CEPF Final Project Completion Report

Organization Legal Name:	Fauna & Flora International
Project Title:	Mainstreaming Karst Biodiversity Conservation into Policies, Plans and Business Practices in the Ayeyarwady Basin, Myanmar
Grant Number:	66332
CEPF Region:	Indo-Burma II
Strategic Direction:	6 Engage key actors in mainstreaming biodiversity, communities and livelihoods into development planning in the priority corridors
Grant Amount:	$190,000.00
Project Dates:	April 01, 2017 - October 31, 2019
Date of Report:	December 30, 2019

IMPLEMENTATION PARTNERS

List each partner and explain how they were involved with the project.

- **Nature and Wildlife Conservation Division (NWCD), Myanmar Forest Department (FD): Supported the implementation of the project activities, by providing travel permission, facilitating and participating in meetings, consultations and policy workshops.**
- **The local CSO partners, Southern Shan Natural Conservation Association (SSNA) and the Community Observer Association (COA): Participated in the biodiversity surveys and were instrumental in the karst conservation awareness program, facilitation of community meetings, trainings and workshops. The project provided capacity building technical and management support for COA's CEPF small grant project on cave management in Kayin/ Mon state.**
- **Mandalay University: Organized herpetological training and participated in the bat surveys**
- **La Sierra University: provided training for herpetological and conducted herpetological surveys.**
- **Myanmar cave documentary project: Provided training for the cave exploration technique**
- **Private sector for Karst Tourism: Dream Clover Travel, Htabakaw Tour and Ywarngan Travel Organization: Participated in the development of Showcave tourism guidelines for the consultation process and training**
- **Private sector for Cement: Shaw Taung Group of Companies: Developed Biodiversity offset proposal for best practice for limestone quarrying**

CONSERVATION IMPACTS

Summarize the overall impact of your project, describing how your project has contributed to the implementation of the CEPF ecosystem profile.

- **The project identified 21 Karst KBAs. The KBAs have been presented and submitted to the DG Forest Department in October 2019 and subsequently presented and reviewed in a national KBA workshop and added to the national KBA list (November 2019).**
- **The Limestone specific guidelines for environmental impact assessment was finalized after the consultation with cement companies, EIA companies and NGOs at workshop on the EIA review/ guidelines for limestone quarries, conservation and management which organized in August 2018.**
- **The guidelines for best practice for limestone quarrying was consulted with the cement companies, EIA companies and NGOs at workshop on the EIA review/ guidelines for limestone quarries, conservation and management which organized in August 2018..**
- **The project has built the capacity of eight cave management committees for cave biodiversity conservation, cave management and zonation planning and responsible cave tourism.**
- **A comprehensive cave biodiversity conservation awareness has been carried out to improve the conservation of the 5 most important caves for biodiversity conservation. 192 villagers from six villages and 455 students from four local schools received karst conservation awareness training. In collaboration with local cave management committees 21 Karst conservation awareness sign board were posted at 5 caves and 15 villages, 3 signboards showing cave conservation values, cave zonation plans and visitor regulations were erected at three caves in Shan State. 2,000 karst conservation leaflets were distributed to local, regional and national stakeholders..**
- **Apache cement followed the best practice EIA and quarry management. The project provided technical support for the preparation of the environmental management plan and off-set management plan of Apache cement. The off-set plan has been adopted by Apache Cement and approved by the IFC as financing partner (https:// www. apachecement.com/wp-content/uploads/2018/12/STC-Biodiversity-Action-Plan-Version-1.5-Final.pdf). A letter of intent between Apache cement and forest department has been signed to implement the off-set management plan with technical support from conservation NGOs.**
- **The show cave guidelines have been finalized with all relevant stakeholders and it has been adopted by the Shan state regional department of Hotels and Tourism. A total of 85 representatives from 7 cave management committees and tourism companies in Shan, Kayin and Mon state, as well as relevant government agencies participated in the finalization of the show cave management guidelines.**
- **Two show cave management plans (Ye Win cave and Win Dwin Cave) in Ywarngan Township/ Shan state were developed together with their respective cave management committees.**

Planned Long-term Impacts – 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary

Limestone biodiversity mainstreamed into policies, plans and business practices in Myanmar	• Identified and proposed 21 karst key biodiversity area in Shan, Kayin, Mon states, and Mandalay and Tanninthary regions to government and local stakeholders. The Karst KBAs have been added to Myanmar's national KBA list. • The project provided technical support and facilitated local stakeholder consultation based on FPIC principles for the preparation and submission of protected area proposals of Ye Htuck Cave KBA (475 acres) and Ye Win KBA (1013 acres) in Ywarngan township in Shan state. These two PAs were proposed as Community Protected Area. • Show-cave tourism guidelines have been finalized and consulted with relevant stakeholders. 85 people received the training in cave tourism guidelines. • The Limestone karst specific guidelines for environmental impact assessment were finalized after the consultation with cement companies, EIA companies and NGOs and submitted to the Environmental Conservation Department (ECD). • The project prepared cave management and zonation plans for two show caves in Shan state and supported the local CSO partner in Kayin and Mon states to install cave lighting system which reduces the impact on biodiversity and will serve as best practice demonstration caves in Myanmar.

Planned Short-term Impacts – 1 to 3 years (as stated in the approved proposal)

Impact Description	**Impact Summary**
1. EIA Guidelines for Mining Sector, including specific provisions for the conservation of limestone biodiversity adopted by Environment and Mining Departments	• The project reviewed EIA reports for three cement companies to mainstream karst specific biodiversity conservation into EIAs and environmental mitigation and management plans. • The project consulted and finalized EIA guidelines for Karst biodiversity conservation with cement companies, EIA companies and NGOs.
2. Best environmental quarry practices for limestone quarry adopted by Mining Department and disseminated to all cement companies	• The project consulted guidelines for best environmental practice in limestone quarries with cement companies, EIA companies and NGOs.
3. Increased knowledge of Limestone KBAs of all relevant stakeholders in Mandalay Region and Shan State	• The project organized three key trainings: a seven-day cave exploring and documentation trainings (20 participants), a one-day show cave management training (40 participants) in Shan state and 2 two-day cave management trainings (45 participants) in Kayin state. Trainings were organized in collaboration with the Myanmar cave documentation project and tourism companies. • Karst biodiversity conservation events/ trainings were organized at six villages and four schools. Total of 455 students and 192 villagers from six villages participated. • Total of 24 awareness sign boards were erected at 5 cave entrances and in the 15 surrounding villages. 2,000 karst conservation awareness leaflets and 1000 exercise books with karst conservation awareness content were distributed. • The project conducted a KAP repeat survey among the communities who lived near the proposed new protected area, which showed a significant increase in karst conservation awareness. Knowledge: increase knowledge on the cave biodiversity. Altitude: Cave managers realized the need for cave protection and visitors management at the caves. Behavior: cave managers and community increased participation in the karst ecosystem conservation. • The project arranged a study tour to eight caves in Mon & Kayin states
4. Demonstration of best practice EIA and quarry management (Apache Cement) shared with relevant government departments and cement companies	• Apache cement followed the best practice EIA and quarry management. The project provided technical support for preparation of the off-set management plan of Apache cement. Agreement letter of Intent was signed by Apache Cement and the Forest Department to implement the off-set management plan.
5. Limestone KBAs reflected in regional	The show cave guidelines have been finalized with all relevant

development plans and tourism development plans (e.g. destination management plans for Shan State)	stakeholders and have been adopted by the Shan State Department of Hotels and Tourism. A total of 85 representatives from 7 local cave management committees and tourism companies in Shan, Kayin and Mon state participated in the consultation workshop.
6. Demonstration of best practice show cave management shared with tourism department and show cave operators	Two show cave management plans (Ye Win cave and Win Dwin Cave) in Ywarngan township, Shan state were developed together with the local cave management committees. The management plan and practice was shared at the show cave tourism management workshop in Feb 2019.

Describe the successes or challenges of the project toward achieving its short-term and long-term impact objectives.

- **Limited human sources is the one of the key challenges for the project. Until now there is no Myanmar national taxonomist for cave invertebrates. However the project has succeed in collaboration with La Sierra University to build taxonomic expertise at Mandalay University in karst specific herpetology (cave/ karst geckos)**
- **EIA guidelines and best practice guidelines for limestone quarrying have been consulted with all relevant stakeholders, finalized and submitted to all relevant government departments (mining and environmental conservation department).However a formal adoption of the guidelines is still outstanding, since the Myanmar government is still in the process of revising its overall EIA policies and regulations. It is expected that the karst specific guidelines will be included in the ongoing revision process, but this beyond the time frame of this project. .**
- **Because of strong motivation of local cave management committees, the Shan state hotel and tourism department, as well as tourism operators were very interested in the development of show cave management guidelines. The project has been able to develop a strong collaboration with department and the tourism operators, resulting in the successful finalization and adoption of the show cave management guidelines.**
- **With the support of Shan state forest department and the Danu autonomous region authority, the project were able to initiate the gazettement process based on FPIC principles for to new protected areas for two important caves in Ywarngan township.**
- **Project was able to identify 21 KBAs based on the biological survey results undertaken by both international and national scientists and add them to the national KBA list and map.**

Were there any unexpected impacts (positive or negative)?

- **Show cave tourism guidelines which were developed by the project have been already adopted by the Kayin state tourism department for tourism training in Hpa An as one of the tourism management topics.**
- **The first phase and second phase of the CEPF project resulted in three new karst protected area which are in the process of gazettment in Kayin and Mon state: Eaiksarthaya cave (75 acres) as Geo-physically Significant Reserve and Hatung wi (165 acres) as Geo-physically Significant Reserve in Kayin state, and Pha paung taung (466.07 acres) as Nature Reserve in Mon state.**

- **Additionally the Panlaung-Padalin Cave Wildlife Sanctuary has been expanded by 16,000 acres to include additional karst areas in the context of the Apache Cement off-set.**
- **Since the biodiversity survey teams discovered numerous species new to science, karst biodiversity has received attention as an important research topic from national universities, as well as raised public awareness for the importance of karst biodiversity conservation in Myanmar.**
- **The project raised the interest of the Danu Autonomous Authority for responsible cave tourism development in Ywar Ngan township, Danu region. As a result, the Danu Autonomous Authority allocated a budget for improving road access to Sinsarpyar village and Ye Win cave in the 201819 fiscal year. Moreover, there is also plan to allocate a budget for road development to Wun Dwin cave in 2019-2020.**

PROJECT COMPONENTS AND PRODUCTS/DELIVERABLES

Describe the results from each product/deliverable:

Component		Deliverable		
#	**Description**	**#**	**Description**	**Results for Deliverable**
2	Mainstream limestone biodiversity into environmental and mining policies, guidelines and plans of the government, and into business practices of the cement sector	2.4	EIA review report for at least three cement company operations	Project reviewed three cement companies EIA reports: Shwe Taung Cement Co., Ltd (Apache Cement), Highland Cement International Co., Ltd and Max Myanmar Manufacturing Co., Ltd. which are location in Thazin Township Mandalay Region. The result was presented at the EIA review workshop in August 2018.
2	Mainstream limestone biodiversity into environmental and mining policies, guidelines and plans of the government, and into business practices of the cement sector	2.5	Supplementary EIA and Environmental Management Plan for Apache Cement, based on IFC PS 6, providing a limestone biodiversity specific environmental impact assessment, mitigation measures for safeguarding limestone biodiversity and/or off-set measure	Apache Cement's conducted the supplementary EIA and prepared Off-set management plan with technical advice from the project. The IFC approved the supplementary EIA and offset plan. A letter of intent for the implementation of the off-set plan has been signed by Apache Cement and the Myanmar Forest Department.
2	Mainstream limestone biodiversity into environmental and mining policies,	2.6	At least 2 best practices guidelines adopted by cement companies	Apache Cement followed the best guidelines of EIA guideline by conducting supplementary EIA. The site development of the two other companies have stalled for now.

	guidelines and plans of the government, and into business practices of the cement sector		(best practice limestone quarry guidelines and EIA guidelines for limestone quarries)	
3	Mainstream limestone/ cave biodiversity into tourism policies, plans and practices	3.1	Shan State tourism and development plans include safeguards for limestone/ cave biodiversity, informed by cave/ karst KBA assessment in 1st project phase, as well as guidelines and best practices in cave management	The cave management guidelines have been adopted by the Shan state tourism department. A show-cave management training has been organized together with the Shan state tourism department for five cave management committees, Ywar Ngan tour operators, and the Pa-O community based tourism association in Hopon township. The Shan state forest department and Danu autonomous region authority have initiated the gazettement of 2 karst KBAs as protected areas.
3	Mainstream limestone/ cave biodiversity into tourism policies, plans and practices	3.2	At least 2 best show cave management practices (cave zonation plan secures key biodiversity areas within the cave and biodiversity friendly cave lighting) implemented in at least two caves	Management plan of two caves, Ye Win cave and Wun Dwin Cave in Ywar Ngan Township, were prepared and adopted by local cave management committees. Both cave management committees already initiated management practices according to the cave management plans. Biodiversity friendly cave lighting was installed at Ya Thae Pyan Cave in Kayin and Sadden Sin cave in Mon state in collaboration with Community Observer Association (COA).
3	Mainstream limestone/ cave biodiversity	3.3	Show-cave management guidelines (zonation for	Show-cave management guidelines were finalized together with relevant stakeholders and trainings in show cave management have been conducted for local cave management committee and tour

	into tourism policies, plans and practices		biodiversity conservation and biodiversity-friendly lighting) as well as lessons learned from show-cave pilots disseminated to all stakeholders	operators in Shan and Kayin states.
4	Increase awareness of limestone biodiversity among stakeholders at local, regional and at national level	4.1	Increased awareness of cave KBAs and biodiversity amongst local villagers and among those Buddhist communities with temples in or adjacent to caves, demonstrated through a participatory knowledge, attitude and behavior assessment at the end of the project	Knowledge, attitude and behavior (KAP) assessment was conducted at six villages which located next to the proposed Karst protected areas in Ywar Ngan township. The awareness about cave biodiversity and cave management has improved at all targeted caves/ KBA sites. Cave management plans have been adopted and are being implemented, which has improved waste management, cave lighting and visitor guidance to ensure that sensitive areas in the caves with bat roosts and cave invertebrates are no longer disturbed. Also the local monks and cave management committees have refrained from any new pagoda buildings in the cave conservation zones.
4	Increase awareness of limestone biodiversity among stakeholders at local, regional and at national level	4.2	Cave biodiversity awareness materials and interpretation signboards at priority limestone key biodiversity areas, limestone	Total of 24 awareness sign boards were erected at the 15 villages and 5 caves in Shan state. 2,000 karst conservation awareness leaflets and 1000 exercise books with karst conservation awareness were distributed.

			biodiversity brochures and posters.	
4	Increase awareness of limestone biodiversity among stakeholders at local, regional and at national level	4.3	Articles in national and international print media, TV features, social media blogs, reports uploaded to www.myanmarcaves.com	• Voyaging deep into Myanmar's cave by By Jeremy Holden, 11th May 2017 (https://www.fauna-flora.org/news/voyaging-deep-into-myanmars-caves) • 15 new gecko species discovered in Myanmar by Noa Leach, OCTOBER 5, 2017 (HTTPS://PHYS.ORG/NEWS/2017-10-GECKO-SPECIES-MYANMAR.HTML), (HTTPS://WWW.FAUNA-FLORA.ORG/NEWS/FIFTEEN-NEW-GECKO-SPECIES-DISCOVERED-IN-MYANMAR) KARSTS AND CAVES OF MYANMAR (HTTPS://WWW.YOUTUBE.COM/WATCH?V=GJBZXPRW4FW) • Myanmar caves yield up 19 new gecko species by Shreya Dasgupta on 11 October 2017 (https://news.mongabay.com/2017/10/myanmar-caves-yield-up-19-new-gecko-species/) • Amazing New Geckos Discovered in Myanmar — Just As Their Limestone Habitats Are Being Mined - by John R. Platt April 23, 2019 • News on the first Myanmar Cave training in Shan state in June 2017, News on Cave tourism development workshop in YwarNgan in Feb 2019 and Cave management traning in Hpan An in March 2019 were posted in FFI Myanmar Facebook page. • ttps://myanmar.mmtimes.com/news/101645.html by Nwe Htwe 06 SEP 2017 (MYANMAR VERSION)
4	Increase awareness of limestone biodiversity among stakeholders at local, regional and at national level	4.4	Social assessment and community consultation report for conservation interventions or protected area gazettement interventions of cave/ karst areas which are located within customary	Report on Village social assessment, village mapping and consultation for the nomination of new protected area at six villages: Sinsarpyar, Kyauk Nget, Linwe, Kyauk Taw, Pegin and Thaphanpin in YwarNgan Township, State in June 2018.

			lands of indigenous people or utilized by local communities.	
1	Complete Limestone KBA assessments and mainstream KBAs into district/ state forest and development plans	1.1	Limestone/ karst KBA assessment report	Prepared and submitted to forest department. Total 21 KBAs: 6 areas in Kayin, 6 in Mon, 3 in Mandalay, 5 in Shan and 1 in Tanintharyi were identified as karst KBA.
1	Complete Limestone KBA assessments and mainstream KBAs into district/ state forest and development plans	1.2	At least 2 sites/ 600 hectares in Shan state of limestone/ karst KBAs reflected in recommended changes to district/ state forest management / regional development plans and proposed for protected area gazettement.	With the agreement of the forest department, project supported the preparation of the gazettement process of two new protected areas in Ywarngan township in Shan state. • Completed village consultation based on FPIC principles, community mapping and gazettment proposal for Ye Win cave. Total proposed area is 1,013 acres. • Completed village consultation based on FPIC principles, community mapping and gazettement proposal for Ye Htuck cave and submitted gazettement proposal to the forest department. Total proposed area is 475 acres.
2	Mainstream limestone biodiversity into environmental and mining policies, guidelines and plans of the government, and into business practices of the cement sector	2.1	Limestone/ karst biodiversity specific EIA guidelines for the mining sector reviewed by Environment, Mining and Mineral Exploration Department within MONREC (documented	The Limestone specific guidelines for environmental impact assessment was finalized after the consultation with cement companies, EIA companies and NGOs and submitted to relevant government departments.

			through workshop reports/ minutes of meetings, formal review response)	
2	Mainstream limestone biodiversity into environmental and mining policies, guidelines and plans of the government, and into business practices of the cement sector	2.2	EIA Mining Sector guidelines with limestone/ karst biodiversity conservation specific provisions adopted by Environment Department and Mining Department	Guidelines have been developed and submitted to government. However, due to ongoing revisions of government policies and regulations an adoption of overall mining policies, guidelines and regulations and adoption could not be achieved before the end of the project. However, it is expected that the guidelines prepared by the project will be considered in ongoing government revision process.
2	Mainstream limestone biodiversity into environmental and mining policies, guidelines and plans of the government, and into business practices of the cement sector	2.3	Best environmental practice guidelines for limestone quarries adopted by Mining Department and disseminated to all cement companies	The guidelines for best practice for limestone quarrying was consulted with the cement companies, EIA companies and NGOs and submitted to government.

Describe and submit any tools, products or methodologies that resulted from this project or contributed to the results.

- **KAB surveys pre – and post – conservation awareness intervention to measure the effectiveness of awareness campaigns**
- **Karst Key Biodiversity Report**
- **Karst conservation leaflet, exercise book with karst biodiversity conservation information**
- **Biodiversity Survey reports (bat, herpetological, primate, flora)**
- **Scientific description of 13 new gecko species, one toad species, one salamander species, 1 snail species, and 1 crab species.**

- **Workshop proceeding of the EIA Review/ Guidelines for limestone quarries in Yangon**
- **Workshop proceeding of the cave biodiversity and visitor/tourist management workshop in Ywar Ngan, Shan state**
- **Workshop proceeding of the cave biodiversity conservation and cave visitor/tourism management workshop in Hpan An, Kayin state**
- **Report on Cave Management and Biodiversity Conservation Training in Ywar Ngan, Shan state**

LESSONS LEARNED

Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building.

Consider lessons that would inform:

- Project design process (aspects of the project design that contributed to its success/shortcomings)
- Project implementation (aspects of the project execution that contributed to its success/shortcomings)
- Any other lessons learned relevant to the conservation community

- **In Myanmar, considering its recent past of military government, crony business and even more recent transition to democracy, the project has nevertheless succeeded in mainstreaming karst biodiversity conservation into government policies as well as business practices. This provides a valuable lesson that such projects are particular important during rapid transition phases, when often biodiversity concerns are disregarded.**
- **While karst biodiversity has rarely been taken into account in EIAs and mitigation/ off-set plans in cement industry limestone quarrying projects worldwide, this pilot project shows the importance and relevance of projects that focus not only on mainstreaming biodiversity into policies but also into business practices. The same applies for cave tourism.**
- **The project has demonstrated that neglected ecosystems and species (e.g. cave invertebrates) can be successfully mainstreamed into business as well as conservation policies and practices.**
- **The project has demonstrated the value of local stakeholder participation in the conservation of KBAs.**
- **Considering the limited grant size and duration, the project has worked at the limits in terms of the financial and human resource needs and could only succeed due to significant co-financing. To achieve long lasting results an additional third/ final phase or a larger grant/ longer project period would have been preferable.**

SUSTAINABILITY/REPLICATION

Summarize the successes or challenges in ensuring the project will be sustained or replicated, including any unplanned activities that are likely to result in increased sustainability or replicability.

- **The show cave management plans for Ye Win and Wun Dwin caves are the first two show cave management plans in Shan State and the biodiversity friendly cave lighting system installed of two caves in Kayin and Mon state are also first two show caves with biodiversity-friendly lighting system. These are excellant examples of the show cave management for replication in other show/ pilgrimage caves in Myanmar.**
- **Shwe Taung Cement prepared Myanmar's first supplementary EIA and off-set management plan for a limestone quarry site that takes karst specific biodiversity into account and is based on IFC performance standards. This sets an example not only for other cement companies in Myanmar, but is one of the best practice examples worldwide.**
- **The project resulted in increased Union and State/Regional government support to include karst area within Myanmar's protected area system. While the project only supported directly the gazettement process for two new karst protected area in Shan state, local communities, national and state/ regional governments have since nominated four additional karst areas for protected area gazettment.**

SAFEGUARDS

If not listed as a separate project component and described above, summarize the implementation of any required action related to social, environmental or pest management safeguards.

Project conducted participatory mapping for the Ye Win karst protected area with the representative of the community from Sinsarpyar and Kyauk Nget villages in September 2019. In October 2019, the village consultation meeting was organized together with the forest department to explain the nomination process and rules and regulations of the protected area. The communities were willing to establish protected area with the proposed boundary.

ADDITONAL COMMENTS/RECOMMENDATIONS

Use this space to provide any further comments or recommendations in relation to your project or CEPF.

ADDITONAL FUNDING

Provide details of any additional funding that supported this project and any funding secured for the project, organization or region as a result of CEPF investment.

Total additional funding (US$)
$4,080.00

Type of funding
Provide a breakdown of additional funding (counterpart funding and in-kind) by source, categorizing each contribution into one of the following categories:

A. Project co-financing (other donors or your organization contribute to the direct costs of this project)
B. Grantee and partner leveraging (other donors contribute to your organization or a partner organization as a direct result of successes with this CEPF-funded project)
C. Regional/portfolio leveraging (other donors make large investments in a region because of CEPF investment or successes related to this project)

Helmsley Charitable Trust, A, 4080USD (Salary for Project mangaer (5%), LaSierra Univeristy, B, unkonwn (Time/Subsistence of Dr. Grismer and other staff to conduct Herp surveyes)

INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. Final project completion reports are made available on our website, www.cepf.net, and may be publicized in our e-newsletter and other communications.

1. Please include your full contact details (name, organization, mailing address, telephone number, email address) below.