com/freshwaterconservationproject/?modal=admin_todo_tour">https://www.facebook.com/freshwaterconservationproject/?modal=admin_todo_tour</a>
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### 1. Project rationale

An estimated 126,000 described species rely on freshwater (<https://www.iucn.org/theme/species/our-work/freshwater-biodiversity>), and this biome exhibited species' population declines of 81% between 1970 and 2012 (Living Planet Index, 2016). The Convention on Biological Diversity (CBD) states that globally, freshwater habitats and associated biodiversity are impacted by unsustainable use, construction, land conversion, pollution and invasive alien species. This is echoed in both the [4<sup>th</sup>](#) and [5<sup>th</sup>](#) Philippines National Report to the CBD (NRCBD), which highlighted that freshwater systems require urgent conservation attention. Indeed, in the [6<sup>th</sup> NRCBD](#) it was indicated that the Bureau of Fisheries and Aquatic Resources (BFAR) had created a specific sub-committee to address the conservation status of freshwater bony fishes. The study area is the Cagayan River Basin (CRB) in Luzon, Philippines, the largest freshwater body in the country. Habitat surveys in our previous project (21-020) identified threats including deforestation, 'slash and burn' agriculture, erosion and siltation, abstraction, unmanaged exploitation, stocking with exotic tilapia and expansion of settlements due to rising populations, which will generally increase the pressure on freshwater resources. Research from the present study has indicated that other invasive species, such as the janitor fish, are now found in the CRB. Some of these threats have provided the basis of both our biological and socio-economic interventions, and these have been tailored such that we can capitalise on the expertise of our partners (see section 2).

If the freshwater systems continue to be impacted by these activities without intervention, the communities that rely upon them will lose essential ecological, economic and cultural resources. The core of this project is community engagement, and over the three years of the previous project and 21 months that we have been implementing the present project we have built relationships with key stakeholders to ensure buy-in at the local level. The protection and management of freshwater biodiversity, and by association, the success of the project, is reliant on the Freshwater Sanctuaries (FS) being managed effectively by local stakeholders and we have been heartened by the enthusiasm shown by the communities and associated governance units that are linked to them.



Figure 1. Maps of study area (see Annex 4 for Freshwater Sanctuary locations).

## 2. Project partnerships

We have now been working with both the BFAR and Department of Environment and Natural Resources (DENR) for over five years. These relationships have been borne out of, and developed by, identifying the key threats and management measures required to improve conservation of key species and habitats in the CRB.

In addition to these regional level relationships, we have been maintaining our municipal level partnerships with Local Government Units (LGUs) – see Annex 5 for governance structure in the Philippines - as it is within these that monies and resources can be allocated for the support of FS for disbursement through Fish Sanctuary Management Bodies (FSMBs) to FS Action Teams (FSATs) for implementation at the barangay level.

Quarterly Technical Working Group (TWG) meetings bring together ZSL, BFAR, DENR and LGU staff to discuss the current status of project implementation and review the workplan and logframe (see Annex 6). ZSL also hold *ad-hoc* meetings with barangay, LGU, FSMB, BFAR and/or DENR staff on specific matters as required. ZSL have recently signed a Memorandum of Agreement with Cagayan State University Carig to provide on-the-job training for Environmental Science students (see MOA in Annex 7).

In relation to issues, there were some instances of communication letters sent by ZSL for meetings and/or training to TWG members and FSMB officers being delayed in LGU office meaning opportunities were missed. More significantly, during the Project lead's most recent visit, a potential challenge was identified. Dr Evelyn Ame, BFAR Region 2 and national anguillid eel lead, indicated that the National BFAR office had recently prioritised certain species for resource

input. These species were effectively all fisheries species, with a focus on national consumption – this includes tilapia (see below). We are continuing to discuss with BFAR Region 2 how this will impact the project with respect to their input on invasive species – Output 5 is likely to be affected. We have outlined specific progress and concerns where relevant in Section 3 below.

### **3. Project progress**

Please note, a Change Request was submitted to amend a number of points within the logframe, prior to the drafting of the Annual Report – this is included in Annex 8 and referred to in our reporting where necessary.

#### **3.1 Progress in carrying out project Activities**

##### 1.1 Tagging, monitoring and analytical techniques training. (Y1Q3-Q4)

It became clear that the grasp of tagging techniques with partner organisations was more rudimentary than we had understood and that training individuals would be too resource and time intensive to be beneficial to the project (Output Indicator (OI) 1.1). As such, we felt that an introduction to a range of techniques would be more useful, and then should individuals make a strong case for training in specific techniques, this could be provided. A workshop was held in Tuguegarao (16/10/18) (Annex 9), introducing how marking and remote telemetry can be used for the conservation and management of aquatic species. The project lead and ZSL tagging consultant (Dr Adam Piper) hosted the workshop which attracted 50 (27 female and 23 male) participants from BFAR offices across the Philippines. ZSL remain on hand to advise BFAR on the use of remote telemetry methods for monitoring aquatic species in the CRB.

We have proposed an amendment to this activity in the Change Request.

##### 1.2 Native fish species – including anguillid eels - are tagged with PIT tags / elastomers. (Y2Q1-Q4)

24 eels (23 *Anguilla marmorata* and 1 *Anguilla bicolor*) were tagged with acoustic and PIT tags during the second phase of tagging activity in October 2018, bringing the total to 47 eels tagged (OI 1.2). We have moved to solely using acoustic tags to tag anguillid eels due to the increased power of this data – this has been communicated through an amendment in the present Change Request, as well as a previous Request.

##### 1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis. (Y2Q1-Q4)

Typhoon Ompong which made landfall in September 2018 (see Outcome Assumptions in Section 3.4) caused significant disruption of the acoustic receiver array (see Annex 10) - four of 12 receivers are still missing. Four receivers were displaced in the Hotspring FS but have already been returned to their original positions. As of this date, seven receivers have been reinstalled - two in Duba FS, four in Hotspring FS, and one in the mouth of the Dummon River where it meets the main Cagayan River (see Annex 11).

Despite the impact on the receiver array, data has been downloaded from the remaining receivers. Detections were received from 39 of the 41 eels and sufficient data were collected to determine movement patterns for 85% of eels (OI 1.2).

##### 1.4 Fish movement data and existing FS monthly abundance monitoring data is consolidated and analysed. Y2Q1-Q4

Data collection by the Community Monitoring Groups (CMG) was affected during the rainy and typhoon season – high flow prevented fyke nets from being deployed and turbidity, which remains in some places, makes visual surveys impossible. Collated data from the 12 FS continues to be shared with LGU's and BFAR regional office to provide information on the biological condition, fish abundance, and the health status of each sanctuary, and how this relates to the present FS delineation and associated Freshwater Sanctuary Management Plans (FSMP) (OI1.2).

The eel telemetry data indicate high residency within both Duba and Hot Springs FS. Eels released during March/April remained in the two FS for a median of 5 and 3.4 months, respectively. Eels released during October in Hot Springs had, on average, shorter residencies and spent a median of 14 days (range 1 day to 4.3 months) in the FS before exiting downstream.

Large-scale downstream movements out of the FS occurred in pulses during July and in the period of November to early December, coinciding with high rainfall and typhoon events. In particular, the shorter residencies within the FS for the second group of tagged fish reflect downstream movement out of detection array following landfall of Typhoon Rosita on 29<sup>th</sup> October 2019 which caused a rapid increase in river flow.

#### 1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries. (Y2Q3-Q4)

In order to better manage FS, barangay level FS Action Teams (FSATs) have been established to ensure that LGU-level Fish Sanctuary Management Bodies (FSMBs), required to ensure funding is secured, have an appropriate implementation mechanism on the ground (see Annex 12). FSATs have been developed to ensure both river and land users are represented – this has been included in the submitted Change Request. Three nurseries have been established in Baggao, Cagayan and stakeholders are already members of the FSMB under the Information, Education and Communication (IEC) and Livelihood Committee ensuring representation is reflective of all stakeholders (OI1.3). We will use this FSMB as a pilot to replicate in others.

#### 1.7 MEAT assessment adapted for use in FS in consultation with MSN. (Y1Q3-Q4)

The MEAT (Management Effectiveness Assessment Tool) has been adapted to evaluate the management and governance effectiveness of FS (OI 1.4). We are continuing to try and engage with MPA Support Network (MSN) on this matter both directly and through our ZSL colleagues who have worked with them on MPAs – to date we have received no response. However, we are comfortable, from our experience of using MEAT in the marine realm, that our adaptation for FS are sound and that they adequately take in to account the requirements of an effective FS.

#### 1.8 MEAT assessment carried out at all 12 sites. (Y2Q1-Q4)

The adapted MEAT for FS was conducted at 11 of the 12 sites and the ranking of management effectiveness, challenges in management of FS's and adaptive recommendations were determined. One FS has already achieved Level 2 status (OI1.4). The remaining site will receive training and be assessed in the coming year.

There was significant engagement from community stakeholders - total of 55 FSMB members, Barangay Council members, LGU personnel and BFAR representatives (7 female and 48 male) attended the MEAT training workshop and project review. In addition to the guide questions included in MEAT, participating FSMB chairs, Barangay captains, Municipal Agriculturists (MAs) and Municipal Natural and Environment Resources Officers (MENROs) were given time to discuss their annual activities, as part of the verification measures (see Annex 13).

#### 2.1 National eel data framework established in collaboration with BFAR. (Y1Q3-Y1Q4)

As stated in Activity 1.4, we have developed channels such that data relating to monitoring in FS, including presence of anguillids eels, are distributed to both LGUs and BFAR Region 2 (OI 2.1). Further, as part of an initiative in collaboration with the Southeast Asian Fisheries Development Center (SEAFDEC), BFAR continue monthly sampling at sites in the CRB to monitor eel recruitment to the river, to inform management (OI 2.2). A National Eel Management Plan (EMP) Planning workshop was held October to be attended by BFAR delegates from three major island groups - Luzon, Visayas and Mindanao – where data collection has been initiated similar to the CRB (OI 2.1 and OI 2.3). This was with a view to develop island-level EMPs which would sit under the National EMP (OI 2.3) using the CRB EMP as a template. ZSL were able to present the work of the two Darwin-funded projects and the process of the development of the CRB EMP during 21-020. A second national planning workshop for EMPs is proposed for 2019. Dr Evelyn Ame, (BFAR Region 2), is the national focal point for anguillid eels and receives data relating to anguillids nationally (OI 2.1). However, it is still the case that there is no official data framework specifically for eels – the online infra-structure for other species is in place but anguillid eels have yet to be included. We are continuing to support BFAR in data gathering and co-ordination as required as they progress this activity.

#### 2.2 Key metrics are identified and analysed in line with CITES call. (Y2Q1 – Y4Q3)

BFAR continue to work with SEAFDEC to develop national monitoring of fisheries and harmonise regional data collection for eel species in trade – *Anguilla bicolor* and *A. marmorata* (OI 2.4).

### 2.3 Data submitted to AESG for inclusion in Red List assessment workshop. (Y2Q2-Q4)

The IUCN Anguillid Eel Specialist Group Red List assessment workshop was held in November 2018 in London. All 16 anguillid eels were assessed, including the seven species that are found in the Philippines – three of which are common in the CRB, *A. bicolor*, *A. luzonensis* and *A. marmorata*. All relevant data collected during 21-020 and the present project was submitted for review by the AESG, and where relevant, inclusion in the Red List Assessments of these species. The draft assessments are now being reviewed for publication in December 2019.

### 2.4 Data submitted to national CITES focal point. (Y2Q1 – Y4Q3)

The national responses, including that of the Philippines (OI 2.1 and 2.4), to a [CITES Notification](#) and associated questionnaires, relating to the collection of eel data were not shared publicly. ZSL lead the delivery of the comprehensive reports relation to the [European eel](#) and [other anguillids](#), which these data were informing and these were published in May 2018.

### 2.5 Regional eel focal points in other range states identified and engaged. (Y2Q1 – Y4Q3)

This is an on-going process through SEAFDEC. BFAR are a key partner in this coalition and both the project lead and the anguillid eel focal point in BFAR attended a workshop held by the SEAFDEC in Bangkok (7-8/6/18) (OI 2.4).

### 2.7 Project representatives attend national and international CITES workshops relating to anguillid eels. (Y1Q2 – Y4Q3).

The reports outlined in Activity 2.4 provided the basis for significant discussion both at CITES Animals Committee in Geneva in July 2018, where all species were addressed in the [outputs](#), and Standing Committee in Sochi, Russia in October 2018, with a focussed working group addressing illegal trade – while this was most specifically relating to the European eel, the [outputs](#) are very relevant to all species. Outputs from these meetings have been collated as [Decisions](#) for consideration at the CITES Conference of the Parties (CoP) in May 2019 in Sri Lanka. The project lead was due to attend on behalf of ZSL (OI 2.1) and in-country ZSL staff were invited to attend a national co-ordination meeting to develop national positions on CITES agenda items (Annex 14). As of writing the CoP has been postponed due to the recent events in Sri Lanka.

It should also be noted that through attending CITES meetings, the project lead was able to become a co-author on a recently published [paper](#) on trade in anguillid eels, samples of which were provided by the project team.

### 3.1 Socioeconomic survey is developed, carried out and analysed, and report produced. (Y1Q2 – Y1Q4)

Building on the Focus Group Discussions / SWOT workshops held in Y1, the first set of socio-economic surveys (Annex 15) were conducted in four of the twelve sites (OI 3.1). A total of 202 respondents - 109 female (54%) and 93 male (46%) - were interviewed; data has been encoded and the report is being prepared prior to the next group of communities being interviewed from June 2019. We are conscious that this activity is behind schedule and have adjusted the timeline in the workplan submitted with the Change Request.

### 3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social marketing and infra-structure development. (Y2Q1 – Y2Q4)

Refreshers courses on Law Enforcement were conducted and attended by 65 – 59 male and 6 female participants from FSMBs across the three Provinces covered by the project (see Annex 16). Successful participants were then endorsed by BFAR Director for deputation as river wardens by the local chief executive of key LGUs. Patrolling uniform and Identification card were provided by the project (see Annex 17). River warden monitoring posts have been constructed in three sites (see Annex 18), and other sites are on-going. The construction was an in-kind collaboration between the barangay, LGU, DENR, ZSL and CMG/River Wardens. The CMG members have also previously been trained in fisheries independent data collection inside and outside their respective FS using fyke nets.

### 3.4 CoMSCA training is delivered at 12 key barangays. (Y1Q2 – Y4Q2)

Seven Community Managed Savings and Credit Association (CoMSCA) training workshops have been conducted and seven CoMSCAs established in four of the 12 sites (OI 3.2) (see Annex 19).

### 3.5 Analysis of COMSCA beneficiary financial access and use. (Y2Q1 – Y4Q2)

The CoMSCAs have a total of 108 active savers to date (57% female and 43% male) members with a combined savings of PhP (OI 3.1). CoMSCA groups released loans amounting to PhP primarily used for education (35%), small enterprises (20%), agribusiness (15%), support of basic needs, house improvements and others (30%). So far PhP has been cumulatively saved in the CoMSCA environment funds.

### 3.6 Village Agents training reinforcing the value of being local champions and their contribution to the management of the FS carried out. (Y2Q2 – Y2Q3)

This has been delayed as one annual cycle of a CoMSCA is required to carry out Village Agent training – this is planned for Q3Y3 (OI 3.3).

### 3.7 Village Agent training carried out and new COMSCAs are established. (Y2Q3 – Y4Q2)

See Activity 3.6.

### 3.8 Environment funds are established, and proposed budget developed and agreed. (Y2Q2, Y3Q2)

Seven CoMSCAs in key sites integrated environment funds to support the management and protection of freshwater. Weekly CoMSCA member contribution to the environment fund is PhP and to date, a total of PhP has been collected (OI 3.4). Proposed uses include river clean ups, tree planting and River Warden / CMG allowances (OI 3.6).

### 3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management. (Y1Q3-Q4, Y2Q4 – Y3Q1, Y4Q1-Q2)

Resolutions adopting FSMPs and associated budget appropriation have been formulated by four of six key LGUs. Most of the funds given by LGUs are for patrolling and payment of river wardens (OI 3.5). Verbal agreement has been given by the remaining two LGUs and we are hopeful FSMPs and budget will be adopted in 2019.

### 4.2 Behaviour change programme related to responsible farming practices and mitigation of threats established. (Y1Q3 – Y1Q4)

Some of the sustainable farming practices such as Sustainable Corn Production in Sloping Areas (SCOPSA) and Sloping Agriculture Land Technology (SALT) have already been implemented by two of the six key LGUs covered by the project (Nagtipunan, Quirino and San Mariano, Isabela) under their Annual Development Plan. These practices help to control bank erosion and siltation.

### 4.3 Participatory land-use mapping carried out in the areas around the 12 FS. (Y1Q3 – Y1Q4)

Riparian assessments were conducted in seven out of 12 sites as of March 2019 (OI 4.1) (Annex 20 shows results from five). The remainder will be carried out by Y3Q2 prior to participatory land-use planning (PLUP). These assessments have taken longer than expected, and as such a number of activities in Output 4 have been delayed – many of these will be completed during the PLUP and we are confident it will not affect the project Outcome.

### 4.4 Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation. (Y1Q4 – Y2Q1)

Priority areas are being identified as part of the riparian assessment of FS with relevant stakeholders (OI 4.1). Included in the data are areas for rehabilitation, land uses around the FS and current threats (OI 4.3).

### 4.5 Twelve FS agreements and FSMPs amended to include identified riparian areas and associated mitigation actions. (Y2Q1-Y2Q2)

This will begin in Q2Y3 – it has already been discussed during FSMB/FSAT and community meetings conducted in key sites. Some of the mitigation actions also are included in the strategic action plan of FSMPs and regular targets of some key LGUs (OI 4.2).

### 4.6 Prioritisation of terrestrial mitigation to identify three implementation sites. (Y2Q1-Y2Q2)

The prioritisation of areas for terrestrial mitigation will be carried out as part of the PLUP in Y3Q2.

#### 4.7 Training in reduced impact land-use activities delivered at three priority sites. (Y2Q2-Y2Q3)

The training in reduced impact land-use activities will commence after the riparian assessments. Training on SCOPSA, SALT, and sustainable farming practices will be implemented by Y3Q4.

#### 4.8 Participatory implementation of reduced impact land-use livelihoods at three priority sites. (Y2Q2-Y4Q3)

Areas used for agriculture near FS will be identified during the PLUP in Q2Y3-Q3Y3. Low-impact livelihoods, such as paku fern and giant clumping grass culture will commence by Y3Q4.

#### 4.9 Monitoring of mitigation activities to assess effectiveness. (Y2Q3-Y4Q3)

The monitoring of implemented mitigation activities will be conducted in tandem with relevant LGUs. Monitoring will commence in Y4.

#### 4.10 Value Chain Analysis (VCA) for native species seedlings. (Y2Q1-Y2Q2)

The VCA for native tree species is being undertaken and is expected to be finished by Y3Q2. Nurseries will provide bankside rehabilitation activities as a priority and any surplus will then enter identified markets.

#### 4.11 Community training in silviculture and nursery establishment delivered in three sites. (Y2Q2-Q3).

Training for native tree species nursery establishment (OI 4.4 / OI 4.5) was conducted in Baggao, where three of our FS are established (See Annex 21). It was attended by 25 participants (16 female and 9 male) from the Department of Education (DepED), Barangay and MENRO (OI 4.4).

#### 4.12 Native seedling planting and cultivation. Y2Q3-Q4

Three nursery sites were established, with two now operational – the third is awaiting fruit tree seeds from university partners. A total of 3,218 endemic tree seedlings (survival rate 93.8%) and 595 bamboo propagules were planted (OI 4.5). The two nurseries are managed by the teachers and parents supported by the MENRO.

#### 5.1 Invasive species survey carried out in 12 FS (Y1Q3 – Y2Q1)

The survey of invasive fish species was embedded to the regular monthly monitoring (OI 5.1). Results show there are three major invasive species; janitor fish (*Pterygoplichthus spp*), Thai catfish (*Clarias batrachus*) and Nile tilapia (*Oreochromis Niloticus*) (Annex 22).

Riparian assessments are being carried out as part of Activity 4.3 and non-native species are being identified prior to removal (OI 5.3).

#### 5.2 FSMPs adapted to incorporate mitigation activities. (Y1Q3 – Y2Q1)

Four FSMPs have been adopted by LGUs, and mitigation activities of issues raised during planning workshops are being implemented by their respective FSMBs/FSATs (OI 4.2). The remaining two FSMPs are scheduled for adoption of Sangguniang Bayan for implementation and budget allocation after local elections in May. Updates will occur after PLUP (OI 4.1).

#### 5.3 Native freshwater fish species pilot culture programme initiated. (Y2Q2 – Y4Q3)

There were issues with the availability of culture facilities previously agreed for the project, which delayed implementation. BFAR have identified new facilities for this element of the work. The pilot culture of a native mullet species will begin in Y3Q1 in collaboration BFAR (OI 5.2).

#### 5.5 Areas of non-native riparian species identified and cleared. (Y2Q2 – Y4Q3)

As of Y2Q4, a total area of six hectares has been assessed and patches of invasive/introduced species were noted in the sites. Mitigation plans for riparian areas include sanitation cutting of the invasive tree species and replacing them with native species (OI 5.3).

#### 5.7 FS barangay ordinances adapted to incorporate invasive species mitigation. (Y2Q2-Y2Q4)

Due to delays in other activities we aim to have this completed by the end of the project (OI 5.4). We don't believe this will significantly affect this Output, or the project Outcome.

## 3.2 Progress towards project Outputs

**Output 1:** As per the Change Request, it became clear that the grasp of tagging techniques within partner organisations was more rudimentary than we had understood and that training individuals would be too resource and time intensive to be beneficial to the project (OI 1.1). The workshop outlined in Activity 1.1 meant that 50 national-level BFAR participants now have an improved understanding of how these techniques can be used. ZSL are continuing discussions with regard to the training of individuals in specific techniques as needed, as this was felt to be more valuable than the initial proposed activities.

While the tagging was impacted by typhoons in Y2, we have now tagged 41 eels using acoustic tags (OI 1.2). We have reduced the numbers of fishes to be tagged to 100 in the Change Request as these tags are more expensive but yield more robust data. Data has been downloaded from 39 eels (95%), and initial analysis has been carried out, which indicates there is seasonal variation in residency and effects from typhoons. This data in concert with the monthly fyke-netting carried out by the FS CMGs is being analysed and discussed on an on-going basis with FSMBs, with regard to adapting FS and associated FSMPs. The visits of the consultant continue to be a huge community engagement opportunity. Local residents, members of FSMBs and CMGs, and also LGU and regional staff – were involved in the efforts to tag fish. With the establishment of barangay-level FSATs, there is now more representative engagement of local stakeholders in the implementation of FS management (OI 1.3) – the FSATs are more effective mechanisms for this with FSMBs being necessary to secure LGU-level funding.

We have developed the MEAT for use in FS and one has already achieved Level 2 status (OI 1.4). As with the eel tagging, the MEAT and law enforcement training was an opportunity to bring stakeholders together to discuss issues around implementation and enforcement of FS and resulted in several FSMBs/LGUs stepping up efforts to deal with challenges.

Overall, capacity, and communication within, and between, FSATs, FSMBs and CMGs has been greatly increased through training and provision of resources from LGUs and CoMSCA environment funds – see Output 3 – our understanding of how anguillid eels are using freshwater systems and the FS has also improved as a result of our monitoring.

**Output 2:** A submission was made by the Philippines to the CITES data call in 2018 (OI 2.1). Data from the project was included in two major reports delivered by ZSL to the Secretariat which guided discussions at both Animals and Standing Committee, prior to decisions being drafted for the CoP. There is still internal discussion within BFAR with regard to the establishment of a data framework – the online portal exists for other species, but anguillid eels have yet to be included. ZSL continues to support BFAR as this progresses. Data sharing at the local level between CMG, FSMB, LGU and BFAR is working well. These discussions continue in the context of the development of a national EMP (OI 2.3) – a workshop was attended by BFAR delegates from across the Philippines in order to better co-ordinate and harmonise management at the sub-national and national level. A second national planning workshop for EMPs is proposed for 2019.

In addition to reporting to CITES, there were several international CITES and SEAFDEC workshops held relating to anguillid eels which BFAR and/or ZSL attended and input to (OI 2.4). The project has frequently been a source of useful data and lessons learned in these contexts.

The AESG Red List assessment workshop was held in November 2018 and all 16 anguillid eels were assessed, including the seven species that are found in the Philippines – three of which are common in the CRB, *A. bicolor*, *A. luzonensis* and *A. marmorata*. All relevant data was analysed by the AESG to update the global understanding of their biology, population, and conservation status (OI 2.2) prior to publication in December 2019.

Anguillid eels continue to receive attention globally – through UN Conventions such as CITES and CMS, as well as through baseline research. We continue to engage in multiple fora in relation to the species found in the CRB and ensure that data, knowledge and expertise is shared.

**Output 3:** Based on the consultations in Y1, we have completed the socio-economic survey in four of the 12 FS communities. A total of 202 respondents - 109 female (54%) and 93 male (46%) - were interviewed with the remainder to be completed by Y3Q3 (OI 3.1). We established seven CoMSCAs in Y2 with a total of 108 beneficiaries (57% female) – 45% of the 240 beneficiaries



target (OI 3.2). The savings to date, equate to PhP / person, higher than the PhP / person target that was set. CoMSCA training is on-going. Environment funds have been established in all seven CoMSCAs (OI 3.4) and the cumulative savings equate to PhP per barangay, 45% of the PhP 3600 target. CoMSCA members intend environment funds to be used for activities such as FS clean up, tree planting and River Warden/CMG allowances (OI 3.6). Through engagement by FSMBs with LGUs, we have already secured resource and budget allocation for four of the six municipalities FS are established (OI 3.5 / OI 3.6). The remaining two are expected to allocate budget by Y3Q3. Village agent training will begin in Y3Q3 (OI 3.3), after one full cycle of CoMSCAs – we have already identified several candidates for training as part of our on-going engagement with CoMSCA groups.

We are conscious that activities in this output are behind schedule, however, we have addressed this in the Change Request and are confident that the delays will not impact the project delivery.

**Output 4:** We have added 'riparian assessments' as an activity in the submitted Change Request – this has been an essential but time-consuming piece of work that has slowed progress on Output 4 but will feed in to many of the activities, and we expect to catch up in Y3. Despite this, the assessments of seven FS so far have identified areas for improvement and mitigation during PLUP in Y3 (OI 4.1). The newly established barangay-level FSATs will include focussed efforts in order to address riparian zone issues which in turn will be fed up to the FSMBs and associated FSMPs (OI 4.2). Reduced impact activities have already been identified (SALT/SCOPSA) (OI 4.3) and training will be rolled out after the PLUP. However, in one LGU (Nagtipunan, Quirino) these practices are already being implemented to reduce agricultural impacts on fresh waters.

Twenty five people (64% female) – 83% of the target of 30 - have received training in native species culture and established nurseries across three elementary schools in Baggao, Cagayan (OI 4.4). Sites, materials and labour were provided jointly by ZSL, DepEd, DENR and the LGU. Two are operational with native tree species and bamboo, and the third is awaiting fruit tree seeds prior to planting in Y3. A total of 3,218 endemic tree seedlings (survival rate 93.8%) and 595 bamboo propagules, totaling 3,813 were planted – 190% of the 2000 target for Y2Q4 (OI 4.5). While we had initially identified the DENR National Greening Project as the beneficiary of the nurseries (OI 4.6), we now expect the seedlings to be used as part of riparian rehabilitation in relation to erosion and/or non-native species clearance – this is reflected in the Change Request. Any surplus will enter markets identified during the VCA. Bankside rehabilitation will aid in disaster risk-reduction (OI 4.7) by reducing flood impact and siltation – the inclusion of these in FSMPs will be discussed with FSMBs/FSATs during the PLUP.

**Output 5:** Monthly monitoring of FS by the CMG and riparian assessments of seven FS has identified key non-native species (OI 5.1). The situation relating to mitigating the impact of invasive aquatic species (OI 5.2) has recently been complicated by the national level decision by BFAR to further promote tilapia stocking as a food security measure. We will continue discussions with BFAR Region 2, LGUs, FSMBs and FSATs with regard to minimising the impact of this practice – prohibiting stocking within a certain distance of the FS, for example. While this situation is not ideal, we are confident we will be able to find measures that allow the FS to provide areas where anthropogenic impacts are minimised. The native species culture will begin in Y3Q1 – an endemic mullet has been identified for the pilot study. During community consultations, it was found to be preferred for consumption and commanded a higher price at market.

Through riparian assessments with DENR and LGUs, we have already identified areas of non-native plant species for clearance and replanting using nursery-grown seedlings. Clearing will start in Y3 (OI 5.3). LGUs, barangay officials and FSMBs are key stakeholders in the above processes and the amendment of ordinances and FSMPs (OI 5.4) are on-going discussions – changes will be determined as the pilot studies are rolled out and their effectiveness assessed.

### 3.3 Progress towards the project Outcome

Forty one of 100 anguillid eels have been tagged to date (see Change Request) (Outcome Indicator (Ocl 0.1)). Our analysis – the first of its kind - has already improved our understanding of these species in the context of FS effectiveness. This data and that collected by CMGs will feed into the strengthening of FSMPs and through strengthened communications and resource sharing from the local to regional level, is being fed in to national and international processes – CITES being a specific example of the latter (Ocl 0.2). As previously stated, national and international communications relating to anguillid eels are strengthening and the importance of the Philippines as a range state to seven species is recognised. BFAR Region 2 continue to progress the development of a National EMP and associated data framework, though these activities have been delayed. A national workshop on the development of National EMP was held by BFAR in October 2018 and a follow-up workshop has been proposed for 2019.

We established seven CoMSCAs in Y2 with a total of 108 beneficiaries (57% female) – 15% of the 720 beneficiaries target (Ocl 0.3). The savings to date already equate to PhP / person, higher than the PhP / person target that was set. CoMSCA training is on-going and Village Agent training will begin in Y3Q3. While CoMSCA membership is self-selecting, we expect it will increase significantly once village agents have been trained. Environment funds have been established in all seven CoMSCAs and four out of six LGUs have committed budget to support FS – the remaining two have verbally committed and we expect budget to be allocated in Y3 (Ocl 0.4). Environment funds presently equate to per FS, 23% of the PhP 7200 target. In-kind support has also been provided by DENR and LGUs e.g. construction of river warden posts. Barangay-level FSATs that sit under FSMBs will ensure disbursement of funds and implementation is effective and that local-level representation is improved (Ocl 0.1)

Riparian assessments are on-going and will be complete in Y3Q2. These activities have identified areas for rehabilitation and non-native species for removal - clearing will be progressed in Y3 (Ocl 0.5 / 0.6). Mitigation will focus on improved agricultural practices and re-planting in collaboration with DENR, LGUs, FSMBs and FSATs – key stakeholders in the FSMPs, ensuring that activities will be fed in to the update of these plans. Three nurseries have been established by ZSL, DepEd, DENR and Baggao LGU. A total of 3,813 seedlings have been planted. Combating erosion through bankside replanting and reduced impact agricultural practices to will improve resilience to the impacts of floods and typhoons.

As previously stated, the situation relating to mitigating the impact of invasive aquatic species is complicated by the national level decision by BFAR to further promote tilapia stocking as a food security measure. We will continue discussions with BFAR Region 2, LGUs, FSMBs and FSATs with regard to minimising the impact of this practice – e.g. prohibiting stocking within a certain distance of the FS (Ocl 0.6). The culture of endemic mullet will begin in Y3Q1.

While some elements of work are behind schedule, we feel we have made progress towards achieving the stated Outcome by increasing our understanding of the freshwater ecosystem through monitoring, improved community capacity through training programmes, and resource availability, which in turn is supporting FS and associated mitigation activities.

### 3.4 Monitoring of assumptions

#### Outcome assumptions

- *Novel threats to the freshwater environment do not impact the 12 focal sites – having carried out a comprehensive survey of areas identified as FS, we feel confident our interventions address key threats.*

We had previously identified the presence of the invasive janitor fish in Y1 of the project (see above). No further novel threats have been identified.

- *Natural disaster does not affect project sites – Super Typhoon Haima recently made landfall in our project site and activities relating to 21-020 have continued with little interruption thanks to a committed team and excellent stakeholder relations.*

On the 15<sup>th</sup> September 2018 [Typhoon Mangkhut](#), known locally as Ompong, made landfall in the municipality of Baggao where three of our FS are located - which is also the site of our tagging study. 127 fatalities were attributed to the typhoon in the Philippines, and while none of these occurred in any of our focal communities, there was significant damage to infrastructure and

livelihoods, primarily crops. In addition, all our acoustic receivers for the tagging study had been displaced due to the storm; two receivers in the tributaries have yet to be retrieved but once turbidity from the rainy season has decreased, we are hopeful to find them. Four receivers in the main Cagayan River have yet to be retrieved – two have been located but are presently buried under 7m of silt, the other two are presumed lost. The visit to the project in October by the project lead and tagging consultant involved a great deal of salvage work to re-establish the acoustic receiver array. We have installed a new receiver at the mouth of one of the major tributaries – the Dummon River – to help address the data gap left from those lost in the main river, however, we will not be re-installing these due to concern of further impact on the study.

- *Currency rates/rate of inflation does not fluctuate to levels that compromise delivery of the project – we have carried out a robust assessment of historical exchange rates and researched forecasts in light of Brexit and feel confident our budget is robust.*

The pound has weakened against the [Philippine Peso](#) over the past 12 months. However, the present rate is still greater than we initially budgeted and we are keeping a watching brief in relation to potential fluctuations linked to the on-going Brexit process.

- *The freshwater biome is recognised as valuable by stakeholders and they invest resources accordingly – the establishment of FS has indicated stakeholder buy-in.*

The support and buy-in for FS from LGUs and communities continues to be strong. We have written commitment from four of six LGUs to financially support FS – the remaining two have verbally confirmed support and we are hopeful this will be ratified in Y3.

- *Cross-sector stakeholder willingness to engage in project continues - our consultations with stakeholders with regards to the present project have ensured continued buy-in.*

See above – the support for the project remains at the local, municipal and regional level.

- *Communities are not fatigued by any previous efforts to develop interventions – due to the lack of focus on freshwater resources, we believe our interventions are the first of their kind in the region.*

We have maintained contact with communities over a period of over four years and we believe that this continuity and familiarity has meant the buy-in remains. Further, the project is delivering tangible benefits such as the establishment of CoMSCAs and seedling nurseries, and associated training.

- *Identified livelihood options are feasible – we are using interventions that have been successful in other ZSL projects and as such will apply the lessons learned to the proposed work.*

The seedling nurseries have been established and we are in the process of identifying areas for planting. River warden and CMG members are being supported by the environment funds from CoMSCAs.

- *Mitigation efforts for tilapia are supported by LGUs - our anecdotal research indicates that tilapia are stocked with little assessment of the biological and socio-economic impact; through IEC and biological monitoring we aim to ensure an understanding and dissemination of these in order to intervene in a way that is supported by local communities.*

During the latter part of 2018, the national government, through BFAR, prioritised the stocking of tilapia as a mechanism to ensure rural food security. This is clearly counter to the aims of our project relating to invasive species and also outside of the control of our regional BFAR partners. We are working to determine what mitigation might be possible within the remit of the project – for example ensuring the stocking doesn't occur within a fixed area of FS – and also continuing our collaborative pilot study in culturing native species that might be used to replace, at least a proportion of, tilapia being stocked. We are working with our BFAR Region 2 partners to catalyse national level discussions with regard to the impact of non-native species and how the impacts might be reduced.

- *Interventions relating to invasive species are successful.*

With regard to freshwater fish species, we are exploring options in light of the decision made by BFAR at the national level. We feel there are still ways to limit the impact of invasive species on FS.

We have identified riparian areas for clearing of non-native species and this will begin in Y3.

## **Output assumptions**

### **Output 1**

- *LGU / Community commitment to FS continues – we believe we have buy-in through on-going community engagement.*

See above.

- *Tag readers work effectively*

Range testing of the acoustic receivers was carried out before deployment and worked well, and we have begun downloading data on a quarterly basis. The impact of Typhoon Ompong was significant on the receiver array, however, the data collected from those that were salvaged has been very useful in understanding how anguillid eels respond to the high flows associated with such events, and how the FS

- *FSMB approve changes in relation to fish/eel movement and/or presence of native species – our programme of IEC / social marketing aims to increase the understanding of the importance of adaptive management for natural resource protection.*

This will occur once data has been collected and analysed in Y3.

- *FSMB approve expansion of membership.*

Using the FSAT model of barangay level implementation, we have already ensured local land users are now represented.

- *MSN approve adaptation to use in freshwater – ZSL have worked with MSN on previous projects and we have a good relationship with them.*

MSN are not responding to our approaches regarding the development of MEAT, and as such we have progressed the development of the assessment framework. We continue to try and engage with them to discuss the framework.

### **Output 2**

- *Establishment of framework improves consolidation of national anguillid data – ZSL and the Anguillid Eel Specialist Group (AESG) have experience of data collation nationally and internationally and aim to apply this to achieve this output.*

The framework is presently being discussed within BFAR – data is being collated by the national eel contact person, Dr Evelyn Ame, who is intrinsically involved in the project.

- *National stakeholders and international range states of anguillid species found in the Philippines are willing to co-operate – through the AESG and BFAR's links to the South East Asia Fisheries Development Centre (SEAFDEC) we believe there is a strong co-operative network in place.*

The project lead and Dr Evelyn Ame have both attended SEAFDEC meetings during Y2.

- *EMP produced as part of project 21-020 is adopted nationally – this is presently being reviewed by stakeholders and was developed through a consultative process which and as such we expect it to be approved nationally early next year.*

Development of both National and Island level EMPs continued during 2018 and a second national workshop has been proposed for 2019. ZSL continue to engage and support BFAR regionally and nationally on anguillid eel matters as needed.

- *Funding is identified for regional workshops by range states.*

The CITES secretariat funded two regional workshops (see above). SEAFDEC also hold workshops on a regular basis which ensures regional communications are ongoing.

### **Output 3**

- *Community buy-in to benefits of CoMSCAs – communities have been requesting the establishment of CoMSCAs since hearing of the success of those established in coastal communities in 21-020.*

Seven CoMSCAs established with more training planned for Y3.

- *Availability of funds and savings and support of the community.*

Savings are evidenced in Section 3.1.

- *Suitable Village Agents are identified.*

This will occur in Y3.

- *Village Agents set up new CoMSCAs – once identified, this is a proven method for establishing CoMSCAs.*

This will occur in Y3.

- *Communities are motivated to support freshwater management and conservation activities – communities were key in identifying FS sites and as such we believe there is buy in to their on-going management.*

The establishment of FSATs in Y2 highlights the willingness to continue to engage.

- *COMSCAs strengthen FS.*

Monies from CoMSCA environment funds have been allocated for FS management, as evidenced in Section 3.1.

- *COMSCA members understand benefit of inclusion of the environment fund and there is a willingness to adopt – we have developed a social marketing programme to address this issue.*

See above

- *Support of LGU's / Barangay Councils, communities, Fisherfolk Association's etc. to long-term development of FS.*

On-going community consultations and TWG meetings, evidence buy-in to the FS from communities, LGUs, BFAR and DENR.

- *FS management bodies are transparent and accountable, and effective mechanism for utilising environment funds that gives CoMSCAs confidence and trust in handing over environment funds for FS management.*

Four of six LGUs have now agreed to fund in writing, with the remaining two having agreed verbally. Environment funds from established CoMSCAs have committed to supporting FS and many of the FSMB members are part of CoMSCAs. ZSL engage regularly with the FSMBs and FSATs in order to ensure they are functioning as transparent and effective mechanisms for delivery of FS interventions and management.

#### **Output 4**

- *Community able to self-select areas for improvement and change behaviours and practices relating to terrestrial livelihoods – this process was used to identify FS and we believe it worked well.*

Nurseries for native seedlings have already self-identified. During year three the on-going riparian assessments and PLUP will involve developing improved practices – such as planting native over non-native species.

- *FSMB willing to take on bankside areas to manage.*

We are engaging the FSMBs during riparian assessments to develop strategies for improved management.

- *River bank users are willing to participate in improved practice trials – we aim to use IEC and social marketing to engage and increase awareness of stakeholders to the link between healthy riparian areas and healthy freshwater systems.*

We believe that with the establishment of FSATs and inclusion of bankside users within them, that the improved practices will be adopted.

- *Communities buy-in to nursery development and seedling production.*

Nurseries have been established.

- *Good availability of native seedlings.*

See above.

- *Native species grow successfully.*

We have evidenced the high survival rate in Section 3.1.

- *There is a market for native species seedlings – the NGP has been extended to 2028 by DENR and we are confident that as a project partner we will have access to this market.*

We are looking to use native seedlings for community-based planting rather than through the DENR NGP. We feel this is a more sustainable model and ensures the communities themselves benefit.

### **Output 5**

- *There is government support for invasive species mitigation.*

See Outcome assumption above – we are exploring how we can work with BFAR at the regional level to minimise the impact of tilapia stocking.

- *Appropriate native species are available.*

We have identified a native mullet species for culture trials – BFAR are supporting these efforts.

### **3.5 Impact: achievement of positive impact on biodiversity and poverty alleviation**

This project continues to be a unique initiative in the Philippines; freshwater systems can often be over-looked in a country that has over 35,000km of coastline across over 7,000 islands. During Y2 we have been sharing specific learnings and technical skills at the national level – the tagging orientation workshop, for example, shows how learnings from the present workshop could be implemented more broadly to achieve a great impact. BFAR continue to use the CRB model to develop freshwater fish conservation, particularly in relation to anguillid eels – the island level EMPs described in section 3.1 Activity 2.1. ZSL were invited to input to national fora - 6NRCBD, PBSAP and CITES - to advise on anguillid eels, freshwater conservation and community-based resource management. We have also been engaging with CITES at the international level, delivering two major reports, attending Animals Committee and Standing Committee, working with multiple government agencies, and will attend the CoP once it has been rescheduled.

Further, it feels pertinent to highlight that ZSL have recently secured Darwin Initiative funding for a freshwater project based in Nepal - 26-012: *Ghodaghodi's Guardians: Communities restoring a Ramsar wetland at watershed scale*. Both the project lead and the in-country Project Technical Lead were named on the project, specifically to share learnings from our work in the Philippines with a view to further conserve freshwater biodiversity through community stewardship.

## **4. Contribution to the Global Goals for Sustainable Development (SDGs)**

The project's aim is to protect and sustainably manage areas of the Philippines' largest freshwater system at the community level while reducing anthropogenic impacts. In establishing FS and building community capacity to reduce impacts on the freshwater resources Sustainable Development Goals (SDG) 1.5, 6.6, 12.2, 12.4, 12.8, 15.1, 15.5 and 15.9 are captured. Community management of natural resources (SDG 6.B) is ongoing through the FSMBs, newly established FSATs and CMGs (SDG 16.7) and through Y1 consultations and FGD/SWOT analysis, and Y2 socio-economic surveys, the understanding of freshwater systems, locally and globally has been improved (SDG 4.7 and 12.8). The establishment of CoMSCAs associated with FSs have improved access to financial services that would otherwise be unavailable (SDG 1.4, 8.10 and 9.3), increasing financial and social security (SDG 3.8 and 5.4), alleviating poverty (SDG 1.2) and allowing livelihood diversification; this is further supported through the establishment of seedling nurseries (SDG 8.3). The inclusion of an environmental fund into

CoMSCAs has a track record of increasing stewardship of aquatic resources and improving management. Savings for both social and environmental initiatives are outlined in Section 3. CoMSCAs are an established tool in ensuring gender equality and the seven established in the region in the past 12 months have 57% females (SDG 5.5 and 5.7). Our work to expand the FS to include riparian habitat will ensure land management is improved, including reforestation, (SDG 2.3, 6.3 and 15.2) and habitats are more resilient to changing climate and/or natural disasters (SDG 2.4, 11.5 and 13.1). The focus on reducing impacts of invasive species (SDG 15.8) will strengthen these ecosystems.

## **5. Project support to the Conventions, Treaties or Agreements**

This project has relevance to both the CBD and CITES, and ZSL engage with the national focal points as needed. As with the SDGs, in establishing FS and building capacity in the communities that manage them, Aichi Targets relating to habitat loss and restoration, sustainable management and protection (AT 1, 4, 5, 6, 11, 14 and 18) are captured. Our tagging study to understand the movement of anguillid eels in the context of FS is novel research and builds the evidence base for how to most effectively implement such interventions (AT19). The expansion of FS to include riparian habitat, including efforts to restore these where needed, will strengthen management of aquatic resources (AT 7) and where feasible, there will be an aim to improve both waste management and improve land-use practices to reduce pollution (AT8). The identification of a way to reduce the impact of invasive species (AT 9) and the on-going protection of threatened and/or endemic species in FS (AT 12) will ensure aquatic resources are more resilient and systems are intact. The establishment of CoMSCA environmental funds will increase stewardship of aquatic resources and improve management, as well as providing leverage for municipal and national funding (AT 2). In addition to this, and in recognition of the importance of the project to the CBD, ZSL staff were invited to attend a workshop to feed our experience into the 6NRCBD and the Philippine Biodiversity Strategy and Action Plan (PBSAP) (Annex 23).

At the CITES CoP17 [decisions](#) were adopted, relating to anguillid eels, key species in the CRB, and Philippines more broadly, and identified in the project as a focal area of work. This document related to all anguillid species when only one - the European eel - is listed in CITES Appendix II. Further, the call was for research, data collation and analysis, and collaboration on issues beyond just trade, including population status and biology – all of which we have been gathering over the period of the two Darwin-funded projects, the latter we continue to implement. ZSL secured the contract to deliver the two reports outlined in Decision 17.186 (see Activities 2.4 and 2.7). The documents provided the basis for discussions and recommendations put forward to CoP18 in Sri Lanka and the project will work to deliver elements of those adopted in collaboration with the regional and national government as necessary. Prior to CoP ZSL were invited to take part in a stakeholder meeting by the national government, in order to craft the Philippine positions on relevant agenda items. ZSL will attend the CoP once a new date and location has been agreed.

## **6. Project support to poverty alleviation**

The most significant direct impact towards poverty alleviation was the establishment of seven CoMSCA groups - see section 3.1 for metrics relating to savings and loans. CoMSCAs provide access to financial services that would normally be unavailable to these rural communities and as consequence, improved financial resiliency. CoMSCA training is on-going and with the commencement of Village Agent training within existing groups, the capacity for CoMSCA establishment will increase.

We have increased capacity within communities by providing both River Warden and MEAT training to CMG/FSMB/FSAT members which has increased skills and the ability to manage and enforce the FS. We have also initiated the building of River Warden posts within the boundaries of the FS. We have now also established three native-species planting initiatives in schools in Baggao that had existing nursery activities. Once non-native species have been removed from riparian areas, these will be used to support re-planting activities.

Identified beneficiaries in key communities are FSMB and CMG members (O.I. 1.1 and 1.3; 3.2,3.4 to 3.6; 4.2 - improved training, resources, organisation, capacity and knowledge base), CoMSCA members (O.I. 3.2 and 3.3 - increased financial resilience), land-users and nursery

owners (O.I. 4.3 and 4.4 - increased training and knowledge base, and diversified livelihoods). We expect overlap in these beneficiary groups.

## **7. Project support to gender equality issues**

We aim to ensure that at a minimum any work we carry out is gender aware/sensitive and that we deliver this through locally appropriate mechanisms. We have actively engaged with women to join community meetings and consultations, and relevant training. In the first tranche of socio-economic surveys carried out in four of the 12 FS communities, a total of 202 respondents were engaged - 109 female (54%) and 93 male (46%) (OI 3.1).

CoMSCAs have long been identified as a successful mechanism to engage women in decision making and financial management at both the community and household level. We conducted a total of seven CoMSCA training workshops with 223 total participants, 55% of which were female. After the self-selection process, a total of seven CoMSCA Savers Group were formed with 108 active savers (57% female and 43% male). As a consequence, women will see direct benefit from this increased economic resilience and access to financial services (OI 3.2). The establishment of environment funds ensures that women play a key role in the disbursement of monies ring-fenced for management (OI 3.4). Further, female members hold significant positions in each of the CoMSCA groups. This will lend opportunity to more women becoming village agents and local champions, developing skills and a livelihood from this intervention (OI 3.3).

There is still a significant weight towards male participants in the management of FS - only 10% of FSMB members are women, though this is higher in FSATs (15%). Training carried out in Y2 in Law Enforcement and MEAT were conducted and attended by six (9%) and seven (11%) females respectively. However, during the training for nursery establishment and planting (OI 4.4) 16 (64%) women attended, highlighting opportunities to engage more in FS management through bankside rehabilitation (OI 4.5). Finally, the tagging orientation workshop was attended by 54% women highlighting that BFAR is promoting gender equality at the national level.

## **8. Monitoring and evaluation**

We have regular reporting mechanisms in place to ensure effective project management. The Project Technical Lead creates a quarterly workplan based on the logframe with associated indicators and budget. This is shared with all team members, including the Project Leader, and ensures we are monitoring progress of Outputs and Activities towards the Outcome. Targets and activities are reviewed and the workplan amended accordingly. TWG meetings, led by ZSL, are attended quarterly by all in-country project partners, to ensure implementation is on track and all partners are able to input technically and administratively. ZSL have meetings with BFAR, DENR, LGUs, Barangay officials, CoMSCAs and FSMBs on a regular basis in relation to project activities which further ensure we are monitoring progress outside of the structured TWG meetings. Change Requests, in light of required amendments to the logframe, workplan and/or budget, have been submitted in Y2.

Where relevant, technical specialists will review and input to workplans to ensure that activities carried out are designed to deliver the agreed Outputs. We have two dedicated M&E staff named on the project (one in-country and one international) who oversee technical data collection, and where feasible, implement standardised methods and systems. A participatory session with all ZSL's in-country project staff was held in May 2018 to review M&E and data collection types, intervals and management, in the context of the logframe, to ensure that relevant indicators are captured and contribute towards the relevant Outputs and Outcome. A M&E plan was developed as a functional document to be used with the logframe and is meant to be usable by the team, hence a modified and integrated format was used (see Annex 24).

There has been significant data collection during Y2. Socio-economic surveys, which included standardised indicators regularly used by ZSL, are encoded into a standardised database developed by ZSL's M&E specialists, for use across the Philippines, ensuring analyses are robust. CoMSCA savings data is now encoded directly into tablets, again, for storage in standardised databases and all presented data have been accessed from these. Both of these activities required those collecting data to be trained in standardised methods to ensure



consistency. Biological data from the aquatic and riparian surveys described above are encoded and analysed and/or mapped to inform follow-on activities. The introduction of the annual MEAT assessment of FS provides a framework to monitor progress towards achieving good governance and sustainable practice, captured in activities across all five Outputs. MEAT also allows comparison between all 12 sites and the opportunity to share learnings. As previously stated, the MEAT training provided an opportunity to address on-going issues at the FSMB level and resulted in a number of participating stakeholder groups committing to address these issues.

## 9. Lessons learnt

We described issues in the Y1 report relating to motivation within some FSMBs and CMGs. The freshwater MEAT training was an effective motivational tool for the FSMBs in outlining why FS are important and providing targets for progression of management and enforcement. As such, after the training, we were informed that several FSMBs were working to address issues that had been identified during the evaluation in their respective FS by conducting meetings with their river wardens and/or continuing to lobby relevant LGUs for the adoption of the FSMP and/or finalising budget allocations where these were not secure. We will be ensuring that all training is used as an opportunity to reinforce the importance of ecological stewardship and good practice.

There have been some issues with partners agencies, some LGUs have required more engagement than was expected in order to adopt the FSMPs and associated budget allocation. However, while this has delayed some elements of the project, we feel it is essential in order to ensure the legacy of the project – the co-funding mechanism of LGUs and CoMSCA environment funds is the bedrock to sustaining the FS model. As stated above, there are disparities between National and Regional BFAR priorities – we will work to ensure these have a minimal impact on the project and also to engage National BFAR staff to discuss the impacts of tilapia stocking.

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

**1. Please add an explanatory paragraph on the “ecological and economic importance” of the anguillid eel to help the reader understand why it was a focal species for the proposal/project and how it ties into the wider objectives of effectively conserving and managing Freshwater Sanctuaries and their upstream land use.**

Anguillid eels exhibit a unique life-cycle that encompass aquatic environments from open oceans to riverine headwaters, and all those in-between. They are the personification of a migratory species and have been proposed as a flagship species for aquatic conservation by IUCN. As such, by implementing interventions in freshwater are beneficial for eel, we are confident that they will benefit other species and the associated habitats. The tagging element of the project aims to understand anguillid eel residence in the FS and by using this information to, where required, adapt FS management to improve protection for these species, we will provide benefit for the wider freshwater ecosystem.

As highlighted in the [report](#) produced by project 21-020, anguillid eels - particularly *A. bicolor* - were increasingly caught and traded by the Philippines over the past 10 years. This has, in turn, lead to increasing efforts to develop farms for on-growing and facilities to process eels such they can be sold directly for consumption. As such there is increasing concern relating to anguillid eels in the Philippines and the development of interventions – including eel management plans and FS – will be a step towards ensuring sustainable management of these species.

**2. Please spell out COMSCA the first time it is referred to in the report.**

Actioned.

**3. Provide more detail about the project’s exit strategy in terms of what organisation/institution takes responsibility for the various threads (e.g. fish monitoring, community nursery development, mitigation activities, etc).**

The overall of the project is to leave the implementation of the FS interventions in the hands of the communities – primarily through the establishment of FSMBs, FSATs and CMGs – LGUs,

and/or Regional government (BFAR and DENR). By establishing a co-financing mechanism through the LGU level FSMBs and community level CoMSCAs, monitoring and maintenance of the FS is expected to be self-sustaining by the end of the project. Barangay-level FSATs and CMGs carry out the monitoring and mitigation activities on the ground under the umbrella of the relevant FSMBs and associated FSMPs. We have also built communication channels from the barangay to Regional level in relation to the FS to ensure that support can be provided where required. With regard to nursery development, these have been established in existing programmes of small-scale agriculture in schools and are managed by teachers and parents who have received training relating to the native species we have identified for re-planting activities.

BFAR are presently leading on the work relating to the data framework for anguillid eel data and native species culture.

**4. Social marketing is alluded to but never elaborated upon in terms of what specific approaches or expertise used by this project. Please provide more detail.**

The aim of the social marketing interventions in the project site is to encourage local communities to establish a well-designed and managed FS and surrounding ecosystem to maximise the impact of the management in place. Key actions and behaviours promoted were: a) For communities to effectively participate in decision-making regarding their FS and river ecosystem management b) for communities to comply with regulations in place and support the enforcement of the FS c) for COMSCA members to contribute to the Environmental Fund and support the management of the FS d) for stakeholders to establish nurseries and reduce their impacts on the freshwater ecosystems. The messages are focused on promoting knowledge about the key elements of effective freshwater management; the value and benefits of community stewardship of local resources; the value and benefits of sustainable management of riparian zones and finally the value of complying with and enforcing local rules and regulations. The target audiences are local authorities, COMSCA members, enforcement teams and local fishers and farmers. Community outreach and meetings have been conducted since the beginning of the project, supported by audio visual and printed materials to help spread messages. COMSCA's are used as outreach platforms, and local influencers from the FSATs, and in Y3, the Village Agents, also share the benefits of FS. The strategies were developed with the help of ZSL's social marketing specialists using expertise from the Philippines and elsewhere to adopt best practice for the implementation of community-based social marketing.

**5. Activity 4.2 refers to a 'Behavioural change programme' but only alludes to pesticide use and not planting on river banks. Please provide more detail on the intended approach(es) related to behavioural change and the planned tasks for this activity.**

Overall, we take a participatory approach to effect behavioral change. We will involve land-users near the FS during the Y3 PLUP. A training needs assessment will be conducted to determine training needs in relation to sustainable farming practices. A model SALT farm will be established in a sloping land of Pallagao Elementary School in Y3Q2. The aim is to involve parents who are stakeholders in the land preparation. We will also conduct a riverbank rehabilitation drive at the peak of the wet season (expected September 2019). Seedlings from the nursery will be used. This activity will be a joint effort between ZSL and MENRO with participants from the Barangay, LGU (including the Disaster Risk Reduction Office) parents, teachers, and students.

Through information dissemination during our regular meetings in six key LGUs on riverbank erosion, pesticide use and siltation caused by farming along river banks and sloping areas, some LGUs have included organic farming technologies such as SCOPSA and SALT in their regular program and to their annual development plan. We will aim to encourage this across all six in Y3.

## **11. Sustainability and legacy**

ZSL is recognised as a national expert in the field of freshwater conservation in the Philippines. We were invited to attend a workshop to feed our experience into the 6<sup>th</sup> NRCBD which was recently published. Our work has been replicated by project partners nationally – e.g. EMPs, habitat survey methods, fish monitoring methods, as described in the Y1 report. In October 2019 we hosted a workshop in which we highlighted how the use of remote telemetry in the present

project could be replicated by our partners BFAR to monitor other key freshwater species – particularly the endemic Ludong. Further we have held a number of workshops – outlined above - that have built capacity in focal communities, LGUs and regional government: MEAT, native species nursery establishment and river warden training. This will ensure there is a technical legacy beyond the project that will facilitate implementation of FS by relevant stakeholders.

In addition to national profile, the project lead has taken opportunities to present the work being carried out at international conferences and workshops, and fora such as the CMS, the CITES Animals and Standing Committees and IUCN AESG.

The inclusion of mechanisms such as CoMSCAs ensure that there is life beyond the project – on average, globally, 95% are still active after five years – and by linking this to FS management through the environment fund, the resource protection can also be sustained.

## 12. Darwin identity

In-country, the Darwin logo sits side-by-side with partner logos on all communications relating to the project (see Annex 25). Further, in all consultation meetings or publications, Darwin Initiative is acknowledged as the funder. ZSL has had a number of projects funded by Darwin Initiative and so the network of both GO and NGO partners are familiar with them. This project has followed on from previously Darwin-funded work (21-020) and we continue to work in the same region in the present project. As such our focal communities are also familiar with the Darwin Initiative. The project does not form a part of a larger initiative and is a stand-alone programme of work.

We have a project [Facebook](#) page but do not have a project specific Twitter account. However, we do have a general [ZSL Marine and Freshwater Twitter account](#) which project updates are posted on (See Annex 26).

## 13. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2018 – 31 March 2019)**

<b>Project spend (indicative) since last annual report</b>	<b>2018/19 Grant (£)</b>	<b>2018/19 Total Darwin Costs (£)</b>	<b>Variance %</b>	<b>Comments (please explain significant variances)</b>
Staff costs (see below)				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items (see below)				
Others (see below)				
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2018-2019

Project summary	Measurable Indicators	Progress and Achievements April 2018 - March 2019	Actions required/planned for next period
<p><b>Impact</b></p> <p>Freshwater resources in the Philippines are effectively conserved and managed at the community and local government level to secure ecosystem services and contribute to National and International targets.</p>		<p>National level training and knowledge sharing.</p> <p>National level engagement in relation to CBD, CITES and PBSAP.</p> <p>Input to successful community-based freshwater proposal in Nepal to share experiences/lessons learned.</p>	
<p><b>Outcome</b></p> <p>The biological status, community capacity, resilience and stewardship, and sustainable management of key sites in the Cagayan River Basin are measurably improved to benefit the freshwater ecosystem.</p>	<p>0.1 The protection of native species in 12 FS is increased through strengthened monitoring of 1000 tagged fish, updated FS management plans (FSMPs), and an expanded and representative membership of the FSMBs by Q3Y4.</p> <p>0.2 A national management framework is established by Q4Y2 to improve data collection and analysis relating to anguillid eels supporting the Philippines in meeting national and international policy and management requirements by Q3Y4.</p> <p>0.3 Through the establishment of COMSCAs and training of 12 Village Agents (VAs), 720</p>	<p>41 eels successfully tagged and data downloaded.</p> <p>FSMPs to be reviewed in the context of tag and CMG data.</p> <p>FSAT establishment provides improved representation.</p> <p>BFAR Region 2 continue to progress the development of National EMP and data framework.</p> <p>A national workshop on the development of National EMP was held by BFAR</p> <p>Philippine anguillid eel data was submitted to the CITES call.</p>	<p>Tagging to continue in Y3Q1</p> <p>On-going data download from receivers</p> <p>FSAT activities developed under FSMP</p> <p>Amendment of FS ordinance to include riparian areas.</p> <p>Finalisation of National EMP and data framework.</p> <p>Second workshop held in 2019.</p> <p>Conduct further CoMSCA training</p> <p>Conduct Village Agent training</p>

	<p>beneficiaries in 12 barangays have annual savings of at least PHP4,000 / person (~£65) by Q3Y4 (from a baseline of 0 in Y1).</p> <p>0.4 Community managed FS are self-supporting in 12 barangays through co-funding of at least 7200PHP / FS / year (from a baseline of 0 in Y1) by COMSCAs environment fund monies and local and regional GOs by Q3Y4.</p> <p>0.5 10ha of bankside habitat is rehabilitated by Q3Y4 through silviculture livelihood diversification and adaptation of freshwater sanctuary management plans (FSMPs) in 12 barangays, reducing impacts on FS and increasing resilience to natural disasters.</p> <p>0.6 Invasive / exotic species numbers are reduced in both 12 FS and 10ha of associated bankside through improved management and initiatives focussing on native species by Q3Y4 (from the end of surveys carried out by Q1Y2).</p>	<p>7 new CoMSCAs established with 108 members (57% females) and savings of PhP 4785.50 / person.</p> <p>Budget allocation has been provided by four LGUs for FS.</p> <p>Environment funds have been established in all seven CoMSCAs and equate to PhP per FS.</p> <p>In-kind support has also been provided by DENR and LGUs e.g. construction of River Warden posts.</p> <p>Riparian assessments carried out in seven FS.</p> <p>Three nurseries established and 3,813 seedlings planted.</p> <p>On-going engagement with FSMBs/FSATs with regard to FSMPs.</p> <p>Bankside areas for clearing have been identified during riparian assessments.</p> <p>BFAR are prioritising tilapia stocking at the national level – ZSL are continuing discussions with BFAR Region 2, LGUs, FSMBs and FSATs with regard to minimising the impact of this practice.</p>	<p>Ensure remaining LGUs allocate budget FS.</p> <p>Further establishment of CoMSCAs and Environment Funds.</p> <p>Disbursement of Environment funds continues to support FS.</p> <p>Remaining FS riparian assessments.</p> <p>Fruit tree nursery operational.</p> <p>Publication of manual on bamboo production and native tree species</p> <p>Replanting of bankside areas</p> <p>Amendment of FSMPs</p> <p>Remaining FS are assessed and further areas for rehabilitation identified.</p> <p>Sanitation cutting commences prior to tree-planting.</p>
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		Endemic mullet culture will begin in Y3Q1.	On-going engagement in relation to the issue.  Pilot study and associated monitoring to commence.
<b>Output 1.</b> Native species protection and sustainable management is measurably improved through increased staff capacity and monitoring efforts, and strengthening Freshwater Sanctuaries and management plans.	<p>1.1 10 local/regional government staff members are trained to a self-sufficient level of competency in tagging, monitoring and analytical techniques (from a baseline of zero) through mentoring by UK experts by Q4Y1.</p> <p>1.2 1000 native fish – including anguillid eels - are tagged (Q4Y1 = 200; Q4Y2= 400; Q4Y3 = 400) and the results of monitoring are used to amend delineation of 12 existing FS and strengthen associated FSMPs by Q3Y4.</p> <p>1.3 FSMB membership is expanded by 25% to include at least two land-users (see Output 4) ensuring a holistic approach to management by Q2Y2.</p> <p>1.4 Management Effectiveness Assessment Tool (MEAT) is adapted and applied to FS and Level 2 attained in all 12 by Q3Y4.</p>	<p>Fish tagging orientation conducted and attended by 50 BFAR staff from across the Philippines.</p> <p>Individual training needs will be assessed in discussion with BFAR.</p> <p>24 eels tagged in Y2 (41 in total) and redeployed seven acoustic receivers post-Typhon Ompong.</p> <p>Data has been downloaded and analysed indicating seasonal variation in residency and effects from typhoons.</p> <p>This data and that from CMGs will continue to be analysed.</p> <p>On-going engagement with FSMBs and FSATs in Y3 with regard to amending FSMPs.</p> <p>Barangay-level FSATs, mean there is now more representative engagement of local stakeholders in the implementation of FS management – including land-users.</p> <p>MEAT carried out – all Level 1 at present bar one at Level 2.</p> <p>On-going self-assessment with support from ZSL.</p>	
Activity 1.1 Tagging, monitoring and analytical techniques training		National orientation training conducted at BFAR offices in Tuguegarao by ZSL.	On-going support will be provided by ZSL to BFAR in development of marking/tagging studies.

Activity 1.2 Native fish species – including anguillid eels - are tagged with PIT tags / elastomers.	24 eels acoustically tagged and released successfully. 7 acoustic receivers re-deployed. Detected data in receivers offloaded to computer for analysis.	Tagging of more anguillid eels in May to June during consultant's visit of this year.
Activity 1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis.	Data has been downloaded from receivers and is being analysed on an on-going basis to determine habitat preference and residencies within FS along with large-scale movements within the catchment	Offloading of data from receivers (quarterly) Safeguarding, monitoring of receivers. On-going analysis of data.
Activity 1.4 Fish movement data and existing FS bi-weekly abundance monitoring data is consolidated and analysed.	Monthly data collected from 12 key sites by the CMG is analysed and shared to key LGUs and to BFAR.  Telemetry data from Hot Springs (last download Feb 2019) and Duba FS (last download Oct 2018) have been analysed in relation to weather/river flow.  Detailed analysis is ongoing.	Monthly monitoring of FS is on-going.  Tag data will be used to cross-reference with eel data from CMG monitoring in both Duba and Hot Springs FS.
Activity 1.5 FSMPs are updated in light of consolidated data from FS and fish monitoring.	Continuing activity until the last year of the project	Continuing engagement with FSMBs.
Activity 1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries.	Two nurseries established in Baggao, Cagayan planted with native tree species and bamboo.  Teachers and parents in key sites are already a member of the FSMB under IEC and livelihood committee.  Barangay level FSATs formed to implement community based operational plan under FSMP.	Establishment of fruit bearing trees in third nursery in Hotspring Elementary school  Implementation of FSMPs by FSMBs/FSATs on-going
Activity 1.7 MEAT assessment adapted for use in FS in consultation with MSN.	MEAT adapted for Freshwater sanctuary evaluation.	Continue to try to make contact with MSN to discuss use of MEAT in FS.
Activity 1.8 MEAT assessment carried out at all 12 sites.	62 participants attended the MEAT workshop	MEAT assessment continues into Y3 with a view to progress all FSMBs to Level 2.

		1 FSMB attained MEAT Level 2 in FS management and governance the others attained Level 1.	
<b>Output 2.</b> Data relating to anguillids eels in the Philippines is fed into the national eel management plan and CITES call for international collaboration for improved management of these species.	<p>2.1 National and international co-ordination of data collection is strengthened to meet CITES data call through establishment of national data framework by Q4Y2.</p> <p>2.2 Understanding of biology and population status of anguillid eels resident in CRB increased by Q3Y4 through analysis of monitoring data from FSMBs by BFAR and AESG.</p> <p>2.3 National eel management plan (EMP) is updated through consolidated analysis of data sets by Q3Y4.</p> <p>2.4 Regional engagement relating to anguillid eels is improved through participation in CITES workshops by Q3Y4.</p>	<p>Philippine data submitted to CITES call, despite the absence of a data framework.</p> <p>BFAR – lead by anguillid contact point - continue to develop data framework.</p> <p>All 16 anguillid eels were assessed – including those prevalent in the CRB, <i>A. bicolor</i>, <i>A. luzonensis</i> and <i>A. marmorata</i>.</p> <p>AESG to update the global understanding of their biology, population, and conservation status for publication in December 2019.</p> <p>BFAR nation EMP planning workshop was held in order to better co-ordinate and harmonise management at the sub-national and national level.</p> <p>A second national planning workshop for EMPs is proposed for 2019.</p> <p>BFAR and ZSL attended several CITES and SEAFDEC workshops in Y2.</p>	
Activity 2. 1. National eel data framework established in collaboration with BFAR.		At present, data collection is occurring across the Philippines and being collated by the National point of contact in BFAR Region 2, but to date no online portal / data framework has been established.	Continue to work with BFAR to support the development of the data framework.
Activity 2.2. Key metrics are identified and analysed in line with CITES call.		BFAR continue to work with SEAFDEC to develop national monitoring of eel fisheries in an effort to harmonise regional data collection for key species in trade – <i>Anguilla bicolor</i> and <i>Anguilla marmorata</i>	BFAR engagement with SEAFDEC ongoing. ZSL supporting as necessary.
Activity 2.3 Data submitted to AESG for inclusion in Red List assessment workshop.		Data submitted to AESG workshop in November 2018.	Assessments for species present in Philippine waters to be published in



		December 2019, as per the IUCN Red List update schedule.
Activity 2.4 Data submitted to national CITES focal point.	Data submitted in Y1. Reports to CITES delivered by ZSL in May 2018.	BFAR to respond to further data calls from CITES as necessary.
Activity 2.5 Regional eel focal points in other range states identified and engaged	BFAR continue to engage with SEAFDEC at the Regional level.	BFAR engagement on-going.
Activity 2.6 Data relating to eel species used to update EMP	Eel related data gathered during monthly monitoring of key sites by the CMG submitted to BFAR, who oversee the CRB EMP.	ZSL support BFAR's management of the CRB EMP and continue to ensure data collected in FS is dispersed.
Activity 2.7 Project representatives attend national and international CITES workshops relating to anguillid eels.	Project lead attended CITES Animals and Standing Committees to present reports submitted (Activity 2.4).  Anguillid eels will be discussed at CITES CoP in May.	Project lead to attend CITES CoP representing ZSL once new date/location agreed.
<b>Output 3.</b> Human and financial capacity and engagement in managing freshwater resources in 12 focal barangays is increased through social marketing and environment funds delivered by COMSCAs	<p>3.1 Needs, cultural and socio-economic assessments carried out in 12 key barangays (including a minimum of 360 respondents) and number of beneficiaries identified and disaggregated by household and gender to identify community understanding of the freshwater ecosystems, the value and use of the freshwater resources and key capacity issues by Q4Y1.</p> <p>3.2 COMSCAs are established in 12 key barangays – encompassing 240 beneficiaries (&gt;50% female) – by Q2Y2 ensuring improved financial security through increased annual savings and access to loans of at least 4000PHP (€65) / person by Q3Y4.</p> <p>3.3 Twelve Village Agents are trained to increase capacity and engagement to establish at least two new COMSCAs per barangay including 480 new beneficiaries (&gt;50% female) across key sites by Q3Y4.</p>	<p>Carried out surveys in four FS communities.</p> <p>A total of 202 respondents - 109 female (54%) and 93 male (46%) - were interviewed.</p> <p>Remaining eight FS communities to be surveyed by Y3Q3.</p> <p>Seven new CoMSCA group established in four FS communities.</p> <p>108 beneficiaries (57% female) with savings to date equating to PhP 4785.50 / person.</p> <p>CoMSCA training is on-going.</p> <p>Village agent training will begin in Y3Q3 (OI 3.3), after one full cycle of CoMSCAs.</p>

	<p>3.4 COMSCA environment funds are established in 12 key barangays and an increased willingness of communities to input results in cumulative annual input to environment fund in each barangay rising from PHP0 to at least PHP3600 (₱60) per cycle by Q3Y4.</p> <p>3.5 Environment funds are used to leverage monies from LGUs and national agencies for FS to at least match the value of environment funds (PHP3600 (₱60) per COMSCA per cycle) by Q4Y3.</p> <p>3.6 Environment funds are being used to support effective enforcement and management activities of FS by end of Q4Y2</p>	<p>Environment funds have been established in all seven CoMSCAs with savings equating to PhP 1,633.57 per barangay.</p> <p>Through engagement by FSMBs with LGUs, we have already secured resource and budget allocation for four of the six municipalities FS are established.</p> <p>The remaining two are expected to allocate budget by Y3Q3.</p> <p>Environmental Funds are intended to be used for activities such as FS clean up, tree planting and River Warden/CMG allowances.</p>	
<p>Activity 3.1 Socioeconomic survey is developed, carried out and analysed, and report produced.</p>	<p>Completed in four priority sites – data encoded and consolidated.</p>	<p>SE survey in the remaining eight key sites will occur in Y3.</p>	
<p>Activity 3.2 Community feedback sessions held in 12 key barangays.</p>	<p>To be done Y4Q3</p>		
<p>Activity 3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social-marketing and infra-structure development.</p>	<p>50 FSMB members from trained in law enforcement and monitoring of FS</p> <p>River warden monitoring stations have been built in three FS.</p>	<p>Leadership and para-legal training for FSMBs (River warden, CMG and Officers) will be carried out in Y3.</p> <p>Stations to be constructed in remaining nine FS.</p>	
<p>Activity 3.4 COMSCA training is delivered at 12 key barangays.</p>	<p>Seven training workshops conducted in Cagayan and Quirino Provinces – 108 active savers to date.</p>	<p>CoMSCA Training to be carried out in San Mariano, Isabela.</p> <p>Financial Management training for the CoMSCA management committee</p>	

<p>Activity 3.5 Analysis of COMSCA beneficiary financial access and use.</p>		<p>On-going analysis of CoMSCA data.</p>
<p>Activity 3.6 Village Agents training reinforcing the value of being local champions and their contribution to the management of the FS carried out.</p>	<p>To be conducted after 1 cycle of new CoMSCA groups</p>	<p>Village agent training in Q3Y3</p>
<p>Activity 3.7 Village Agent training carried out and new COMSCAs are established.</p>	<p>To be conducted after 1 cycle of new CoMSCA groups</p>	<p>Village agent training in Q3Y3</p>
<p>Activity 3.8 Environment funds are established and proposed budget developed and agreed.</p>	<p>£ saved by the seven savers group</p>	<p>EF disbursed to associated FS for management costs.</p>
<p>Activity 3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management.</p>	<p>Resolution formulated by four LGUs allocating budget for the implementation of FSMP.</p>	<p>Remaining two LGUs adopt FSMPs and associated budget allocation.</p>
<p><b>Output 4.</b> Land use surrounding 12 FS is assessed and mitigation plans developed and implemented at three priority sites to reduce the impact of terrestrial anthropogenic threats and ensure long-term sustainability of a viable freshwater environment and associated livelihoods within communities.</p>	<p>4.1 Terrestrial areas for mitigation/improvement are identified in 12 FS through consultation and collaborative land-use mapping by end of Q1Y2.</p> <p>4.2 All FS agreements and FSMPs strengthened through the inclusion of terrestrial areas and associated mitigation activities identified in 4.1 by Q2Y2.</p> <p>4.3 10ha of bankside have reduced impact activities implemented (e.g. conservation agriculture, agro-forestry, erosion control) by Q3Y4 from 0ha in Y1.</p> <p>4.4 At least 30 individuals are engaged in establishing three pilot community nurseries for native tree species.</p> <p>4.5 Three community nurseries have cumulatively produced 2000 seedlings</p>	<p>The riparian assessments of seven FS have identified areas for improvement and mitigation during PLUP in Y3.</p> <p>The newly established barangay-level FSATs will include focussed efforts on riparian zone issues.</p> <p>On-going engagement with FSATs and FSMBs in relation to amendments of associated FSMPs.</p> <p>Reduced impact activities have already been identified (SALT/SCOPSA).</p> <p>Training will be rolled out after the PLUP in Y3.</p> <p>Twenty five people (64% female) have received training in native species culture and established nurseries across three elementary schools in Baggao, Cagayan.</p>

	<p>by Q4Y2, 5000 by Q4Y3 and 10000 by Q3Y4.</p> <p>4.6 Communities become recognised suppliers to DENR's National Greening Project by Q4Y2.</p> <p>4.7 FSMPs include disaster risk reduction plans with relevant activities e.g. deforestation reversion to prevent siltation/flash floods by Q3Y4.</p>	<p>3,218 endemic tree seedlings and 595 bamboo propagules were planted.</p> <p>We now expect the seedlings to be used as part of riparian rehabilitation in relation to erosion and/or non-native species clearance.</p> <p>Any surplus will enter markets identified during the VCA.</p> <p>To begin in Year 4</p>
<p>Activity 4.1</p> <p>Community consultations relating to land use are carried out in 12 key barangays linked to FS.</p>	Completed in Y1	
<p>Activity 4.2</p> <p>Behaviour change programme related to responsible farming practices and mitigation of threats established.</p>	Land practices identified and implemented in some LGUs.	Wider roll out after PLUP.
<p>Activity 4.3</p> <p>Participatory land-use mapping carried out in the areas around the 12 FS.</p>	Riparian assessments carried out in 7 of 12. Remainder will be complete prior to PLUP scheduled for Y3Q2.	PLUP across all 12 FS.
<p>Activity 4.4</p> <p>Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation.</p>	These are already being identified during riparian assessments for discussion during PLUP.	Will be agreed during PLUP.
<p>Activity 4.5</p> <p>Twelve FS agreements and FSMPs amended to include identified riparian areas and associated mitigation actions</p>	This is part of on-going discussions but will be addressed during PLUP.	Will be agreed during PLUP. Engage LGUs/FSMBs to develop FSMPs.
<p>Activity 4.6</p> <p>Prioritisation of terrestrial mitigation to identify three implementation sites.</p>	This is part of on-going discussions but will be addressed during PLUP.	Will be agreed during PLUP.
<p>Activity 4.7</p> <p>Training in reduced impact land-use activities delivered at three priority sites.</p>	Training in SCOPSA and SALT will be carried out after riparian assessments.	Training provided to and users.
<p>Activity 4.8</p> <p>Participatory implementation of reduced impact land-use livelihoods at three priority sites.</p>	This is part of on-going discussions but will be addressed during PLUP.	Will be agreed during PLUP. New crops will be trialled.

<p>Activity 4.9 Monitoring of mitigation activities to assess effectiveness.</p>	<p>The monitoring will be with relevant LGUs.</p>	<p>Monitoring will commence in Y4.</p>
<p>Activity 4.10 Value Chain Analysis for native species seedlings.</p>	<p>This is being carried out at present.</p>	<p>Surplus seedlings directed to identified markets.</p>
<p>Activity 4.11 Community training in silviculture and nursery establishment delivered in three sites.</p>	<p>Nursery establishment training in Baggao attended by MENRO staff, Barangay officials and teachers with a total of 25 participants.</p>	<p>Technical support to LGUs that have plan to establish municipal nurseries of native species</p>
<p>Activity 4.12 Native seedling planting and cultivation.</p>	<p>A total of 3,218 endemic tree seedlings (survival rate 93.88%) and 595 bamboo propagules were planted in two nurseries.</p>	<p>Third nursery growing fruit-bearing trees is operational.</p>
<p>Activity 4.13 Seedlings sold into market – including local mitigation activities and NGP.</p>	<p>To begin Y3Q3.</p>	
<p>Activity 4.14 Disaster risk reduction plans developed and included in FSMPs.</p>	<p>Target Y4Q2</p>	
<p><b>Output 5.</b> The impact of introduced / invasive species on Freshwater Sanctuaries is understood and mitigation is implemented.</p>	<p>5.1 Terrestrial and aquatic exotic / invasive species in all FS are catalogued and/or mapped and impact assessment carried out by Q1Y2.</p> <p>5.2 In collaboration with BFAR and LGUs, invasive freshwater species mitigation feasibility study (including native species culture) is initiated by Q2Y2.</p> <p>5.3 10ha of bankside is cleared of exotic/invasive species (from 0ha in Y1) and rehabilitated using native species seedlings from community nurseries (4.4) by Q3Y4.</p> <p>5.4 Management of invasive species is included in FS ordinances by Q4Y2.</p>	<p>Monthly monitoring of FS by the CMG and riparian assessments of seven FS has identified key non-native species.</p> <p>BFAR are prioritising tilapia stocking at the national level – ZSL are continuing discussions with BFAR Region 2, LGUs, FSMBs and FSATs with regard to minimising the impact of this practice.</p> <p>The native species culture will begin in Y3Q1 – an endemic mullet has been identified, through community consultations, for the pilot study.</p> <p>ZSL, DENR and LGUs have already identified areas of non-native plant species for clearance and replanting using nursery-grown seedlings.</p> <p>Non-native clearing will be progress in Y3.</p> <p>LGUs, barangay officials and FSMBs are key to the amendment of ordinances and FSMPs and we are having on-going discussions.</p> <p>Amendments will be determined as the pilot studies are rolled out and their effectiveness assessed.</p>

5.1 Invasive species survey carried out in 12 FS	Included in CMG FS monitoring in 12 key sites. Riparian assessment conducted in seven key sites	On-going discussions with BFAR to plan mitigation activities for invasive species impact in key sites Riparian assessment to other key sites Mapping out areas to be planted by native trees
5.2 FSMPs adapted to incorporate mitigation activities.	This will occur as part of PLUP in Y3Q2	Will be agreed during PLUP.
5.3 Native freshwater fish species pilot culture programme initiated.	Agreed with BFAR Region 2 to use their facilities in Claveria for the culture of native mullet species.	Pilot project will begin in Y3Q1.
5.4 Feasibility study produced.	To begin in Y4	
5.5 Areas of non-native riparian species identified and cleared.	Six hectares assessed and areas of non-native species identified.	Sanitation cutting and native species re-planting will begin in Y3.
5.6 Native species seedlings transplanted from nurseries.	To begin in Y3.	
5.7 FS barangay ordinances adapted to incorporate invasive species mitigation.	Will occur as part of PLUP.	Amendment of ordinance.

## Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Impact: Freshwater resources in the Philippines are effectively conserved and managed at the community and local government level to secure ecosystem services and contribute to National and International targets.</p> <p>(Max 30 words)</p>			
<p>Outcome:</p> <p>(Max 30 words)</p> <p>The biological status, community capacity, resilience and stewardship, and sustainable management of key sites in the Cagayan River Basin are measurably improved to benefit the freshwater ecosystem.</p>	<p><b>0.1</b> The protection of native species in 12 FS is increased through strengthened monitoring of 1000 tagged fish, updated FS management plans (FSMPs), and an expanded and representative membership of the FSMBs by Q3Y4.</p> <p><b>0.2</b> A national management framework is established by Q4Y2 to improve data collection and analysis relating to anguillid eels supporting the Philippines in meeting national and international policy and management requirements by Q3Y4.</p> <p><b>0.3</b> Through the establishment of COMSCAs and training of 12 Village Agents (VAs), 720 beneficiaries in 12 barangays have annual savings of at least PHP4,000 / person (~£65) by Q3Y4 (from a baseline of 0 in Y1).</p> <p><b>0.4</b> Community managed FS are self-supporting in 12 barangays through co-funding of at least 7200PHP / FS / year (from a baseline of 0 in Y1) by COMSCAs environment fund monies and local and regional GOs by Q3Y4.</p> <p><b>0.5</b> 10ha of bankside habitat is rehabilitated by Q3Y4 through silviculture livelihood diversification and adaptation of freshwater sanctuary management plans (FSMPs) in 12 barangays, reducing impacts on FS and increasing resilience to natural disasters.</p>	<p>Aquatic survey/monitoring reports and maps;</p> <p>Training reports and materials;</p> <p>Updated management plans;</p> <p>Management Effectiveness Assessment Tool (MEAT) reports</p> <p>Virtual framework;</p> <p>Data collection and analysis reports;</p> <p>National and regional CITES meeting reports;</p> <p>Updated EMP</p> <p>Socio-economic survey report;</p> <p>COMSCA and VA training reports;</p> <p>COMSCA agreements;</p> <p>COMSCA reports</p> <p>COMSCA agreements;</p> <p>Training reports and materials;</p> <p>Environment fund monies and associated budgets;</p> <p>Freshwater Sanctuary Management Boards (FSMB) report;</p> <p>MoUs between barangays, LGUs and Regional governments</p>	<p>Novel threats to the freshwater environment do not impact the 12 focal sites – having carried out a comprehensive survey of areas identified as FS, we feel confident our interventions address key threats.</p> <p>Natural disaster does not affect project sites – Super Typhoon Haima recently made landfall in our project site and activities relating to 21-020 have continued with little interruption thanks to a committed team and excellent stakeholder relations.</p> <p>Currency rates/rate of inflation does not fluctuate to levels that compromise delivery of the project – we have carried out a robust assessment of historical exchange rates and researched forecasts in light of Brexit and feel confident our budget is robust.</p> <p>The freshwater biome is recognised as valuable by stakeholders and they invest resources accordingly – the establishment of FS has indicated stakeholder buy-in.</p> <p>Cross-sector stakeholder willingness to engage in project continues - our consultations with stakeholders with regards to the present project have ensured continued buy-in.</p> <p>Communities are not fatigued by any previous efforts to develop interventions – due to the lack of focus on freshwater</p>

	<p><b>0.6</b> Invasive / exotic species numbers are reduced in both 12 FS and 10ha of associated bankside through improved management and initiatives focussing on native species by Q3Y4 (from the end of surveys carried out by Q1Y2).</p>	<p>Socio-economic survey report;          Terrestrial survey reports and maps;          Updated Community Land Use Plan (CLUP) and map;          Training reports;          Farming / nursery records;          Amended barangay ordinances;          Updated FSMPs          Terrestrial and aquatic survey / monitoring reports and maps;          Training reports and materials;          Amended barangay ordinances</p>	<p>resources, we believe our interventions are the first of their kind in the region.          Identified livelihood options are feasible – we are using interventions that have been successful in other ZSL projects and as such will apply the lessons learned to the proposed work.          Mitigation efforts for tilapia are supported by LGUs - our anecdotal research indicates that tilapia are stocked with little assessment of the biological and socio-economic impact; through IEC and biological monitoring we aim to ensure an understanding and dissemination of these in order to intervene in a way that is supported by local communities.          Interventions relating to invasive species are successful.</p>
<p>Outputs:  <b>1. Native species protection and sustainable management is measurably improved through increased staff capacity and monitoring efforts and strengthening Freshwater Sanctuaries and management plans.</b></p>	<p>1.1 10 local/regional government staff members are trained to a self-sufficient level of competency in tagging, monitoring and analytical techniques (from a baseline of zero) though mentoring by UK experts by Q4Y1.          1.2 1000 native fish – including anguillid eels - are tagged (Q4Y1 = 200; Q4Y2= 400; Q4Y3 = 400) and the results of monitoring are used to amend delineation of 12 existing FS and strengthen associated FSMPs by Q3Y4.          1.3 FSMB membership is expanded by 25% to include at least two land-users (see Output 4) ensuring a holistic approach to management by Q2Y2.          1.4 Management Effectiveness Assessment Tool (MEAT) is adapted and applied to FS and Level 2 attained in all 12 by Q3Y4.</p>	<p>Tagging report and peer-reviewed paper.          Training records and materials          Documentation of migration / residence patterns and map of fish          Survey report and associated recommendations for FSMB produced.          FSMB membership / meeting minutes.          Adapted MEAT protocol approved by MPA Support Network (MSN)          MEAT report</p>	<p>LGU / Community commitment to FS continues – we believe we have buy-in through on-going community engagement.          Tag readers work effectively          FSMB approve changes in relation to fish/eel movement and/or presence of native species – our programme of IEC / social marketing aims to increase the understanding of the importance of adaptive management for natural resource protection.          FSMB approve expansion of membership.          MSN approve adaptation to use in freshwater – ZSL have worked with MSN on previous projects and we have a good relationship with them.</p>



<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>1.1 Tagging, monitoring and analytical techniques training</p> <p>1.2 Native fish species – including anguillid eels - are tagged with PIT tags / elastomers.</p> <p>1.3 Movement of native fish species within the Cagayan River Basin is monitored on a micro- and macro- scale on a monthly basis.</p> <p>1.4 Fish movement data and existing FS bi-weekly abundance monitoring data is consolidated and analysed.</p> <p>1.5 FSMPs are updated in light of consolidated data from FS and fish monitoring.</p> <p>1.6 FSMB expanded to include beneficiaries of new livelihoods e.g. native tree nurseries.</p> <p>1.7 MEAT assessment adapted for use in FS in consultation with MSN.</p> <p>1.8 MEAT assessment carried out at all 12 sites.</p>			
<p><b>2. Data relating to anguillids eels in the Philippines is fed into the national eel management plan and CITES call for international collaboration for improved management of these species.</b></p>	<p>2.1 National and international co-ordination of data collection is strengthened to meet CITES data call through establishment of national data framework by Q4Y2.</p> <p>2.2 Understanding of biology and population status of anguillid eels resident in CRB increased by Q3Y4 through analysis of monitoring data from FSMBs by BFAR and AESG.</p> <p>2.3 National eel management plan (EMP) is updated through consolidated analysis of data sets by Q3Y4.</p> <p>2.4 Regional engagement relating to anguillid eels is improved through participation in CITES workshops by Q3Y4.</p>	<p>National data framework established</p> <p>CITES meeting minutes</p> <p>Peer reviewed paper</p> <p>Updated EMP</p> <p>Workshop minutes</p>	<p>Establishment of framework improves consolidation of national anguillid data – ZSL and the AESG have experience of data collation nationally and internationally and aim to apply this to achieve this output.</p> <p>National stakeholders and international range states of anguillid species found in the Philippines are willing to co-operate – through the AESG and BFAR’s links to the South East Asia Fisheries Development Centre (SEAFDEC) we believe there is a strong co-operative network in place.</p> <p>EMP produced as part of project 21-020 is adopted nationally – this is presently being reviewed by stakeholders and was developed through a consultative process which and as such we expect it to be approved nationally early next year.</p> <p>Funding is identified for regional workshops by range states.</p>
<p><b>Activities</b> (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>2.1 National eel data framework established in collaboration with BFAR.</p> <p>2.2 Key metrics are identified and analysed in line with CITES call.</p>			

- 2.3 Data submitted to AESG for inclusion in Red List assessment workshop.
- 2.4 Data submitted to national CITES focal point.
- 2.5 Regional eel focal points in other range states identified and engaged.
- 2.6 Data relating to eel species used to update EMP
- 2.7 Project representatives attend national and international CITES workshops relating to anguillid eels.

<p><b>3. Human and financial capacity and engagement in managing freshwater resources in 12 focal barangays is increased through social marketing and environment funds delivered by COMSCAs.</b></p>	<p>3.1 Needs, cultural and socio-economic assessments carried out in 12 key barangays (including a minimum of 360 respondents) and number of beneficiaries identified and disaggregated by household and gender to identify community understanding of the freshwater ecosystems, the value and use of the freshwater resources and key capacity issues by Q4 Y1.</p> <p>3.2 COMSCAs are established in 12 key barangays – encompassing 240 beneficiaries (&gt;50% female) – by Q2Y2 ensuring improved financial security through increased annual savings and access to loans of at least 4000PHP (£65) / person by Q3Y4.</p> <p>3.3 Twelve Village Agents are trained to increase capacity and engagement to establish at least two new COMSCAs per barangay including 480 new beneficiaries (&gt;50% female) across key sites by Q3Y4.</p> <p>3.4 COMSCA environment funds are established in 12 key barangays and an increased willingness of communities to input results in cumulative annual input to environment fund in each barangay rising from PHP0 to at least PHP3600 (£60) per cycle by Q3Y4.</p>	<p>Survey report including recommendations is produced</p> <p>Training and social marketing materials.</p> <p>Twelve COMSCAs established</p> <p>COMSCA summaries, loan use and membership data.</p> <p>Twelve COMSCA Agent trained</p> <p>Village Agent training reports</p> <p>Agents and community organizers exchanges visits/cross visits</p> <p>COMSCA agreements from communities</p> <p>Environment fund records</p>	<p>Communities participate in surveys.</p> <p>Community buy-in to benefits of COMSCAs – communities have been requesting the establishment of COMSCAs since hearing of the success of those established in coastal communities in 21-020.</p> <p>Availability of funds and savings and support of the community.</p> <p>Suitable Village Agents are identified.</p> <p>Village Agents set up new COMSCAs – once identified, this is a proven method for establishing COMSCAs.</p> <p>Communities are motivated to support freshwater management and conservation activities – communities were key in identifying FS sites and as such we believe there is buy in to their on-going management.</p> <p>COMSCAs strengthen FS.</p>
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	<p>3.5 Environment funds are used to leverage monies from LGUs and national agencies for FS to at least match the value of environment funds (PHP3600 (£60) per COMSCA per cycle) by Q4Y3.</p> <p>3.6 Environment funds are being used to support effective enforcement and management activities of FS by end of Q4Y2.</p>	<p>Monies from environment funds and proposed budget for spending in place</p> <p>Memorandum of Agreement support to the Environment Funds and activities program</p> <p>FSMP produced and institutionalised into LGU Annual Investment Plan (AIP).</p> <p>Breakdown of sources of management and enforcement budget</p> <p>COMSCA summaries</p> <p>Monitoring reports</p> <p>FSMB reports</p>	<p>COMSCA members understand benefit of inclusion of the environment fund and there is a willingness to adopt – we have developed a social marketing programme to address this issue.</p> <p>Support of LGU's / Barangay Councils, communities, Fisherfolk Association's etc. to long-term development of FS.</p> <p>FS management bodies are transparent and accountable, and effective mechanism for utilising environment funds that gives COMSCAs confidence and trust in handing over environment funds for FS management.</p>
<p><b>Activities</b></p> <p>3.1 Socioeconomic survey is developed, carried out and analysed, and report produced.</p> <p>3.2 Community feedback sessions held in 12 key barangays.</p> <p>3.3 Capacity and engagement needs of community and FSMB addressed through series of training courses, social-marketing and infra-structure development.</p> <p>3.4 COMSCA training is delivered at 12 key barangays.</p> <p>3.5 Analysis of COMSCA beneficiary financial access and use.</p> <p>3.6 Village Agents training reinforcing the value of being local champions and their contribution to the management of the FS carried out.</p> <p>3.7 Village Agent training carried out and new COMSCAs are established.</p> <p>3.8 Environment funds are established and proposed budget developed and agreed.</p> <p>3.9 Community and GO co-funding agreement and mechanism of delivery is established for FS enforcement and management.</p>			
<p><b>4. Land use surrounding 12 FS is assessed and mitigation plans developed, and implemented at three priority sites to reduce the impact of terrestrial anthropogenic threats and ensure long-term sustainability of a viable freshwater environment and</b></p>	<p>4.1 Terrestrial areas for mitigation/improvement are identified in 12 FS through consultation and collaborative land-use mapping by end of Q1Y2.</p> <p>4.2 All FS agreements and FSMPs strengthened through the inclusion of terrestrial areas and</p>	<p>Minutes of community consultations held to identify suitable areas for reforestation / afforestation and alternative locations for agriculture.</p> <p>ZSL, LGU and community land use mapping surveys carried out.</p> <p>Updated CLUP and map</p>	<p>Community able to self-select areas for improvement and change behaviours and practices relating to terrestrial livelihoods – this process was used to identify FS and we believe it worked well</p> <p>FSMB willing to take on bankside areas to manage.</p>

<p><b>associated livelihoods within communities.</b></p>	<p>associated mitigation activities identified in 4.1 by Q2Y2.</p> <p>4.3 10ha of bankside have reduced impact activities implemented (e.g. conservation agriculture, agro-forestry, erosion control) by Q3Y4 from 0ha in Y1.</p> <p>4.4 At least 30 individuals are engaged in establishing three pilot community nurseries for native tree species.</p> <p>4.5 Three community nurseries have cumulatively produced 2000 seedlings by Q4Y2, 5000 by Q4Y3 and 10000 by Q3Y4.</p> <p>4.6 Communities become recognised suppliers to DENR’s National Greening Project by Q4Y2.</p> <p>4.7 FSMPs include disaster risk reduction plans with relevant activities e.g. deforestation reversion to prevent siltation/flash floods by Q3Y4.</p>	<p>FS ordinances updated and mitigation plan developed</p> <p>Map of updated FS</p> <p>Hectares of reduced impact activities and monitoring report</p> <p>Training methods</p> <p>Nursery record sheets</p> <p>Value Chain Analysis report</p> <p>Sale of seedlings</p> <p>FSMPs include disaster risk reduction plans</p>	<p>River bank users are willing to participate in improved practice trials – we aim to use IEC and social marketing to engage and increase awareness of stakeholders to the link between healthy riparian areas and healthy freshwater systems.</p> <p>Communities buy-in to nursery development and seedling production.</p> <p>Good availability of native seedlings.</p> <p>Native species grow successfully.</p> <p>There is a market for native species seedlings – the NGP has been extended to 2028 by DENR and we are confident that as a project partner we will have access to this market.</p>
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- Activities**
- 4.1 Community consultations relating to land use are carried out in 12 key barangays linked to FS.
  - 4.2 Behaviour change programme related to responsible farming practices and mitigation of threats established.
  - 4.3 Participatory land-use mapping carried out in the areas around the 12 FS.
  - 4.4 Consolidation and analysis of data for each of the 12 sites is carried out to identify priority areas for mitigation.
  - 4.5 Twelve FS agreements and FSMPs amended to include identified riparian areas and associated mitigation actions
  - 4.6 Prioritisation of terrestrial mitigation to identify three implementation sites.
  - 4.7 Training in reduced impact land-use activities delivered at three priority sites.
  - 4.8 Participatory implementation of reduced impact land-use livelihoods at three priority sites.
  - 4.9 Monitoring of mitigation activities to assess effectiveness.
  - 4.10 Value Chain Analysis for native species seedlings.

<p>4.11 Community training in silviculture and nursery establishment delivered in three sites.</p> <p>4.12 Native seedling planting and cultivation.</p> <p>4.13 Seedlings sold into market – including local mitigation activities and NGP.</p> <p>4.14 Disaster risk reduction plans developed and included in FSMPs.</p>			
<p><b>5. The impact of introduced / invasive species on Freshwater Sanctuaries is understood and mitigation is implemented.</b></p>	<p>5.1 Terrestrial and aquatic exotic / invasive species in all FS are catalogued and/or mapped and impact assessment carried out by Q1Y2.</p> <p>5.2 In collaboration with BFAR and LGUs, invasive freshwater species mitigation feasibility study (including native species culture) is initiated by Q2Y2.</p> <p>5.3 10ha of bankside is cleared of exotic/invasive species (from 0ha in Y1) and rehabilitated using native species seedlings from community nurseries (4.4) by Q3Y4.</p> <p>5.4 Management of invasive species is included in FS ordinances by Q4Y2.</p>	<p>Survey report and maps</p> <p>Monitoring reports</p> <p>Training records / farm log sheets</p> <p>Planting records</p> <p>Map of rehabilitated areas</p> <p>Amended FS ordinance</p>	<p>There is government support for invasive species mitigation.</p> <p>Appropriate native species are available.</p>
<p><b>Activities</b></p> <p>5.1 Invasive species survey carried out in 12 FS</p> <p>5.2 FSMPs adapted to incorporate mitigation activities.</p> <p>5.3 Native freshwater fish species pilot culture programme initiated.</p> <p>5.4 Feasibility study produced.</p> <p>5.5 Areas of non-native riparian species identified and cleared.</p> <p>5.6 Native species seedlings transplanted from nurseries.</p> <p>5.7 FS barangay ordinances adapted to incorporate invasive species mitigation.</p>			

## Annex 3: Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Gender of people (if relevant)	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
6A	Village Agent training		Filipino			12		12
6A	Native Tree Nursery Establishment Training	(F-16, M-9)	Filipino		25		25	30
6A	CoMSCA	(F-123, M-100)	Filipino		223 (108 self-selected to establish CoMSCAs)		223 (108)	240 CoMSCA members
6A	Refresher course on Law Enforcement and Biodiversity Monitoring System	(F-6, M-59)	Filipino		65		65	65
6A	Tagging Orientation training	(F-27, M-23)	Filipino		50		50	50
6A	MEAT	(F-7, M-48)	Filipino		55		55	55
12A	Anguillid eel data framework					1		To be lead by BFAR

**Table 2 Publications**

Title	Type (e.g. journals, manual, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Development and application of a novel real-time polymerase chain reaction assay to detect illegal trade of the European eel ( <i>Anguilla anguilla</i> ).	Journal	Diego Cardeñosa, Matthew J. Gollock and Demian D. Chapman	M	Colombian	Wiley	<a href="https://onlinelibrary.wiley.com/doi/epdf/10.1111/csp2.39">https://onlinelibrary.wiley.com/doi/epdf/10.1111/csp2.39</a> .

## 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.	x
<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.	x
<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. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	x
Have you completed the Project Expenditure table fully?	x
Do not include claim forms or other communications with this report.	