

## 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 2020**

### Darwin Project Information

Project reference	24-004
Project title	Conserving critical forest biodiversity in Guinea through sustainable agricultural livelihoods
Country/ies	Guinea
Lead organisation	Fauna & Flora International
Partner institution(s)	Centre Forestier de N’Zérékoré (CFZ) and Association pour le Développement Communautaire et Agro-Pastorale (ADCAP)
Darwin grant value	£396,869
Start/end dates of project	1 June 2017 / 31 March 2021
Reporting period (e.g. Apr 2019 – Mar 2020) and number (e.g. Annual Report 1, 2, 3)	April 2019-March 2020 Annual Report 3
Project Leader name	Michelle Villeneuve
Project website/blog/social media	<a href="https://www.fauna-flora.org/projects/supporting-effective-management-ziama-man-biosphere-reserve">https://www.fauna-flora.org/projects/supporting-effective-management-ziama-man-biosphere-reserve</a>
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## 1. Project summary

Ziama Man and Biosphere (MAB) Reserve exists to ensure the viability of Guinea's last population of forest elephants and other key species, including western chimpanzee, pangolin and pygmy hippo. In this area, rising food insecurity and the 2014 Ebola outbreak have increased pressure on already poor and remote households.

Ziama MAB Reserve contains areas of permanent wetland called 'bas-fonds'. These areas of humid and fertile soil are used by local farmers to grow crops, mainly rice and market vegetables. This practice was once permitted by Centre Forestier de N'Zérékoré (CFZ) at regulated levels, but increasing demand for land has led to illegal clearing of additional areas; current use of bas-fonds far exceeds that which was originally legally permitted. CFZ now wish to halt all agricultural activity within core zones.

Cultivation in the bas-fonds has fragmented about 25% of the corridors used by the forest elephant population to move about. Elephants are increasingly using bas-fonds crops as a food source, leading to human-wildlife conflict (HWC) and retaliatory killing. Continued bas-fonds cultivation is considered the most significant threat to the integrity of Ziama forest ecosystem.

Using bas-fonds requires farmers to travel long distances (up to 10kms) within the forest, with farmers often camping overnight, providing opportunities for poaching and illegal collection of forest products. Farmers have stated they would prefer not to travel to bas-fonds due to the challenging terrain and risk of dangerous wildlife encounters.

The objective of this project is to help CFZ reach their goal of halting cultivation in the bas-fonds by incentivizing farmers to re-establish crops on formerly marginal land close to the villages, using improved agricultural and land restoration techniques.

In support of this work, FFI and project partner ADCAP have been working in close collaboration with subsistence farmers in and around Ziama to reduce their reliance upon cultivation in the core area of the MAB Reserve.

## 2. Project partnerships

**CFZ** is the statutory authority in charge of management of Ziama MAB Reserve, and is responsible for managing and patrolling it. Within the scope of the project they are responsible for the development and implementation of a bas-fonds management and restoration plan, the deployment of patrols to monitor use of bas-fonds, communicating project messaging to bas-fonds farmers, and generally putting statutory measures in place to ensure that no further agricultural encroachment into the bas-fonds occurs.

**ADCAP** (Association pour le Développement Communautaire et Agro-Pastorale ; Association for Community and Agro-Pastoral Development) is a Guinean NGO formed in 2009, consisting of a group of university graduates in the sciences who have established a non-profit

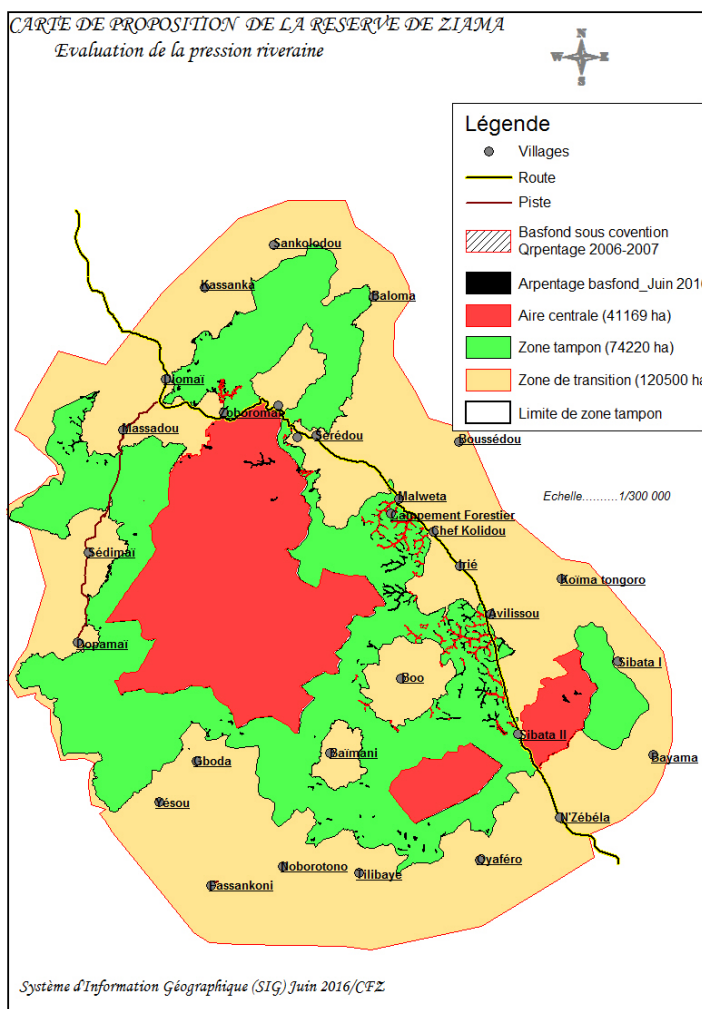


Figure 1: Administrative boundaries of the MAB Reserve. Core zone in red, buffer zone in green, transition zone in yellow.

consultancy working in various areas of agriculture and environmental science in the Guinée Forestière region. ADCAP as an entity has specific technical knowledge in agricultural yield intensification in the Ziama region of Guinea. The year being reported upon in this report (project Y3) represents the first year of collaboration between FFI and ADCAP after ADCAP replaced the original project partner; please see Y2 AR for this project for detail on the partner change. This new collaboration has shown great success in its first year, as evidenced throughout this report.

The collaboration between all three key teams (FFI, CFZ, ADCAP) has been very good throughout the past year. While not without challenges, all partners have proven cooperative, collaborative and overall interested in leveraging the partnership to secure results.

Additional collaboration with local institutions includes an improving relationship with former local partner Institut de Recherche Agronomique de Guinée (Guinea Agronomic Research Institute; IRAG), who was removed from the project in late 2018 due to fraud. FFI is pleased to report that half of the defrauded funds were reimbursed to FFI during the past year (Y3), with the other half to be paid out in the final project year.

### 3. Project progress

#### 3.1 Progress in carrying out project Activities

In Y3 this project directly benefited 537 people; 412 people in 18 groups in the four target Darwin villages of Avilissou, Boo, Irié and Sibata 2, as well as 125 people in the human-wildlife conflict-affected village of N'Zebela, also part of the Ziama MAB Reserve transition zone (**Annex 4**).

Village	Number of groups	M	F	Total
Irié	5	57	56	113
Boo	5	42	78	120
Sibata 2	2	15	23	38
Avilissou	6	73	68	141
N'Zebela (HWC)	5	60	65	125
<b>Total</b>	<b>23</b>	<b>247</b>	<b>290</b>	<b>537</b>

#### ***Agricultural Trainings, including Compost and Irrigation (Activities 1.2, 1.3, 1.4, 2.1, 2.2, 2.5):***

##### **Compost**

In Y3 a significant push was made in the area of training and supporting farmers to actively create and use compost. All target villages benefitted, with a specific focus put on the market vegetable groups (who have the greatest need for soil amendments).

A central compost production and training area was constructed in Irié in Y3Q1, consisting of a covered hangar and 4 composting bins. Training of members of all 18 beneficiary groups completed in Y3Q3, with 39 people (17 women) trained over a 3-day period; training participants then disseminated the training information to their groups (**Annex 8**). Three of the villages (Boo, Irié and Sibata 2) then put into practice what they learned by building compost pits near their communal fields; Avilissou opted not to, due to land availability restrictions (**Annex 1**).

##### **Irrigation and market vegetable production**

A demonstration site for the growth of market vegetables with drip irrigation was established in the central training field of Irié; 45 people were trained in Y3Q1 on irrigation, with an emphasis on water management as a means of mitigating the effects of climate change. Subsequent to

this central practical and theoretical training, each communal site in the four target villages received support in the construction of water capture systems, to facilitate the irrigation of agroforestry seedlings during the dry season (**Annex 1**).

As an adjunct to the irrigation training described above, ADCAP conducted an additional set of trainings on best practices in market gardening, for key members of the market gardening groups. They then provided continuous support to all beneficiaries throughout the growing seasons. 45 people benefited from the joint training, which also included a quality seed selection module (**Annex 8**).

## Agroforestry

Agroforestry training and support continued in Y3, with 122 benefitting from trainings and support in the four villages focused on bas-fonds departure, and 125 benefitting from trainings and support in the HWC-affected village (N'Zebela), for a total of 247 beneficiaries of agroforestry training in Y3.

Oil palm and coffee seedlings were established at each of the nursery sites in the four villages and N'Zebela, with 8,480 oil palm (improved variety - Tenera) seedlings and 13,700 RC2 (improved) coffee seedlings established for the benefit of the bas-fonds departure groups, in addition to 9000 Tenera oil palm seedlings established for the HWC group.

Previously planted (Y2) cocoa, bush pepper and coffee seedlings in the four village nurseries came to transplantation maturity in Y3 and were sold to interested buyers in the community at a discount, with profits being reinvested back into inputs for the agroforestry groups. Sale price per seedling was 1000 GNF (~£0.08), which represents a 50% discount as compared to the retail purchase price of seedlings locally; as such, sales were robust in Y3:

N°	Villages	Coffee seedlings sold in Y3	Cocoa seedlings sold in Y3	Bush pepper seedlings sold in Y3	Amount earned (GNF)	Amount earned (£)
1	Boo	3400	0	55		
2	Avilissou	0	3600	0		
3	Sibata 2	2840	0	1200		
4	Irié	6750	3000	100		
<b>Total</b>		<b>12 990</b>	<b>6600</b>	<b>1355</b>		

## Other crops

*Mucuna (Mucuna puriens)* seeds were purchased and distributed to groups in each of the 4 villages for the purpose of demonstrating the land regenerative properties of fast-growing nitrogen-fixing plants. A demonstration plot for the effects of mucuna was planted on the central demonstration plot in Irié, and communities have begun experimenting with the seed on their marginal lands. 20 kg of seed were distributed to each community and the demonstration plot, for a total of 100 kg.

In Y2 the project supported a participatory variety selection (PVS) of the various manioc varieties available locally, centralised in Sibata 2. Farmers selected a mosaic-resistant variety called *Toussaint* as the preferred variety, and multiplication and replanting of this variety was undertaken in Y3, with each village group receiving 25 bundles of *Toussaint* cuttings.

Additional seeds distributed and cultivated by communities and field school in Y3 were:

Villages	Distributed seeds (non tree crop)					
	Cowpea (Kg)	Maize (Kg)	Peanut (Kg)	Ginger (Kg)	Manioc (bundle)	Mucuna (Kg)
Irié	100	20	10	100	25	20
Boo	100	20	10	100	25	20
Avilissou	100	0	10	100	25	20
Sibata 2	100	15	10	100	25	20
Demonstration plot	100	25	0	100	0	20
<b>Total</b>	<b>500</b>	<b>80</b>	<b>40</b>	<b>500</b>	<b>100</b>	<b>100</b>

Ginger in particular has proven extremely popular, with 25 T/ha recorded as an average yield for all groups, representing an increase of 49% over the Guinean Statistical Agency (ANASA) baseline of 16.8 T/ha.

### Updating Agricultural Transition Plan and Mapping of Shifting Gender Roles (Activities 2.2, 2.3, 2.4)

In Y3 two major surveys were conducted in the Darwin target villages: a general household survey, following up on the 2017 baseline survey, and a survey of core bas-fonds users on voluntary departure status. A series of focus groups were also held to monitor community perception and changing perceptions on gender roles within everyday life, but especially within agriculture.

The surveys conducted in Y3 revealed that target farmers cultivating in the core zone bas-fonds understand the need to leave, and that their primary motivation for leaving is the knowledge that they don't have rights to the land in the bas-fonds, and will have to leave eventually. Their primary barrier to departure is fear of lost revenue/food security. 56% of survey respondents indicated that they had received adequate assistance and support from FFI and ADCAP to help them leave the bas-fonds, and 94% stated that they were ready to depart but were scared (of the risk of lost revenue/food security) (**Annex 11**).

FFI and ADCAP arranged a series of community meetings in Y3Q4 to better understand the updated needs of target farmers and found that 94% of farmers surveyed would be ready to abandon cultivation immediately if they could receive some individualised training and support (at the household level) in the last year of the project (**Annex 11**). While this is a departure from the group training methodology that has been in place since the beginning of the project, the reasoning is clear and the provision of household level support is feasible. FFI and ADCAP came together to redefine a plan for year 4 (**Annex 7**), which outlines the support at the household level that will be available to departing bas-fonds farmers in year 4. This support will come mainly in the form of training support visits and the provision of required tools and inputs. The theory of change of this particular approach, identical to that of the project as a whole, is that farmers require support during the transition in order to reduce their risk of crop failure/lost income, which has always been the main barrier to transition. Group trainings will continue to be supported, but the focus moving forward will be on direct individual engagement with the departing farmers at the household level.

It should be noted that although this decision to provide direct household level support to those who voluntarily cease cultivation in the bas-fonds was made independently of coronavirus concerns, it has proven to be an ideal approach in light of the emergence of coronavirus and social distancing measures globally; we anticipate that support of farmers during this period will be uninterrupted in most situations, barring a complete lockdown in the region.

With technical assistance from FFI's Cambridge-based gender specialist, FFI hosted a series of focus group discussions with men and women (separately) of the four villages with the objective of understanding:

1. Seasonal agricultural calendars: when are men busy, when are women busy and how is the work shared for each crop?
2. How is non-agricultural work divided amongst men and women within their households and communities? When are men busy, when are women busy and how do they perceive the others' workload?
3. What do men and women like about being their respective genders, how does that affect their opportunities within society, what is life like for the other gender?
4. A timeline of how life is now compared to how it used to be. (**Annex 11**)

All activities provided extremely interesting and relevant feedback that will be used to better understand the communities we work with, and how to design and deliver interventions. Notable points include the fact that ginger is reportedly the most equitable crop in terms of labour-sharing, and that women are rarely or never in charge of or exposed to agrochemicals; sentiments of men and women as to the privileges of the other was also very interesting<sup>1</sup>.

Additionally, we received data-based confirmation of how labour is shared in oil palm cultivation and processing, which is almost entirely male-led at the farming level and almost entirely female-led at the processing level, making palm oil production a livelihoods activity with specific economic development potential for women; this will be further explored in Y4.

### **PICS Bags and Post-Harvest Storage Improvement (Activities 2.6, 2.7)**

Post-harvest storage is an issue in the area around Ziama MAB Reserve, as it is extremely wet and humid most of the year, creating ideal conditions for fungus/aflatoxins, rot and/or insect infestation of dried or drying crops. Post-harvest storage was identified at project inception as an ideal means of increasing farmer income, and 8,000 PICS hermetic storage bags were purchased, imported into Guinea and transported up to the Ziama area with assistance from the Ministry of Land, Water and the Environment and CFZ.

A distribution and training programme for the PICS bags was planned and implemented by ADCAP (**Annex 8**). The training focused on using the multi-layered bags effectively, and was conducted in all four focal villages, as well as the HWC zone of N'Zebela. 64 people were trained in training of trainers (ToT) format, each ToT participant receiving 10 bags for personal use (**Annex 1**).

In Y4 CFZ will run a large-scale distribution in the 31 communities of Ziama with a portion of the remaining PICS bags, while ADCAP and FFI will distribute the rest to those voluntarily departing the bas-fonds. That is, distribution scope will include volunteers who leave the bas-fonds but will not be limited to them; as per the original project design, PICS bags will be distributed widely through all 31 communities of Ziama.

PICS have been identified by both FFI and ADCAP as an ideal post-harvest storage intervention due to low cost, ease of use and reasonable lifespan (~5 years), but recognising that local storage solutions are sometimes the best option, FFI collected data on local storage solutions used in Ziama via survey (**Annex 11**), with covered pots being the most common form of dry grain storage. FFI will work with beneficiary farmers in Y4 to improve the quality and efficacy of local storage solutions at the household level, as part of our household support initiative.

### **Participatory Market System Development (Activity 2.8)**

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<sup>1</sup> No quotes inserted because the phrasing became odd after translating through two languages (Toma -> French->English) but tables on pg 20-21 of the relevant report in Annex 11 give a good overview of sentiment

Planning for the Participatory Market Systems Development (PMSD) ToT workshops in Seredou began in Y3Q2, with agricultural staff at the FFI office participating in a market selection exercise to identify priority crops for development in the Ziama area. Selected crops include oil palm (both red and white varieties), coffee and ginger (**Annex 2**).

Two Cambridge-based FFI Technical Specialists in market systems and responsible investments travelled to Guinea at the end of Y3Q2 to conduct the training. A total of 20 people were trained in the two day ToT workshop covered the following topics:

- Introduction to the PMSD philosophy and approach (reinforcing the difference between enterprise development and participatory markets development approaches)
- Market system brainstorming, identifying criteria/assigning weightages to the three products identified
- Market system selection (selecting one of the three products identified to focus on)
- Preliminary market mapping, and identification of the missing information that needs to be collected
- Establish an action plan for the organisation of the Participatory Workshop (convening the market actors for the product chosen)

The results of the PMSD work in Y3 support the survey results that identify interest and market opportunities in oil palm and coffee production. Further work will be undertaken in Y4 to identify a sustainable yet high-impact means of improving farmer access to these markets, likely in the form of yield increases, improved processing, and education in quality control and adherence to standards (**Annex 2**).

**Distribution of Improved Rice, including Seed Selection Training and Monitoring of Yield (Activities 2.9, 2.10, 2.11)**

Because the majority of those farming in the MAB Reserve bas-fonds are cultivating rice, it is integral to this project that farmers receive support not only in diversifying incomes away from rice, but in improving yields for rice grown outside of the Reserve.

Four non-Reserve bas-fonds sites of 1.5 hectares each were identified for village trainings in best practices for yield maximisation and improved seed selection and this training was delivered to 92 people (55 women) in Y3Q2 (**Annex 8**). In Y3Q1, 480 kg of improved rice (variety name Robert) was distributed to four groups (120 kg per group) for use on their own (non-MAB Reserve) rice lands.



Figure 2: Measuring the harvest box for rice yield data collection

The training site rice was harvested in Y3Q3 and yields were measured via harvest box methodology. Average yield results were 3 T/ha, indicating a 423 % yield increase over the Y1 baseline defined by the government statistical agency (ANASA) of 0.70 T/ha of rice in Macenta prefecture (60 minutes from the project sites).

Village	Sample	Yield (g/m <sup>2</sup> )	Yield (T/h)
Boo	Sample 1	238.9	2.4
	Sample 2	161.7	1.6
<b>Average</b>			<b>2.0</b>
Irié	Sample 1	501.8	5.0
	Sample 2	429.7	4.3
<b>Average</b>			<b>4.7</b>

<b>Avilissou</b>	Sample 1	223.0	2.2
	Sample 2	242.5	2.4
<b>Average</b>			<b>2.3</b>
<b>Sibata 2</b>	Sample 1	300.5	3.0
	Sample 2	270.6	2.7
<b>Average</b>			<b>2.9</b>
<b>Overall average</b>			<b>3.0</b>

Figure 3: Table indicating the results of the rice yield measurement activity

Yield improvements can be attributed to a combination of improved variety, improved seed selection (in this case on the part of the seed multipliers, and in the future on the part of the farmers), and improved technical practice.

### **N'Zebela Agricultural Buffer zone and HWC monitoring (Activities 2.12, 2.13)**

In 2016 the community of N'Zebela killed a mature forest elephant that had been raiding crops and destroying vehicles. Since then, N'Zebela has been a focal area for human-wildlife conflict in the region, with the community forming anti-elephant groups and stating clearly that further elephant deaths would occur if raiding continued.

In Y2 FFI, with the support of CFZ, negotiated a proposed intervention with the community consisting of support building an agricultural buffer zone of crops unpalatable to forest elephants, in a bid to decrease their potential interest in raiding the resources of the community. The intervention designed with the community also includes training in soapmaking, a popular income-generating activity in the area with a relatively low barrier to entry (**Annex 8**).

The plan was agreed with the community of N'Zebela and signed in a ceremony between FFI, CFZ and N'Zebela community



Figure 3: Forming soap into balls in N'Zebela as part of FFI's soapmaking training

stakeholders in Y3Q1. However there was a short delay in the implementation of the schedule of activities following political clashes relating to the legislative and referendum elections in the N'Zérékoré region. Nevertheless, by Y3Q2 establishment of an elephant-deterrent ginger, coffee and pepper plantation buffer zone and the establishment of oil palm nurseries (elephant-deterrent once they reach 2m in height) were well underway, and five farmer groups of 25 people each were established in N'Zebela (60 male 65 female) (**Annexes 4, 9**).



In Y3 one hectare of ginger was established on the perimeter of the community, which grew in quickly and served as a buffer to a one hectare communal vegetable plot. Nurseries were established to grow tree crops, mainly coffee and oil palm. Community members were trained in the maintenance of the seedlings, and currently enough seedlings exist (9,000) to cover a further 15 hectares, which will provide a much larger buffer zone to elephant incursion while also providing income.



Figure 4: The ginger buffer zone in N'Zebela.

Since the inception of the elephant buffer zone trials in N'Zebela, community sentiment has become much more positive, with N'Zebela community members who previously were part of groups with names such as *Community Force Against Continued Destruction by Elephants*, actively joining and participating in FFI's elephant conservation awareness activities in Y3Q3.

There was an issue observed with community participation in the communal nurseries for tree crop production; essentially they were not adequately maintained by the community groupings, resulting in a lower than expected number of tree crops produced for planting in Y4. Where originally 19,500 trees were envisioned, Y3 ended with a production of 9,000 seedlings. Despite the missed target, 9,000 seedlings will be sufficient to create the agricultural buffer planned. In order to address the missed objectives, FFI increased the frequency with which technicians visit the site to provide support, and there was a marked improvement in community participation in Y3Q3 and Y3Q4, likely due in part to the increased visits by FFI staff, and the visible results of the work that had been put in in the form of seedlings (**Annex 9**).



Figure 5: Oil palm seedlings in the N'Zebela nursery. Once these trees reach approximately 2 metres in height they will be planted, and their spiky leaves will act as a deterrent to the passage of forest elephants.

### **Bas-fonds Management, Restoration and Forest Patrols (Activities 3.1, 3.2, 4.1, 4.2, 4.3)**

There was notable progress in this area in Y3, with the Ziama Management Plan being submitted and legally approved by the government of Guinea<sup>2</sup> (**Annex 6**).

With the signing of this management plan into law it is now illegal to farm in the core zone bas-fonds (instead of discouraged). However, it must be noted that neither FFI nor CFZ has interest in forcing people to abandon core zone cultivation; instead our objective is to encourage farmers to explore and consider their options outside of the bas-fonds, and the support them during the transition.

A total of 200 bas-fonds were numbered and tagged by CFZ agents in Y3, in order to facilitate the process of tracking departure.



Figure 6: CFZ agent with the bas-fonds marking signs

In Y3Q4 a community sensitisation project was undertaken in the four focal Darwin villages in order to discuss the new Ziama Management Plan and the project's plans to support those voluntarily leaving the Reserve bas-fonds; shortly thereafter a survey was conducted (of 82 people) that identified the first 77<sup>3</sup> volunteers ready to depart. In Y4Q1 the community sensitisation work continues, as it is very important that communities understand that neither FFI, ADCAP nor CFZ are forcing their departure, but rather are facilitating options for those who wish to transition at this time. Another survey will be conducted after these meetings in order to identify further volunteers for departure.

In Y3, CFZ patrols of Ziama MAB Reserve continue as normal, with bimonthly missions occurring. Rangers conducted the following bas-fonds monitoring activities in Y3:

- Biomonitoring activities: 380 patrol days completed by 12 rangers
- HWC damage assessment: 185 days of activities carried out by four rangers and two community guides
- Camera installation: 10 cameras installed and monitored over a total of 24 days by a team of four rangers
- Arrest patrols: 38 missions totalling 208 days in the field by 12 rangers
- Reconnaissance patrols: 32 missions totalling 180 days in the field by eight rangers and two community guides
- Staff recruitment: four rangers recruited and employed (bringing the team from eight to 12)
- Monthly planning meetings for the Ziama site

<sup>2</sup> Please note that this national-level management plan was financed largely by a non-Darwin funder as part of a separate FFI project, though the approval of the plan has a significant impact on this Darwin project thus it is being mentioned and described here.

<sup>3</sup> This number of original volunteers was 63, and as such that number appears in early planning documents. However when a survey was conducted in Y3Q4, 77 people clearly stated that they were ready to voluntarily leave the bas-fonds (**Annex 11**).

**Results:**

- 631 instances of HWC reported and investigated
- Camera trap captures of 682 images representing 16 different species including elephant, bongo, pygmy hippo and three types of duiker
- Five poachers arrested
- Seven suspected poachers warned
- 912 snares destroyed
- 1,630 12-gauge cases collected
- Two shotguns seized
- 14 fishing dams identified and disbanded
- Reduction of poaching pressures on elephants: zero cases of poaching from 2016 to date, and an anecdotal increase in the rate of observation of fauna
- Improvement of the system of deployment and attitudes of team members as shown in the results of the patrols



Figure 7: A forest elephant trampling crops

**(Annex 3)**

These numbers represent a significant decrease in the same figures from Y2:

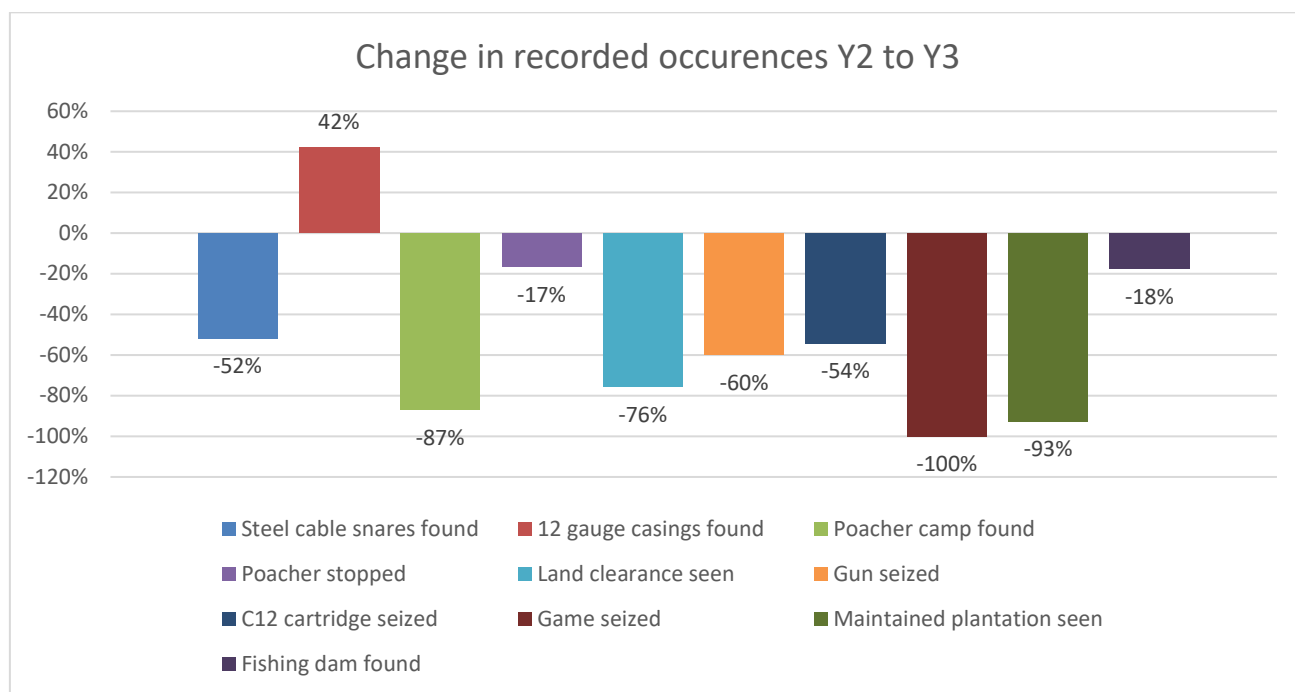


Figure 8: If reading in black and white legend goes from left to right

**Awareness-raising related to the use of herbicides (Activity 3.3)**

Awareness-raising as to the dangers of herbicide use on both human and environmental health continued in Y3. Notable action includes the installation of nine large placards indicating that herbicide use in the Ziama MAB Reserve is dangerous, forbidden, and impactful upon both

human and environmental health; two placards were installed per focal village at the main forest entrances, and one in the central town of Seredou.

Additional awareness-raising centred around a community conservation awareness day in Y3Q3 that included organised competitions and activities related to reducing herbicide use in Ziama:

- An awareness-raising parade that included a specific focus on reducing herbicide use in the bas-fonds
- A play, performed by a youth group in front of an audience of approximately 1,500 on 'the consequences of herbicide use'



Figure 9: Herbicide awareness placard at forest entrance in Irie.



Figure 10: Awareness-raising parade in Seredou, Nov 29 2019. Middle sign: *Herbicide / Danger to health and the environment / Let's stop its use*

### Communications (Activity 1.5)

The project's original communications plan centred on a series of farmer round-table radio shows, to be hosted by Radio Macenta. Unfortunately, in 2018 Radio Macenta's network ceased functioning and there have been no radio broadcasts since.

In Y3 the following communications activities took place:

- Organization of 13 information and awareness sessions in six villages around Ziama on the management of human-wildlife conflicts and community involvement in the management of Ziama
- Broadcasting of five audio messages on environmental education in 16 villages (broadcast over loudspeaker from a vehicle)
- Organization of a Ziama conservation awareness day (as well as FFI's celebration of 10 years in Ziama), which included an environmental poetry competition, a dance competition, a parade, and many speeches; this was taped and broadcast on national media outlet Guinee Matin (video available upon request; downloaded to FFI servers but no longer available on Guinee Matin's website)
- Installation of anti-herbicide signs at the entrance to the MAB Reserve in each target village (**Annex 5**)

## 3.2 Progress towards project Outputs

**Output 1:** *Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones*

The project began with a 380 beneficiaries, and by the end of year two we had lost 12 due to disinterest/inactivity. At the beginning of year three there was a need to rebalance the beneficiary groups in line with the legal definition of a farmer association, and during the community consultation process for this we were able to gain additional beneficiaries. The project is currently serving 412 farmers in the four target communities. An additional 125 farmers are being supported in the HWC community of N'Zebela, as described above under Activity 2.12, thus a total of 537 farmers were directly served by the project in Y3.

100% of beneficiaries in Y3 benefited from trainings and ongoing support in a range of improved agricultural techniques including composting, rice cultivation and best practices in tree crop production (**Annex 8**), and 96% of beneficiary farmers have applied at least one practice learned via the project to their own farmlands (**Annex 11**). At this stage of the project actual movement from farming in the core zone bas-fonds to the transition zone is a key means of verifying project success, and our rate of voluntary movement to date is 20% (77 of 380); we expect voluntary departure to accelerate once additional community sensitisation activities have taken place in Y4Q1, and communities have a chance to understand the experiences of the early adopters.

We are on track to meet this output.

**Output 2:** *The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones*

Farmer sentiment toward this output has changed over the course of the project; as the need for departure has become imminent project farmers have reported more fear and reluctance to commit to a departure from the bas-fonds.

Farmers were asked in a Y3Q4 what they would require in order to safely depart. 76% cited continued or increased support with oil palm, and 56% cited support with establishing or expanding piggeries (**Annex 11**).

Pig is the main form of livestock reared in the area, and even the Muslim community of Avilissou recorded 40% saying that they would like support in establishing or expanding their piggeries (**Annex 11**). The reason for the overall interest in pig rearing can be attributed to both culture and land availability; piggeries enable significantly more income to be earned on a piece of land than any crop due to higher market price. In the land-restricted Darwin villages, it is unsurprising that this request has arisen.

There is no intention to alter project design to incorporate a significant move towards livestock intervention in the final year of the Darwin, though at the household level some livestock related support for those already raising animals will be considered; examples of the type of support being considered would be provision of fence-building materials, veterinary visits and seeds for nitrogen-fixing fodder plants.

FFI intends to continue gathering information from Darwin farmers so that FFI can consider supporting sustainable livestock in the Ziama area long-term, as a means of ensuring that transition-zone agriculture remains more profitable than bas-fonds agriculture. To this end, FFI has taken on an intern in Y3 with a background in ethical animal husbandry and regenerative agriculture to advise our information collection, and she has designed a survey to be delivered

to Darwin farmers in Y4 on housing conditions, access to veterinary services and piggery/ abattoir hygiene.

In the very long-term, we believe that this type of investigation is necessary, as we expect to be supporting farmers who have abandoned the illegal bas-fonds in some form for several years past the end of this project; that is implicit in the project design's objective of recording a 60% departure rate by EoP. In the shorter term (Darwin Y4), we believe that the provision of household level support by FFI and ADCAP will be the major incentive to leave the illegal bas-fonds.

**Output 3:** Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones

Illegal activity was significantly down in Ziama in Y3 as compared to Y2 (with one exception, more shotgun casings were found in Y3 than in Y2). These comparative data paint a clear picture of reduced human activity in the bas-fonds (**Annex 3**). Of note, rate of land clearance in the MAB Reserve was down by 76% in Y3 as compared to Y2, and the rate of incidence of maintained agriculture (non-rice) observed was down 93% (162 instances to 12 instances).

The reduction in land clearance indicates a likely reduction in bas-fond cultivation (as this is the most commonly cleared land type in the Reserve), but the change cannot be directly attributed to project activities as ranger data comprise observation of the entire Reserve and not just the land within walking distance of Darwin villages. The findings are, however, an indication of rapid behaviour change in Ziama that is likely influenced by the Darwin project's activities. Y4 ranger findings will make it clearer which recovering lands are directly a result of our work.

As of Y3Q4 we have reported a 20% voluntary departure rate amongst the baseline group of 380 farmers. We expect this to augment to the 60% mark by Y4Q2 as community level sensitisation and surveying continues. The 20% rate of identified volunteers (77 people) was restricted only by the amount of people that were able to be surveyed, and actually represents 94% compliance amongst surveyed farmers (n=82). Additional sensitisation and surveying in Y4Q1&2 is expected to provide a cohort of departing farmers that allows the project to reach the output objective, as farmers understand that with the approval of the Ziama Management Plan they will have to leave at some point, and they are currently being offered support.

**Output 4:** Targeted bas-fonds in Ziama MAB are showing signs of forest recovery

CFZ (with support from this project and Species Fund co-finance) hired four additional rangers in Y3, bringing the ranger total working on this project to 12 (50% increase). In addition to this, the monitoring of recovery in the bas-fonds was simplified to increase reporting compliance; where previously rangers had been asked to document the incidences of specific species of flora in abandoned bas-fonds, they have now been asked to report on the binary presence or absence of cultivation, and the binary presence or absence of pioneer species. Additionally the bas-fonds were numbered with signs, facilitating identification and removing the need to take a GPS waypoint when logging data at each one.

We expect the sum of all these changes to result in significantly increased monitoring compliance and a robust data set as to the recovery of the bas-fonds by EoP.

### 3.3 Progress towards the project Outcome

**Outcome:** *The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers*

**Indicator 0.1:** *Stable or increasing indices of elephant and other key species (compared to baselines collected before start of project and through Y1 for full year)*

Elephant population remains stable, and no poaching incidents have been reported since 2016.

**Indicator 0.2:** *50% of target bas-fonds in Ziama (250 hectares) show improvements in line with expected patterns of restoration in years 3 and 4 against project baseline.*

As described under Output 4 above, monitoring of bas-fonds has been simplified for the final year of the project in order to ensure collection of this data.

The results of this indicator is closely aligned with the results of indicator 0.3; for each departing farmer there should be at least one abandoned illegal bas-fond, assuming that no one new moves into the abandoned bas-fond. While we hope that ranger monitoring will be a disincentive for new farmers to move into the illegal bas-fonds, the signing of the Ziama Management Plan is likely to have the greatest impact upon reducing the incentive to establish cultivation in the bas-fonds, as it is now formally illegal and as such carries significant opportunity cost (risk of lost yield or if government sentiment becomes less relaxed, arrest), which most farmers prefer to avoid.

**Indicator 0.3:** *60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 30% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.*

We have secured agreements with 77 farmers who have volunteered to give up farming in the illegal bas-fonds; this represents 20% of the original 380 farmers, with further surveys to identify more volunteers ongoing. We are on track to meet this indicator by EoP.

**Indicator 0.4:** *70% (266 individuals) of both male and female farmers targeted (of which at least 50% are women) report an improved sense of wellbeing (material, physical and subjective) by the end of the project*

The project has experienced high rates of engagement in farmer field school, agroforestry and income generating activities, with the number of participating farmers jumping from 368 in Y2 to 412 in Y3, plus an additional 125 beneficiaries in the HWC-affected village of N'Zebela. This level of participation and interest is an indication that efforts to date have led to positive changes in the lives of farmers.

A participatory impact assessment (PIA) will be conducted in Y4 to understand any changes in overall wellbeing as a result of the project. In the Y2 annual report it was explained that this activity will be delayed past normal implementation time for a PIA due to partnership change at the end of Y2; it was decided that a PIA would be most useful to the landscape if it evaluated not sentiment in the midst of fraud-related partner change, but sentiment regarding the actual delivery of project activities. Y3 represented one full year with the new partner ADCAP. As such, a PIA will be scheduled for Y4Q2, with the information gleaned being used to ensure appropriate design and implementation of interventions in the Ziama area long-term.

Indicators 0.1-0.4 remain relevant, useful and achievable in realizing the project Outcome.

## **Outcome assessment summary**

In the final year of the project, patrols will continue as scheduled, with CFZ rangers responsible for monitoring farmer departure and natural restoration progression in the bas-fonds. We will continue to work with beneficiaries to identify those who are ready to depart voluntarily; we are expecting greater buy-in once communities have a chance to assess the success of the early adopters/first departing farmers.

We are still aiming to reach our objective of supporting 228 farmers to cease cultivation in the core zone of the MAB Reserve by end of project. The indicators will be adequate to demonstrate this, as they include actual records of departures, as well as specific supporting information such as farmer satisfaction/sentiment.

### 3.4 Monitoring of assumptions

**Assumption 1: *That incentives offered in the agricultural transition plan do reflect 'meeting their needs' as reported, and that new law enforcement and education activities are sufficient to dissuade those wanting to continue bas-fond farming, or new farmers moving in.***

A full suite of agricultural trainings was offered to Darwin farmers in Y3 (**Annex 8**).

In year two we reported survey results that indicated that 96% of farmers surveyed were happy with the quality of Darwin activities and wanted to continue working with us to depart the bas-fonds. With the results of community consultation and surveys conducted in Y3, we now have evidence and actions that show that ~94% of target farmers are committed to leaving the core zone bas-fonds, even after decades of farming there in some cases. These results together suggest that the incentives offered meet the needs of departing bas-fonds farmers.

In terms of dissuading new farmers from moving in to the illegal bas-fonds, a 50% increase in ranger capacity, increased monitoring of illegal bas-fonds, and physical marking/numbering of the target bas-fonds are all still assumed to be sufficient to disincentivize new farmer encroachment; Y4 results will make it clear whether or not this assumption is correct.

**Assumption 2: *That there is no significant increase in population beyond natural growth, e.g. due to in-migration from conflict, mining opportunities in the region, etc.***

There is nothing that is currently leading to unusual population growth in the area, and nothing known on the horizon that would lead to a sudden and significant population increase.

**Assumption 3: *Assume that the bas fond farmers were honest during project scoping of their desire to leave the bas-fonds.***

A survey conducted this year asked this question directly ("Do you wish to cease cultivation in the core zone bas-fonds?"), and 94% of respondents answered 'yes' (**Annex 11**).

**Assumption 4: *That elephant poaching for ivory remains opportunistic and that increasing demand does not lead to professional ivory poaching.***

Yes this assumption remains true; the size of the forest elephant population in this landscape is small (<20), with a transboundary range that extends over mountains and into Liberia. There is no evidence of planned/professional poaching, and indeed no evidence of poaching at all this year.

**Assumption 5: *There is no extreme weather event (i.e. drought) during the lifetime of the project***

While climate change remains a concern, there have been no extreme weather events in Guinee Forestiere since the start of the project.

**Assumption 6: *Bas-fond farmers remain committed and open to learning new techniques and have confidence in results demonstrated to fully adopt practices***

The driver of adoption in any agricultural intervention will be increased yield and/or income, and Y3 project results have shown significant yield increases for key crops, including 423% for rice, thus the assumption holds true.

Bas-fonds farmers associated with this project have been candid with FFI and partners. We remain confident that the commitment and openness demonstrated by project beneficiaries is the result of a genuine interest in both protecting their natural capital and complying with local law, including ceasing cultivation in the core zone bas-fonds.



**Assumption 7: Multiple benefits of niebe bean [cowpea] convince farmers to increase production and consumption, as practiced in other West African countries**

We can report that farmers continue to plant cowpea and show interest in developing the market for the crop locally, with all four Darwin villages actively choosing to plant cowpea (100 kg each) as part of their communal work. Cultivation of cowpea continued on the central field school/demonstration site in Irié as well, with farmers anecdotally remarking to the Project Lead that they are impressed by the drought tolerance of the crop. During a participatory market system development (PMSD) exercise, cowpea was chosen by stakeholders as a potential crop for commercial development, though it was eventually removed from the list (by PMSD participants) in favour of oil palm, coffee and ginger; this is still a positive sign as was fourth after these well-known economic crops of the area.

**Assumption 8: Rainfall remains adequate to feed community irrigation systems for target villages**

Rainfall has been adequate, and there has been success with community irrigation systems this year, including the installation of rainfall collection barrels in each target village. Some community members complained of late rains this year (**Annex 11**) but weather data shows that rainfall was abnormally high and evenly spread throughout the year. This change in rainfall patterns, if it persists, may cause a change to agricultural patterns, but the assumption that enough rain will fall to feed community irrigation systems holds true.

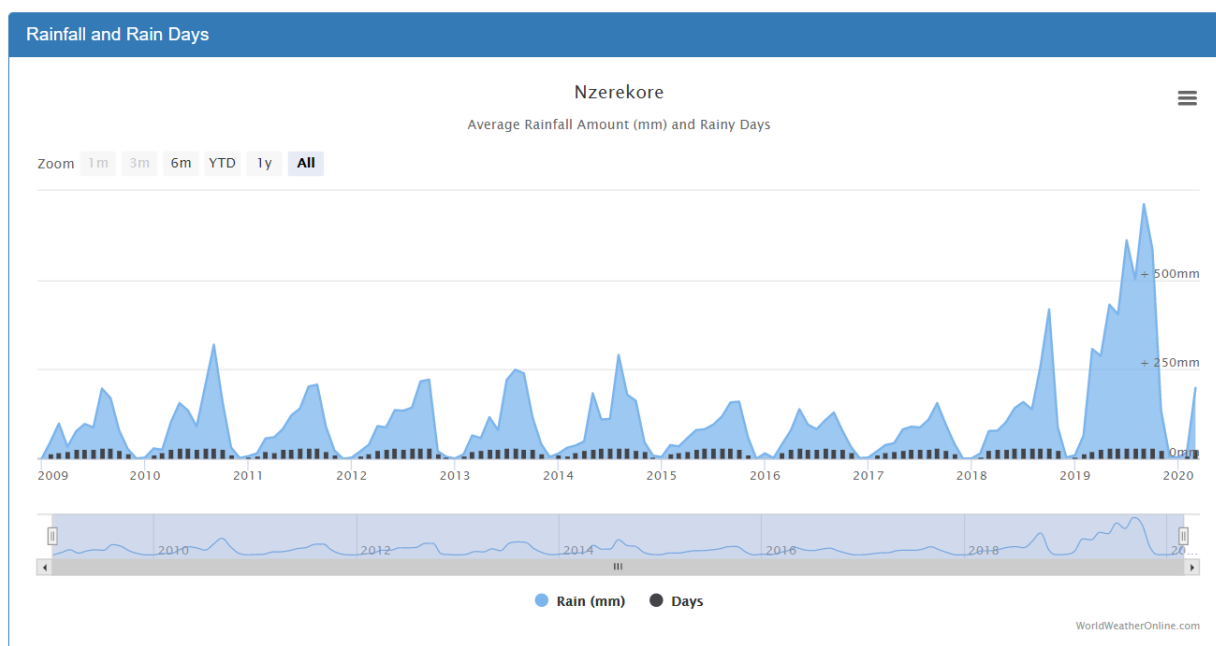


Figure 11: 10 years of rainfall data from NZerekore, 60 minutes from project sites. Source: <https://www.worldweatheronline.com/nzerekore-weather-averages/nzerekore/gn.aspx>

**Assumption 9: Re-introduction of improved seed varieties conducted by IRAG [ADCAP] for upland rice and niebe [cowpea] are replicated by direct beneficiary farmers as anticipated.**

Farmers received improved rice seed this year, as well as training in quality seed selection (for multiplication) of rice seed, and farmers have eagerly adopted the high-yielding 'Robert' variety distributed to beneficiary farmers by ADCAP in Y3 (120 kg per village). Farmers planted 100 kg of cowpea per village, and per assumption 7 above, ranked it highly as a potential crop for market development.

**Assumption 10: Initial community discussions on availability and access to land hold true and sufficient land can be harmoniously secured inside and outside Transition Zone.**

In general this remains true, though we did identify some farmers this year who do not have sufficient land outside of the bas-fonds to replace the illegal cultivation practices. FFI and

ADCAP are working directly with these farmers to identify which income-generating activities to replace rice and/or vegetable production in the core zone bas-fonds can be implemented on the specified land size held (different for each farmer).

***Assumption 11: The use of mucuna and other soil improvement and weed management techniques to restore degraded land can be scaled up based on previous successful soil restoration work done by IRAG***

Work is moving forward as planned with mucuna, and while some farmers remain sceptical, we believe that this is because they have not yet had the chance to experience growth and improved yield on regenerated land. Mucuna was sown as part of the demonstration site in Y3, and each target village received 20kg of seed which they planted on marginal lands around the village.

***Assumption 12: Tree crops seedlings have high survival rates and farmer shows excellent knowledge in crop management.***

We had an excellent year with tree crop seedlings. A high level of engagement on the part of both ADCAP and farmer groups has led to the production of enough oil palm, coffee, bush pepper and native tree *Terminalia superba* seedlings to serve all interested farmers in the area.

***Assumption 13: Existing good access to local and regional markets remains stable for project duration***

Despite being in a relatively isolated part of Guinea, far from the capital city of Conakry (1.5 day drive), the farmers around Ziama MAB Reserve have access to several markets. Locally, there is the Seredou market, which is small but adequately serves the local population. There are also two larger markets nearby in Macenta and N'Zerekore. Macenta is the prefecture capital and has a thriving market that can be accessed by Ziama-area farmers. The market in N'Zerekore serves not only the local population, but also serves an international population from both Cote D'Ivoire and Liberia.

Access to all of these markets was stable throughout the past year, however it should be noted that due to coronavirus border restrictions, it is possible that access to the largely informal trade via transboundary markets may be affected in the upcoming project year; it is unknown how the market in N'Zerekore will be affected by coronavirus but it is at a larger risk of change than the Macenta or Seredou markets due to its proximity to the Liberian and Ivoirian borders.

***Assumption 14: Participatory demarcation of MAB zones is completed successfully, with communities agreeing access and management.***

Basic demarcation of the MAB Reserve zone has been completed, and the Ziama Management Plan was approved at a national level this year. The approval process involved community consultation (spanning several years), and as such we can confirm that this assumption holds true.

***Assumption 15: Reducing dependence on bas-fonds will decrease time spent in forest by farmers for poaching/illegal activity***

In the Y1 household survey, many farmers complained about the time required to get into the bas-fonds for farming activities. In this project year farmer survey results have shown that 94% still wish to cease farming in the core zone, though the majority reported that their primary motivator was a desire to avoid legal consequences, with distance from home being a secondary motivator. Whatever the primary motivation, it is still clear that farmers will have less reason to be in the forest if their income-generating activities are localised elsewhere.

***Assumption 16: Training on safe use of agrichemicals including application of herbicides is effective.***

The awareness campaign related to decreasing and eventually eliminating the use of herbicides within Ziama MAB Reserve was continued in Y3. The impact of Darwin activities in the area of herbicide damage awareness was highlighted when, during a conservation-

awareness event hosted by FFI, local youth electively created both a theatre performance and several poems/songs to communicate their concern and knowledge related to herbicide use in Zياما.

**Assumption 17: *Restoration sites respond in line with sample plots conducted to date.***

Restoration initiation will be recorded for bas-fonds once they have passed one rice season without active cultivation. Evidence provided by initial project partner IRAG at project inception indicates that when left alone without any cultivation activities bas-fonds will repopulate first with pioneer species and then over time with hardier endemics; this is assumed to still be true.

**Assumption 18: *Seedlings and seeds, if needed, are readily available at the right times.***

There have been no issues with the procurement of seeds and seedlings, including those that require importation from Cote d'Ivoire. We don't anticipate procurement issues in the final year of the project.

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

The increased presence of anti-poaching and monitoring patrols in the reserve has acted as a deterrent to poaching, and has played a part in the improved prosecution rates for illegal hunting in and around Zياما MAB Reserve over the past two years. As evidenced in section 3.1, rates of illegal activity are down across the board in Zياما MAB Reserve in Y3. This includes a 73% reduction in land clearing activity observed and a 96% reduction in plantation farming observed in the MAB Reserve since Y2. Besides the physical conservation of endemic biomass resulting from reduced land clearing activities, a reduction in the use of herbicides in the MAB Reserve will reduce threats to fauna and flora diversity.

When working with smallholder farmers from an agricultural perspective, the goal is always poverty alleviation. Within the scope of this project we are working on yield intensification, reducing post-harvest loss, and the development of agriculture-related income-generating activities; each of these on its own can make a significant impact in poverty alleviation for smallholders.

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

The project supports Guinea's contribution to several SDGs, notably SDGs 2 and 15.

SDG 2 is addressed via the promotion of sustainable agricultural practices, and SDG 15 is addressed through work to protect and promote the sustainable use of Zياما MAB Reserve, to reduce degradation of the forest and to restore degraded areas, and to help in the implementation of sustainable community stewardship of the MAB Reserve.

Also addressed within the scope of the project are SDG 5, in the provision of an equitable programme with equal opportunity for men and women, and SDG 1, with efforts to increase income opportunities for farmers to incentivize their leaving the bas-fonds.

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

This project contributes towards CBD Strategic Goals B and D by reducing direct pressure on biodiversity caused by forest clearing and use of the bas-fonds for agriculture in Zياما MAB Reserve.

The project works to allow restoration of degraded areas in the Zياما forest landscape (Aichi Target 5). It promotes sustainable use of land resources through improved agricultural practices (Aichi Target 7), taking into account the needs of women, and vulnerable and marginalised groups at all times, to ensure all can benefit from learning opportunities. Via

conservation and protection efforts, this project addresses the fragmentation of a vital forest ecosystem that provides essential services to vulnerable wildlife and humans (Aichi Target 14).

Guinea has been suspended from CITES, but hopefully this will be reversed due to the country's renewed commitment to addressing wildlife crime via the approval of an updated wildlife protection law, the *Code de la Faune*.

The Project Leader and FFI-Guinea's interim Project Manager had a meeting with David McIlroy, the UK Ambassador in Guinea, planned for March 2020, curtailed by coronavirus. It would have involved discussion of FFI's role in the establishment of the Zياما Management Plan and enforcement of the *Code de la Faune*, as well as alignment with international agreements; hopefully this can now happen in the upcoming year (**Annex 5**).

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

The implicit goal of the project is poverty alleviation; farmers will not be incentivised to leave the bas-fonds when their poverty levels are such that they and their families suffer. The only sustainable way to convince farmers to leave the bas-fonds is via poverty alleviation; that is, their incomes farming outside of the bas-fonds are equal to or better than their incomes farming in the bas-fonds (a.k.a. Output 2).

To this end, the project is providing significant technical support in the regeneration of depleted soils in the villages, as well as technical support in yield maximization of staple crops via improved planting practice, use of compost, irrigation and improved seed stock. In addition, the project is providing support in the development of agriculture-related income-generating activities, including the option to receive support on work with cash crops such as cocoa and coffee. Finally, farmers are facilitated with regards to access to services via both agricultural education and the provision of beneficial inputs not locally available, such as PICS bags and improved oil palm and coffee seedlings from Cote D'Ivoire.

## **7. Consideration of gender equality issues**

This project seeks to address gender inequality by ensuring interventions are inclusive of both men and women. Many project indicators require at least 50% of beneficiaries to be female. Importantly this includes an aim to improve the sense of wellbeing of farmers (Indicator 0.4), and an aim to ensure benefits of farming in the transition zone equal or exceed those of their previous agricultural activities in bas-fonds (Indicator 2.2).

We made significant inroads in year 3 in developing the body of work related to gender equality specific to this project, these communities and these beneficiaries. At project outset, 47% of participants in the agricultural extension trainings were women; by the end of Y3, 54.6% of our participants are women (**Annex 4**).

Over the past year a full-time socioeconomic specialist with knowledge of gender equality issues was hired by the FFI Guinea office, which has allowed for the advancement of our work investigating and addressing gender equality in the region. The Guinea-based gender specialist collaborated with our Cambridge-based gender specialist to put together a series of focus group discussions and group activities to better understand the social and gender dynamics as they relate to agriculture and livelihoods in our focal villages (**Annex 11**). We found for example, women undertake the majority of activities related to peanut cultivation and market gardening, whereas men generally take a larger role in land clearing. Through this improved understanding of the agricultural roles and responsibilities of men and women we can tailor our future interventions to ensure both groups benefit equally from this project.

## **8. Monitoring and evaluation**

We have put a lot of focus on improving our data collection frequency and precision in Y3:

The FFI Guinea project team now regularly engages in electronic data collection, which has increased our ability to collect robust and updated data from the field (**Annex 11**).

ADCAP has introduced harvest box methodology to measure yield improvements, which has increased the precision of our reporting against indicators (**Annex 1**).

CFZ rangers continue to collect paper-based data due to the nature of their work (in the field for days, no electricity for recharging); this system is working as CFZ then creates Excel files that are sent to FFI for verification and compilation (**Annex 3**).

## 9. Lessons learnt

This year went very well. Two significant pushes forward this year in terms of achieving the project outcome have been:

1. The state-level approval of the Zياما Management Plan, which codifies the illegality of farming in the core zone bas-fonds. While neither FFI, CFZ nor the state is actively pursuing prosecution of farmers in the bas-fonds, the formalisation of the ban has provided an additional incentive for farmers to consider alternatives<sup>4</sup>.
2. The active and voluntary movement of individuals and families to establish their agriculture-related income generating activities outside of the core zone bas-fonds; no small feat considering that the average beneficiary has been farming in the core zone bas-fonds for over a decade.

We have learned that the level of dependence and vulnerability that farmers are subject to due to a perceived increased threat of prosecution and long-term dependence upon bas-fonds yields means that farmers require support beyond trainings and incentive beyond law enforcement to convince them to leave, as leaving is a very large risk to their food security. We believe that the plan of providing more individualised support will allow the project to adapt to the possibility of farmer reluctance in the final project year.

One thing that became clear this year is the lack of land outside the MAB Reserve that some farmers are struggling with, particularly in Avilissou. 12.6% of respondents to a survey, when asked if they have rights to any land outside of the bas-fonds, answered 'No' (**Annex 11**). This will be explored via surveying and assessing the possibility of working with landless farmers on livestock interventions (in the future). For now, farmers who wish to leave the bas-fonds and lack access to alternative lands will be supported on a case-by-case basis with village level negotiations to see what options are possible and available.

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

In the feedback from the Y2 AR the project was asked to elaborate upon the progress towards a management and restoration plan:

***Deciding on the methodology to measure farmer departure from bas-fonds needs to be a priority early in Y3 if changes are to be detected within the project timeline. Especially if a baseline for this has not yet been established (unclear).***

In the Y3 half year report it was explained that due to some early project difficulties we had not yet implemented a robust methodology for measuring departure from the bas-fonds, and provided an outline for a plan to tag and georeference the location of illegal cultivation activity and to have CFZ rangers monitor departure. Since then, we have further defined activities and begun implementation of a plan to support and monitor departure from the bas-fonds (**Annex 7**).

The decision to physically number and mark the core zone bas-fonds was a decision not taken lightly by CFZ, as it was expected to cause concern amongst the local population, fearing eviction from where they have been cultivating rice for an average of 10.9 years (**Annex 11**).

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<sup>4</sup> For 68% of volunteers, the incentive to cease farming in the illegal bas-fonds is reported in survey results as being motivated by the concern that they will be eventually forced by the government (**Annex 11**).

Neither FFI nor CFZ proposes evictions at this stage, only voluntary departures, and so it became necessary to undertake community sensitization and meetings with town chiefs in each of the focal villages, to ensure that it is widely understood that the numbered placards are for the purpose of allowing the project to monitor departure and restoration.

Once community agreement was acquired, CFZ staff undertook a 10-day mission to tag these areas. At the same time, FFI conducted a survey in the target villages to identify the first set of voluntarily departing farmers who will receive household-level support (in the form of inputs, training and advice) to establish agricultural activities outside of the bas-fonds in Y4. 77 have been identified as of the beginning of Y4, and groups will continue to be surveyed throughout Y4Q1 in order to identify volunteers. Finally, CFZ rangers have an added check in their patrol records, recording the binary presence of (1) cultivation and (2) signs of restoration in the form of any non-agricultural pioneer species. Ranger findings will be recorded with reference to numbered/target bas-fonds.

Departure monitoring plan in **Annex 7**.

We believe that this is a robust methodology to demonstrate departure. Please note that in previous reports it was suggested that GIS analysis would be used to measure changes in forest cover to detect departure and restoration; we are still undertaking this analysis, but due to the resolution of the images available, we expect the imaging to be secondary support to the above methodology, and not demonstrative of departure on its own.

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

The decision to provide household level support to farmers who voluntarily cease farming in the bas-fonds is a strategic change in direction decided upon in Y3 for implementation in the upcoming year (Y4).

This strategic change did not require a change in project design, but it does bring about a change in how we interact with the beneficiaries of the project. Group work will still occur with ADCAP extension agents visiting and supporting regularly, but additional support will be more focused at the household level to those who are in the process of leaving the bas-fonds, to ensure a smooth and low-risk transition. We are working very hard on finding a balance where project support is not completely conditional (hence the continuation of group work), acknowledging the clear feedback from the communities that it would be very difficult for volunteers to make the transition from farming in the bas-fonds, where some have been cultivating since the 1990's, to working on new lands outside of the forest.

No significant difficulties this year. We started the year with a new partner (ADCAP), due to having had a fraud issue with the original project partner (IRAG). As an update, IRAG have now repaid half of their debt to FFI, equal to £3000. The rest will be repaid this year, in six instalments expected between the months of May and October 2020.

No specific risks, except for the possibility of coronavirus becoming a greater issue. At the time of writing there are no cases in the project area, and hygiene protocols are being both followed and promoted by FFI, ADCAP and CFZ staff.

It is uncertain whether UK-based staff will be able to visit before the end of the project, but both UK-based staff who regularly travel to the project site under the scope of Darwin (Technical Adviser- Wildlife, and the Project Leader) were there in February/March 2020. The Seredou office team and ADCAP are competent with teleconferencing software and peripherals and have access to this equipment, so we do not anticipate significant disruption to the project as a result of less travel from the UK team.

## **12. Sustainability and legacy**

Having recently dealt with the spillover effects of civil wars in two neighbouring countries, as well as being the near the epicentre of the 2014 Ebola epidemic, farmers in the Ziama area are realistic and resilient. They have been engaged and involved in Darwin activities from the beginning, and have remained engaged even throughout the discovery of the Y2 IRAG fraud

issue and the introduction of new project partner ADCAP. It's not empirical evidence, but this is a strong indicator that farmers in the region are motivated to learn about, implement and improve their agricultural systems, and farmer buy-in is the key to sustainability for any agricultural intervention.

The project's exit strategy is to give farmers the agricultural and post-harvest training support necessary to equal or exceed income gained by the current practice of farming in the bas-fonds, and most importantly, to support CFZ in the creation, management and enforcement of a Ziama Management Plan, which has now been codified. This exit strategy is still valid.

### **13. Darwin identity**

The Darwin Initiative name and logo have been clearly displayed during all activities to date, including on motorcycles, reports, equipment, mentioned and thanked in public speeches (such as the televised conservation/10 year anniversary event on November 29 2019), and is displayed at the entrance to each farmer field school demonstration plot and/or nursery.

The Darwin Initiative is widely known by the communities and authorities in the region, who commonly refer to the work being done to protect the Ziama MAB Reserve as "*le Darwin*". The Darwin Initiative is recognised locally as a distinct funding stream of the UK government, put into place to support biodiversity conservation efforts for the long-term benefit of local populations.

Please see **Annex 5** for photographic evidence of the Darwin logo used in the field.

### **14. Safeguarding**

FFI's **Safeguarding Children and Adults at Risk Policy & Procedure** was developed in December 2014 and last updated in March 2018. The policy applies to Members of Council and its sub-committees, FFI employees, temporary staff provided through agencies, volunteers and interns, contractors, consultants, service providers and any third parties who carry out work on behalf of FFI, in partnership with FFI or in conjunction with FFI. The policy demonstrates the organisation's commitment to safeguarding children and adults at risk and to complying with the United Nations Convention on the Rights of the Child; confirms the arrangements and procedures in place to safeguard children and adults at risk, including FFI's code of conduct; and provides clear guidance on how to raise, and how FFI responds to, concerns and allegations regarding the maltreatment of children and adults at risk. The policy expressly states that FFI does not tolerate sexual exploitation and abuse of any kind.

FFI's **Anti-bullying and Anti-harassment Policy** was developed in March 2018. The policy applies to Members of Council and its sub-committees, FFI employees, temporary staff provided through agencies, volunteers and interns, contractors, consultants and any other third parties who carry out work on FFI's behalf. The stated purpose of the policy is to ensure a safe, welcoming and inclusive working environment, which is free from intimidation, threats, discrimination, bullying or harassment; to communicate clearly FFI's zero-tolerance of any form of bullying or harassment; to define the terms 'bullying' and 'harassment' and provide examples, so that there is a clear understanding of the types of conduct that are prohibited; to communicate the importance of reporting incidents of bullying and harassment; and to communicate the procedures in place to manage incidents of bullying and harassment. The policy expressly states that bullying or harassment of any kind against a person or group of people, whether persistent or an isolated incident, will not be tolerated under any circumstances.

FFI's **Whistleblowing Policy** was developed in June 2013 and last updated in December 2019. The policy applies to FFI employees. The stated purpose of the policy is to encourage employees to report suspected wrongdoing in the organisation as soon as possible, in the knowledge that their concerns will be taken seriously and investigated as appropriate, and that their confidentiality will be respected. It provides guidance on how to raise those concerns and aims to reassure employees that they can raise genuine concerns in good faith without fear of reprisals, even if they turn out to be mistaken.

FFI's partner due diligence procedures include checking whether any safeguarding concerns have arisen with the partner concerned and the Safeguarding Children and Adults at Risk Policy & Procedure forms part of contracts and agreements with third party contractors and sub-grantees. We are also currently researching LMS platforms (Learning Management Systems) which would enable online training in policies & procedures.

We monitor updates in Government and Charity Commission guidance and review our policies and procedures accordingly.

No safeguarding issues have been reported during the reporting year.



## 15. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2019 – 31 March 2020)**

<b>Project spend (indicative) since last annual report</b>	<b>2019/20 Grant (£)</b>	<b>2019/20 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)				
Monitoring & Evaluation (M&E)				
Others (see below)				
<b>TOTAL</b>				

## Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2019-2020

Project summary	Measurable Indicators	Progress and Achievements April 2019 - March 2020	Actions required/planned for next period
<p><b>Impact</b></p> <p>Ziama is an intact and effective Man and Biosphere reserve that supports optimal populations of key species, co-managed and equitably benefitting local men and women.</p>		<p>The Ziama MAB management plan was signed into law this year, in November 2019.</p> <p>Core zone bas-fonds have been tagged and are being monitored for departure and restoration.</p> <p>Farmers cultivating in the bas-fonds have volunteered to leave and are in the active process of doing so.</p>	
<p><b>Outcome</b> The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers.</p>	<p>0.1 Stable or increasing indices of elephant and other key species (compared to baselines collected before start of project and through Y1 for full year)</p> <p>0.2 50% of target bas-fonds in Ziama (250 hectares) show improvements in line with expected patterns of restoration in years 3 and 4 against project baseline.</p> <p>0.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 30% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>0.4 70% (266 individuals) of both male and female farmers targeted (of which at least 50% are women) report an improved sense of wellbeing</p>	<p>0.1 No elephant poaching has occurred within the patrolled zone since project inception</p> <p>0.2 Not yet applicable, expected in Y4</p> <p>0.3 We have achieved a 20% reduction in farmer presence in the bas-fonds (as compared to baseline) by the end of Y3, via commitment to voluntary departure of 77 people.</p> <p>0.4 Not yet applicable; we will survey for end of project wellbeing sentiment in Y4.</p>	<p>0.1 Patrols will continue as scheduled</p> <p>0.2 Rangers have had monitoring of the target bas-fonds added to their patrol duties</p> <p>0.3 We will continue to work with beneficiaries to identify those who are ready to depart voluntarily; we are expecting greater buy-in once communities assess the success of the early adopters</p> <p>0.4 Surveys and a participatory impact assessment planned to gauge overall project success from a farmer sentiment perspective.</p>

	(material, physical and subjective) by the end of the project		
<b>Output 1:</b> Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones	<p>1.1 100% (380 individuals, gender disaggregated) of targeted bas-fond farmers from 4 villages had the opportunity to receive direct training and on-going support on a range of improved agricultural, irrigation and tree crop techniques in each year of the project.</p> <p>1.2 From Year 2, 100 direct beneficiary farmers (at least 50% women) are applying at least 1 new intervention on their farmland in transition zones with a minimum of 300 farmers (78%) reporting application of at least 1 new intervention by project end</p> <p>1.3 50% male and 50% female transition zone farmers surveyed from 4 targeted villages (20% population estimated at 337 households) who are not direct beneficiaries of the project report having access to information on improved agricultural techniques by year 4. 60% of participants report increased access to information in focus group feedback sessions on communications programme in year 3 and 4.</p>	<p>1.1 All listed project beneficiaries received direct training and ongoing support in a range of improved agricultural techniques.</p> <ul style="list-style-type: none"> <li>- Beneficiaries are listed in <b>Annex 4</b></li> <li>- Training guides are in <b>Annex 8</b></li> </ul> <p>1.2 Survey results have indicated that 56% farmers are applying at least one intervention on their farmland in the transition zone</p> <ul style="list-style-type: none"> <li>- Survey results in <b>Annex 11</b></li> </ul> <p>1.3 In a survey conducted at the end of Y2/beginning of Y3, 96% reported an increased understanding of improved agricultural techniques since project inception.</p> <p>Attendance of ~3000 at a community information day on ecosystem health in Ziama in November 2019 indicates that target communities are aware of the work being done, even if not directly a project beneficiary.</p>	
Activity 1.1 Inception workshops and participatory design of agricultural extension package with beneficiary farmers			

<p>Activity 1.2 Coordinate and implement composting training</p>	<p>Completed this year with one central compost pit and training facility constructed and 39 beneficiaries trained directly (17 women) over a 3-day training period; see <b>Annex 8</b>.</p>	<p>Follow-up training and continued monitoring in Y4</p>
<p>Activity 1.3 Targeted training sessions and ongoing mentoring for agricultural extension package on topics such as soil management, planting techniques, seed management, green manure, integrated pest management, tree crop improvement, conservation agriculture, weed management, herbicide and pesticide management, alley cropping, agroforestry and improved irrigation techniques for direct beneficiary farmers. Sessions offered as both single-sex and mixed-sex groups to encourage participation by all.</p>	<p>Many targeted trainings offered this year; please see evidence of agricultural and livelihoods trainings offered to beneficiaries in <b>Annex 8</b>.</p> <p>The project has already exceeded its farmer training objectives, with 380 as the initial target and 951 having benefitted from agricultural trainings to date.</p>	<p>Additional development in the area of oil palm cultivation to be focused on in the final year, as it is where the most interest and opportunity lies (despite the negative international image of oil palm cultivation, smallholder cultivation of oil palm in its native range is not more or less problematic than any other tree crop).</p>
<p>Activity 1.4 Update agriculture extension and training methods and topics according to regular participant feedback, with a focus on ensuring sessions are run in a format, time and place to enable women to participate, learn and support each other, without isolating male participants</p>	<p>2 surveys conducted in Y3 in order to gauge farmer engagement, and a series of focus groups held to better understand gender dynamics, issues and areas for potential intervention (<b>Annex 11</b>).</p>	<p>Farmer sentiment with regards to the interventions offered will be measured in two ways this year: via end of project survey, and via participatory impact assessment.</p>
<p>Activity 1.5 Develop and deliver communication plan including training materials and radio programmes using appropriate media to ensure outreach of training and information to village residents and wider area (indirect beneficiaries)</p>	<p>Five audio messages on environmental education broadcast (over loudspeaker from a vehicle) widely in the Ziama region</p> <p>Anti-herbicide posters posted widely and visibly</p> <p>Community conservation and elephant protection event hosted in Seredou, including parade, theatre, poetry competition, a football game and national media coverage</p> <p>(all above in <b>Annex 5</b>)</p>	<p>Radio Macenta has been non-operational and that is expected to continue.</p> <p>Communications plan in the final project year will be to continue engaging project communities and the wider Ziama region on:</p> <ul style="list-style-type: none"> <li>- Sustainable agricultural intensification</li> <li>- Species conservation</li> <li>- Human Wildlife Conflict mitigation</li> <li>- Agrochemical alternatives</li> <li>- Income diversification</li> </ul>

		- Application of the Ziama Management Plan
Activity 1.6 Conduct Participatory Impact Assessment in 4 target villages to ascertain effectiveness of training sessions, to monitor and update communications plan and to assess impact on wellbeing		This will be conducted in Y4.
Activity 1.7 Arrange and facilitate learning exchange visits with other Ziama communities, to demonstrate agricultural practices and crop choices		The implementation of an agricultural buffer zone to repel elephants in a highly-affected village began in Y2; see Activity 2.12.  In Y4, when the (mostly perennial) buffer zone crops are established, farmers from our four villages will visit to learn about the buffer zone technique; this is scheduled for Y4Q4 (to benefit from the most progress possible towards the final vision of the buffer zone).
<b>Output 2:</b> The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones	<p>2.1 300 (78%) of direct beneficiary male and female farmers (of which at least 50% are women) have established or improved existing annual or perennial plots in transition zones by project end, with 25% beginning the process by end Y3</p> <p>2.2 By Year 4 60% of direct beneficiary farmers (228 individuals, of which at least 50% are women), report that the benefits of farming in transition zone equals or exceeds those from bas-fonds crops and remaining 40% of beneficiary farmers are projecting this within 3 years project end.</p> <p>2.3 100% (380 individuals) of targeted farmers have access to improved seed varieties and 25% of both male and female farmers are actively trialling</p>	<p>2.1 We have secured 20%; <b>Annex 11</b>, and when we are able to survey rates of transplantation for tree crops planted in Y3, we expect to see this number go up significantly.</p> <p>2.2 This indicator will be reported on in the Y4/final report</p> <p>2.3 527 people had access to improved seeds via this project in Y3, and 100% of these were actively trialling them in the transition zone with support from FFI and ADCAP via farmer field trainings (<b>Annex 1</b>).</p> <p>2.4 Seed selection training provided in Y3 (<b>Annex 8</b>); results will be reported on in Y4.</p> <p>2.5 No increase in human-elephant conflict</p>

	<p>them in the transition zone by year 3 and 90% by year 4.</p> <p>2.4 Seed selection training provision enables more sustainable seed supply within the communities.</p> <p>2.5 Reduction in human-elephant conflict (compared to baseline collected 2016)</p>	
Activity 2.1 Review condition of land provided, identify appropriate annual and perennial crops, select appropriate farming methods with beneficiary farmers and prepare the land including managing weeds and increasing fertility through planting of 'mucuna'		
Activity 2.2 Establish project baselines, gender disaggregated from bas-fonds crops and monitor annually for direct beneficiary farmers		
Activity 2.3 Ground truth, update design and implement agricultural transition plan, incorporating agricultural extension plan, in participation with direct beneficiary target farmers including mapping shifting labour roles and responsibilities for women and men, support to enhance and shift to self-selected annual and tree crops etc. to ensure feasibility and ownership of the plan	<p>Agricultural transition plan was updated, please see <b>Annex 7</b></p> <p>Shifting labour roles were mapped in a focus group setting, please see <b>Annex 11</b></p>	The updated agricultural transition plan will be implemented; this will be the major activity undertaken in Y4.
Activity 2.4 Adaptively manage the process of change through on-going monitoring of farmers' perceptions of how incentives and activities are progressing, and provide continuous support, follow up and respond to any issues as they arise	As per activity 2.3, farmers were consulted in-depth via survey and focus group in Y3, <b>Annex 11</b>	
Activity 2.5 Implement irrigation training in areas focused on market vegetables, and deliver farmer exchanges and demonstrations related to different types of irrigation systems.	Irrigation demonstration grounds and 3 day training implemented for 45 direct beneficiaries (representatives from each market vegetable group). Further development of irrigation capacity in the 4 focal villages via the installation of rainwater collection points close to	Irrigation training will continue at communal sites via visits from ADCAP extension agents.

	nurseries, to facilitate watering of seedlings ( <b>Annex 1</b> ).	
Activity 2.6 Distribute PICS storage bags and provide training on prevention of post-harvest loss.	A training on PICS use was presented in training of trainers (ToT) format in 4 villages ( <b>Annex 8</b> ), with 640 bags distributed to the 64 people trained (10 each) ( <b>Annex 1</b> ).	CFZ will be responsible for large-scale distribution of PICS bags across 17 villages in Y4.  Volunteers giving up farming in the bas-fonds will receive PICS bags as incentive/benefit, and will be trained in proper use via their groups (via ToT activity in Y3).
Activity 2.7 Identify cost effective storage improvements to address post-harvest loss for other crops as identified by farmers; review cost effective solutions in Y3 and implement locally-appropriate intervention(s) in Y4.	Farmers were surveyed as to their home storage techniques in Y3, with few reporting access to adequate storage ( <b>Annex 11</b> ).	FFI and ADCAP will work directly with households who voluntarily leave the bas-fonds to maximise the efficiency of their current PHL prevention systems and to ensure continued good use of PICS bags.
Activity 2.8 Review potential processing opportunities for existing crops grown outside the bas-fonds in order to identify opportunities to increase income from simple feasible processing	Two FFI Technical Specialists in Participatory Market System Design (PMSD) visited the project site and worked with stakeholders on identifying the most promising crops for market development in the Ziama area; oil palm, coffee and ginger were identified ( <b>Annex 2</b> ).	Continued work on understanding the processing and market opportunities for identified priority cash crops (coffee, oil palm, ginger) will be developed in Y4.  The objective will be to identify next steps in facilitating processing improvement, e.g. machinery, quality/certification standards etc.
Activity 2.9 Distribute improved rice and other annual crop seed varieties to direct beneficiary farmers, providing training of planting techniques for seed and ensure collection of seed at harvest for following year use.	120 kg of improved 'Robert' rice distributed to each project community, sustainable rice training presented to each community ( <b>Annex 8</b> ).	Extension agents will continue to provide support and advice to farmers related to improving rice yields.
Activity 2.10 Establish and train farmers in seed selection and seed conservation techniques, in order to maintain access to improved varieties year on year	Seed selection training module presented to each community ( <b>Annex 8</b> ).	Extension agents will continue to provide support and advice to farmers related to quality seed selection.
Activity 2.11 Annually monitor yields for rice varieties being achieved by beneficiary farms in transition zone and incomes of any surplus sold and adapt activities and support accordingly	Rice yields were monitored in the four project sites, with an average production across all sites of 3 T/ha,	

		423% higher than the state-reported average for the area ( <b>Annex 1</b> ).	
Activity 2.12 Establish trials for protecting crops and repelling elephants with direct beneficiary farmer groups in transition zone based on lessons learnt in FFI Elephant Survey report and use these as demonstration plots for wider community training on the topic according to demand for this village by village		The project invested a significant amount of time, energy and resources into this activity in Y3. Agricultural buffer zone trials were established with full community consultation and cooperation, and a ginger buffer zone was established. Coffee and oil palm seedlings to cover a further 15 hectares were established. Community was trained in soap-making skills as an income-generating activity ( <b>Annexes 9, 8</b> ).	The ginger buffer zone will be increased, and tree crop seedlings will be transplanted when of appropriate size. More tree crop seedlings will be established in nurseries in order to move towards the long-term goal of establishing 45 hectares of buffer zone. Community consultation and training (agroforestry, ginger production and soap-making) will continue.
Activity 2.13 Monitor crop loss and human wildlife conflict in transition zone during monthly community meetings		There were 631 reported incidences of HWC related to crop loss across project villages in Y3. This is not a reduction over Y2 numbers, but reports have likely gone up due to increased engagement ( <b>Annex 9</b> ). Anecdotal feedback from affected communities is positive and violent threats of retaliatory elephant killings from community members have stopped in Y3 (and quite active in Y2).	CFZ and FFI will continue to engage with and monitor HWC via community reports and will work together to create a plan with affected community/ies as needed (as with N'Zebela).  In order to provide data on this activity a survey will be run in Y4 asking farmers if there has been a change in HWC incidences over the project lifespan.
<b>Output 3:</b> Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones	3.1 No new clearing of forest in bas-fonds areas against current figures from July 2016 survey  3.2 Law enforcement patrols report decline in illegal activity in core and buffer zones of Ziama MAB (compared to baseline from 2016 patrol data)	3.1 The number of cleared areas found in the bas-fonds dropped, with general land clearing instances dropping from 268 to 65, and maintained plantations dropping from 162 to 12. It is likely that the first number represents some bas-fonds rice cultivation departures, this will be confirmed (or not) in Y4. <b>Annex 3</b>  3.2 Law enforcement patrols reported a large overall drop in illegal activity in the MAB Reserve in Y3; <b>Annex 3</b> .  3.3 20% reduction achieved by end of Y3 ( <b>Annexes 3, 11</b> )	



	<p>3.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 20% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p> <p>3.4 Reduction in herbicide use in the bas-fonds beginning in Y2.</p>	<p>3.4 Reduction in land clearing in the bas-fonds correlates to a reduction in herbicide use (<b>Annex 3</b>)</p>	
<p>Activity 3.1 Bas-fond user groups and CFZ develop and implement bas fond control and exit plan including monitoring existing use and halting further clearance in bas-fonds</p>	<p>A monitoring plan was developed and implemented (<b>Annex 7</b>)</p>	<p>It will be the main work of the project in Y4 to ensure that beneficiary farmers who wish to depart the bas-fonds have support (inputs, advice and training), and that departures from the target bas-fonds are data-evidenced</p>	
<p>Activity 3.2 CFZ ranger staff conduct regular patrols of bas-fonds and attend bas-fond users association meetings on a regular basis to update users and ensure a strong and harmonious dialogue with communities</p>	<p>Regular patrols were conducted and results logged (<b>Annex 3</b>)</p> <p>Significant interaction and dialogue between CFZ and target communities in Y3 due to the introduction of the Ziama Management Plan and the tagging of the bas-fonds (<b>Annexes 6 and 7</b>)</p>	<p>Continued patrols and data collection by CFZ rangers, including regular communications with FFI and ADCAP regarding feedback from communities.</p>	
<p>Activity 3.3 Provide training on environmental impacts of herbicide and pesticide use in water systems and safe application to bas fond associations in 4 villages and beyond</p>	<p>Training on the environmental and human damage of herbicide use was delivered to target communities and large-scale community sensitisation on the issue was undertaken via a conservation awareness day which included anti-herbicide awareness campaign. Additionally, 9 large placards were posted warning that herbicide use in the MAB Reserve is forbidden (<b>Annex 5</b>)</p>	<p>Significant work was undertaken on this activity in Y2 and Y3, and we believe it has been effective at raising awareness. The project will monitor community attitude towards herbicide use generally, and in the MAB Reserve specifically, via survey.</p> <p>Rangers will continue to gather data on land clearing seen in the Reserve.</p>	

		Notably, instances of land clearing (usually with herbicide) observed in Ziama was reduced from 268 in Y2 to 65 in Y3 ( <b>Annex 3</b> )	
<b>Output 4:</b> Targeted bas-fonds in Ziama MAB are showing signs of forest recovery	<p>4.1 Management plan developed in year 1 and implemented across 50% of all targeted bas-fonds by year 4 (250 hectares)</p> <p>4.2 Targeted bas fonds show annual improvements in ground cover / density of woody vegetation/ species richness in line with expected patterns of restoration by 25% year on year in years 2, 3, and 4 against project baseline</p>	<p>4.1 Ziama Management Plan approved (<b>Annex 6</b>), implementation ongoing (<b>Annex 7</b>)</p> <p>4.2 Targeted bas-fonds have been tagged and a monitoring plan is in place and ongoing.</p>	
Activity 4.1 Develop restoration plan incorporating identification of suitable cost effective methods for enhancing the restoration of bas-fonds based on successful work by CFZ to date including assisted and natural restoration and identification of suitable species to be planted as feasible, based on various suitability criteria including potential to increase forest cover and attract wildlife species to the sites		<p>It is now advised by CFZ and the Ziama Management Plan that restoration should be left to occur naturally until a Ziama-wide restoration plan has been defined (<b>Annex 6</b>).</p> <p>The tagging of the bas-fonds represents a large step towards rigorous data related to bas-fonds recovery; we will now be able to identify whether or not recovery is occurring naturally, and whether recovery is linked to project activities.</p>	CFZ rangers will collect data as described as part of the final dataset indicating rate of abandonment of individually marked bas-fonds, and their subsequent recovery.
Activity 4.2 Develop baselines for a selection of indicators including ground cover / density of woody vegetation/ species richness depending on conditions found in bas-fonds areas to be restored		As previously reported, CFZ rangers who were trained in baseline indicators for bas-fonds recovery in Y1 have largely been moved to other locations, which resulted in a critical interruption in data collection. Current rangers have been involved in Y3/Y4 monitoring plan	CFZ rangers will collect data as described as part of the final dataset indicating rate of abandonment of individually marked bas-fonds, and their subsequent recovery. More specifically, observation of recovery will be both general (all of the bas fonds per CFZ's normal patrols) and specifically linked to target bas-fonds

	<p>discussions and in Y3 received monitoring training</p> <p>In order to facilitate monitoring of bas-fonds recovery in the final year of the project, CFZ rangers will now record (1) incidences of land clearing or cultivation specifically related to numbered bas-fonds, and (2) evidence of pioneer species growing on abandoned bas-fonds.</p> <p>This is in alignment with the Ziama Management Plan (<b>Annex 6</b>).</p>	<p>(now tagged), allowing for the project to be able to link specific observations of bas-fond recovery to project activities.</p>
<p>Activity 4.3 Implement and update restoration plan in years 2, 3 and 4 and scale up appropriate techniques at CFZ identified sites and sites volunteered by bas fond associations</p>	<p>Land restoration activities using mucuna bean will continue, and cowpea and moringa will be integrated into discussions of soil improvement outside of the bas-fonds.</p> <p>FFI will collaborate with CFZ in the implementation of the restoration action in the Ziama Management Plan (<b>Annex 6</b>), which calls for observation of recovery (only) in what is Darwin Y4; a long-term restoration plan is now expected to be put in place led by CFZ, with planning occurring in 2021.</p>	<p>Our Y4 activity here will be monitoring the emergence of pioneer species on abandoned bas-fonds and reporting findings to CFZ for use in putting together the Ziama restoration plan (linked to the Ziama Management Plan).</p>

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

### 24. LOGICAL FRAMEWORK

Darwin projects will be required to report against their progress towards their expected outputs and outcomes if funded. This section sets out the expected outputs and outcomes of your project, how you expect to measure progress against these and how we can verify this.

Version 2.0, agreed via change request submitted Jan 2019 approved May 2019

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p><b>Impact:</b> (Max 30 words) Ziama is an intact and effective Man and Biosphere reserve that supports optimal populations of key species, co-managed and equitably benefitting local men and women</p>			
<p><b>Outcome:</b> (Max 30 words) The relocation and improvement of agricultural practices reduces encroachment and degradation of forest habitats and ecosystems, benefiting elephants, forest resources and biodiversity, while improving the wellbeing of targeted farmers.</p>	<p>0.1 Stable or increasing indices of elephant and other key species (compared to baselines collected before start of project and through Y1 for full year)</p> <p>0.2 50% of target bas-fonds in Ziama (250 hectares) show improvements in line with expected patterns of restoration in years 3 and 4 against project baseline.</p> <p>0.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 30% reduction by end of year 3. We anticipate the final 40% to leave within 3 years of project end.</p>	<p>0.1 Species indices data collected through monthly biomonitoring patrols. Data collected includes tracks and signs from a range of species found in Ziama. Data will be collected throughout Ziama during different seasons. Elephants will be surveyed in Y4 Oct – Dec, repeating the 2016 census.</p> <p>0.2 Vegetation and forest regrowth (ground cover, density of woody vegetation, species richness) increases shown at end of project against baseline. Verified through Landsat satellite imagery.</p> <p>0.3 Law enforcement patrols conducted on a monthly basis, targeting bas-fonds. Y1 &amp; Y2 to</p>	<p>That incentives offered in the agricultural transition plan do reflect ‘meeting their needs’ as reported, and that new law enforcement and education activities are sufficient to dissuade those wanting to continue bas-fond farming, or new farmers moving in.</p> <p>That there is no significant increase in population beyond natural growth, e.g. due to in-migration from conflict, mining opportunities in the region, etc.</p> <p>Assume that the bas fond farmers were honest during project scoping of their desire to leave the bas-fonds.</p>

	<p>0.4 70% (266 individuals) of both male and female farmers targeted (of which at least 50% are women) report an improved sense of wellbeing (material, physical and subjective) by the end of the project</p>	<p>reinforce project messaging and ensure no expansion / new users. Y3 &amp; Y4 to enforce agreements. Reports compiled and analysed on a monthly basis with 6 monthly and annual status reports</p> <p>0.4 Participatory Impact Assessment (PIA) in Y4 to assess wellbeing of beneficiaries (including human-wildlife conflict). Repeat 2016 socio-economic survey in Y4.</p>	<p>That elephant poaching for ivory remains opportunistic and that increasing demand does not lead to professional ivory poaching.</p> <p>There is no extreme weather event (ie drought) during the lifetime of the project</p>
<p><b>Outputs:</b></p> <p>1. Bas-fond farmers and current transition zone farmers in 4 villages are trained in improved agricultural practices and apply them to farmland in transition zones</p>	<p>1.1 100% (380 individuals, gender disaggregated) of targeted bas-fond farmers from 4 villages had the opportunity to receive direct training and on-going support on a range of improved agricultural, irrigation and tree crop techniques in each year of the project.</p> <p>1.2 From Year 2, 100 direct beneficiary farmers (at least 50% women) are applying at least 1 new intervention on their farmland in transition zones with a minimum of 300 farmers (78%) reporting application of at least 1 new intervention by project end</p> <p>1.3 50% male and 50% female transition zone farmers surveyed from 4 targeted villages (20%</p>	<p>1.1 Training reports, attendance sheets, photos in each year, minutes from monthly informal farmer feedback session with extension workers.</p> <p>1.2 Recorded farmer feedback (videos, quotes, minutes from extension feedback sessions), lessons learnt paper produced each year.</p> <p>1.3 Locally appropriate media communications including radio programmes produced and confirmed through household survey of 20% of population of each town conducted in year 4 and designed to target both male and female audiences. Quotes and minutes</p>	<p>Bas-fond farmers remain committed and open to learning new techniques and have confidence in results demonstrated to fully adopt practices</p> <p>Multiple benefits of niebe bean convince farmers to increase production and consumption, as practiced in other West African countries</p> <p>Rainfall remains adequate to feed community irrigation systems for target villages</p>

	<p>population estimated at 337 households) who are not direct beneficiaries of the project report having access to information on improved agricultural techniques by year 4. 60% of participants report increased access to information in focus group feedback sessions on communications programme in year 3 and 4.</p>	<p>from 1 focus group feedback session in each village in year 3.</p>	
<p><b>2. The incentives and wellbeing (food security, physical security, time, income, yield) from farming in the transition zone are equal to or greater than farming in the illegal bas-fonds in the core and buffer zones</b></p>	<p>2.1 300 (78%) of direct beneficiary male and female farmers (of which at least 50% are women) have established or improved existing annual or perennial plots in transition zones by project end, with 25% beginning the process by end Y3</p> <p>2.2 By Year 4 60% of direct beneficiary farmers (228 individuals, of which at least 50% are women), report that the benefits of farming in transition zone equals or exceeds those from bas-fonds crops and remaining 40% of beneficiary farmers are projecting this within 3 years project end.</p> <p>2.3 100% (380 individuals) of targeted farmers have access to improved seed varieties and 25% of both male and female farmers are actively trialling them in the</p>	<p>2.1 Agricultural transition plan developed and validated with beneficiaries and key stakeholders by end Y1. Ongoing monthly meetings with extension staff – minutes. Plan reviewed and assessed in Y2 – Y4 by Project Manager. Appropriate management actions to address any issues documented in 6 monthly and annual reports.</p> <p>2.2. Participatory Impact Assessment (PIA) in Y4 to assess wellbeing of beneficiaries (including human-wildlife conflict). Annual extension staff reviews of farmer uptake and beneficiary farmer feedback focus groups.</p> <p>2.3 Annual extension staff reports on up take and use of varieties</p>	<p>Re-introduction of improved seed varieties conducted by IRAG for upland rice and niebe are replicated by direct beneficiary farmers as anticipated.</p> <p>Initial community discussions on availability and access to land hold true and sufficient land can be harmoniously secured inside and outside Transition Zone.</p> <p>The use of ‘mucuna’ and other soil improvement and weed management techniques to restore degraded land can be scaled up based on previous successful soil restoration work done by IRAG</p> <p>Tree crops seedlings have high survival rates and farmer shows</p>

	<p>transition zone by year 3 and 90% by year 4.</p> <p>2.4 Seed selection training provision enables more sustainable seed supply within the communities.</p> <p>2.5 Reduction in human-elephant conflict (compared to baseline collected 2016)</p>	<p>2.4 Proof of provision of seed selection trainings in Y2 and Y3, feedback in socio-economic survey Y4.</p> <p>2.5 Regular community meetings with farmers to ascertain incidents of wildlife conflict and impact (i.e. crop damage, projected income loss etc.) Reports collated monthly and annually. Information analysed by Project Manager to inform ongoing activities. Recorded in annual reports</p>	<p>excellent knowledge in crop management.</p> <p>Rainfall remains adequate to feed community irrigation systems for target villages</p> <p>Existing good access to local and regional markets remains stable for project duration</p>
<p><b>3. Illegal activity within Ziama is reduced through a shift from bas-fonds to farming in transition zones</b></p>	<p>3.1 No new clearing of forest in bas-fonds areas against current figures from July 2016 survey</p> <p>3.2 Law enforcement patrols report decline in illegal activity in core and buffer zones of Ziama MAB (compared to baseline from 2016 patrol data)</p> <p>3.3 60% reduction (228 individuals) in number of men and number of women (minimum 50% women) using bas-fonds in target villages by project end with a 20% reduction by end of year 3. We anticipate the</p>	<p>3.1 Vegetation mapping, photos, MAB Management plan</p> <p>3.2 Monthly law enforcement patrol data and reports</p> <p>3.3 Law enforcement and targeted bas-fond patrol data and reports, management plan for Ziama MAB including management plan by CFZ. Law enforcement patrols conducted on a monthly basis, targeting bas-fonds. Y1 &amp; Y2 to reinforce project</p>	<p>Participatory demarcation of MAB zones is completed successfully, with communities agreeing access and management.</p> <p>Reducing dependence on bas-fonds will decrease time spent in forest by farmers for poaching/illegal activity</p> <p>Training on safe use of agrichemicals including application of herbicides is effective.</p>

	<p>final 40% to leave within 3 years of project end.</p> <p>3.4 Reduction in herbicide use in the bas-fonds beginning in Y2.</p>	<p>messaging and ensure no expansion / new users. Y3 &amp; Y4 to enforce agreements. Reports compiled and analysed on a monthly basis with 6 monthly and annual status reports</p> <p>3.4 Visual assessment of herbicide use pulled from ranger bas-fonds monitoring reports. Information collected in Y4 socioeconomic survey.</p>	
<p>4. Targeted bas-fonds in Ziama MAB are showing signs of forest recovery</p>	<p>4.1 Management plan developed in year 1 and implemented across 50% of all targeted bas-fonds by year 4 (250 hectares)</p> <p>4.2 Targeted bas funds show annual improvements in ground cover / density of woody vegetation/ species richness in line with expected patterns of restoration by 25% year on year in years 2, 3, and 4 against project baseline</p>	<p>4.1 Management plan produced by end year 1</p> <p>4.2 Vegetation mapping, biomass analysis in year 4, photos in year 2, 3 and year 4</p>	<p>Restoration sites respond in line with samples plots conducted to date.</p> <p>Seedlings and seeds, if needed, are readily available at the right times.</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. Inception workshops and participatory design of agricultural extension package with beneficiary farmers</p> <p>1.2 Coordinate and implement composting training</p> <p>1.3 Targeted training sessions and ongoing mentoring for agricultural extension package on topics such as soil management, planting techniques, seed management, green manure, integrated pest management, tree crop improvement, conservation agriculture, weed management, herbicide and pesticide</p>			



management, alley cropping, agroforestry and improved irrigation techniques for direct beneficiary farmers. Sessions offered as both single-sex and mixed-sex groups to encourage participation by all.

1.4 Update agriculture extension and training methods and topics according to regular participant feedback, with a focus on ensuring sessions are run in a format, time and place to enable women to participate, learn and support each other, without isolating male participants

1.5 Develop and deliver communication plan including training materials and radio programmes using appropriate media to ensure outreach of training and information to village residents and wider area (indirect beneficiaries)

1.6 Conduct Participatory Impact Assessment in 4 target villages to ascertain effectiveness of training sessions, to monitor and update communications plan and to assess impact on wellbeing

1.7 Arrange and facilitate learning exchange visits with other Ziama communities, to demonstrate agricultural practices and crop choices

2.1 Review condition of land provided, identify appropriate annual and perennial crops, select appropriate farming methods with beneficiary farmers and prepare the land including managing weeds and increasing fertility through planting of 'mucuna'

2.2 Establish project baselines, gender disaggregated from bas-fonds crops and monitor annually for direct beneficiary farmers

2.3 Ground truth, update design and implement agricultural transition plan, incorporating agricultural extension plan, in participation with direct beneficiary target farmers including mapping shifting labour roles and responsibilities for women and men, support to enhance and shift to self-selected annual and tree crops etc. to ensure feasibility and ownership of the plan

2.4 Adaptively manage the process of change through on-going monitoring of farmers' perceptions of how incentives and activities are progressing, and provide continuous support, follow up and respond to any issues as they arise

2.5 Implement irrigation training in areas focused on market vegetables, and deliver farmer exchanges and demonstrations related to different types of irrigation systems.

2.6 Distribute PICS storage bags and provide training on prevention of post-harvest loss.

2.7 Identify cost effective storage improvements to address post-harvest loss for other crops as identified by farmers; review cost effective solutions in Y3 and implement locally-appropriate intervention(s) in Y4.

2.8 Review potential processing opportunities for existing crops grown outside the bas-fonds in order to identify opportunities to increase income from simple feasible processing

2.09 Distribute improved rice and other annual crop seed varieties at a reduced cost to direct beneficiary farmers, providing training of planting techniques for seed and ensure collection of seed at harvest for following year use.

- 2.10 Establish and train farmers in seed selection and seed conservation techniques, in order to maintain access to improved varieties year on year
  - 2.11 Annually monitor yields for rice varieties being achieved by beneficiary farms in transition zone and incomes of any surplus sold and adapt activities and support accordingly
  - 2.12 Establish trials for protecting crops and repelling elephants with direct beneficiary farmer groups in transition zone based on lessons learnt in FFI Elephant Survey report and use these as demonstration plots for wider community training on the topic according to demand for this village by village
  - 2.13 Monitor crop loss and human wildlife conflict in transition zone during monthly community meetings
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- 3.1 Bas-fond user groups and CFZ develop and implement bas fond control and exit plan including monitoring existing use and halting further clearance in bas-fonds
  - 3.2 CFZ ranger staff conduct regular patrols of bas-fonds and attend bas-fond users association meetings on a regular basis to update users and ensure a strong and harmonious dialogue with communities
  - 3.3 Provide training on environmental impacts of herbicide and pesticide use in water systems and safe application to bas fond associations in 4 villages and beyond
- 
- 4.1 Develop restoration plan incorporating identification of suitable cost effective methods for enhancing the restoration of bas-fonds based on successful work by CFZ to date including assisted and natural restoration and identification of suitable species to be planted as feasible, based on various suitability criteria including potential to increase forest cover and attract wildlife species to the sites
  - 4.2 Develop baselines for a selection of indicators including ground cover / density of woody vegetation/ species richness depending on conditions found in bas-fonds areas to be restored
  - 4.3 Implement and update restoration plan in years 2, 3 and 4 and scale up appropriate techniques at CFZ identified sites and sites volunteered by bas fond associations



## Annex 3: Standard Measures

**Table 1 Project Standard Output Measures**

Code No.	Description	Nationality of people (if relevant)	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
5	Agroforestry training	Guinea n	119	136	247	502	380
6A	Farmer field school training provided on a range of topics.	Guinea n	171	368	412	951	380
6B	Training to CFZ on bas fond monitoring	Guinea n	1	0	1	2	1
6B	1 week training to CFZ rangers on HWC mitigation measures	Guinea n	1	0	0	1	1
6A	No. of trainings on quality seed selection	Guinea n	0	1	1	2	1
9	1 bas fond restoration and monitoring plan	Guinea n	0	0	1	1	1
20	Est. value of physical assets to be handed over						
23	Cofinance						

**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)
10 Years and Counting: Celebrating FFI's work in Guinea	'News & Views' post on FFI's website	Koighae Toupou and Michelle Villeneuve	Male	Guinean	FFI website	<a href="https://www.fauna-flora.org/news/ten-years-counting-celebrating-ffis-work-guinea">https://www.fauna-flora.org/news/ten-years-counting-celebrating-ffis-work-guinea</a>

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

[All Annex documents here](#)

### 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.	yes
<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.	no
<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.	yes
<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.	no
Have you involved your partners in preparation of the report and named the main contributors	yes
Have you completed the Project Expenditure table fully?	yes
Do not include claim forms or other communications with this report.	