

## CEPF Final Completion and Impact Report

<b>Organization’s Legal Name:</b>	Conservation International - Cambodia
<b>Project Title:</b>	Community based wild-fire management on Cambodia’s Tonle Sap Lake
<b>Grant Number:</b>	CEPF-110374
<b>Hotspot:</b>	Indo-Burma III
<b>Strategic Direction:</b>	4 Empower local communities to engage in conservation and management of priority key biodiversity areas
<b>Grant Amount:</b>	\$179,999.97
<b>Project Dates:</b>	July 01, 2020 - June 30, 2023
<b>Date of Report:</b>	August 29, 2023

### IMPLEMENTATION PARTNERS

Doung Sdoeng, Poy Veouy, Boeng Prasan and Peam Bang Senmeachey Community Fishery Organizations full development and implementation of CBFiM.  
 Dei Roneat, Pov Veuy Senchey, Preak Kra, Srey Check, Ou Ta Prok, Tram Peaer, Kampong Prak, Spean Krong, Kddey Chhveat, Koh Preaek Reangtil Cfis, and Balot Community Protected Area – partial implementation of CBFiM.

### CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
By 2025 the incidence and size of wildfires within the three project CFI’s remains lower than both conditions prior to 2021 and within other comparable CFI’s without CBFiM.	We identified a high level of variation in the number of fires both within and between our partner communities and over time. For example, there were few fires in 2021 and none in 2022 which were wetter years, but substantially more in the dryer 2023. This, large differences between CFI’s and unreliable satellite data meant that we could not determine if the incidence of wildfire was less because of our interventions. However, we investigated the factors that influenced the size of wildfires in our seventeen supported communities using Ororatech satellite alerts and on ground data. We found that vegetation type and distance to fire information signboards was most important in

Impact Description	Impact Summary
	<p>explaining wildfire size. Fire suppression by the local fire teams did not influence its size, as many small fires burnt themselves out, and fire teams also attempted to suppress much larger fires. The influence of the signposts suggests that the communities' interventions was having a positive impact.</p> <p>Despite this lack of a clear link between fire size and frequency to the establishment of CBFiM, without the training, equipment and support provided by this project our partner communities would have no ability to control wildfire within their communities.</p>
<p>By 2025 the CBFiM system developed by this project has been adopted in full or part by at least 10 other CFI's in the Tonle Sap Lake and Inundation Zone Priority Corridor.</p>	<p>We have expanded our approach to an additional thirteen communities across the Tonle Sap having provided them with Ororatech wildfire alerts, equipment, and training. We have also provided the CBFiM Saving Group fund to seven additional communities. We have developed a CBFiM system that can be readily improved by these communities and applied by others.</p>

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

Impact Description	Impact Summary
<p>By 2022, three Community Fisheries organizations managing 9,104 ha of the Tonle Sap floodplain with and adjacent to the Boeing Chhmar KBA have sufficient capacity and confidence to successfully manage wild fire, as demonstration by a reduction in both the number of fires and area burnt by fires during the 2021 and 2022 fire seasons.</p>	<p>Through collaborative implementation of CBFiM we have provided four CFI's managing 12,995 ha of Tonle sap floodplain with the capacity and confidence to successfully manage wildfire. Our communities successfully intervened to suppress fully or partially fourteen within their community wildfire management areas. Due to this small sample size and high level of interannual variation it was not possible to demonstrate a reduction in either the number of size of fires because of implementing CBFiM when compared to previous years. However, modelling of factors that influenced the size of wildfire showed that fires in previously burned areas which were closer to fire warning signposts were smaller than those that were further away, suggesting that this intervention had a positive impact.</p>
<p>By 30 June 2022 Community Based Fire Management (CBFiM) will have been established in three Community Fisheries (CFis) within or adjacent to Boeng Chhmar Key Biodiversity Area (KBA).</p>	<p>We have established CBFiM in four communities within or adjacent to the Boeng Chhmar KBA: Doung Sdoeng, Poy Veouy, Boeng Prasan and Peam Bang Senmeachey. The first three have been actively managing wildfire since 2021 whilst Peam Bang joined in 2022. These four communities remain committed to fire management, they are supported in this by local government authorities and fire management is embedded in their CFI management plans.</p>

Impact Description	Impact Summary
From 26 February 2021 forest fire management within three CFIs within or adjacent to Boeng Chhmar KBA will be guided by a community lead management plan.	Each of the four communities has an active community lead fire management plan which is guiding their fire management activities. These plans will be updated and continued as a part of their yearly CFI planning process.
Community Fisheries organizations will be provided with the training and resources needed to implement their management plan. Training will be tested in the 2021 fire season and refined and finalized during the 2022 fire season.	From 26 February to 6 March 2023 Mr Joe Tilley, a fire management expert with 30 years' experience, conducted six single - day long wildfire management training sessions which were attended by seventy-nine people from seventeen community groups and local government agencies. We also provided fire suppression equipment including hand tools, backpack sprayers, water pumps, hoses, and safety equipment to the four target communities.
By 30 June 2022 we will have produced a working CBFiM model for flooded forest communities that can be expanded across the Tonle Sap Lake and Inundation Zone priority geography.	We have developed a CBFiM model which is being applied to other communities across the Tonle Sap Lake and Inundation Zone priority geography. We have provided support to an additional ten CFIs, one Community Protected Area and two villages around the Tonle Sap Lake, including supplying them with fire suppression and safety equipment, training and Ororatech wildfire alerts. We have also granted US\$6,000 in CBFiM Funds to a further seven Women's Saving Groups with the interest to be provided to their allied CFi's for fire management. We are working with the Fisheries Administration and FAO to ensure that our experience and knowledge inform wider plans to manage inundated forest wildfire.

**Unexpected impacts (positive or negative)?**

Since the start of this project fire management on the Tonle Sap Lake has achieved a greater level of prominence within the Cambodian Government at national and sub-national levels. Our experience in implementing this project has given us the knowledge and expertise to provide the government with useful advice and recommendations for their national and regional fire strategies.

**PROJECT RESULTS/DELIVERABLES**

**Overall results of the project:**

We partnered with four Community Fishery community groups (CFi's) within and adjacent to the Boeng Chhmar Key Biodiversity Area on Cambodia's Tonle Sap Lake to implement Community-Based Fire Management (CBFiM): Doung Sdoeng, Poy Veouy, Boeng Prasan and Peam Bang Senmeachey. We were supported during the project by important stakeholders including local commune officials and the Fisheries Administration, at both central and sub-national levels. We developed and implemented a Participatory Rapid Appraisal survey approach which provided us with a detailed understanding of the causes wild-fire and its impact. We used this information to collaborate with local communities and develop CBFiM plans. We helped our partner communities update their CBFiM plans at the start of the 2022 and 2023 fire seasons, based on the experience gained in the previous fire seasons. Prior to each of the three fire seasons covered by this project (2021, 2022 and 2023) our partner

communities undertook a range of fire prevention activities including posting warning signs and visiting seasonal migrants informing them of the CFI's fire management activities and their responsibilities to not cause wildfires. We supplied locally available fire suppression equipment to each of the five communities. This comprised motorized backpack sprayers, water pumps and hose, hand tools, communications, and safety equipment. We trialed the use of satellite warning systems to detect fires and then alert the community fire teams. We used the freely available NASA's FIIRMS website in 2021 and then purchased a subscription to the Ororatech wildfire alert system (<https://ororatech.com/wildfire-service/>) for 2022 and 2023. The automated reporting provided by Ororatech was very useful and we expanded this system to seventeen communities in 2023.

Our communities responded to fourteen fires over the three years of the project. There was little wildfire activity in 2021 and 2022 due to wetter dry season conditions . In 2021 our partner CFI's responded to three fires which burnt an area of around 2 ha. The communities estimated that had these fires not been extinguished they would have burnt around 25 ha of flooded forest and shrubland. Whilst in 2023 no fires were reported from any of the four partner communities. Dryer conditions in 2023 resulted in thirteen confirmed fires within the CFI boundaries of our four partner communities. Of these the CFI fire teams suppressed ten using the equipment provided through this project. They attempted but could not extinguish one large fire. Three of the thirteen fires were detected by community members, the remainder were detected by Ororatech.

We granted four US\$1000 Community Based Fire Management Funds to four Women's Saving Groups linked to each CFI. The Saving Groups lend this money to their members and 90% of the interest is made available to their local CFC for fire management activities. In 2023 these funds generated a total of US\$1,177 which was available to their local CFI's for fire management .

We provided expert fire management training to seventy-eight people from seventeen community groups and local government agencies over six days from 26 February to 6 March 2023. The training was provided by Mr Joe Tilley, a South Australian fire management expert with over 30 years of experience. Our community partners reported that the training increased their confidence in managing wildfire and they put it use during the 2023 fire season.

We expanded the CBFiM approach across the Tonle Sap Lake by including additional communities in the fire management and suppression training and Ororatech alerts. This resulted in the suppression of eight fires. We also granted US\$6,000 in CBFiM Funds to a further seven Women's Saving Groups with the interest to be provided to their allied CFI's for fire management. With co-financing we purchased fire suppression equipment for twelve communities in Pursat and Kampong Thom Provinces.

**Results for each deliverable:**

<b>Component</b>		<b>Deliverable</b>		
<b>#</b>	<b>Description</b>	<b>#</b>	<b>Description</b>	<b>Results for Deliverable</b>
1.0	Review	1.2	Meeting Minutes of District and Provincial level Government Consultation.	Completed - Meeting minutes for the two official meetings convened with target government officials were previously submitted 'CBFiM first consultation meeting Aug 2020.docx and CBFiM second consultation meeting Oct 2020.docx'. Details of further government meetings which discussed CBFiM were previously submitted in the following reports: 'Tonle Sap CBFiM Interim Report January 2022.docx, CBFiM_Progress Report_June 2022.docx, CBFiM Progress Report July-Dec 2022.docx, and FCT_Progress Report_Jan_June 2023.docx.'
2.0	Risk Reduction	2.1	Brief report listing prioritized risk reduction activities for each target community.	Completed - Prioritized risk reduction activities are detailed in the previously submitted report '2020 Oct_Report on flooded forest wildfire_PRA.xlsx.'
2.0	Risk Reduction	2.2	Brief review report of risk reduction activities.	Completed - Information on risk reduction activities is detailed in the previously submitted report 'Tonle Sap CBFiM Interim Report August 2021.docx'.
2.0	Risk Reduction	2.3	Brief written report describing implementation of updated risk reduction activities	Completed - updated risk reduction activities are detailed in two previously submitted reports 'Tonle Sap CBFiM Interim Report January 2022.docx' and 'CBFiM_Progress Report_August 2022.pdf.'
2.0	Risk Reduction	2.4	Community fire brigade establishment shown through written details of	Completed - We established four community fire teams (brigades). Evidence of establishment is provided as official

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
			roles and responsibilities and equipment inventory.	recognition letters provided by each groups Commune as detailed in 'CBFiM Final Report August 2023.pdf'.
3.0	Readiness	3.1	Community readiness plan.	Completed – Each of the four communities produced a fire season readiness plan as a part of their CFi management planning for the 2021-23 fire seasons. A brief description of 2023 fire season planning is included in the previously submitted report 'CBFiM Progress Report July-Dec 2022.docx'. Example copies of annual community readiness plans are detailed in 'CBFiM Final Report August 2023.pdf'.
4.0	Response	4.1	Fire season review reports detailing the efforts community fire brigades have made to actively suppress fires within their CFi areas according to their management plans.	Completed – Fire season reviews are detailed in the previously submitted reports: 'Tonle Sap CBFiM Interim Report August 2021.docx and CBFiM_Progress Report_June 2022'. A review of the 2023 fire season is submitted in the attached final report 'CBFiM Final Report August 2023.pdf', as are copies of the annual work plan.
5.0	Community Based Fire Management planning	5.1	CFi Community Based Fire Management Plans.	Each CFi has prepared a CBFiM plan which is included in their CFi Management Plan. Progress is described in 'Tonle Sap CBFiM Interim Report January 2022'. The outcome of these plans is the action or readiness plan, examples of which are provided in 'CBFiM Final Report August 2023.pdf' under deliverable 3.1
6.0	Monitoring and Evaluation	6.1	Written report detailing the effectiveness of Community	Completed – our assessment of the effectiveness of CBFiM is detailed in the

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
			Based Fire Management in our target CFis.	attached final report 'CBFiM Final Report August 2023.pdf'.
6.0	Monitoring and Evaluation	6.2	Written report describing the recovery trajectories of flooded forest vegetation subjected to varying fire regimes.	Completed – We were unable to determine the burn frequency of vegetation sites as satellite data gave inaccurate fire frequency estimates and local knowledge of a sites fire history seldom went back beyond the last few years. Thus, we could not determine recovery trajectories for vegetation subjected to varying fire regimes was not possible. However, we surveyed vegetation growing in gallery forest, shrubland and previously burned areas of either shrubland or gallery forest. We identified 34 tree and shrub species from 35 plots and found that the vegetation communities were highly variable in species composition. Although broad vegetation associations (gallery forest, shrubland, previously burned) did account for some of the variation in vegetation composition, we did not identify distinct communities associated with different vegetation types sampled. This suggests that the vegetation of the Tonle Sap floodplain is highly diverse and dynamic. Further details can be found in 'CBFiM Final Report August 2023.pdf'
7.0	Lessons learnt	7.1	Written report detailing lessons learnt and attendance records of community information sessions.	Completed – Due to the impending general election towards the end of the project it was not feasible to hold large community meetings . As such the community information sessions were held with Community Fishery Committee

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				members as a part of the post season and project review interview process. Details of lessons learnt, and community participants can be found in the attached final report 'CBFiM Final Report August 2023.pdf'.
7.0	Lessons learnt	7.2	Report on the potential to expand CBFiM to other CFI's within the Tonle Sap Lake and Inundation Zone.	Completed – during the project period we began to introduce CBFiM to an additional six CFIs, one Community Protected Area and two villages around the Tonle Sap Lake. Further details on expansion potential are in the attached final report 'CBFiM Final Report August 2023.pdf'.
1.0	Review	1.1	An agreement with three Community Fisheries organizations (Doung Sdoeng CFI, Poy Veouy CFI and Boeng Prasan CFI) to collaboratively develop CBFiM within and around Boeng Chhmar KBA.	Completed - We reached agreement to collaboratively develop CBFiM with the three CFI's listed in the deliverable at the start of the project and added Peam Bang CFI in the second year.

### **Tools, products or methodologies that resulted from the project or contributed to the results:**

We have developed a readily transferrable model of CBFiM which is based around the 5R's of Community Based Fire Management:

- Review - fire issue analysis and identification of options for positive change
- Risk Reduction – prevent fires from starting.
- Readiness – help communities be prepared to fight fire.
- Response – control and extinguish wildfire.
- Recovery – restore fire damaged areas.

## **PORTFOLIO INDICATORS**

<b>Portfolio Indicator Number</b>	<b>Portfolio Indicator Description</b>	<b>Expected Numerical Contribution</b>	<b>Expected Contribution Description</b>	<b>Actual Numerical Contribution</b>	<b>Actual Contribution Description</b>
1	Number of civil society organizations, including domestic organizations, that actively participate in conservation actions guided by the ecosystem profile.	1	One civil society organization (CI) actively participates in conservation actions guided by the ecosystem profile	16	As the project implementer Conservation International has in collaboration with the local civil society organizations listed below developed and implement CBFiM and its associated conservation actions. The primary civil society organizations that participated in the programme were: Doung Sdoeng, Poy Veouy, Boeng Prasan and Peam Bang Senmeachey Community Fishery Organizations. Other CFi's that benefited including: Dei Roneat, Pov Veuy Senchey, Preak Kra, Srey Check, Ou Ta Prok, Tram Peaer, Kampong Prak, Spean Krong, Kddey Chhveat, and Koh Preaek Reangtil. Balot Community Protected Area also benefited from the project.
3	Number of key biodiversity areas targeted by CEPF grants that have new or strengthened protection and management.	1	At least one KBA targeted by the grant (Boeung Chhmar/Moat Khla) has new or strengthened protection and management.	2	Our main activities were focussed around the Boeung Chhmar/Moat Khla KBA and our establishment of CBFiM in the four CFi's has improved their ability to manage wildfire and thus has strengthened protection and management of the

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
					KBA. We have also provided support through this project in implementing aspects of CBFIM to the Balot Community Protected Area, which is also located within and adjacent to Boeung Chhmar and three CFI's within the Bakan KBA, thus strengthening its protection and management.

## GLOBAL INDICATORS

### Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

Name of Protected Area	WDPA ID*	Latitude	Longitude	Country	Original Total Size (Hectares)**	New Protected Hectares***	Year of Legal Declaration or Expansion

\*World Database of Protected Areas

\*\*If this is a new protected area, 0 should appear in this column

\*\*\* This column excludes the original total size of the protected area.

## Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

KBA Name	KBA Code	Size of KBA	Number of Hectares with Improved Management
Boeung Chhmar/Moat Khla	KHM3		7,810
Bakan	KHM41		6,976

## Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
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## Benefits to Individuals

- Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
104	57	Fire management and suppression training Women's saving group fund management training

- Cash Benefits:**

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits
0	28	Women's saving group members benefited from the US\$1000 CBFIM saving group fund as they were lent the money from the group to finance their small business activities including selling groceries, fish raising, rice cultivation and fish processing

## Benefits to Communities

View the <b>characteristics</b> column below with the following corresponding codes:	View the <b>benefits</b> column below with the following corresponding codes:
1- Small Landowners	a. Increased Access to Clean Water
2- Subsistence Economy	b. Increased Food Security
3- Indigenous/ Ethnic Peoples	c. Increased Access to Energy
4- Pastoralists / Nomadic Peoples	d. Increased Access to Public Services
5- Recent Migrants	e. Increased Resilience to Climate Change
6- Urban Communities	f. Improved Land Tenure
7- Other	g. Improved Use of Traditional Knowledge
	h. Improved Decision-Making
	i. Improved Access to Ecosystem Services

Community Name	Community Characteristics							Type of Benefit									Country	Number of Males Benefitting	Number of Females Benefitting	
	1	2	3	4	5	6	7	a	b	c	d	e	f	g	h	i				
Peam Bang	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cambodia	184	167						
Pov Veuy	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cambodia	154	119						
Boeng Prasan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cambodia	86	119						
Doun Sdaeung	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cambodia	114	116						

### Characteristics of "Other" Communities:

## Policies, Laws and Regulations

View the <b>topics</b> column below with the following corresponding codes:			
A- Agriculture	E- Energy	I- Planning/Zoning	M- Tourism
B- Climate	F- Fisheries	J- Pollution	N- Transportation

C- Ecosystem Management	G- Forestry	K- Protected Areas	O- Wildlife Trade
D- Education	H- Mining and Quarrying	L- Species Protection	P- Other

No.	Name of Law	Scope	Topics															
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

**“Other” Topics Addressed by the Policy, Law or Regulation:**

No.	Country/ Countries	Date Enacted/ Amended	Expected impact	Action Performed to Achieve the Enactment/ Amendment
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**Companies Adopting Biodiversity-friendly Practices**

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
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**Networks and Partnerships**

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose
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## Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

<b>Name of Mechanism</b>	<b>Purpose</b>	<b>Date Established</b>	<b>Description</b>	<b>Country/ Countries</b>	<b>Project Intervention</b>	<b>Delivery of Funds?</b>
Satrey Sansom Brak Doun Sdaeung Community Based Fire Management Fund	Provide funding for women's small business activities to generate funds for allied CFI's fire management activities	2021	US\$1000 Saving group investment fund	Cambodia	Supported an existing mechanism	Yes, interest on loaning the investment fund to saving group members generated interest which was granted to the allied CFI Fire Management team to implement fire suppression activities.
Satrey Sansom Brak Pov Veuy Community Based Fire Management Fund	Provide funding for women's small business activities and	2021	US\$1000 Saving group investment fund	Cambodia	Supported an existing mechanism	Yes, interest on loaning the investment fund to saving group

<b>Name of Mechanism</b>	<b>Purpose</b>	<b>Date Established</b>	<b>Description</b>	<b>Country/ Countries</b>	<b>Project Intervention</b>	<b>Delivery of Funds?</b>
	generate funds for allied CFI's fire management activities					members generated interest which was granted to the allied CFI Fire Management team to implement fire suppression activities.
Satrei Sansom Brak Samaki Prasan Meanchey Community Based Fire Management Fund	Provide funding for women's small business activities to generate funds for allied CFI's fire management activities.	2021	US\$1000 Saving group investment fund	Cambodia	Supported an existing mechanism	Yes, interest on loaning the investment fund to saving group members generated interest which was granted to the allied CFI Fire Management team to implement fire suppression activities.
Satrei Sansom Brak Rik Rey Peam	Provide funding for women's	2021	US\$1000 Saving group investment fund	Cambodia	Supported an existing mechanism	Yes, interest on loaning the

<b>Name of Mechanism</b>	<b>Purpose</b>	<b>Date Established</b>	<b>Description</b>	<b>Country/ Countries</b>	<b>Project Intervention</b>	<b>Delivery of Funds?</b>
Bang Community Based Fire Management Fund	small business activities to generate funds for allied CFI's fire management activities					investment fund to saving group members generated interest which was granted to the allied CFI Fire Management team to implement fire suppression activities.

### **Globally Threatened Species**

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

<b>Genus</b>	<b>Species</b>	<b>Common Name (English)</b>	<b>Status</b>	<b>Intervention</b>	<b>Population Trend at Site</b>
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## LESSONS LEARNED

Our four partner communities reported that the support provided by this project – particularly the supply of equipment and training in fire suppression – enabled them to manage flooded forest wildfire. Before the implementation of Community Based Fire Management, they lacked the resources required to address the significant threat wildfire posed to their communities. They are now able to address all aspects of the 5R's of Community Based Fire Management: review, risk reduction, readiness, response; and recovery using a variety of techniques.

Whilst the implementation of CBFiM in these communities has enabled them to manage wildfire they felt they needed more training in fire suppression, a higher level of sustainable finance, increased fire management team capacity, greater cooperation with other CFI's and local authorities, and improved awareness campaigns. They felt that CBFiM can be increased by addressing the following issues:

Lack of financial resources to fully implement CBFiM.

Whilst we provided our partner CFI's with long term funding through the Saving Group CBFiM fund – some groups had trouble requesting and managing these funds. Further capacity building is required to ensure that these funds are optimally used. Other CFI's have obtained funds from their commune for fire management. Many CFI's have reported that additional funding above what is provided by the CBFiM fund is required to properly manage wildfire, particularly those with large CFI areas. Funding is required both as disposable income for transport and capital expenditure to solve problems associated with transporting heavy equipment to fires.

Lack of human resources required to suppress wildfire.

Our partner CFI's reported that a lack of personnel often hindered wildfire suppression, particularly large fires that require more people and take a long time to extinguish. Whilst the CFI Committee is an appropriate organization to manage wildfire they are limited as a resource to actively suppress wildfire. The CFC members already have other CFI and personal responsibilities, limiting their time, and are generally older men, limiting their energy. We suggest developing strategies that increase the involvement of younger people and women in fire management – particularly suppression. It is also suggested that we seek to increase engagement in fire management beyond CFI members and permanent residents to the seasonal migrants who are often close to sources of ignition and could act quickly to extinguish wildfire. Increased engagement with local authorities and between CFI's could also increase the number of people who can manage and suppress wildfire.

Further organizational capacity within each fire management group is required and their performance can be improved by defining roles and responsibilities, and increasing financial literacy, planning and administrative skills.

Suppressing large fires is difficult.

Our CFI partners reported difficulty in suppressing large wildfires. This was due to lack of confidence in approaching large fires, lack of trained personnel to suppress large fires, and difficulty in transporting heavy equipment to large fires. This problem can be addressed through providing advanced practical training – such as having experienced fire fighters assist community teams in suppressing large fires. We also need to develop mechanisms to facilitate combined CFI and local authority operations and response. That is developing methods for multiple CFI's and local authority staff working together to suppress wildfire. Providing a pooled source of larger fire suppression equipment made available for large fires is recommended. Improving rapid response to fires will ensure they do not grow to an unmanageable size. Increasing the participation of younger people in fire suppression will ease the burden on the older CFC members.

Whilst effective, satellite fire warning systems are not community friendly and can be expensive.

We used the satellite-based NASA FIIRMS and Ororatech wildfire detection services to alert our partner communities to potential wildfires. Both proved effective in detecting wildfires before they were discovered on the ground. For accessible fires this allowed rapid suppression by the community fire management teams. However, both systems required coordination by CI staff. NASA FIIRMS required staff to inspect the website each day and locate fires within the CFi boundaries. CI staff received automated fire alerts from Ororatech. These observations and alerts were then passed onto the CFC fire management team for action. Whilst both proved effective NASA FIIRMS required daily monitoring of their website and gave low spatial resolution alerts. Ororatech provided automated alerts as soon as the satellite had detected a potential fire at higher spatial resolution. Whilst Ororatech provides timely and accurate data it is a subscription-based service and comes at an increasingly premium cost, out of the reach of community groups to fund themselves. Whilst NASA FIIRMS is free it is lower resolution and labor intensive. Neither system can provide the community with direct alerts that they can respond to. We recommend the development of a cost-effective satellite wildfire alert system that directly alerts the community fire management team of potential wildfires.

Planning was either not sufficient or the plans were not followed.

It was common for our partner communities to either not adequately plan for the coming fire season, follow their plans, or in some cases plan at all. Thus, more support is needed to help the CFi's prepare comprehensive plans that address roles and responsibilities, logistics, finance, and equipment maintenance. More support is required to build the organizational capacity of the CFi fire management teams so that they can closely follow and implement their wildfire management plans.

## **SUSTAINABILITY/REPLICATION**

### Successes

- CBFiM is now recognized by both community members and government agencies as the most efficient method of managing wildfire on the Tonle Sap Lake. Community wildfire management and suppression by local fire teams is essential due to the remote location of these floating village communities who cannot rely on resources from National or Provincial government personnel for timely response.
- Our CBFiM approach can be successfully implemented by local communities as it provides clear guidelines for managing wildfire, team structure, fire suppression equipment. And through the CBFiM Saving Group grant provides the local fire teams with readily available funds to assist with fire suppression.
- We equipped the CFi fire management teams with knowledge and materials tailored to the local context and practices, enabling them to sustain and expand their fire management activities after the project concludes.
- The CBFiM fire-fighting team structure and mechanism has been adopted and approved at the local commune level.

### Challenges

- Numerous wildfires started in the 2023 dry season and communities found it challenging to manage multiple fires occurring at different locations at the same time. Developing a robust fire alert and monitoring system in collaboration with the CFi fire teams has been hampered by limited community fire team capacity. The format of the Ororatech SMS or email alerts are not able to be easily understood by the community fire teams and have had to be interpreted and forwarded by CI staff. Further work is needed before communities can receive wildfire alerts directly from the source.

- As CI staff had to translate and forward wildfire alerts to the community fire teams difficulties arose over the weekend or during holidays when CI's staff were less attentive to monitoring alerts and communicating them to CFIs.
- Many fires were lit to further people's livelihood activities. For example, some people burn forests to create grasslands for their buffaloes to graze on. This is a major driver of forest fires, as buffalo owners often burn forests in many different places, and it is difficult for the Community Fisheries Committee (CFC) to control them.
- A lack of road access makes it difficult for community fire groups to intervene in forest fires that occur in remote areas of the flooded shrubland and flooded forest.
- Our CBFiM approach has focussed on small scale fire teams using relatively light weight equipment. However, fire suppression efforts would be enhanced with the provision of larger fire-fighting equipment such as hand tractors or trucks to carry large water tanks.

## **ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS**

No environmental safeguards were triggered during this project.

## **ADDITIONAL COMMENTS/RECOMMENDATIONS**

## **ADDITIONAL FUNDING**

<b>Total Amount of Additional Funding Actually Secured (USD)</b>	
<b>Breakdown of Additional Funding</b>	

## **INFORMATION SHARING AND CEPF POLICY**

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

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