KINGDOM OF CAMBODIA

NATION RELIGION KING

INUNDATED FOREST FIRE PREVENTION AND MANAGEMENT PLAN KAMPONG THOM PROVINCE 2021-2025

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FISHERIES ADMINISTRATION & KAMPONG THOM ADMINISTRATION

PREFACE

The Kingdom of Cambodia is rich in natural resources, especially the Tonle Sap Lake that consists of many freshwater lives such as fishes, turtles, reptiles, water birds, aquatic plants and inundated forest, which are the matters of utmost importance to humanity and to maintain the natural balance. These resources not only play a vital role in supplying fish daily to Cambodians but also to protect and conserve the Tonle Sap basin and grant tourism services.

The Royal Government of Cambodia has taken significant policy measures addressing the sustainable protection, conservation and management of fisheries resources and the aquatic ecosystems on which many Cambodian households, most importantly for those living in rural areas around the Lake, depend for livelihoods, employment, income, food security and nutrition (Nutrient Sources to Tonle Sap Lake, Cambodia (APN Science BulletinIssue 3, March 2013).

The 10-year Strategic Plan for Fisheries Conservation and Management under the pillar 1 of Capture Fisheries and Management of the Strategic Planning Framework for Fisheries covering the years 2015-2024, continues its efforts to pursue a vision of "Cambodia's fisheries resources and ecosystems are restored where depleted, conserved and protected for livelihoods, food security and nutrition for present and future generations". Its overall objective entails that "all stakeholders collaborate to ensure the Cambodia's fisheries are utilized sustainably, conserved and managed in an environmentally non-degrading, ecologically appropriate, economically viable, and socially acceptable manner".

Kampong Thom province consists of a part of the floodplain of the Tonle Sap Lake that has high potential for promoting economic development through fishing, agricultural production and ecotourism development. Due to the geographical situation of Kampong Thom province, uniqueness of biodiversity and situation of degradation of flooded forest by fire occurred every year that negatively affect to fisheries habitat and fisheries stock, Fisheries Administration in close collaboration with CAPFISH's FAO Complementary Support project, Kampong Thom Administration and competent authorities develops the 5-Year Inundated Forest Fire Prevention and Management Plan for Kampong Thom province for implementing from 2021-2025.

To meet the above vision, on behalf of the Fisheries Administration of the Ministry of Agriculture, Forestry and Fisheries, I fully support the implementation of this an important management plan to ensure sustainable management of inundated forest fire and restoration for the sake of fisheries conservation, fisheries biodiversity and the contribution to local poverty reduction to meet the standard of living for our people.

And on behalf of Kampong Thom Administration, I sincerely support and officially declare to launch the 5-Year Inundated Forest Fire Prevention and Management Plan for Kampong Thom province from this day forwards. The provincial authorities will fully support the implementation of this management plan to make sure our fisheries resources can support our next generations in years to come.

Phnom Penh, date 17-12- 2021

H.E. Poum Sotha
Delegate of the Royal Government
Director General of Fisheries Administration

Kampong Thom, date 22-12- 2021

H.E. Ngoun Ratanak
Governor
Kampong Thom province

ACKNOWLEDGE

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The special appreciation is also to **H.E. Poum Sotha** Delegate of the Royal Government and Director General of FiA, and official of Fisheries Department and Programme Officer of the CAPFISH-Capture Project, as well to the team leaders and technical official from Fisheries Administration Cantonment of Kampong Thom, for leading to develop inundated forest fire prevention and management plan for Kampong Thom province with fully supported by PDAFF director.

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This inundated forest fire prevention and management plan for Kampong Thom province has benefited from inputs of those involve in working in the Tonle Sap region such as UNESCO, WCS, AFD and TCO shared details of their work in Tonle Sap.

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Contents

Acronyms and abbreviations

BMC : Banteay Meanchey
BAT : Battambang
CAPFISH : Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector
CBFiM : Community Based Fisheries Management
CFFPT : Commune Forest Fire Patrol Team
CFi : Community Fisheries
CFiMC : Community Fisheries Management Committee
DCF : Department of Community Fisheries
DFA : Department of Fisheries Affairs
DFC : Department of Fisheries Conservation
FAO : Food and Agriculture Organization of the United Nations
FiA : Fisheries Administration
FiAC : Fisheries Administration Cantonment
IWCD : Inland Wetland Conservation Department
KPC : Kampong Chhnang
KPT : Kampong Thom
MAFF : Ministry of Agriculture, Forestry and Fisheries.
MET : Monitoring and Evaluation Team
MoE : Ministry of Environment
PDAFF : Provincial Department of Agriculture, Forestry and Fisheries.
PDE : Provincial Department of Environment
PDoRAM : Provincial Department Water Resources and Meteorology
PS : Pursat
SMS : Short Messaging Service
SRP : Siem Reap province
TSA : Tonle Sap Authority
UNESCO : United Nations Educational, Scientific and Cultural Organization
WGFFM : Working Group for Forest Fire Management

1. Introduction

The Tonle Sap Great Lake is described by Cambodians as the heart of their culture and national economy. Globally, it is known as the heart of Cambodia's freshwater fisheries, the largest freshwater lake in Southeast Asia and one of the most productive wetland areas in the world. The flooded forests and floodplains surrounding the lake provide shelters for fish and some of the world's most threatened water birds and access to spawning, breeding as well as feeding areas. According to the Fisheries Administration (FiA), fish, the vast majority of which comes from the Tonle Sap Lake, provide over 60% of protein intake in the Cambodian diet *(Nutrient Sources to Tonle Sap Lake, Cambodia, APN Science BulletinIssue 3, March 2013)*.

As Cambodia's population and economy gradually grow and fisheries law enforcement is still limited, the Tonle Sap Lake is now under threat from man-made factors, competition over the lake's natural resources has intensified and clearing of flooded forest for cultivating rice and cash crops has negative impact directly on fish, wildlife, water birds and biodiversity of the Great Lake.

In the last few years, water levels in the Tonle Sap Lake reached record low levels due to climate change, especially extreme heat and drought. These conditions exacerbated forest fires, which have affected fish conservation areas, fish habitats for breeding, spawning and feeding and Ramsar sites of Steung Sen, Boeung Tonle Chmar and Prek Toal which are home for Southeast Asia's largest water bird colony.

Two key factors are considered to trigger flooded forest fires around the Tonle Sap Lake; the accidental and the intentional cases. The accidental cases include using fire and smoke to harvest bee honey, discarding lit cigarette butts and leaving cooking fires without putting them out. The intentional cases include burning flooded forests for converting into rice fields, burning forest for hunting wildlife and recovering domestic cows and buffalos that are freely released for grazing, burning grasslands for new growth (shoots) as animal fodder, and setting fires to burn cut vegetation a long path to lay long fishing nets so-called Sach Daiy across streams.

The forest fire is the most serious threat to flooded forest. Since the inundated forest is the key breeding and feeding grounds for fish and water birds, the loss of flooded forest will lead to decreases in both fish and water bird species and population. Repeated flooded forest burnings will result in transforming flooded forest to grass species and flooded grasslands.

The consequences of flooded forest fires in the floodplain in of the Tonle Sap Lake in Kampong Thom province contribute to gradual decline of fisheries resources, including fish population and species, aquatic plants, reptiles, mammals and wild birds. The FAO's complementary component of the CPAFISH project identifies and works with key stakeholders that are involved in flooded forest fire management at provincial, district, commune and community levels in the province to develop and implement Flooded Forest Fire Management in a manner to deal with and reduce the forest fires. That is why this IFFPMP is developed in a participatory approach with proper, applicable and flexible responses or interventions.

The technical team, consisting of 12 officers from Department of Fisheries Conservation (DFC), FiA and Fisheries Administration Cantonment (FiAC) in Kampong Thom province gathered primary and secondary information in the fields for developing IFFPMP at province and district levels. The first field mission was conducted on 12-23 May 2020 to meet local communities and stakeholders in the target districts and communes to collect information on causes of forest fires, responsive actions applied against forest fires, stakeholders involved in forest prevention and intervention, the existing forest fire management mechanism and its effectiveness, restoration approaches for the burnt forest areas and required equipment and infrastructure to support forest fire prevention and intervention. Collecting waypoints and mapping the burnt forest areas were carried out in this field mission.

2. Biodiversity in the inundated forest

Natural resources in Kampong Thom province are divided into two categories: fisheries resources and

upland forest resources. The northern part of Kampong Thom province adjacent to Preah Vihear and Kratie provinces is a plateau with about 70% of the total land area of the province. It is covered by forests and valuable biodiversity, home to many species of wildlife in the territories of Boeung Per wildlife sanctuary, Prey Lang wildlife sanctuary and Prey Anten biodiversity conservation corridor where are being thoroughly protected and conserved by rangers of Kampong Thom Provincial Department of Environment.

In addition to the forest and wildlife resources, both of the sanctuaries are rich in minerals, especially gold, some of which have been explored by people in some locations in Phnom Chi and Prey Lang wildlife sanctuary.

In addition to these three protected areas, the province consists of Tree Seed Source of *Pinus merkusii* and *Fagraea fragrans* in Santuk district where under strictly protection by the Forestry Administration Cantonment of MAFF.

The southern part of the province below National Road No.6 covering about 30% of the total land area is the floodplain area flooded during the rainy season, inundated forests and Tonle Sap Lake. This area has gentle slope below 10% downward from north to south to the Tonle Sap Lake.

The province consists of three main waterways (watersheds) of Stueng Saen, Stung Stoung and Stueng Chinit rivers respectively originate from Phnom Dangrek and Phnom Tbeng in Preah Vihear province, and Prey Lang wildlife sanctuaries in Kampong province. The three watersheds dump rainy water, organic wastes and sediments into Tonle Sap Lake before flowing to Mekong River through Tonle Sap river.

In addition to the hydrological features, Tonle Sap lowland in the province comprises of many fishery resources such as flooded forests, aquatic plants, fishes, water birds, mammals and reptiles. On the other hand, the soil of Tonle Sap's floodplain is *Lacustrine Alluvia Soil* as a whole is very fertile. Based on their age, this soil have been classified into two types of old and new alluvium soils. The two type of the soils contain adequate proportion of Potash, Lime, and Phosphoric acid. Silk, clay, gravel and sand are the main constituents of the soil. It is ideal for growing rice, corn, beans, chili paper and sugarcane that are the high protein food for Cambodians and the income of farmers and fishermen living around Tonle Sap Lake.

In the field of fisheries management, Kampong Thom province consist of 43 Community Fisheries (CFI) located in 5 districts of Stoung, Kampong Svay, Baray, Santuk and Sandan, covering a total area of 47,862 hectares. All the CFis are under direct control and management by the concerned communities with legal support from the FiAC and the relevant commune authority.

Besides that, the province consists of five Fisheries Conservation Areas (FCAs) covering a total area of 20,403 hectares under the direct management of the Fisheries Administration Cantonment. All CFiand FCAs are under jurisdiction of FiA, MAFF.

This Tonle Sap's floodplain also comprises of three protected areas under the jurisdiction of Ministry of Environment: (1) Stung Sen Ramsar site (6,355 ha), (2) Tonle Chhmar Ramsar site (14. 560 ha) and Northern Tonle Sap Protected Landscape for *Bengal Florican* Conservation (12,695 ha). The three are located in Stoung, baray and Taing Kouk districts and under jurisdiction of Ministry of Environment. There are two Community Protected Areas (CPAs) located in the two Ramsar Sites (one each), namely Tuol Neang Sao Phlov Neang and Balot CPAs.

Both of the Ramsar Sites are recognized as areas of high global biodiversity importance and remain the most intact areas of inundated forest in the Tonle Sap Lake Region. The water bird colonies of Bueng Chhmar Ramsar Site contain some of the world's largest numbers of *Spot-billed Pelican (Tung Prophes), Pelecanus philippensis* and *Greater Adjutant Leptoptilos dubius (Trodok)*, and is perhaps the only site in the world where *Milky Stork Mycteria cinerea (Roneal Sor)* breeds in freshwater. In addition, the Ramsar sites support significant wet season breeding populations of Darter *Anhinga melanogaste*r and Grey-headed Fish Eagle *Ichthyophaga ichthyaetus*, and *Masked Finfoot Heliopais personata*. Other regionally significant birds include *Great Cormorant, Grey Heron, Purple Heron,*

Glossy Ibis, Cotton Pygmy Goose, Comb Duck, Watercock and Baya Weaver. Aquatic biodiversity includes the critical endangered *Siamese Crocodile* (*Crocodylus siamensis*) and the near threatened *long tailed Macaque* (*Macaca fascicularis*). The area is extremely important for many fishes, turtle, mammals, reptiles and water birds species and populations (Annex 1: List of biodiversity in floodplain areas of Kampong Thom province).

The province has a total area of 200,890 ha of flooded forest located in 5 districts of Stuong, Kampong Svay, Santuk, Baray and Taing Kork districts, equal to 31% of the total flooded area of 647. 406 hectares in the six provinces around Tonle Sap Lake.

The forests and shrublands contain a number of endemic plant species, e.g. *Samandura harmandii, Terminalia cambodiana, Coccoceras anisopodum, Diospyros bejaudii, Diospyros cambodiana, Garcinia loureiri, Acacia thailandica,* and *Hydnocarpus saigonensis*. Major communities include *Barringtonia acutangula, Elaeocarpus madopetalus* and *Diospyros cambodiana*; floating and emergent herbs including *Brachiaria mutica, Eichornia crassipes, Polygonium barbatum, P. tomentosum* and *Sesbania javanica* (Annex 2: List of inundated tree species in floodplain areas of Kampong Thom province). Noteworthy, there are also a number of grass and sedge species i.e. Wild Rice *Oryza rufigpogon* which is very important in terms of the gene pool and genetic biodiversity conservation and the Globally Vulnerable *Cynometra inaequifolia*, which is a species of legumes in the *Fabaceae* family.

Over 200 species of fish use this habitat as a feeding, breeding, and nursery ground. The woody species of this forest are often laden with fruits and seeds at the time of inundation, providing food for the 34 species of fruit-eating fish of the Lower Mekong Basin *(Impacts on the Tonle Sap Ecosystem, June 2010, MRC)*.

Due to the floodplain as fishing ground in the rainy season and the Tonle Sap Lake as fishing ground in the dry season, the figures extracted from the strategic plan for agricultural development of the DAFF in Kampong Thom Province for 2018, 49,600 tons shown 15,000 tons of fresh water fish catches and aquaculture fish produced in 2018.

On the other hand, due to the fertile soils of the floodplain for agricultural production, available water sources for irrigation and high prices of the land, flooded forests there are under hot threat of clearance to claim and possess some plots the forest lands for cultivating wet and dry season rices and other crops.

Along with the flooded forest deforestation for agricultural production, the remarkable flooded forest loss and degradation, it is observed that many cases of flooded forest fires have been occur every year as the result of intentional and unintentional human activities as a major factor contributing to the increasingly devastation of fisheries resources and biodiversity in the lowlands.

The disappearance and degradation of flooded forests, using large-scale of illegal fishing gears, overfishing and the application of improper agricultural techniques have adversely affected Tonle Sap Biodiversity. The biodiversity deterioration includes extinction of some reptile species (crocodiles, turtles and lizards), decrease in species, size and quantity of fresh water fish catch, shallowness of Tonle Sap Lake and its waterbodies, damages to local homes and properties due to wildfires and storms, and lastly affected local livelihoods of fishing families.

According to the information provided by community fisheries and fishing communities, a number of fish species of Catlocarpio siamensis (Mekong giant barb), Datnioides undecimradatus (Mekong tiger perch), Probarbus labeamajor Thicklip brab), Channa Lucius (four-eyes snakehead) and Cirrhinus microlepis become the rare species in Kampong Thom province.

Later, due to strong complaints from fishing communities that the public fishing grounds were still too small for their livelihood, the remaining six fishing lots were completely removed for public fishing grounds except the areas considered as high valuable conservation areas for biodiversity were converted into fisheries conservation areas. Some parts of the public fishing grounds were handed over to fishing communities to manage with context of Community Fisheries (CFi) under continuable

3-year community fisheries area agreement for helping manage fisheries resources within the CFi's territories as well as improving their livelihood.

According to direct observation, most flooded forest and fishery resources are mainly remaind in the fisheries conservation areas and community fisheries as sizes of those areas are fitted the management capacity to patrol regularly under good cooperation between FiAC, local authorities and CFis to prevent and suppress illegal fishing, bird hunting, deforestation for farming and flooded forest fires.

This capable management also covers dissemination of Fisheries Law, Land Law and relevant legal instrument to those Involve in using fisheries resources and lands in the Tonle Sap floodplain, including farmers possess farmland in Zone 2 and Zone 3, fishermen, firewood and honey bee collectors, wildlife hunters and cattlemen who seasonally stay in the floodplain and inundated forests.

3. Overview of Geography and Demography of the floodplain

Kampong Thom province is one of the 25 provinces and municipalities in the Kingdom of Cambodia and is located in the north of Phom Penh capital, the central part of the country. It borders Kampong Cham and Kratie provinces in the east, Kampong Chnag and Siem Reap provinces in the west, Kampong Cham and Kampong Chnang provinces in the south, and Preah Vihear and Steung Treng provinces in the north.

Within the administrative boundary, Kampong Thom province covers a total area of 15,061km2 and is divided into 1 municipality and 8 districts, 81 communes and 767 villages. Its total population is 759,943 people (387,805 women) equal to 162,148 families, in which 80% are farmers dependent on agriculturalproduction *(http://kampongthom.gov.kh/).*

Among the eight districts, only 5 of them - namely Kampong Svay, Baray, Santuk, Stoung and Tang Kouk districts - are the target districts for flooded forest fire management due to fire happened every year.

Within the five target districts, according the information got from the FiAC, there are only 13 out of 52 communes involved in flooded forest management. Regarding the sizes of the existing flooded forest, Baray district is ranked first, Kampong Svay is ranked second, Santuk is ranked third, Stuong stands fourth while Tang Kouk is ranked last.

The total area of flooded forests in the five districts is 200,890 hectares equal to 31% out of the total area of 647,406 ha of flooded forest in the Tonle Sap Lake's floodplains which are located in the six provinces around the Lake. Based on the figure provided by the Department of Fisheries Conservation, 37,370 hectares out of 200,890 hectares were cleared for agricultural purposes while another 850 hectares were burnt.

3.1 Overview of Geography and Demography of floodplain in Tang Kouk district

Tang Kouk district is located in the south of Kampong Thom province about 50km from the provincial town. The district is one of the 5 target districts in the province which consists of only two out of eight communes - namely Sra Lau and Triel - involve in flooded forest fires management. Tang Kouk district extending in a total area of

41,553ha borders Chamkar Leu district of Kampong Cham province in the east; Kampong Leang and Chol Kiri districts of Kampong Chnang province in the west; Baray district of Kampong Thom province in north; and Batheay, Cheung Prey and Prey Chhor districts of Kampong Cham province in the south.

The total population of Tang Kouk district is 82,631 people (42,626 women) equal to 17,758 families. About 65% of the total population engage in the agricultural production sector, the primary occupation, including rainy season rice, dry season rice, upland rice, receding rice, floating rice, cashew, mango, rubber, cassava, sugarcane, soybean, mung bean, peanut, corn, sweet potato and

animal husbandry. Around 0.7% of the total population is found involved in fishing *(Tang Kouk district profile for 2019, PDP Feb 2020)*.

In the agricultural sector, around 53.40% of the total population involve in rice production being cultivated in a total area of 23,221.40ha in which 10,845ha is dry season rice fields mostly situated in Zone 2 while some are in Zone 3. The dry season rice area is increased from 10,745ha to 10,845ha in the last 3 years from 2017 to 2019 *(Santuk district profile for 2019, PDP Feb 2020)*.

There are seven key natural ponds - namely Boeung Popeay, Boeung Tung, Boeung Shdo, Boeung Ta Bou, Boeung Treuy Bangkong, Boeung Phtol Ley and Boeung Phtol Kroam - in Zone 3 to be considered for conservation by the district authority.

3.2 Overview of Geography and Demography of the floodplain in Baray district

Baray district is one of the 6 target municipality and districts in the province which consists of 2 out of 10 communes - namely Baray and Chong Doung - that are involved in flooded forest fires management. The total population of Baray district is 122,639 people (62,508 women) equal to 27,131 families of which 71.40% of the total population engage in agricultural production sector, the primary occupation, including rainy and dry season rice, cashew, rubber, cassava, mango, corn, sugar cane, mung bean, soybean, sesame and animal husbandry. In agricultural sector, around 59.50% of the total population is involved in rice production that is being cultivated in 46,356 ha, of which 12,000 ha is dry season rice fields where are mostly positioned in the Zone 1 and Zone 2 while some in Zone 3. The dry season rice area is increased from 7.876 ha to 12,000 ha in the last 3 years *(Baray district profile for 2019, PDP Feb 2020)*.

3.3 Overview of Geography and Demography in Kampong Svay district

Kampong Svay district is one of the 6 target municipality and districts in the province which consists of 3 out of 11 communes - namely Kampong Kou, San Kor and Phat Sanday - that are involved in flooded forest fire management. Kampong Svay district borders Tonle Sap Lake in the south, Prasat Balangk district in the north, Stoung district in the west and Krong Stueng Saen in the east (figure 1). The total population of Baray district is 110,399 people (56,123 women) equal to 23,162 families in which 82.30% of the total population engage in agricultural production sector, the primary occupation, including rainy and dry season rice, cashew, rubber, cassava, corn, sugar cane and animal husbandry *(Kampong Svay district profile for 2019, PDP Feb 2020)*.

In the agricultural sector, around 71,20% of the total population is involved in rice production being cultivated in a total area of 91,087.10 ha of which 21,589 ha is dry season rice fields mostly situated in the Zone 1 and Zone 2 while some are in Zone 3. The dry season rice area is increased from 22,280 ha to 22,589 ha in the last 3 years from 2017 to 2019 *(Kampong Svay district profile for 2019, PDP Feb 2020)*.

3.4 Overview of Geography and Demography in Santuk district

Santuk district is one of the 6 target municipality and districts in the province which consists of only 1 out of 10 communes - namely Phneou commune - that is involved in flooded forest fires management. Santuk district extending in a total area of 259.12 km2 borders Stueng Trang district of Kampong Cham province and Preaek Prasab district of Kratie province in the east; Kampong Leang district of Kampong Chnang province in the west; Stueng Saen municipality and Prasat Sambour and Sandan district of Kampong Thom province in north; and Baray district of Kampong Thom province in the south.

The total population of Santuk district is 109,903 people (55,367 women) equal to 25,243 families in which 76.30% of the total population engage in the agricultural production sector, the primary occupation, including rainy and dry season rice, cashew, rubber, cassava, black pepper, corn, mung bean, peanut and animal husbandry. Around 0.5% of the total population is found involved in fishing (Santuk district profile for 2019, PDP Feb 2020).

In the agricultural sector, around 50,70% of the total population is involved in rice production being cultivated in a total area of 35,746 ha of which 2,558 ha is dry season rice fields mostly situated in Zone 1 and Zone 2 while some are in Zone 3. The dry season rice area is increased from 1,384 ha to 2,558 ha in the last 3 years from 2017 to 2019 (Santuk district profile for 2019, PDP Feb 2020).

3.5 Overview of Geography and Demography in Stoung district

Stoung district is located in the west about 50km from Kampong Thom provincial town. Stoung district is one of the 6 target municipality and districts in the province which consists of 4 out of 13 communes - namely Peam Bang, Pralay, Msa Krang and Chamna Kraom communes - that are involved in flooded forest fires management. Stoung district extending in a total area of 150,050 ha borders Prasat Balang district of Kampong Thom province and Sangkum Thmei district of Preah Vihear province in the north; Kampong Svay district of Kampong Thom province and Tonle Sap Lake in the south; Prasat Balang and Kampong Svay districts of Kampong Thom province in the east; and Chi Kraeng district of Siem Reap province in the west (Figure 2). Nearly all the communities living in the target communes depend on agricultural production except those who are living in Peam Bang commune rely on fishing.

The total population of Stoung district is 140,819 people (71,945 women) equal to 29,179 families in which 6,420 families are identified and poor level 1 and 2,433 families are poor level 2. About 85% of the total population engages in the agricultural production sector, the primary occupation, including rainy and dry season rice, rubber, cashew, mango, cassava, corn and animal husbandry. Around 10% of the total population is found involved in fishing (*Stoung district profile for 2019, PDP Feb 2020)*.

In the agricultural sector, around 50,70% of the total population is involved in rice production being cultivated in a total area of 60,426 ha of which 19,401 ha is dry season rice fields mostly situated in Zone 1 and Zone 2 while some are in Zone 3. The dry season rice area is decreased from 20,340 ha to 19,401 ha in the last 3 years from 2017 to 2019 because of having enough water *(Santuk district profile for 2019, PDP Feb 2020)*.

4. Flooded Forest Fire Issues

In Kampong Thom's floodplain landscape, inundated forest fires are common and there is clear evidence that forest fires have been used for decades as a way to clear areas for rice farming and other cash crops. FiAC's officers in Kampong Thom province reported that from 2010 to 2020, a total of 37,370 ha of inundated forest area was completely cleared for agricultural purposes and an additional area of 3,443 ha has been burned by forest fires.

The forest fires that have been happened over decades impact heavily on fisheries resources, including forests and grasses that are the favorite and safe habitats of fish, wildlife and water bird communities for seasonal feeding, spawning and breeding. The most negative impact is the decline of fish species and population that are the main source of local income generation of fishing communities, forcing them to clear flooded forest for agricultural products instead.

4.1 Causes of fires

Based on the commune consultation report mentioned that the key causes of flooded forest fires in dry season in the province are mainly from:

- Negligent human activities of slashing and burning vegetation in existing plots of agricultural lands located next to grasslands and flooded forests. It is ranked as a highest potential risk of causing flooded forest fires.
- Burning dry grasses and hangover of flooded forest and shrubs that have been cut intentionally for an attempt to expand the existing rice fields and newly claim inundated forest land. This activity is also one of the highest risks as it has commonly occured across the Tonle Sap Lake region.

- Burning rice straw in rice fields to gain fertilizer (ashes) before plowing, spreading fires across grasslands and flooded forests nearby that were unable to be controlled.
- Discarding lit cigarette butts in dry grass and bushes, and in a pile of dry organic matter. This careless activity triggering flooded forest fires has quite often been seen along the roads.
- Careless cooking without putting out the fire before leaving by fishers, hunters and people who take care of domestic animals is also one of the major reasons of flooded forest fires.
- Using fire to ignite dry grasses and dead branches of trees by hunters to chase and catch wildlife (reptiles and mammals) and collect bee honey.
- Climate change caused long drought and high temperature that fire easily
- There is no information on natural phenomena such as dry thunderstorms and lightning set flooded forest fires in Kampong Thom province reported.

Therefore, all the reasons causing the flooded forest fires are triggered from carelessness or negligence of human actions. The information on the roots of every cause were explored deeper to use as the foundation for analyzing and interpreting the proper actions to deal with these problems that have been happened in specific locations within the target communes as mentioned in table 1. And all the identified causes of the flooded forest fires raised by the concerned stakeholders are included into the IFFPMP for Kampong Thom province to ensure they will be addressed in the 5-year life period of the plan.

4.2 Locations of burnt forest sites in Kampong Thom province

Based on the data collected by the FIA/FIAC team from 13-20 May 2020, in the period between 2016 and 2020, there were 47 flooded forest fire locations documented, damaging a total of 2,583 ha of flooded forest area in 13 communes of 5 districts. The team collected the waypoints and mapped the burned forest sites as shown in the annex 6.

Kampong Svay district had the highest number of fires recorded in terms of time and area. The table 1 below indicates the fire cases and areas of fire-damaged forests by villages and communes

Table 1: List of flooded forest areas burnt in 5 districts of Kampong Thom province.

No	Names of Locations where forest fires happened			Estima-ted area burned (Ha)	Period and time of flooded forest fire			Response to extinguish fire
	Commune	Village	Burnt area		Time period	Duration	Frequency	
I	**Baray district**			**65**				
1	Baray	Unspecified	Anlong Key & Ou Sala	40	Mar-May 2020	2-3 days	every year	Self-extinguished
		Unspecified	Beung Kork	20				
2	Chong Doung	Unspecified	Western Boeung Trav	5	Feb-Apr 2020	2-3 days	every year	
II	**Kampong Svay district**			**1,805**				
3	Kampong Kou	Khsach Chi Ros	Ang Khim Kheang	270	Mar-Apr 2020	3-4 days	every year	Self-extinguished
			Ang Khim Kheang	60	Mar-Apr 2019	2-3 days	every year	
			Toul Ta Pok	110	Mar-Apr 2020	3-4 days	every year	
			Toul Ta Pok	20	Feb-Mar 2016	2-3 days	every year	
			- Eastern Boeung Kork - Western Boeung Prolit - Northern Boeung Krapeu Krohim.	630	Mar-Apr 2020	4-5 days	every year	
				10	Mar-Apr 2017	3-4 days	every year	
4	San Kor	Chey and Prasat	Boeung Phteas Cheal	25	Mar-Apr 2020	3 days	every year	Self-extinguished
				15	Mar-Apr 2019	2 days	every year	
				40	Mar-Apr 2016	3 days	every year	
			Thlok Ta Pring & Boeung Pung	45	Mar-Apr 2020	3 days	every year	
			Prek Ta Tay	25	Mar-Apr 2020	3 days	every year	

			Chao Hoch	50	Mar-Apr 2020	3-4 days	every year	
				5	Mar-Apr 2019	3-4 days	every year	
				45	Mar-Apr 2016	4-5 days	every year	
5	Phat Sanday	Phat Sanday	Toul Ta Tey	150	Mar-Apr 2020	5 days	every year	Self-extinguished
				10	Mar-Apr 2019	2 days	every year	
				130	Mar-Apr 2018	5 days	every year	
				50	Mar-Apr 2017	3 days	every year	
				35	Mar-Apr 2016	3 days	every year	
		Phat Sanday	Boeung Tung Chorng Kor	50	Mar-Apr 2018	3 days	every year	
				40	Mar-Apr 2016	3 days	every year	
III	**Tang Kouk district**			**273**				
6	Sralau	Unspecified	Prek Toal	23	Feb-Apr	1-2 hours	Every year	Self-extinguished
		Unspecified	Khang Cheung Roung Ses	31	Feb-Apr	2-3 hours	Every year	
		Unspecified	Kampong Phleung	25	Feb-Apr	1-2 hours	Every year	
		Unspecified	Toul Ta Mom/Korm	37		2-3 hours	2016-2020	
		Unspecified	Boeung Chdor	28		2-3 hours	Every year	
7	Triel	Unspecified	Northern Steung Kambot	129		4 hours	Every year	Self-extinguished
IV	**Stoung district**			284				
8	Peam Bang	Pov Veuy	Preah Trapeang	5	Mar-May	2-3 days		Self-extinguished
			Northern Pov Veuy	56	Mar-May	2-3 days		
9	Pralay	Pralay	Below 78 dam	40	Mar-May	2-3 days		Self-extinguished
10	Msa Krang	Kuok Treal	Kon Kha-Ek	20	Mar-May	2-3 days	Every year	Self-extinguished
		Kuok Treal	Kbal Pat	25	Mar-May	2-3 days	Every year	
		Kuok Treal	Krabey Sa-Oy	68	Mar-May	2-3 days	Every year	
11	Chamna Kraom	Spean Krong	Tralang Kong	70	Mar-May	2-3 days		Self-extinguished
12	Samprouch		Kbal Rongeam Chol Tey	50	May-Jun	2-3 days		Self-extinguished
V	**Santuk district**			**205**				
13	Phnov	Prek Ou	Boeung Khvek	40	Mar-Apr	1-2 days	2016-2020	Self-extinguished
		Korng Meas	Boeung Prus	30	Mar-Apr	1-4 days	Every year	
		Korng Meas	Boeung Chamnar	20	Mar-Apr	1-2 days	Every year	
		Korng Meas	Boeung Kray Snor & Boeung Krabey Khvork	20	Mar-Apr	1-3 days	Every year	
		Treuy Ou	Boeung Kandol	30	Mar-Apr	1-3 days	Every year	
		Treuy Ou	A Khveat & La-Ork	20	Mar-Apr	1-2 days	Every year	
		Korng Meas	Day Kouk	10	Mar-Apr	1-2 days	Every year	
		Treuy Ou	Boeung Khan	15	Mar-Apr	1-3 days	Every year	
		Treuy Ou	Chang Oeur Leav	15	Mar-Apr	1-3 days	Every year	
		Phnov	Beung Krabey Kchork	5	Mar-Apr	1-3 days	Every year	
	13			**2,632**				

4.3 Stakeholders Involved in Flooded Forest Fire Management

Flooded forest, floodplains, natural ponds and the Lake themselves are important for aquatic life and biodiversity as well as human beings for economics (fish, rice and cash crops) and source of protein (fish). Due to these multiple benefits, there are many stakeholders identified and involved in the uses and management of fisheries resources and flooded lands as well as setting and control flooded forest fires in the Great Lake territory as following:

Table 2: Involvement of key involved stakeholders in flooded forest fire management

Stakeholder	Review	Risk Reduction	Readiness	Response	Recovery
Local communities	Extend periods of dry season and late start to raining season.	Reduce access to inundated forest areas.	Disseminate information on the importance of	Join interventions during inundated forest fire fighting.	Join cooperation to re-plant inundated forest trees in

			inundated forests and the impacts of fires	Support means for carrying/ pumping water for fire-fighting.	damaged areas Protection & maintenance of seedlings Maintain signboards in re-planted areas.
Village Security Guards	Study and observe the movement of people into inundated forest areas.	Participate in the dissemination of information on an importance of inundated forests and impacts of inundated fire. Strengthen law enforcement	Prepare fire-fighting equipment Joint patrolling/ monitoring of inundated forest areas.	Join fire-fighting teams in attacking fires Provide support for carrying water and other materials to fire-fighting teams	Participate in re-planting of inundated forests Protection of seedlings Maintain signboards and demarcation poles in recovering areas
Community Fisheries	Record names of people accessing inundated forest areas and their purpose, during the dry season.	Participate in the dissemination of information on an importance of inundated forests and impacts of inundated fire	Participate in digging and restoring ponds or canals for retaining water during dry season, that can be used to support fire-fighting.	Join fire-fighting teams in attacking fires Provide support for carrying water and other materials to fire-fighting teams.	Participate in re-planting of inundated forests and protection of seedlings Maintain signboards and demarcation poles in recovering areas
Commune councils	Study the movement of people and their access into inundated forest areas.	Join patrolling for monitoring inundated forest areas Strengthen law enforcement including prohibiting people from access to zone 3 areas, and punishing offenders Disseminate education materials related to fire management Reserve equipment for fire-fighting.	Reserve equipment for intervention for fire extinguish. Organization of local teams for digging or restoring ponds and canals	Mobilize local people to join intervention for fire-fighting. Join fire-fighting teams in attacking fires Mobilization of support for water and equipment distribution.	Join cooperation to re-plant inundated forest tree in the burnt areas. Design and build signboards for the protection of inundated forest areas.
Civil Society Organizations /NGOs	Studies on inundated forest situation and peoples actions in inundated forest fire issues.	Raise awareness of the importance of inundated forest and impacts of inundated fire.	Training of local fire-fighting teams	Logistical support	Join local community and local authorities in re-planting inundated forest areas. Support the protection and maintenance of re-planted areas.
District and commune Police	Conduct census of cattle owners and families who are farming in inundated forest areas	Strictly prohibit people 's access to zone 3 Join patrolling of inundated forest areas	Join fire-fighting teams in attacking fires	Join fire-fighting teams in attacking fires	Join local community and local authorities in re-planting inundated forest areas.
District Authorities	Collect & maintain data on inundated forests in the Districts.	Disseminate educational materials on the importance of inundated forest and	Cooperate with fishery authorities and others to conduct training and dissemination	Mobilize forces to participate in inundated forest fire fighting	Record information on replanted areas and their recovery.

	Issues directives related to inundated forest management.	impacts of fires Strengthening law enforcement.	on forest fire management	Provide equipment and materials support for fire-fighting teams	
Provincial Department of Agriculture, Forestry and Fisheries (PDAFF)	Review report on forest fires submitted by the FiAC.	Support FiAC to promote local awareness on forest fire prevention and strengthen law enforcement.	Further report the forest fire issues to the provincial governor for preparedness and intervention.	Join fire-fighting teams in attacking forest fires.	Support FiAC, CFi and local communities to restore the fire-damaged forests.
Provincial departments	Development of local policies related to fire management	Dissemination of information on forest fire management to involved stakeholders	Provide high risk level warnings when necessary	Designate staff to participate in inundated forest fire fighting Provide material and manpower support for fire fighting	Designate staff to participate in re-planting of inundated areas. Mobilize funds for the restoration of inundated forest areas.
Tonle Sap Authority	Study inundated forest situation and people actions in inundated forest fire issues. Monitor boundaries of inundated forest between zone 2 and 3 and re-erect poles if the demarcation is unclear.	Educate and disseminate information on the importance of inundated forests and impacts of fires on local people and the ecology	Provide fire-fighting equipment to communities.	Designate staff to participate in fire fighting	Designate staff to participate in re-planting of inundated areas.
Fisheries Administration & Fisheries Administration Cantonments	Maintain CFi records of community engagement in fire-fighting Regularly monitor inundated forest situation. Conduct ecological and livelihood surveys of inundated forest areas Collect data on causes of fires, size of damaged areas etc.	Produce and disseminate educational materials on the importance of inundated forest and impacts of fires Strengthening law enforcement.	Maintain and provide equipment for fire fighting	Designate staff to participate in inundated fire fighting Report to line Departments leaders	Join in the organization of re-planting operations in the burnt areas Assist in the coordination of patrolling for monitoring re-planted areas.
Ministry of Environment	Conduct ecological and livelihood surveys in inundated forest areas	Produce and disseminate educational materials on the importance of inundated forest and impacts of fires	Maintain and provide equipment for fire-fighting.	Designate staff to participate in inundated fire fighting Report to line Departments leaders	Participate in the organization of re-planting operations in the damaged areas Assist in the coordination of patrolling for monitoring re-planted areas.

The identification of the stakeholders is indispensable for the planners to think of the target groups and their engagements in the different activities for flooded forest fire management to be mentioned in the 5-year IFFPMP, ranging from for the target groups who assumedly set forest fires to be educated and the groups who are responsible for patrolling and controlling flooded forest fires.

4.4 Challenges for taking measure to respond the forest fires

The historical background of the flooded forest fire control in Kampong Thom province shows that neither action taken on the ground to distinguish flooded forest fires nor any institution responsible for managing the forest fire suppression is sufficiently clear. The challenges are driven from various factors and reasons as shown below:

- **No IFFPMP mechanism in place**: Flooded forest fires have been a common occurrence for a

  long time with many verbal complaints and reports by members of community fisheries to the concerned agencies -including local authorities (village, commune and district) and Fisheries Administration Cantonment's triage - to seek the intervention for putting out the forest fires but there was no intervention. That is probably caused by not yet having the right forest fire management mechanism at commune or district levels discussed and developed to manage firefighting group, budget and fire extinguishing tools for precaution, prevention and immediate intervention responding in the forests that are being fired.

- **No IFFPMP plan in place**: Resulted from absence of the IFFPMP mechanism or a coalition team consisting of the key stakeholders set up for putting out flooded forest fires, the applicable and agreeable IFFPMP plan could not be developed and so the forest fires continued freely. This is despite some efforts made by community fisheries to suppress the wildfires that were not fully successful due to having no well prepared people and appropriate extinguishing tools.

- **Limited knowledge of local communities on Fisheries Law's forest fire management-related articles and effects of flooded forest fires**: Most of local people are mainly aware of illegal fishing control-related articles of the Fisheries Law as there were many extension meetings conducted and educational tools produced and erected for the target fishing communities. They, however, understand less about the inundated forest fire management, which is caused by the lack of extension awareness campaigns on flooded forest fire management and of extension materials distributed and displayed in relevant villages.

- **Hard to access the burning areas by geographical situation**: Since the flooded forest floors are always submerged under water during rainy season, no paths or trails comfortable for traveling by motorcycles or cars are built with only a few naturally small, rough trails for walking, ox-carts and powered tillers. So few trails in poor condition are also one of the major obstacles to hamper or elongate the effort to deliver water and extinguishing tools in the early stages of fires to eliminate flooded forest fires happening far away from the water sources and villages. The delay provides opportunity for the forest fires to expand and develop in intensity becoming harder to control.

- **No available water**: Water sources are numerous and vary by agroecological zones and communities in Kampong Thom's floodplain. Availability of water from these sources is not perennial, and the quality, particularly for domestic uses, has changed during the years. The natural waterbodies (ponds and streams) are gradually becoming shallower by long-term sediment increment mainly resulting from deforestation and unsustainable land preparation for agricultural purposes in areas around them and in upstream areas.

  In the past ten years, fishermen realized that nearly all the ponds in the floodplain of the Tonle Sap Lake Region in the province dried out completely by a number of reasons, including shallowness by sediment deposit, using brush park for collecting fish and pumping water out of the ponds to catch fish.

  Since water is a critical resource for flooded forest firefighting, lack of water resources nearby the sensitive forest sites is the major concern restricting immediate action against flooded forest fires.

Restoration of natural ponds and streams in areas of flooded forests and grasslands is prioritized as the water retains in the restored ponds and streams will be used to put out flooded forest fires. They will be considered to convert into fish conservation area and/or water bird refuge. However, the great attention must be paid to the availability and use of the water for dry season rice farming, which will lead to the clearance and burning of the surrounding flooded forests for expanding farmlands.

- **Lack of budget and extinguishing tools**: Putting out flooded forest fires is a serious task which needs a joint effort of all relevant stakeholders to implement in a participatory manner under an effective management mechanism consisting of competent institutions, including communities, CFi, FiAC and local authorities at village, commune and district level with the sustainable budget source. However, the major stakeholders, namely FiAC, commune councils and community fisheries have no or less budget earmarked for flooded forest fire management as costs for forest fire extinguishing tools and services are expensive.

Due to the above impediments, the stakeholders have just some ideas on how to try to prevent and eliminate flooded forest fires but no choices for actions and improving practice.

4.5 Offenders and Prosecutions

Many cases of inundated forest fires happening in Kampong Thom province appear to be caused by the local people rather than outsiders. However, fishers and farmers often move from upland areas to zone 3 next to the Tonle Sap Lake during the dry season to fish, clear small patches of the forested land for dry season rice and vegetable cultivation and fuel wood collection. Sometimes, fires spreading across the inundated forest were caused by careless extinguishing of camping fires when they left the fishing grounds, farms and fuelwood collection sites.

Land grabbing and land business deals are now very common throughout zones 2 & 3 in the province. Land dealers provide some money and equipment to local people to clear and convert some plots of inundated forest into dry season rice fields for the real purpose of selling further to land speculators. It is quite common that nearly all the small concrete poles planted along the boundaries of Zone 3 were removed for the pretext of farmland expansion.

The FiAC conducted investigations into fire cases and documented information on the causes and effects of the fires, chronological histories of offenders who are suspected of setting the fires, and names of people involved in flooded forest land encroachment. It is noted that not all the cases have been fully investigated as some conflicting areas are located far away and there is a lack of resources to reach a conclusion. After investigations and documentation, the FiAC prepared and sent complaint letters to arrest the suspects to the provincial court. However, the process of court intervention remains uncertain and many of the suspects have been released with unclear reasons without punishment under the Fisheries Law.

Since 2015, FIAC has filed complaint letters to the court for about dozens of cases against suspects who are charged with involvement in flooded forest fires and land encroachments, although it may not quite often result in successful prosecution, in which around three third cases are still pending.

5. The IFFPMP Process

To ensure the implementation of participatory flooded forest fire management is carried out effectively and timely following the 5 R's principle and 3 stages of Prevention (review, risk reduction & readiness), Intervention (response) and Restoration (recovery) mentioned in the Guidelines for Developing Tonle Sap Inundated Forest Fire Management Plans, the implementation of inundated forest fire management should be by the following process.

5.1 Prevention Steps (review, risk reduction & readiness)

5.1.1 Review

Review the latest experiences/information/understanding of fire behaviour probabilities and fire effects in different areas of the province over the past several years. Fire behavior probabilities include meteorological conditions, fuel loads and moisture status and ignition sources (human and natural). Fire effects are the potential damage to socio-economic values (properties, resources, recreational importance, carbon stocks, etc.), environmental condition (soil and vegetation) and landscape value (distinctiveness, conservation status, etc.). The review was made following the actions below:

a) Consultation meetings

A series of consultation meetings with key stakeholders (FiAC, local authorities, NGOs, CFi and local communities) were conducted to discuss and gather information/data related to forest fire behavior (weather condition, fuel load, moisture status); causes of forest fires and suspected people igniting the fires; effects of forest fires to local properties, health and life of human and animals, environment and landscape management; the prevention and responses to forest fires and the forest-fire restoration approaches have been applied; and stakeholders involved in the process of forest fire management. The information collected and findings found in this stage will be used to determine the effective methodologies for the inundated forest fire management.

b) Field observation

Field observation of the burn forest areas was made after the consultation meetings to collect more information on the ground on physical condition, land use pattern, land cover, vegetative species susceptible to fire, causes of forest fires, temporary camping locations, scope of forest fire damages. Coordinates of the fire-damaged forest areas is to be collected in this field observation for producing map of the fire-affected forests.

5.1.2 Risk reduction

Risk reduction activities aim to reduce the number of unwanted, uncontrolled or escaped fires from starting in the first place. Risk reduction is one of the most important parts of fire management; and they are the most economical way of reducing fire damage and loss. Focusing on the potential causes of fires can help reduce the risks of them occurring.

a) Produce extension materials and assemble signboards

To get meaningful, simple extension materials for promoting local awareness produced, erected and distributed, a series of the below activities should be completed:

- Design draft pictures and messages for producing extension materials.
- Review and finalize pictures and messages for producing extension materials.
- Publish extension materials.
- Conduct meeting with district governor and technical team, commune chiefs, CFi and CFFPTs to identify locations for erecting signboards and target people for distribution of the extension materials, and how to read and use them for promoting local awareness. Some posters and leaflets are dropped at the district and commune offices for helping distribution and dissemination.
- Erect signboards at the identified locations.

b) Promote local awareness and participation in flooded forest fire management

- Identify villages, locations and groups of equal representation of female and male farmers, fisherfolk, bee honey collectors, hunters and domestic cattlemen/boys, which are the target audiences of the extension campaign on participatory forest fire management.

- Collect existing document related to the target groups such as lists of farmers who possess farmlands in Zone 3, tractor owners, fishers, hunters by locations.
- Conduct extension meetings to raise awareness of the target groups by locations on participatory flooded forest fire management and law enforcement against the offenders who are suspected to set forest fires.
- Distribute the leaflets and posters to local people who are living in the target villages.

c) Conduct flooded forest fire patrols

The CFFPTs should be established and do patrol based on the agreed weekly forest fire patrol plan. Members of the patrol team must take along the portable forest fire tools to be ready for fighting forest fires they face during the patrol. In addition to that, the team members must record the harmful activities and events they spot in the given form for reporting. Pictures of those activities are also taken for evidence. The incumbent patrol team leaders have to keep the concerned commune chief informed regularly about status in the field and to get their requests for the support readily prepared.

Chiefs of the concerned commune and FiAC's triage have to stand by, follow up and keep connection with members of the CFFPTs who are on patrol regularly by phone and/or by walky-talky so that they can manage to take action respond to the emergency requests for intervention from the patrol teams. They further ask for immediate intervention from the WGFFM at district level if their effort to put out forest fires is ineffective.

5.1.3 Readiness

Readiness activities aim to prepare structures, equipment and personnel for possible fire events and activities that aim to quantify and evaluate what is necessary and what will optimize firefighting actions

a) Formation of working groups for IFFPMP at provincial, district and commune levels

- Draft roles and responsibilities of the working groups at different levels.
- Meeting with provincial, district and commune administrations to develop required papers for the legal formation of working groups.
- Establish WGFFM at provincial and district levels and flooded forest fire patrol teams at commune level.

b) Conduct quarterly WGFFM meeting at provincial level

Based on the ToR of the working group at provincial level stated in the Decision Letter issued by the provincial governor, The FiAC should organize quarterly WGFFM meeting at provincial level chaired by the provincial governor regularly. The target participants of the meeting include all members of the WGFFM at district and provincial levels and commune chiefs.

The objectives of the meeting are to report the progress made in the quarterly period; raise challenges related to communication, working cooperation, forest fire-fighting equipment, logistics, law enforcement and so on; and get effective recommendations from the provincial governor to deal with those concerns.

After the meeting, the FiAC should develop the report of the quarterly meeting and submit the report to the PDAFF's director for review and approval, then to the provincial governor for his review and signature. The report will be then sent to all the relevant institutions at provincial, district and commune levels for taking action.

c) Conduct monthly WGFFM meetings at district level

The FiAC should organized WGFFM meeting at district level to provide opportunity to representatives of the CFFPTs, WGFFM at district level and FiA (for some case) to report the result of the IFFPMP has been achieved in the month and place on the table the problems that have not yet been resolved for

the recommendations from the members of the WGFFM and district governor. The provincial governor requires to be invited to participate in the meeting,

After the meeting, the FiAC should develop the report of the quarterly meeting and submit this report to the district governor for his review and signature. The report will be then sent to all the relevant institutions at provincial, district and commune levels for information and taking action.

d) Conduct commune meeting to review monthly and weekly forest fire patrol work plan

Monthly CFFPT meeting chaired by the commune chief should be organized regularly to share lessons learnt among the team members and discuss challenges faced during the patrol and proper solution to deal with. In the previous training on Participatory Flooded Forest Fire Management, the CFFPTs already discussed monthly patrol plans, so this meeting is aimed to refresh their knowledge on the roles and responsibilities of the CFFPTs and the monthly and weekly work plans, remind of the conduct of regular weekly CFFPT meeting, arrange rotational patrol teams, and check the form for recording unusual events discovered while patrolling and forest fire-fighting tools to be taken along to get them ready to go the fields for forest fire patrol the days after this meeting. Promote active and meaningful participation of women.

The minutes of the monthly or weekly meeting must be developed at the end of the meeting for reporting to the WGFFM at district level and FiAC's chief for information and take action to help address the challenges.

e) Build physical structures for flooded forest fire prevention

As mentioned above, the necessary physical structures to be built for preventing forest fires include installation of triangle poles along the border of the Zone 3, construction of guard towers, rehabilitation of natural ponds to retain water for putting out forest fires during dry season and marking fire-damaged forest sites with concrete poles. Due to limited budget, not all the structures will be established at the same year. They will be developed year by year following the priorities set in the previous consultation meetings with the involved stakeholders at district and commune levels. Below is the process of the physical structure development:

- Conduct a first consultation meeting with commune and village heads, CFis and CFFPTs identify sites for building guard towers, natural ponds to be rehabilitated, and fire-damaged forest sites to be marked with poles and/or small signboards.
- Conduct field engineering assessment for pond rehabilitation and estimate costs. The triangle poles and guard tower are not included in the engineering assessment as their designs and costs are already developed.
- Conduct process of procurement (documentation, announcement and selection of engineering firm) for pond rehabilitation and guard tower construction.

f) Improve knowledge and skill of the commune forest fire patrol teams

- **Develop training manual on Participatory Flooded Forest Fire Management**: The training is centered on the subjects of role and responsibility of the patrol team, importance of flooded forest and impact of fire on ecology and human beings, effective patrol strategy, recording of events encountered during patrol, use and maintenance of community patrol equipment, use of social medias with smart phone, fisheries law and forest fire-related rules, the way of communication for intervention when encountering forest fires, activity planning and report writing.
- **Conduct training on Participatory Flooded Forest Fire Management** for commune forest fire patrol teams. The training should be organized at commune level to provide opportunity for every member of the patrol team to learn forest fire management technique, share their lessons learnt and experiences.
- **Develop monthly and weekly forest fire patrol plan**: allow the local participants to consult on the applicable monthly and weekly patrol work plans to develop ownership as they will apply it in

the field after the training. The monthly and quarterly work plans are to be signed by the concerned commune chief.

- **Follow up** and improve the application of the knowledge gained from the training in the fields to ensure satisfactory training quality.

g) Equip the commune forest fire patrol teams with forest fire-fighting tools

The community forest patrol equipment for common uses and personal safety - including power tillers with water pumps and firefighting hose, drone, first aid, 20-liter portable water pump sprayer, smart phone Black View, fire-fighter boots, hammock, brim hard hat made from high-density polyethylene, leather groves, goggles, long handle shovel, torches, backpack, walkie talkie and face mask - have to be purchased and distributed to the patrol teams.

Regulation for using the equipment for commune forest fire patrol team must be developed and disseminated to all members of the team through a meeting at commune level to ensure proper use, maintenance and durability of the equipment.

Additional training at commune level on proper uses of the forest fire-fighting tools would be delivered to members of the patrol teams as required to ensure the forest fire-fighting equipment are used effectively and safely.

5.2 Intervention Step (Response)

This intervention step is much focused on forest fire fighting and enforcement of the Law on Fisheries with regular flooded forest patrol led by the CFFPTs under direct support and management of the chiefs of the concerned commune council and FiAC's triage. To capacitate and empower the CFFPTs to undertake the forest fire patrol effectively the FiAC's focal officers should direct them to concentrate on the following points.

In cases the CFFPTs encounter forest fires happening while patrolling, the team members must act promptly against the forest fire with the following instruction:

a) Small forest fire cases

- For the small cases of forest fires that can be manageable the CFFPTs spot while on patrol, the team members can use the available fire extinguishing materials to put out the fires immediately on their own with the following actions:
- Covers the mouth and nose with a mask, scarf or sweatshirt to reduce smoke and dust inhalation.
- Use tree branches to beat the fire.
- Use shovel or hoes to dig soil for covering/burying the fires or to make cleared lines
- Use the portable water pumps container to throw water into the fires.Make sure that the fire is completely put out, called 'blacked out', before leaving the scene to avoid re-ignition of the fire .
- Inform chiefs of the commune and FiAc's triage for information.

b) Meso/massive forest fire cases

If the forest fire appears to be at meso-scale, both the CFFPTs who are doing patrol and the commune chief must take special care for personal safety and act promptly to combat the fire with the following approach:

- The patrol team must promptly cover the mouth and nose with a mask, scarf or sweatshirt to reduce smoke and dust inhalation
- Alert chiefs of the commune and FiAc's triage via phone and/or communication radio about the fire case to get support for fighting the forest fire by transferring the standby power tillers and the fire extinguishing tolls on standby to the scene.

- Used the portable fire extinguishing tools that are taken along to commence fire suppression.
- Mobilize some people who are farming or fishing nearby the scene to help put out the fire with their available tools such as water pumps, power tillers, tractors, water containers, hoses, water cans and so on.
- The commune chief must inform the district governor immediately to send the fire-fighting trucks and the fire-fighting police brigade to the scene to help manage the forest fire suppression.
- The commune also to ask leaders of the villages and the voluntary forest fire-fighting groups of the closest villages to mobilize local people and locally available fire extinguishing tools such as power tillers and/or tractors equipped with water tank and plough, water pumps, watering cans and hoses to help put out the fire.
- If the fire-fighting vehicles cannot access the burning forest site, those vehicles can be used as a source of water supply to fill the tanks loading on the power tillers that take the water to put out the fire.
- In direct attacks on the ground, power tillers, tractors or bulldozers may be brought in to clear vegetation and dry sediment of organic matter in the grassland to form a control line parallel to the flames to prevent the spread of the fire.
- Make sure the fire is completely extinguished to avoid the reoccurrence of the fire before leaving the scene.
- Develop a report on the forest fire containing the cause of the fire, stakeholders and number of people participated in the fire control, fire extinguishing tools used, scope of damage and recommendations to be considered to apply for the future forest fire suppression.

5.3 Restoration Step (Recovery)

Due to the limited budget for restoration of fire-damaged forests and ecological and physical conditions of the burnt forest areas, the restoration approach here considers two options for the restoration in the floodplain: Assisted Natural Regeneration and Replanting Inundated Seedlings.

5.3.1 Damage assessment

a) Conduct rapid assessment to define technical-sound approach to restore the burnt forest areas

A rapid assessment to the fire-damaged forest areas needs to be conducted to collect information on scope of damage, mapping the restoration sites, physical and ecological aspects, native plant species in the burnt areas to be selected for planting, technical sound restoration and maintenance approach, restoration plan and estimated cost. The assessment would be carried out in early dry season (January) to provide enough time for preparing the restoration.

b) Conduct first meetings at commune level to discuss preparation plan for forest restoration

This is the first meeting among relevant stakeholder including FiAC, local authorities, CFis, CFFPT and involving NGOs to discuss activity plan for restoring the fire-damaged forest sites, which emphasizes site selection for restoration by years, selection of native tree species for planting, tree nursery establishment and seedling production, tree planting ceremony, site preparation, seedling transportation, mobilization of local people to participate in tree planting events, supporting and monitoring tree planting conducted by local people, survival rate monitoring, logistics, formation of local working groups and their responsibilities to support the forest restoration process and reporting of the tree planting result.

c) Demarcation and mapping the burnt forest sites

FiAC's officers working with the CFFPTs demarcate and map the burnt forest sites for better understanding of the burnt forest areas to be restored and number of concrete poles and signboards required to erect along the borders to prevent the local attempt to use those areas for rice cultivation. The maps include spots (waypoints) for erecting concrete poles and signboards.

d) Demarcate the burnt forest area with concrete poles and small signboards

Following demarcation and mapping, FiAC's officers in close collaboration with village and commune authorities erect concrete poles and signboards along the boundaries of the demarcated fire-damaged forest sites with the specific amounts as pointed in the maps for the purposes of protection of the burnt areas from land claim for agricultural activities and forest restoration.

In the meantime, village and commune leaders should disseminate the protection of the burn forest sites for restoration and legal actions against offenders who claimed some plots of the sites through administrative village and commune meetings.

e) Site protection

Prevent the restoration sites from grazing by prohibiting the entrance of domestic animals (buffalos and cows) as the animals will devastate natural seedlings. Erecting small signboards to inform the farmers who take care of domestic animals in the floodplain about the forbiddance is necessary. Leaders of the concerned communes and villages should help circulate information about the restoration site protection to villagers to generate the local participation in the successful restoration.

f) Regularly patrol the restoration sites

It is very important that the CFFPTs include the monitoring of all the forest restoration sites (replanting and assisted natural regeneration sites) in their weekly and monthly patrol plans to ensure that all the sites are safe from the harmful disturbances such as agricultural cultivation activities, wildfire and grazing. While on patrol, the CFFPTs must report to chief of the concerned FiAC triage about impacts on seedlings such as suppression of grasses or water hyacinth over the seedlings as well as competition between grass community and tree seedlings for sunlight, water, space and nutrients in order to take actions to liberate the seedlings with silviculture operations. Such activities are very helpful to improve the survival and growth rates of natural seedlings.

5.3.2 Restoration with Assisted natural regeneration

If the burnt forest areas are close to the inundated forest where exist many seed trees, those areas are no need to restore with replanting inundated tree seedlings because the seed trees will produce and drop seeds in early rainy season that will then be dispersed across the forest areas by flood for natural regeneration.

The assisted natural regeneration is needed to operate for at least three years to take care of the natural seedlings to get them mature to overcome the grazing, competition and suppression.

5.3.3 Restoration by replanting tree seedlings

a) Conduct training on tree nursery management and flooded forest restoration approach for CFiA's focal officers

FiA's focal officers in cooperation with other specialists develop training manual on Tree Nursery Management and Flooded Forest Restoration Approach. The training manual should contain:

- **Tree nursery management**: site selection, formation of tree nursery group (at least 40 percent of the groups should be women), small-scale tree nursery design and construction, construction materials required, soil selection and treatment, seed and seedlings collection, seed treatment, seedling maintenance, seedling delivery and bookkeeping.
- **Flooded forest restoration approach**: Site selection and mapping, physical and ecological rapid assessment of the selected sites, native species suitable for the ecological and physical situation

of the restoration sites, safe seedling transportation, spacing between pits, marking spots for pitting, pit size, removing seedlings from polybags, formation and ToR of local working groups to help manage tree planting and spread sheets needed for monitoring tree planting activities.

b) Support local communities to develop tree nursery and produce tree seedlings

After documentation of the agreed training manual, the two teams will organize a training on tree Nursery Management and Flooded Forest Restoration Approach at provincial level for the focal points of the three target FiACs to improve and refresh their skill/knowledge for both technical and managerial approaches. The training would be organized in April or May so that they can manage the forthcoming tree planting on time. The draft plan for the oncoming tree planting to be discussed as the last session of the training to be a reference for further discussion with local authorities and communities to finalize the plan. Support local communities to establish tree nurseries and produce inundated tree seedlings

Inundated tree seedlings required for the inundated forest restoration should be produced by local communities or CFi because it is part of local capacity development for seedling production and insurance of the forest restoration sustainability. Therefore, after the training the FiAC's focal officers have to go the target commune and villages to work with local authorities, local communities and CFis to support them to produce inundated tree seedlings following the subsequent activities as shown below:

- **Site selection for tree nursery establishment**: Select the most appropriate site for establishing tree nursery following the site selection criteria mentioned in annex 7. Size of the nursey is varied based on the number of seedlings required.
- **Formation of local tree nursery group**: At least 10 people, consisting of minimum 5 women, need to be selected and formed as a tree nursery group to run the seedling production business. Ensure some women-only groups are established as well. The management structure of this local tree nursery - including roles and responsibilities of all the team members and benefit sharing - must be developed in a consultation manner to ensure this business is run well and transparently.
- **Building capacity of the tree nursery group**: The FiAC delivers training on tree nursery management - including nursery installation, seed/seedling collection, seed treatment, soil collection and seedling maintenance - to all members of the tree nursery group to enable them to build a nursery and produce seedlings on their own. Sessions of bookkeeping, activity plan and materials for nursery establishment are included in the training. Due to the limited sources of locally available materials for establishing tree nursery, the project should provide some materials such as shelter net, wooden pillars, plastic sheets, polybags, metal wires, watering cans, small water pump, hoses and some fertilizers, as raised in the training to support the tree nursery construction.
- **Support to the nursery establishment and seedling production**: The FiAC's assigned officers should go to the field regularly to support the tree nursery group to establish nursery and produce flooded tree seedlings successfully and on time.

c) Conduct 2nd commune-level consultation meeting to refresh the forest restoration plan

The second consultation meeting at commune level to review and finalize the forest restoration plan prepared in the first meeting is necessary to be managed for reviewing and finalizing the plan that will be considered the final one for the real implementation in the upcoming month. The much more important of the meeting is to review the local working arrangements committed to be formed after the first meeting and to confirm the mobilization of local communities to participate in the upcoming tree planting event. The participants of the meeting comprise of FiAC, local authorities, CFi, CFFPTs

and tree nursery group.

d) Organize an event of tree planting ceremony

An event of inundated tree planting ceremony should be organized in each target district to circulate the joint effort of the forest restoration and promote local participation in prevention, protection and maintenance of the restoration sites from any harmful activity/attempt. If possible, inviting the FiA's Directorate General and/or district governor to chair the event to make the event more important and interesting because the event is considered as a significant extension campaign for fisheries resource management besides the forest restoration.

e) Support and monitor tree planting in the burnt forest areas

To guarantee the tree planting event is implemented well following the technical orientation made in the previous training on Tree Nursery Management and Flooded Forest Restoration Approach, the subsequent activities mentioned below should be followed:

- A brief technical orientation of tree planting highlighting seedling delivery without damage to the seedlings, dimension of pit, spacing between pits, pitting and soil removal, removing polybags, planting seedlings upwards, filling pit up, gently compacting soil in the pits and watering the planted seedlings if the soil is too dry.
- Mark spots to be pitted with bamboo sticks and tree branches to avoid seedlings planted too closely together and under trees.
- Safe delivery of tree seedlings from the tree nursery to the planting sites. Recording number by species of seedlings delivered and damaged during the transportation by power tiller/truck.
- Divide the restoration area into sub-blocks for planting seedlings by groups under monitoring of the local working groups. This way the working groups can easily identify the planting group who carelessly planted the seedlings for replanting or completing the incomplete plantings.
- Support and monitor tree planting by local communities to ensure proper pitted size, filling pits up with soil and soil compacting.

f) Develop tree planting reports

FiAC plays an important role in developing forest restoration reports after finishing the tree planting. The report should be developed at commune, districts and provincial levels as the reports will be submitted to commune chief, district governor and provincial governor respectively.

The tree planting report must be provided precise figures of forest area was restored, number of seedlings by species were planted and number of participants joined the event as is vital for the project's monitoring and evaluation.

g) Maintain the inundated forest restoration sites

To ensure high survival and growth rate of the planted seedlings the forest restoration sites really need to be maintained. There are a few approaches to be applied to maintain both the planted seedlings and natural regeneration, including protection of the restoration sites, seedling clearance from suppression of water hyacinth and grasses, removal of dry organic matter from the restoration sites and protection from domestic animal entry into the restoration sites. The detailed technique for maintaining the forest restoration sites will be incorporated in the training on Fire-Affected Inundated Forest Restoration Approach for the FiAC's focal officers that may be held in early of 2022.

h) Conduct seedling survival rate monitoring

It is very essential to conduct survival rate monitoring when the seedlings age two year-old in early dry season to get better insight into percentages of mortality and survival rates of the planted seedlings and how to make the current restoration achievement better based on the real situation of the survival seedling status such as replanting seedling to replace the dead, seedling clearance, weeding and prevention the restoration from domestic animals (cows and buffalos).

6. Commitment to work towards Gender Equality and ending child labor in the IFFPMP

In the implementation of the IFFPMP, gender mainstreaming and child protection will be addressed in all activities, including planning, implementation and monitoring of the implementation of the IFFPMP in accordance with the framework on Gender Equality of the Fisheries Administration of the MAFF, in particular the action plan of the Fisheries Administration for the promotion of gender equality and the elimination of child labor in the fisheries sector (2016-2020).

To contribute to the promotion of equal participation between men and women in activities and decisions in the three working groups (commune/sangkat, district/municipality, and province), especially at the commune /sangkat level, which is the direct project implementer. The Department of Fisheries Conservation and the Department of Fisheries Affairs will coordinate with the Gender Working Group of the Fisheries Administration to ensure that the negative effects of gender inequality are addressed in the implementation of IFFFPMP by providing equal opportunities between Men and women in the management structures of working groups at the provincial, district/municipal and commune/sangkat levels, and taking into account the needs and barriers of women in the implementation of this plan.

Some considerations regarding the establishment of clear implementation mechanisms to achieve gender equality through the promotion of services and legal support are as follows:

- Ensuring equal participation of women and men in all FFFM and decision-making processes (planning, implementation, and monitoring), addressing women's work burden to assist;
- Encouraging women to actively and meaningfully participate in provincial, district, and commune working groups and pay attention to their interests;
- Providing equal opportunities to women on capacity training and consider their capacity training needs and interests;
- Encouraging technologies that are appropriate to women's work; and
- Protect children (aged 15 to less than 18 years old) and pregnant women from hazardous work and improve the working conditions and skills of youth by applying the occupational health and safety in the workplace both in-door and out-door trainings and practices.
- Showcasing women's and men's valuable roles in fisheries and conservation in the awareness raising campaign on participatory FFFM management.

7. Inundated Forest Fire Management Plan Framework

At present, FiAC in Kampong Thom province does not have a clear forest fire management plan, management framework nor enough resources to respond to flooded forest fires. The information on many cases of flooded forest fires has been shared and reported by community fisheries and local people to relevant stakeholders, especially FiAC and local authorities, but they have no budget or equipment to respond on time to the forest fires reported.

Recently, FiA provided some fire extinguishing tools to the FiAC for flooded forest fire intervention. However, the interventions are challenging as inundated forest fires can be happened in the middle of dense forest areas where people and fire fighter trucks cannot access easily.

To support the existing implementation of the inundated forest fire management, the CAPFISH project develop the 5-year inundated forest fires fire prevention and management plan for 2021-2025 with the following framework.

7.1 Period of implementation: 2021-2025

7.2 Goal

The inundated forests in Kampong Thom province are well protected, grow and increased under the effective flooded forest management mechanism at provincial, district and commune levels using a participatory forest fire management approach.

7.3 Objective

To meet the above goal, the achievements of the objectives below will strongly contribute to reach the set goal:

- Awareness and participation on participatory flooded forest fire management of the target communities and stakeholders promoted.
- Flooded forest and grassland area affected by wildfire reduced.
- All the fire-damaged flooded forest areas restored by replanting native tree species to benefit both the ecology and organic food source.

7.4 Outputs

Output 1: Effective review, risk reduction and readiness for forest fire protection

The first output covers the first 3 R's of reviewing the satiation, reduction risks and ensuring that the authorities, partners and communities are best prepared for each fire season.

Activities planned under this Output include stakeholder planning meetings to clarify roles and responsibilities and to establish fire patrol teams. This Output also includes the procurement of firefighting equipment, tools for raising stakeholder awareness, training and field activities to support practical forest fire patrol, forest fire intervention and forest restoration and maintenance.

Output 2: Improved responsive actions to inundated forest fires

Output 2 focuses on coordinating the response of the authorities and communities to forest fires that are threatening the inundated forests and grasslands. It also aims to strengthen law enforcement and increase number of successful prosecutions in the court system against illegal activities in the inundated forest areas.

Output 3: Improved restoration of fire damaged areas of inundated forests

The last output focuses on improving the demarcation of fire-affected forest areas that are under rehabilitation; and restoring forest areas that have been damaged by fire, either through protection of natural regeneration or the replanting and maintenance of seedlings.

7.5 Cost

The total value of the Plan estimated is around **USD 722,795** over the 5 years.

The Flooded Forest Fire Management Plan for Kampong Thom province follows the principles as laid out in the FAO-CAPFISH (Capture) Project document: Guidelines for developing Tonle Sap Inundated Forest Fire Management Plans and the 5 R's principle, which focus on Review of fire situation, Risk Reduction, Readiness, Response and Recovery. These are very helpful for writing the IFFPMP to cover enough information on the whole process of forest fire management that directs the implementation of the plan to achieve acceptable results met the three outputs above.

The IFFPMP is also built on the principle of Community-Based Fisheries Management (CBFiM), an integrated approach that includes communities in decision making and implementation of the plan. The community-based fire management plan not only involves local communities in the development of a fire management strategy and training on how to suppress forest fires, but also generates local awareness on impacts of forest fires, forest fire and fire-damaged forest management, and prohibitions for cutting/clearing forest and illegal land mentioned in Article 26, 27 and 28 of chapter 6

of the Fisheries Law. Men, women and vulnerable communities play an important role in practical engagement of the five stages of forest fire management.

In this context, however, protection of women and children from hazardous works associated with firefighting must be guaranteed. Therefore, CBFiM is considered an appropriate approach for Tonle Sap Lake's fisheries resource management, given that local communities have a long term interest in preserving these areas and because local people are aware of the impacts generated by forest fires in the landscape in which they live and earn a living.

8. Monitoring and Evaluation Framework

To follow-up through the project implementation, the Monitoring and Evaluation Team (MET) will be established by selecting representatives from the key stakeholders at National and sub-national levels. Stakeholders at national level include MAFF/FiA, Tonle Sap Authority and MoE/Inland Wetland Conservation Department (IWCD). Stakeholders at sub-national level include WGFFM, relevant provincial departments (PDAFF/FiAC, PDoRAM, commune and district authorities, CFis and NGO partners) in Kampong Thom province.

The Fisheries Administration needs additional information and data as baseline to be used for monitoring the implementation of this plan. To access this data and information, the Fisheries Administration needs technical and financial support from development partners externally.

On-going field monitoring will be conducted by the MET to learn how the objectives are being reached, cost effectiveness of the operations and effects of the activities implemented for flooded forest fire management in the province. Furthermore, data collection of fire frequency to be reported contains information on the area reached by the fire, fire-affected vegetation types, size of burned area, causes of fires, scope of damage, people involved, equipment used, costs etc.

These evaluations will be done internally on a yearly basis and would be supported by external consultants. The external evaluations should be conducted twice, in the middle and at the end of the project. In case of requiring the support from externally national and international consultants, the DFC and DFA will develop ToR for the external evaluation and process to recruit consultants. The results from the evaluation will be used to generate lessons learnt for future implementation of flooded forest fire management strategic plans in the province. Any weakness/challenges identified will also be taken into account for technical capacity building efforts and future planning.

The drone footage taken during the fieldwork facilitated a detailed look at each area. Local fuel load, traffic and tracks, accessibility and vegetation continuity were examined in each site. This facilitated the identification of potential fire risk, mainly generated by fuel load, and fire management opportunities and access to the area

The DG's FiA, DFC, DFA, Kampong Thom provincial Governor, and relevant MET team members will also conduct occasional monitoring of target communes and districts implementation by using the monitoring framework. This will include spot checks to follow up on plan implementation and accounting.

9. Activity Plan and budget for inundated forest fire management at provincial level for 2021-2025

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	**Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.**				**353,960**																				
1.1	**<u>Review</u> forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.**				**13,200**																				
1.1.1	Conduct consultation meetings with stakeholders at district and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 13 meetings x 5 years).	65 meetings at commune level. 5 reports at provincial level.	FiA, FiAC and	Involving stakeholders at commune and district levels.	2,925	585 13 meetings 1 report H			H	585 13 meetings 1 report			H	585 13 meetings 1 report			H	585 13 meetings 1 report			H	585 13 meetings 1 report			H
1.1.2	Conduct site observation at the fire-affected forests to gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 13 communes x 5 years).	65 times at commune level 5 reports at provincial level	FiAC	FiA triage, CFi and commune authority.	8,775	1,080 13 time 1 report H	H			1,080 13 time 1 report H	H			1,080 13 time 1 report H	H			1,080 13 time 1 report H	H			1,080 13 time 1 report H	H		
1.1.3	Produce maps of the fire-affected flooded forest areas in all the target districts (60$ x 1 map x 5 districts x 5 years).	25 maps at district level.	DFA/FiA	FiAC	1,500	300 5 maps H	H			300 5 updated maps H	H			300 5 updated maps H	H			300 5 updated maps H	H			300 5 updated maps H	H		
1.2	**<u>Risk Reduction</u>: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.**				**109,850**																				
1.2.1	Produce posters for promoting awareness of local communities and involved stakeholders on participatory flooded forest fire prevention (1.5$ x 100 posters x 13 communes x 5 years)	6,500 sheets	FiA	FAO	9,750	1,950 1,300 sheets H				1,950 1,300 sheets H				1,950 1,300 sheets H				1,950 1,300 sheets H				1,950 1,300 sheets H			
1.2.2	Erect educational signboards for promoting awareness of local communities and involved stakeholders (300$ x 2 signboards x 13 communes).	26 signboards	FiAC	Local authorities	7,800	2,100 7 signboards M				3,600 12 signboards M				2,100 7 signboards M											
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 13 communes x 5 years).	65 lists	FiA Triage	Commune authority	6,500	1,300 13 lists H				1,300 13 updated lists H				1,300 13 updated lists H				1,300 13 updated lists H				1,300 13 updated lists H			
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 13 communes x 5 years).	130 meetings	FiAC	Local authorities	19,500	3,900 26 times H	H			3,900 26 times H	H			3,900 26 times H	H			3,900 26 times H	H			3,900 26 times H	H		
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at commune level and develop forest fire patrol plans (100$ x 13 communes x 1 year).	13 teams	FiAC	Local authorities	1,300	1,300 13 teams H																			
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5	1,300 times	FFPTs and	Local	65,000	13,000				13,000				13,000				13,000				13,000			

						260 times	260 times	260 times	260 times	260 times
	days/month (250$ x 4 months x 13 communes x 5 years).		FiA Triage	authorities		H H	H H	H H	H H	H H
1.3	**<u>Readiness</u>: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.**				**230,910**					
1.3.1	**Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.**				**154,910**					
1.3.1.1	Conduct meeting with provincial and target district administrations to discuss drafts of legal papers required for establishing WGFFMs at provincial and district level and FFPTs at commune level (65$ x 5 meetings).	6 meetings Draft ToRs at provincial, district & commune level	FiA/FiAC and PDAFF	Provincial and target district administrations	325	325 6 meetings H				
1.3.1.2	Conduct meeting with provincial and target district administrations to set up WGFFMs at provincial and district levels (65$ x 5 meetings).	1 groups at provincial level and 5 groups at district level	FiA/FiAC and PDAFF	Provincial and target district administrations	325	325 6 groups H				
1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (1,560$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC and PDAFF	WGFFM at provincial level	7,800	1,560 1 meeting H H	1,560 1 meeting H H	1,560 1 meeting H H	1,560 1 meeting H H	1,560 1 meeting H H
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 districts x 5 years).	50 meetings	FiAC and PDAFF	WGFFM at district level	16,000	3,200 10 meetings H H	3,200 10 meetings H H	3,200 10 meetings H H	3,200 10 meetings H H	3,200 10 meetings H H
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$ x 7 power tillers).	7 units	FiA	FiAC	25,200		10,800 3 units H	7,200 2 units H	7,200 2 units	
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 13 communes).	26 units	FiA	FiAC	59,800		23,000 10 units H H	23,000 10 units H H	13,800 6 units H	
1.3.1.7	Purchase 4 sets of fire extinguishing tools (water pump, high water pressure gun and 2 roles of hose) to be taken along by the patrol team's motorcycles (4 sets x 550$)	4 sets	FiA	FiAC	2,200		2,200 4 sets H			
1.3.1.8	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular,..) for the patrol teams (1,200$ x 2 sets x 13 communes).	26 sets	FiA	FiAC	31,200		15,600 13 sets H		15,600 13 sets H	
1.3.1.9	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x 13 communes)	26 meetings	FiAC	Commune authority	1,170	270 6 meetings H	540 12 meetings H	360 8 meetings H		
1.3.	Attend training at provincial level on Forest Fire Techniques	3 courses	FiA	WCS	5,400	1,800	1,800	1,800		

1.10	for FiAC officers and WGFFM's members (45$ x 2ps x 5 districts x 4 days x 3 trainings)					1 course H	1 course H	1 course H		
1.3.1.11	Conduct district-level trainings on Forest Fire Fighting Techniques for FFPTs (20$ x 7ps x 13 communes x 2 trainings)	10 courses	FiAC	WGFFM at district level	3,640		1,820 5 courses H		1,820 5 courses H	
1.3.1.12	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Techniques at district level and training materials [(45$ x 3ps) + 50$] x 2 trainings x 5 districts	10 courses	FiAC	WGFFM at district level	1,850		925 5 courses H		925 5 courses H	
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				**76,000**					
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe forest fires (8,000$ x 5 towers).	5 units	FiA	FiAC	40,000		16,000 2 unit H H	16,000 2 units H H	8,000 1 unit H H	
1.3.2.2	Rehabilitate natural ponds to retain water for putting forest fires and fish conservation (4,500$ x 8 ponds).	12 locations	FiA	FiAC	36,000		18,000 4 ponds H H	18,000 4 ponds H H		
2	**Output 2: Improved response actions to fires in inundated forest areas**				**88,040**					
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (100$ x 195 cases).	195 cases	FiA triage	Local authorities	19,500	5,400 54 cases H H	4,500 45 cases H H	3,600 36 cases H H	2,700 27 cases H H	1,800 18 cases H H
2.2	Attend ToT at national level on Collecting Evidence, Preparing Offence Reports for FiAC's trainers (45$ x 3ps x 4 days).	1 course	FiA	FiAC	540		540 1 course H			
2.3	Conduct training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiA	FiAC	2,700		2,700 1 course H			
2.4	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 130 cases).	130 cases	FiAC	Local authorities	23,400	7,020 39 cases H H	5,760 32 cases H H	4,680 26 cases H H	3,600 20 cases H H	2,340 13 cases H H
2.5	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 13 communes x 5 years).	Lump sump	FiA Triage	Commune authority	32,500	6,500 L.sum H H	6,500 L.sum H H	6,500 L.sum H H	6,500 L.sum H H	6,500 L.sum H H
2.6	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (4,600$ x 1 time).	1 workshops	FiA	FiAC and WGFFFM at provincial level	4,600		4,600 1 workshop H			
2.7	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 60 people)	60 people	FiA triage	Commune authority	4,800	1,280 16 people H H	1,280 16 people H H	960 12 people H H	800 10 people H H	480 6 people H H
3	**Output 3: Improved restoration of fire damaged areas of inundated forests.**				**223,945**					
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 districts x 5 years).	5 reports	FiA/FAO	FiAC	3,375	675 1 report H	675 1 report H	675 1 report H	675 1 report H	675 1 report H
3.2	Fee for mapping forest restoration areas in the target	25 maps at	DFA/FiA	FiAC	1,500	300	300	300	300	300

	districts (60$ x 5 maps x 5 years)	district level				5 maps	5 updated maps	5 updated maps	5 updated maps	5 updated maps
						H H	H H	H H	H H	H H
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 700 poles).	700 poles	FiAC	Local authorities	42,000	12,600 210 poles H H	10,500 175 poles H H	8,400 140 poles H H	6,300 105 poles H H	4,200 70 poles H H
3.4	Participate in 2 workshops at provincial level on tree nursery management and flooded forest restoration approach for FiAC's focal officers (1,700$ x 2 trainings).	2 trainings	FiA and FAO	FiAC	3,400		1,700 1 training H		1,700 1 training H	
3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 13 meetings x 5 years).	65 meetings	FiAC	Local authorities	4,420	884 13 meetings H	884 13 meetings H	884 13 meetings H	884 13 meetings H	884 13 meetings H
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 district x 5 years).	25 tree nurseries	FiA Triage	CFi	5,000	1,000 5 nurseries H H	1,000 5 nurseries H H	1,000 5 nurseries H H	1,000 5 nurseries	1,000 5 nurseries H H
3.7	Support and monitor tree planting carried out by local communities in the fire-damaged forest areas (5,850$).	130 hectares	FiAC	Local authorities	5,850	810 18 ha H H	1,260 28 ha H H	1,260 28 ha H H	1,260 28 ha H H	1,260 28 ha H H
3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 130 ha).	143,000 seedlings	FiAC	CFi	143,000	19,800 18 ha 19,800 seedlings H	30,800 28 ha 30,800 seedlings H	30,800 28 ha 30,800 seedlings H	30,800 28 ha 30,800 seedlings H	30,800 28 ha 30,800 seedlings H
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 130 ha).	130 hectares	FiA Triage	CFi	13,000	1,800 18 ha H	2,800 28 ha H H H	2,800 28 ha H H H	2,800 28 ha H H H	2,800 28 ha H H H
3.10	Conduct seedling survival rate monitoring in the flooded forest restoration sites (2,400$/120ha).	120 hectares	FiA/FAO	FiAC	2,400			600 30 ha H	600 30 ha H	1,200 60 H
4	**Backstopping, monitoring and evaluation of the implementation of the IFFPMP.**				**56,850**					
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 900$).	1 time	FiA/FAO	FiAC	900	900 1 time H				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 districts x 5 years).	150 times	FiAC	FiAC	6,750	1,350 30 times H H	1,350 30 times H H	1,350 30 times H H	1,350 30 times H H	1,350 30 times H H
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (833$ x 2 times x 6 months x 5 years).	60 times	FiA	FiAC	49,200	9,840 12 times H H	9,840 12 times H H	9,840 12 times H H	9,840 12 times H H	9,840 12 times H H
				Grand Total:	**722,795**					

10. Activity and budget plan for inundated forest fire management at district level for 2021-2025

10.1 Activity and budget plan of inundated forest fire management for Tang Kouk

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	**Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.**				**55,820**																				
1.1	**<u>Review</u> forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.**				**2,100**																				
1.1.1	Conduct consultation meetings with stakeholders at district and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 2 meetings x 5 years).	10 meetings at commune level. 5 reports at district level.	FiA, FiAC and	Involving stakeholders at commune and district levels.	450	90 2 meetings 1 report H			H	90 2meetings 1 report			H	90 2meetings 1 report			H	90 2meetings 1 report			H	90 2meetings 1 report			H
1.1.2	Conduct site observation at the fire-affected forests to gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 2 communes x 5 years).	10 times at commune level 5 reports at district level	FiAC	FiA triage, CFi and commune authority.	1,350	180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H		
1.1.3	Produce maps of the fire-affected flooded forest areas in Tang Kouk district (60$ x 1 map x 5 years).	5 maps at district level	DFA/FiA	FiAC	300	60 1 map H	H			60 1 updated map H	H			60 1 updated map H	H			60 1 updated map H	H			60 1 updated map H	H		
1.2	**<u>Risk Reduction</u>: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.**				**16,900**																				
1.2.1	Produce posters for promoting awareness of local communities and involved stakeholders on participatory flooded forest fire prevention (1.5$ x 100 posters x 2 communes x 5 years)	1,000 posters	FiA	FAO	1,500	300 200 posters H				300 200 posters H				300 200 posters H				300 200 posters H				300 200 posters H			
1.2.2	Erect educational signboards for promoting awareness of local communities and involved stakeholders (300$ x 2 signboards x 2 communes).	4 signboards	FiAC	Local authorities	1,200	300 1 signboard M				600 2 signboards M				300 1 signboard M											
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 2 communes x 5 years).	10 lists	FiA Triage	Commune authority	1,000	200 2 lists H			H	200 2 updated lists H			H	200 2 updated lists H			H	200 2 updated lists H			H	200 2 updated lists H			
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 2 communes x 5 years).	20 meetings	FiAC	Local authorities	3,000	600 4 times H	H			600 4 times H	H			600 4 times H	H			600 4 times H	H			600 4 times H	H		
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at	2 teams	FiAC	Local	200	200 2 teams																			

	commune level and develop forest fire patrol plans (100$ x 2 communes x 1 year).			authorities		H					
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5 days/month (250$ x 4 months x 2 communes x 5 years).	200 days	FiAC	Local authorities	10,000	2,000 40 days H H		2,000 40 days H H		2,000 40 days H H	
1.3	**Readiness: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.**				**36,820**						
1.3.1	**Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.**				**24,320**						
1.3.1.1	Conduct meeting with the district administration to discuss drafts of legal papers required for establishing WGFFM at district level and FFPTs at commune level (65$ x 1 meeting).	1 meeting Draft ToR of the working group at district level	FiA/FiAC PDAFF	District administration	65	65 1 meeting H					
1.3.1.2	Conduct meeting with the district administration to set up WGFFM at district level (65$ x 1 meeting).	1 working group	FiA/FiAC PDAFF	District administration	65	65 1 group H					
1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (240$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC and PDAFF	WGFFM at provincial level	1,200	240 1 meeting H H		240 1 meeting H H		240 1 meeting H H	
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 years).	10 meetings	FiAC and PDAFF	WGFFM at district level	3,200	640 2 meetings H H		640 2 meetings H H		640 2 meetings H H	
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$ x 1 tiller).	1 unit	FiA	FiAC	3,600		3,600 1 unit H				
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 2 communes).	4 units	FiA	FiAC	9,200		2,300 1 unit H H	4,600 2 unit H H		2,300 1 unit H H	
1.3.1.7	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular,..) for the patrol teams (1,200$ x 2 sets x 2 communes).	4 sets	FiA	FiAC	4,800		2,400 2 sets H			2,400 2 sets H	
1.3.1.8	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x 2 communes)	4 meetings	FiAC	Commune authority	180	45 1 meeting H	90 2 meetings H	45 1 meeting H			
1.3.1.9	Attend training at provincial level on Forest Fire Techniques for FiAC officers and WGFFM's members (45$ x 2ps x 4 days x 3 trainings)	3 courses	FiA	WCS	1,080	360 1 course H	360 1 course	360 1 course			
1.3.	Conduct district-level trainings on Forest Fire Fighting	2 courses	FiAC	WGFFM at	560		280 1 course			280 1 course	

1.10	Techniques for FFPTs (20$ x 7ps x 2 communes x 2 trainings)			district level			H		H	
1.3.1.11	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Techniques at district level and training materials [(45$ x 3ps) + 50$] x 2 trainings	2 courses	FiAC	WGFFM at district level	370		185 1 course H		185 1 course H	
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				**12,500**					
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe forest fires (8,000$ x 1 tower).	1 unit	FiA	FiAC	8,000				8,000 1 unit H H	
1.3.2.2	Rehabilitate natural ponds to retain water for putting forest fires and fish conservation (4,500$ x 1 pond).	1 location	FiA	FiAC	4,500			4,500 1 pond H H		
2	**Output 2: Improved response actions to fires in inundated forest areas**				**13,648**					
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (100$ x 30 cases).	30 cases	FiA triage	Local authorities	3,000	900 9 cases H H	700 7 cases H H	600 6 cases H H	500 5 cases H H	300 3 cases H H
2.2	Conduct training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiA	FiAC	540		540 1 course H			
2.3	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 20 cases).	20 cases	FiAC	Local authorities	3,600	1,080 6 cases H H	900 5 cases H H	720 4 cases H H	540 3 cases H H	360 2 cases H H
2.4	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 2 communes x 5 years).	Lump sump	FiA Triage	Commune authority	5,000	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H
2.5	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (708$ x 1 time).	1 workshops	FiA	FiAC and WGFFFM at provincial level	708		708 1 workshop H			
2.6	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 10 people)	10 people	FiA triage	Commune authority	800	240 3 people H H	160 2 people H H	160 2 people H H	160 2 people H H	80 1 people H H
3	**Output 3: Improved restoration of fire damaged areas of inundated forests.**				**37,030**					
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 years).	5 reports at district level	FiA/FAO	FiAC	675	135 1 report H	135 1 report H	135 1 report H	135 1 report H	135 1 report H
3.2	Fee for mapping forest restoration areas in the district (60$ x 5 maps x 5 years)	5 maps at district level (to be updated yearly)	DFA/FiA	FiAC	300	60 1 map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 60 poles).	60 poles	FiAC	Local authorities	3,600	1.080 18 poles H H	900 15 poles H H	720 12 poles H H	540 9 poles H H	360 6 poles H H
3.4	Participate in 2 workshops at provincial level on tree	2 trainings	FiA and	FiAC	680		340 1 training		340 1 training	

	nursery management and flooded forest restoration approach for FiAC's focal officers (340$ x 2 trainings).		FAO						H						H						
3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 2 meetings x 5 years).	10 meetings	FiAC	Local authorities	680	136	2 meetings	H			136	2 meetings	H			136	2 meetings	H			136	2 meetings	H			136	2 meetings	H		
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 years).	5 tree nurseries	FiA Triage	CFi	1,000	200	1 nursery	H	H		200	1 nursery	H	H		200	1 nursery			H	H	200	1 nursery				200	1 nursery	H	H	
3.7	Support and monitor tree planting carried out by local communities in the fire-damaged forest areas (1,035$).	23 hectares	FiAC	Local authorities	1,035	135	3 ha	H	H		225	5 ha	H	H		225	5 ha	H	H		225	5 ha	H	H		225	5 ha	H	H	
3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 130 ha).	25,300 seedlings	FiAC	CFi	25,300	3,300	-3 ha -3,300 seedlings		H		5,500	-5 ha -5,500 seedlings		H		5,500	-5 ha -5,500 seedlings		H		5,500	-5 ha -5,500 seedlings		H		5,500	-5 ha -5,500 seedlings		H	
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 130 ha).	23 hectares	FiA Triage	CFi	2,300	300	3 ha			H	500	5 ha	H	H	H	500	5 ha	H	H	H	500	5 ha	H	H	H	500	5 ha	H	H	H
3.10	Conduct seedling survival rate monitoring in the flooded forest restoration sites (460$/23ha).	23 ha	FiA/FAO	FiAC	460											120	6 ha	H			120	6 ha	H			220	11 ha	H		
4	**Backstopping, monitoring and evaluation of the implementation of the IFFPMP.**				**11,340**																								
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 150$).	1 time	FiA/FAO	FiAC	150	150	1 time		H																				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 years).	30 times	FiAC	FiAC	1,350	270	6 times	H	H		270	6 times	H	H		270	6 times	H	H		270	6 times	H	H		270	6 times	H	H	
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (328$ x 6 months x 5 years).	30 times	FiA	FiAC	9,840	1,968	6 times	H	H		1,968	6 times	H	H		1,968	6 times	H	H		1,968	6 times	H	H		1,968	12 times	H	H	
				Grand Total:	**116,838**																								

10.2 Activity and budget plan of inundated forest fire management for Baray district

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	**Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.**				**55,820**																				
1.1	**Review forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.**				**2,100**																				
1.1.1	Conduct consultation meetings with stakeholders at district and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 2 meetings x 5 years).	10 meetings at commune level. 5 reports at district level.	FiA, FiAC and	Involving stakeholders at commune and district levels.	450	90 2 meetings 1 report H			H	90 2meetings 1 report			H	90 2meetings 1 report			H	90 2meetings 1 report			H	90 2meetings 1 report			H
1.1.2	Conduct site observation at the fire-affected forests to gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 2 communes x 5 years).	10 times at commune level 5 reports at district level	FiAC	FiA triage, CFi and commune authority.	1,350	180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H			180 2 time 1 report H	H		
1.1.3	Produce maps of the fire-affected flooded forest areas in Baray district (60$ x 1 map x 5 years).	5 maps at district level	DFA/FiA	FiAC	300	60 1 map H	H			60 1 updated map H	H			60 1 updated map H	H			60 1 updated map H	H			60 1 updated map H	H		
1.2	**Risk Reduction: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.**				**16,900**																				
1.2.1	Produce posters for promoting awareness of local communities and involved stakeholders on participatory flooded forest fire prevention (1.5$ x 100 posters x 2 communes x 5 years)	1,000 posters	FiA	FAO	1,500	300 200 posters H				300 200 posters H				300 200 posters H				300 200 posters H				300 200 posters H			
1.2.2	Erect educational signboards for promoting awareness of local communities and involved stakeholders (300$ x 2 signboards x 2 communes).	4 signboards	FiAC	Local authorities	1,200	300 1 signboard			M	600 2 signboards			M	300 1 signboard M											
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 2 communes x 5 years).	10 lists	FiA Triage	Commune authority	1,000	200 2 lists H			H	200 2 updated lists H			H	200 2 updated lists H			H	200 2 updated lists H			H	200 2 updated lists H			
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 2 communes x 5 years).	20 meetings	FiAC	Local authorities	3,000	600 4 times H	H			600 4 times H	H			600 4 times H	H			600 4 times H	H			600 4 times H	H		
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at commune level and develop forest fire patrol plans (100$ x 2 communes x 1 year).	2 teams	FiAC	Local authorities	200	200 2 teams H																			
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5	200 days	FiAC	Local	10,000	2,000				2,000				2,000				2,000				2,000			

						40 days	40 days	40 days	40 days	40 days
	days/month (250$ x 4 months x 2 communes x 5 years).			authorities		H H	H H	H H	H H	H H
1.3	**Readiness: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.**				**36,820**					
1.3.1	**Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.**				**24,320**					
1.3.1.1	Conduct meeting with the district administration to discuss drafts of legal papers required for establishing WGFFM at district level and FFPTs at commune level (65$ x 1 meeting).	1 meeting Draft ToR of the working group at district level	FiA/FiAC PDAFF	District administration	65	65 1 meeting H				
1.3.1.2	Conduct meeting with the district administration to set up WGFFM at district level (65$ x 1 meeting).	1 working group	FiA/FiAC PDAFF	District administration	65	65 1 group H				
1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (240$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC and PDAFF	WGFFM at provincial level	1,200	240 1 meeting H H	240 1 meeting H H	240 1 meeting H H	240 1 meeting H H	240 1 meeting H H
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 years).	10 meetings	FiAC and PDAFF	WGFFM at district level	3,200	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$ x 1 tiller).	1 unit	FiA	FiAC	3,600		3,600 1 unit H			
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 2 communes).	4 units	FiA	FiAC	9,200		2,300 1 unit H	4,600 2 unit H H	2,300 1 unit H	
1.3.1.7	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular,..) for the patrol teams (1,200$ x 2 sets x 2 communes).	4 sets	FiA	FiAC	4,800		2,400 2 sets H		2,400 2 sets H	
1.3.1.8	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x 2 communes)	4 meetings	FiAC	Commune authority	180	45 1 meeting H	90 2 meetings H	45 1 meeting H		
1.3.1.9	Attend training at provincial level on Forest Fire Techniques for FiAC officers and WGFFM's members (45$ x 2ps x 4 days x 3 trainings)	3 courses	FiA	WCS	1,080	360 1 course H	360 1 course	360 1 course		
1.3.1.10	Conduct district-level trainings on Forest Fire Fighting Techniques for FFPTs (20$ x 7ps x 2 communes x 2 trainings)	2 courses	FiAC	WGFFM at district level	560		280 1 course H		280 1 course H	
1.3.1.11	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Techniques at district level and training materials	2 courses	FiAC	WGFFM at district level	370		185 1 course H		185 1 course H	

	[(45$ x 3ps) + 50$] x 2 trainings										
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				**12,500**						
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe forest fires (8,000$ x 1 tower).	1 unit	FiA	FiAC	8,000				8,000 1 unit H H		
1.3.2.2	Rehabilitate natural ponds to retain water for putting forest fires and fish conservation (4,500$ x 1 pond).	1 location	FiA	FiAC	4,500			4,500 1 pond H H			
2	**Output 2: Improved response actions to fires in inundated forest areas**				**13,828**						
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (100$ x 30 cases).	30 cases	FiA triage	Local authorities	3,000	900 9 cases H H	700 7 cases H H	600 6 cases H H	500 5 cases H H	300 3 cases H H
2.2	Attend ToT at national level on Collecting Evidence, Preparing Offence Reports for FiAC's trainers (45$ x 3ps x 4 days).	1 course	FiA	FiAC	180		180 1 course H			
2.3	Conduct training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiA	FiAC	540		540 1 course H			
2.4	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 20 cases).	20 cases	FiAC	Local authorities	3,600	1,080 6 cases H H	900 5 cases H H	720 4 cases H H	540 3 cases H H	360 2 cases H H
2.5	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 2 communes x 5 years).	Lump sump	FiA Triage	Commune authority	5,000	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H	1,000 L.sum H H
2.6	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (708$ x 1 time).	1 workshops	FiA	FiAC and WGFFFM at provincial level	708		708 1 workshop H			
2.7	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 10 people)	10 people	FiA triage	Commune authority	800	240 3 people H H	160 2 people H H	160 2 people H H	160 2 people H H	80 1 people H H
3	**Output 3: Improved restoration of fire damaged areas of inundated forests.**				**40,830**						
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 years).	5 reports at district level	FiA/FAO	FiAC	675	135 1 report H	135 1 report H	135 1 report H	135 1 report H	135 1 report H
3.2	Fee for mapping forest restoration areas in the district (60$ x 5 maps x 5 years)	5 maps at district level (to be updated yearly)	DFA/FiA	FiAC	300	60 1 map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 140 poles).	140 poles	FiAC	Local authorities	8,400	2,520 42 poles H H	2,100 35 poles H H	1,680 28 poles H H	1,260 21 poles H H	840 14 poles H H
3.4	Participate in 2 workshops at provincial level on tree nursery management and flooded forest restoration approach for FiAC's focal officers (340$ x 2 trainings).	2 trainings	FiA and FAO	FiAC	680		340 1 training H		340 1 training H	

3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 2 meetings x 5 years).	10 meetings	FiAC	Local authorities	680	136 2 meetings H	136 2 meetings H	136 2 meetings H	136 2 meetings H	136 2 meetings H
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 years).	5 tree nurseries	FiA Triage	CFi	1,000	200 1 nursery H H	200 1 nursery H H	200 1 nursery H H	200 1 nursery	200 1 nursery H H
3.7	Support and monitor tree planting carried out by local communities in the fire-damaged forest areas (1,035$).	23 hectares	FiAC	Local authorities	1,035	135 3 ha H H	225 5 ha H H	225 5 ha H H	225 5 ha H H	225 5 ha H H
3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 130 ha).	25,300 seedlings	FiAC	CFi	25,300	3,300 -3 ha -3,300 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 130 ha).	23 hectares	FiA Triage	CFi	2,300	300 3 ha H	500 5 ha H H H	500 5 ha H H H	500 5 ha H H H	500 5 ha H H H
3.10	Conduct seedling survival rate monitoring in the flooded forest restoration sites (460$/23ha).	23 ha	FiA/FAO	FiAC	460			120 6 ha H	120 6 ha H	220 11 ha H
4	**Backstopping, monitoring and evaluation of the implementation of the IFFPMP.**				**11,340**					
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 150$).	1 time	FiA/FAO	FiAC	150	150 1 time H				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 years).	30 times	FiAC	FiAC	1,350	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (328$ x 6 months x 5 years).	30 times	FiA	FiAC	9,840	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 12 times H H
				Grand Total:	**121,818**					

10.3 Activity and budget plan of inundated forest fire management for Santuk district

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

1	**Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.**				**38,500**					
1.1	**<u>Review</u> forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.**				**1,200**					
1.1.1	Conduct consultation meetings with stakeholders at district and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 1 meeting x 5 years).	5 meetings at commune level. 5 reports at district level.	FiA, FiAC and	Involving stakeholders at commune and district levels.	225	45 1 meeting 1 report H H	45 1 meeting 1 report H	45 1 meeting 1 report H	45 1 meeting 1 report H	45 1 meeting 1 report H
1.1.2	Conduct site observation at the fire-affected forests to gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 1 commune x 5 years).	5 times at commune level 5 reports at district level	FiAC	FiA triage, CFi and commune authority.	675	135 1 meeting 1 report H H	135 1 meeting 1 report H H	135 1 meeting 1 report H H	135 1 meeting 1 report H H	135 1 meeting 1 report H H
1.1.3	Produce maps of the fire-affected flooded forest areas of Santuk district (60$ x 1 map x 5 years).	5 maps at district level	DFA/FiA	FiAC	300	60 1 map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H
1.2	**<u>Risk Reduction</u>: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.**				**8,450**					
1.2.1	Produce posters for promoting awareness of local communities and involved stakeholders on participatory flooded forest fire prevention (1.5$ x 100 posters x 1 commune x 5 years)	500 posters	FiA	FAO	750	150 100 posters H	150 100 posters H	150 100 posters H	150 100 posters H	150 100 posters H
1.2.2	Erect educational signboards for promoting awareness of local communities and involved stakeholders (300$ x 2 signboards x 1 commune).	2 signboards	FiAC	Local authorities	600	300 1 signboard M	300 1 signboard M			
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 1 commune x 5 years).	5 lists.	FiA Triage	Commune authority	500	100 1 lists H H	100 1 updated list H H	100 1 updated list H H	100 1 updated list H H	100 1 updated list H H
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 1 commune x 5 years).	10 meetings	FiAC	Local authorities	1,500	300 2 times H H	300 2 times H H	300 2 times H H	300 2 times H H	300 2 times H H
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at commune level and develop forest fire patrol plans (100$ x 1 commune x 1 year).	1 team	FiAC	Local authorities	100	100 1 team H				
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5 days/month (250$ x 4 months x 1 commune x 5 years).	100 days	FiAC	Local authorities	5,000	1.000 20 days H H	1.000 20 days H H	1.000 20 days H H	1.000 20 days H H	1.000 20 days H H
1.3	**<u>Readiness</u>: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.**				**28,850**					
1.3.1	**Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at**				**16,350**					

	commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.										
1.3.1.1	Conduct meeting with the district administration to discuss drafts of legal papers required for establishing WGFFM at district level and FFPTs at commune level (65$ x 1 meeting).	1 meeting Draft ToR of the working group at district level	FiA/FiAC PDAFF	District administration	65	65 1 meeting H					
1.3.1.2	Conduct meeting with the district administration to set up WGFFM at district level (65$ x 1 meeting).	1 working group	FiA/FiAC PDAFF	District administration	65	65 1 group H					
1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (600$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC PDAFF	WGFFM at provincial level	600	120 1 meeting H H	120 1 meeting H H	120 1 meeting H H	120 1 meeting H H	120 1 meeting H H	
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 years).	10 meetings	FiAC and PDAFF	WGFFM at district level	3,200	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$ x 1 power tiller).	1 unit	FiA	FiAC	3,600			3,600 1 unit H			
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 1 commune).	2 units	FiA	FiAC	4,600		2,300 1 unit H H	2,300 1 unit H			
1.3.1.7	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular,..) for the patrol teams (1,200$ x 2 sets x 1 commune).	2 sets	FiA	FiAC	2,400		1,200 1 set H		1,200 1 set H		
1.3.1.8	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x1 commune)	2 meetings	FiAC	Commune authority	90	45 1 meeting H	45 1 meetings H				
1.3.1.9	Attend training at provincial level on Forest Fire Techniques for FiAC officers and WGFFM's members (45$ x 2ps x 4 days x 3 trainings)	3 courses	FiA	WCS	1,080	360 1 course H	360 1 course H	360 1 course H			
1.3.1.10	Conduct district-level trainings on Forest Fire Fighting Techniques for FFPTs (20$ x 7ps x 1 commune x 2 trainings)	2 courses	FiAC	WGFFM at district level	280		140 1 course H		140 1 course H		
1.3.1.11	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Techniques at district level and training materials [(45$ x 3ps) + 50$] x 2 trainings.	2 courses	FiAC	WGFFM at district level	370		185 1 course H		185 1 course H		
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				**12,500**						
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe flooded forest fires (8,000$ x 1 tower).	1 unit	FiA	FiAC	8,000			8,000 1 unit H H			
1.3.	Rehabilitate natural ponds to retain water for putting forest	1 location	FiA	FiAC	4,500			4,500			

2.2	fires and fish conservation (4,500$ x 1 pond).							1 pond		
								H H		
2	**Output 2: Improved response actions to fires in inundated forest areas**				**7,094**					
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (100$ x 15 cases).	15 cases	FiA triage	Local authorities	1,500	400 4 H H	400 4 H H	300 3 H H	200 2 H H	200 2 H H
2.2	Participate in training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiA	FiAC	540		540 1 course H			
2.3	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 10 cases).	10 cases	FiAC	Local authorities	1,800	540 3 cases H H	360 2 cases H H	360 2 cases H H	360 2 cases H H	180 1 cases H H
2.4	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 1 commune x 5 years).	Lump sump	FiA Triage	Commune authority	2,500	500 L.sum H H	500 L.sum H H	500 L.sum H H	500 L.sum H H	500 L.sum H H
2.5	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (354$ x 1 time).	1 workshops	FiA	FiAC and WGFFFM at provincial level	354		354 1 workshop H			
2.6	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 5 people)	5 people	FiA triage	Commune authority	400	80 1 person H H	80 1 person H H	80 1 person H H	80 1 person H H	80 1 person H H
3	**Output 3: Improved restoration of fire damaged areas of inundated forests.**				**36,890**					
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 years).	5 reports at district level	FiA/FAO	FiAC	675	52 1 report H	52 1 report H	52 1 report H	52 1 report H	52 1 report H
3.2	Fee for mapping forest restoration areas in the district (60$ x 5 maps x 5 years)	5 maps	DFA/FiA	FiAC	300	60 1 map	60 1 updated map	60 1 updated map	60 1 updated map	60 1 updated map
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 80 poles).	80 poles	FiAC	Local authorities	4,800	1,440 24 poles H H	1,200 20 poles H H	960 16 poles H H	720 12 poles H H	480 8 poles H H
3.4	Participate in 2 workshops at provincial level on tree nursery management and flooded forest restoration approach for FiAC's focal officers (340$ x 2 trainings).	2 trainings	FiA and FAO	FiAC	680		340 1 training H		340 1 training H	
3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 1 meeting x 5 years).	5 meetings	FiAC	Local authorities	340	68 1 meeting H	68 1 meeting H	68 1 meeting H	68 1 meeting H	68 1 meeting H
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 years).	5 tree nurseries	FiA Triage	CFi	1,000	200 1 nursery H H	200 1 nursery H H	200 1 nursery H H	200 1 nursery	200 1 nursery H H
3.7	Support and monitor tree planting carried out by local	23 hectares	FiAC	Local	1,035	135	225	225	225	225

	communities in the fire-damaged forest areas (1,035$).			authorities		3 ha H H	5 ha H H	5 ha H H	5 ha H H	5 ha H H
3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 23 ha).	25,300 seedlings	FiAC	CFi	25,300	3,300 -3 ha -3,300 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H	5,500 -5 ha -5,500 seedlings H
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 23 ha).	23 hectares	FiA Triage	CFi	2,300	300 3 ha H	500 5 ha H H	500 5 ha H H	500 5 ha H H	500 5 ha H H
3.10	Conduct seedling survival rate monitoring in the flooded forest restoration sites (460$/23ha).	23 ha	FiA/FAO	FiAC	460			120 6 ha H	120 6 ha H	220 11 ha H
4	**Backstopping, monitoring and evaluation of the implementation of the IFFPMP.**				**11,265**					
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 75$).	1 time	FiA/FAO	FiAC	75	75 1 time H				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 years).	30 times	FiAC	FiAC	1,350	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (328$ x 6 months x 5 years).	30 times	FiA	FiAC	9,840	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H
				Grand Total:	**93,749**					

10.4 Activity and budget plan of inundated forest fire management for Kampong Svay district

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.				82,340																				
1.1	Review forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.				3,000																				
1.1.1	Conduct consultation meetings with stakeholders at district	15 meetings at	FiA, FiAC	Involving	675	135				135				135				135				135			

	and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 1 meeting x 5 years).	commune level. 5 reports at district level.	and	stakeholders at commune and district levels.		3 meetings 1 report H H	3 meetings 1 report H H	3 meetings 1 report H H	3 meetings 1 report H H	3 meetings 1 report H H
1.1.2	Conduct site observation at the fire-affected forests to gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 1 commune x 5 years).	15 times at commune level 5 reports at district level	FiAC	FiA triage, CFi and commune authority.	2,025	405 3 times 1 report H H	405 3 times 1 report H H	405 3 times 1 report H H	405 3 times 1 report H H	405 3 times 1 report H H
1.1.3	Produce maps of the fire-affected flooded forest areas in Kampong Svay district (60$ x 1 map x 5 years).	5 maps	DFA/FiA	FiAC	300	60 1 map H H	1 updated map 1 updated map H H	1 updated map 1 updated map H H	1 updated map 1 updated map H H	1 updated map 1 updated map H H
1.2	Risk Reduction: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.				25,350					
1.2.1	Produce posters for promoting awareness of local communities and involved stakeholders on participatory flooded forest fire prevention (1.5$ x 100 posters x 3 communes x 5 years)	1,500 posters	FiA	FAO	2,250	450 300 posters H	450 300 posters H	450 300 posters H	450 300 posters H	450 300 posters H
1.2.2	Erect educational signboards for promoting awareness of local communities and involved stakeholders (300$ x 2 signboards x 3 communes).	6 signboards	FiAC	Local authorities	1,800	300 1 signboard M	900 3 signboards M	600 2 signboards M		
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 3 communes x 5 years).	3 lists updated every year.	FiA Triage	Commune authority	1,500	300 3 lists H H	300 3 updated lists H H	300 3 updated lists H H	300 3 updated lists H H	300 3 updated lists H H
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 3 communes x 5 years).	30 meetings	FiAC	Local authorities	4,500	900 6 times H H	900 6 times H H	900 6 times H H	900 6 times H H	900 6 times H H
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at commune level and develop forest fire patrol plans (100$ x 3 communes x 1 year).	3 teams	FiAC	Local authorities	300	300 3 teams H				
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5 days/month (250$ x 4 months x 3 communes x 5 years).	300 days	FiAC	Local authorities	15,000	3,000 60 days H H	3,000 60 days H H	3,000 60 days H H	3,000 60 days H H	3,000 60 days H H
1.3	Readiness: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.				53,990					
1.3.1	Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.				36,990					
1.3.1.1	Conduct meeting with the district administration to discuss drafts of legal papers required for establishing WGFFM at district level and FFPTs at commune level (65$ x 1 meeting).	1 meeting. Draft ToR of the working group at district level.	FiA/FiAC PDAFF	District administration	65	65 1 meeting H				

1.3.1.2	Conduct meeting with the district administration to set up WGFFM at district level (65$ x 1 meeting).	1 working group	FiA/FiAC PDAFF	District administration	65	65 1 group H				
1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (600$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC PDAFF	WGFFM at provincial level	1,800	360 1 meeting H H	360 1 meeting H H	360 1 meeting H H	360 1 meeting H H	360 1 meeting H H
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 years).	10 meetings	FiAC and PDAFF	WGFFM at district level	3,200	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$ x2 power tillers)	2 units	FiA	FiAC	7,200		7,200 2 units H			
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 3 communes).	6 units	FiA	FiAC	13,800	H	4,600 2 unit H H	4,600 2 unit H H	4,600 2 unit H	
1.3.1.7	Procure and purchase 2 sets of water pump, 2 roles of hose and 2 water pressure guns to be taken along by motorbikes of the patrol teams (550$ x 2 sets).	2 sets	FiA	FiAC	1,100		1,100 2 sets H			
1.3.1.7	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular, ..) for the patrol teams (1,200$ x 2 sets x 3 communes).	6 sets	FiA	FiAC	7,200		3,600 3 sets H		3,600 3 sets H	
1.3.1.8	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x 3 communes)	6 meetings	FiAC	Commune authority	270	45 1 meeting H	135 3 meetings H	90 2 meeting H		
1.3.1.9	Attend training at provincial level on Forest Fire Techniques for FiAC officers and WGFFM's members (45$ x 2ps x 4 days x 3 trainings)	3 courses	FiA	WCS	1,080	360 1 course H	360 1 course H	360 1 course H		
1.3.1.10	Conduct district-level trainings on Forest Fire Fighting Techniques for FFPTs (20$ x 7ps x 3 communes x 2 trainings)	2 courses	FiAC	WGFFM at district level	840		420 1 course H		420 1 course H	
1.3.1.11	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Techniques at district level and training materials [(45$ x 3ps) + 50$] x 2 trainings.	2 courses	FiAC	WGFFM at district level	370		185 1 course H		185 1 course H	
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				17,000					
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe forest fires (8,000$ x 1 tower).	1 unit	FiA	FiAC	8,000		8,000 1 unit H H			
1.3.	Rehabilitate natural ponds to retain water for putting forest	2 locations	FiA	FiAC	9,000		9,000 2 pond			

2.2	fires and fish conservation (4,500$ x 2 pond).									H	H														
2	Output 2: Improved response actions to fires in inundated forest areas				20,382																				
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (100$ x 45 cases).	45 cases	FiA triage	Local authorities	4,500	1,300				1,100				900				700				500			
						13 cases				11 cases				9 cases				7 cases				5 cases			
						H	H			H	H			H	H			H	H			H	H		
2.2	Attend ToT at national level on Collecting Evidence, Preparing Offence Reports for FiAC's trainers (45$ x 1ps x 4 days).	1 course	FiA	FiAC	180					180															
										1 course															
												H													
2.3	Conduct training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiAC	Local authorities	540					540															
										1 course															
													H												
2.4	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 30 cases).	30 cases	FiA Triage	Commune authority	5,400	1,620				1,440				1,080				720				540			
						9 cases				8 cases				6 cases				4 cases				3 cases			
						H	H			H	H			H	H			H	H			H	H		
2.5	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 3 communes x 5 years).	Lump sump	FiA	FiAC and WGFFFM at provincial level	7,500	1,500				1,500				1,500				1,500				1,500			
						L.sum				L.sum				L.sum				L.sum				L.sum			
						H	H			H	H			H	H			H	H			H	H		
2.6	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (1,062$ x 1 time).	1 workshops	FiA triage	Commune authority	1,062					1,062															
										1 workshop															
												H													
2.7	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 15 people)	15 people	FiA triage	Local authorities	1,200	320				320				240				160				160			
						4 people				4 people				3 people				2 people				2 people			
						H	H			H	H			H	H			H	H			H	H		
3	Output 3: Improved restoration of fire damaged areas of inundated forests.				56,120																				
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 years).	5 reports at district level	FiA/FAO	FiAC	675	155				155				155				155				158			
						1 report				1 report				1 report				1 report				1 report			
						H				H				H				H				H			
3.2	Fee for mapping forest restoration areas in the district (60$ x 5 maps x 5 years)	5 maps	DFA/FiA	FiAC	300	60				60				60				60				60			
						1 map				1 updated map				1 updated map				1 updated map				1 updated map			
						H				H				H				H				H			
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 80 poles).	80 poles	FiAC	Local authorities	10,800	3,240				2,700				2,160				1,620				1,080			
						54 poles				45 poles				36 poles				27 poles				18 poles			
						H	H			H	H			H	H			H	H			H	H		
3.4	Participate in 2 workshops at provincial level on tree nursery management and flooded forest restoration approach for FiAC's focal officers (340$ x 2 trainings).	2 trainings	FiA and FAO	FiAC	680					340								340							
										1 training								1 training							
										H								H							
3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 3 meetings x 5 years).	15 meetings	FiAC	Local authorities	1,020	204				204				204				204				204			
						3 meetings				3 meetings				3 meetings				3 meetings				3 meetings			
							H				H				H				H				H		
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 years).	5 tree nurseries	FiA Triage	CFi	1,000	200				200				200				200				200			
						1 nursery				1 nursery				1 nursery				1 nursery				1 nursery			
						H	H			H	H					H	H					H	H		

3.7	Support and monitor tree planting carried out by local communities in the fire-damaged forest areas (1,485$).	33 hectares	FiAC	Local authorities	1,485	135 5 H H	270 7 ha H H	270 7 ha H H	270 7 ha H H	270 7 ha H H
3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 33 ha).	36,300 seedlings	FiAC	CFi	36,300	5,500 5 ha 5,500 seedlings H	7,700 7 ha 7,700 seedlings H	7,700 7 ha 7,700 seedlings H	7,700 7 ha 7,700 seedlings H	7,700 7 ha 7,700 seedlings H
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 33 ha).	33 hectares	FiA Triage	CFi	3,300	500 5 ha H	700 7 ha H H H	700 7 ha H H H	700 7 ha H H H	700 7 ha H H H
3.10	Conduct seedling survival rate monitoring in the forest restoration sites in the last three years (lump sum: 384$).	28 ha	FiA/FAO	FiAC	560			140 7 ha H	140 7 ha H	480 14 ha H
4	Backstopping, monitoring and evaluation of the implementation of the IFFPMP.				11,415					
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 225$).	1 time	FiA/FAO	FiAC	225	225 1 time H				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 years).	30 times	FiAC	FiAC	1,350	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (328$ x 6 months x 5 years).	30 times	FiA	FiAC	9,840	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H
				Grand Total:	**170,257**					

10.5 Activity and budget plan of inundated forest fire management for Stoung district

No	Activities	Indicators (5 years)	Responsible		Budget (2021-2025)	2021 (by quarter)				2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)			
			Lead	Support		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	**Output 1: Effective review, risk reduction and readiness for forest fire prevention and intervention.**				**121,480**																				
1.1	**<u>Review</u> forest fire issues, experiences and lessons learnt on flooded forest fire prevention, intervention and restoration approaches have been applied.**				**4,800**																				
1.1.1	Conduct consultation meetings with stakeholders at district and commune levels to collect information on issues of flooded forest fire management and restoration approaches have been applied (45$ x 5 meetings x 5 years).	25 meetings at commune level. 5 reports at district level.	FiA, FiAC and	Involving stakeholders at commune and district levels.	1,125	225 5 meetings 1 report H			H	225 5 meetings 1 report			H	225 5 meetings 1 report			H	225 5 meetings 1 report			H	225 5 meetings 1 report			H
1.1.2	Conduct site observation at the fire-affected forests to	25 times at	FiAC	FiA triage, CFi	3,375	675				675				675				675				675			

	gather coordinates of and information on physical, geographical and topographical situation, scope of damage, land use pattern and land cover in the burnt forest areas for the pre and post periods of flooded forest fire (45$ x 3 days x 5 communes x 5 years).	commune level 5 reports at district level		and commune authority.		5 times 1 report H H	5 times 1 report H H	5 times 1 report H H	5 times 1 report H H	5 times 1 report H H
1.1.3	Produce maps of the fire-affected flooded forest areas in Stoung district (60$ x 1 map x 5 years).	5 maps	DFA/FiA	FiAC	300	60 1 map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H	60 1 updated map H H
1.2	**<u>Risk Reduction</u>: Reduce risks of forest fires by promoting local awareness on and participation in flooded forest fire prevention and intervention.**				**40,250**					
1.2.1	Produce and distribute posters for promoting awareness of local communities and involved stakeholders (1.5$ x 100 posters x 5 communes x 5 years).	2,500 posters	FiA	FAO	3,750	750 500 posters H	750 500 posters H	750 500 posters H	750 500 posters H	750 500 posters H
1.2.2	Produce and erected educational signboards at crowded sites and along main roads in the floodplain (300$ x 2 signboards x 5 communes).	10 signboards	FiAC	Local authorities	3,000	1,200 4 signboard M	1,800 6 signboards M			
1.2.3	Develop and update lists of stakeholders involving in using fisheries resources in Zone 2 and Zone 3 (100$ x 5 communes x 5 years).	25 lists	FiA Triage	Commune authority	2,500	500 5 lists H H	500 5 updated lists H H	500 5 updated lists H H	500 5 updated lists H H	500 5 updated lists H H
1.2.4	Conduct extension meetings to promote awareness of the target communities on participatory forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150$ x 2 meetings x 5 communes x 5 years).	50 meetings	FiAC	Local authorities	7,500	1,500 10 times H H	1,500 10 times H H	1,500 10 times H H	1,500 10 times H H	1,500 10 times H H
1.2.5	Set up structure of Forest Fire Patrol Teams (FFPTs) at commune level and develop forest fire patrol plans (100$ x 5 communes x 1 year).	5 teams	FiAC	Local authorities	500	500 5 teams H				
1.2.6	Conduct flooded forest fire patrol regularly by the FFPTs: 5 days/month (250$ x 4 months x 5 communes x 5 years).	500 days	FiAC	Local authorities	25,000	5,000 100 days H H	5,000 100 days H H	5,000 100 days H H	5,000 100 days H H	5,000 100 days H H
1.3	**<u>Readiness</u>: Establish Working Groups for Forest Fire Management (WGFFM) at provincial and district levels and prepare equipment for flooded forest fire prevention and intervention.**				**74,430**					
1.3.1	**Establish and strengthen coordination among WGFFM at provincial and district levels and FFPT at commune level for forest fire intervention and equip the FFPTs with forest fire extinguishing tools.**				**52,930**					
1.3.1.1	Conduct meeting with the district administration to discuss drafts of legal papers required for establishing WGFFM at district level and FFPTs at commune level (65$ x 1 meeting).	1 meeting Draft ToR of the working group at district level	FiA/FiAC PDAFF	District administration	65	65 1 meeting H				
1.3.1.2	Conduct meeting with the district administration to set up WGFFM at district level (65$ x 1 meeting).	1 working group	FiA/FiAC PDAFF	District administration	65	65 1 group H				

1.3.1.3	Conduct WGFFM meeting at provincial level to discuss challenges faced in forest fire interventions and find solutions to solve the challenges (240$ x 1 meeting x 5 years).	5 meetings	FiA/FiAC and PDAFF	WGFFM at provincial level	3,000	600 1 meeting H H	600 1 meeting H H	600 1 meeting H H	600 1 meeting H H	600 1 meeting H H
1.3.1.4	Conduct quarterly WGFFM meetings at district level to discuss challenges faced in forest fire interventions, find solutions to solve the challenges and develop action plan to support the flooded forest patrol at commune level (320$ x 2 meetings x 5 years).	10 meetings	FiAC and PDAFF	WGFFM at district level	3,200	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H	640 2 meetings H H
1.3.1.5	Purchase power tillers equipped with 2 water pumps, 1,000-liter water tank, 2 rolls of hose and 2 high water pressure guns for the patrol teams (3,600$x 2 power tillers)	2 units	FiA	FiAC	7,200		7,200 2 unit H			
1.3.1.6	Purchase motorcycles for forest fire patrol (2,300$ x 2 motorcycles x 5 communes).	10 units	FiA	FiAC	23,000		11,550 5 units H H H	11,550 5 units H		
1.3.1.7	Procure and purchase 4 sets of 2 water pumps, 2 roles of hose and 2 water pressure guns to be taken along by motorbikes of the patrol teams (550$ x 2 sets).	2 sets	FiA	FiAC	1,100		1,100 2 sets H			
1.3.1.8	Purchase portable forest fire extinguishing tools (first aid, camping tents, 20L knapsack power sprayer with pump, goggle, drone, GPS, walkie talkie, boot, binocular,..) for the patrol teams (1,200$ x 2 sets x 5 communes).	10 sets	FiA	FiAC	12,000		6,000 5 sets H H		6,000 5 sets H	
1.3.1.9	Conduct meeting with FFPTs at commune level to guide the teams the conditional uses of and distribute forest fire extinguishing tools to them (45$ x 2 meetings x 5 communes)	10 meetings	FiAC	Commune authority	450		225 5 meetings H		225 5 meetings H	
1.3.1.10	Attend training at provincial level on Forest Fire Techniques for FiAC officers and WGFFM's members (45$ x 2ps x 4 days x 3 trainings)	3 courses	FiA	WCS	1,080	360 1 course H	360 1 course	360 1 course		
1.3.1.11	Conduct district-level trainings on Forest Fire Fighting Techniques for FFPTs (20$ x 7ps x 5 communes x 2 trainings)	2 courses	FiAC	WGFFM at district level	1,400		700 1 course H		700 1 course H	
1.3.1.12	Fee for FiAC's trainers to conduct trainings on Forest Fire Fighting Technique at district level and training materials [(45$ x 3ps) + 50$] x 2 trainings	2 courses	FiAC	WGFFM at district level	370		185 1 course H		185 1 course H	
1.3.2	**Build physical infrastructures for flooded forest fire prevention**				**21,500**					
1.3.2.1	Build watch towers for the commune forest fire patrol teams to observe forest fires (8,000$ x 1 tower).	1 unit	FiA	FiAC	8,000		8,000 1 unit H H			
1.3.2.2	Rehabilitate natural ponds to retain water for putting forest fires and fish conservation (4,500$ x 3 ponds).	3 locations	FiA	FiAC	13,500		9,000 2 ponds H H	4,500 1 pond H H		
2	**Output 2: Improved response actions to fires in inundated forest areas**				**33,089**					
2.1	Follow up daily report and stand by for urgent forest fire	75 cases	FiA	Local	7,500	2,300	1,900	1,500	1,100	700

	intervention as required by the patrol teams (100$ x 75 cases).		triage	authorities		23 cases H H	19 cases H H	15 cases H H	11 cases H H	7 cases H H
2.2	Attend ToT at national level on Collecting Evidence and Preparing Offence Reports for FiAC's trainers (45$ x 1ps x 4 days).	1 course	FiA	FiAC	180		180 1 course H			
2.3	Conduct training at provincial level on Collecting Evidence, Preparing Offence Reports for FiAC's officers (45$ x 20ps x 3 days).	1 course	FiAC	Local authorities	540		540 1 course H			
2.4	Strengthen law enforcement against offenders who set forest fires and/or encroached/grabbed inundated forest lands illegally (180$ x 50 cases).	50 cases	FiA Triage	Commune authority	9,000	2,700 15 cases H H	2,250 13 cases H H	1,800 10 cases H H	1,350 7 cases H H	900 5 cases H H
2.5	Fee for maintaining forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100$ x 5 months x 5 communes x 5 years).	Lump sump	FiA	FiAC and WGFFFM at provincial level	12,500	2,500 L.sum H H	2,500 L.sum H H	2,500 L.sum H H	2,500 L.sum H H	2,500 L.sum H H
2.6	Organizing provincial workshop to exchange lessons learnt and experiences on flooded forest fire prevention and intervention (1,769$ x 1 time).	1 workshops	FiA triage	Commune authority	1,769		1,769 1 workshop H			
2.7	Give some incentive awards to individuals who participated actively or injured in forest fire prevention and intervention (80$ x 20 people)	20 people	FiAC	Local authorities	1,600	480 6 people H H	320 4 people H H	320 4 people H H	320 4 people H H	160 2 people H H
3	**Output 3: Improved restoration of fire damaged areas of inundated forests.**				**54,075**					
3.1	Conduct rapid assessment to identify reasonably technical-sound approach for restoration of the burnt flooded forest areas (45$ x 3 days x 5 years).	5 reports at district level	FiA/FAO	FiAC	675	135 1 report H	135 1 report H	135 1 report H	135 1 report H	135 1 report H
3.2	Fee for mapping forest restoration areas in Stoung district (60$ x 5 maps x 5 years)	5 maps	DFA/FiA	FiAC	300	60 1 map H	60 1 updated map H	60 1 updated map H	60 1 updated map H	60 1 updated map H
3.3	Mark boundaries of the burnt flooded forest sites by concrete poles with small signboards (60$ x 240 poles).	240 poles	FiAC	Local authorities	14,400	4,320 72 poles H H	3,600 60 poles H H	2,880 48 poles H H	2,160 36 poles H H	1,440 24 poles H H
3.4	Participate in 2 workshops at provincial level on tree nursery management and flooded forest restoration approach for FiAC's focal officers (340$ x 2 trainings).	2 trainings	FiA and FAO	FiAC	680		340 1 training H		340 1 training H	
3.5	Conduct consultation meetings at commune level with stakeholders to discuss plan for restoration of fire-damaged flooded forest areas (68$ x 5 meetings x 5 years).	20 meetings	FiAC	Local authorities	1,700	340 5 meetings H	340 5 meetings H	340 5 meetings H	340 5 meetings H	340 5 meetings H
3.6	Support local communities to establish tree nursery and produce flooded forest seedlings for planting in the burnt flooded forest areas (200$ x 1 nursery x 5 years).	5 tree nurseries	FiA Triage	CFi	1,000	200 1 nursery H H	200 1 nursery H H	200 1 nursery H H	200 1 nursery	200 1 nursery H H
3.7	Support and monitor tree planting carried out by local communities in the fire-damaged forest areas (1,260$).	28 hectares	FiAC	Local authorities	1,260	180 4 ha H H	270 6 ha H H	270 6 ha H H	270 6 ha H H	270 6 ha H H

3.8	Cost of tree planting, including seedlings, transportation and planting (1$ x 1,100 seedlings x 28 ha).	30,800 seedlings	FiAC	CFi	30,800	4,400 4 ha 4,400 seedlings H	6,600 6 ha 6,600 seedlings H	6,600 6 ha 6,600 seedlings H	6,600 6 ha 6,600 seedlings H	6,600 6 ha 6,600 seedlings H
3.9	Fee for maintaining tree seedlings planted in the forest restoration sites by local communities (100$ x 130 ha).	28 hectares	FiA Triage	CFi	2,800	400 4 ha H	600 6 ha H H H H	600 6 ha H H H	600 6 ha H H H	600 6 ha H H H
3.10	Conduct seedling survival rate monitoring in the flooded forest restoration sites (384$/23ha).	23 ha	FiA/FAO	FiAC	460			120 6 ha H	120 6 ha H	220 11 ha H
4	**Backstopping, monitoring and evaluation of the implementation of the IFFPMP. .**				**11,490**					
4.1	Participate in baseline survey at provincial level to be conducted by the working teams of FiA and FAO-CAPFISH project (lump sum: 300$).	1 time	FiA/FAO	FiAC	300	300 1 time H				
4.2	Participate in monthly backstopping missions of the FiA's officers to support and direct the IFFPMP's implementation (45$ x 1 time x 6 months x 5 years).	30 times	FiAC	FiAC	1,350	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H	270 6 times H H
4.3	Fee for the FiA's officers to conduct monthly backstopping, monitoring and evaluation missions to support the IFFPMP's implementation (328$ x 6 months x 5 years).	30 times	FiA	FiAC	9,840	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 6 times H H	1,968 12 times H H
				Grand Total:	**220,134**					

11. Annexes

Annex 1: List of biodiversity in Kampong Thom's floodplain areas

English Name	Scientific Name	Local name	Remark
Fish			
Marble goby	Oxyeleotris marmorata	ត្រីដំរី	
Wallago	Wallago attu	ត្រីសណ្តាយ	
Striped Snakehead	Channa striata	ត្រីរ៉ស់	
Asian redtail catfish	Hemibagrus nemarus	ត្រីឆ្លាំង	
Siamese mud carp	Cirrhinus siamensis	ត្រីរៀល	
Spotted hampala barb	Hampala dispar	ត្រីខ្នាន់	
Gourami	Trichogaster Microlepis	ត្រីកំភ្លាញ	
Giant snakehead	Cyclocheilichthys enoplos	ត្រីឆ្តោ	
Climbing perch	*Anabas testudineus*	ត្រីក្រាញ់	
Peacock eel	*Macrognathus facus*	ត្រីឆ្លួញ	
Mekong silver barb	*Hypsibarbus pierrei*	ត្រីឆ្ពិន	
Walking catfish	*Clarias batrachus*	ត្រីអណ្តែង	
Lesser bighead carb	*Thynnichthys Thynnoides*	ត្រីលិញ	
Dusky face carp	*Osteochilus lini*	ត្រីក្រែស	
Snail eating barb	*Puntioplites proctozysron*	ត្រីប្រកែង	
Trey Taoun	*Ompok eugeneiatus*	ត្រីតាអោន	
White-line catfish	*Mystus albolineatus*	ត្រីកញ្ឆុះ	
Bronze featherback	*Notopterus notopterus*	ត្រីស្លាត	
Turtle			
Rice field Turtle	*Malayemys subtrijuga*	អណ្តើកស្រែ	
Yellow-headed temple turtle	*Heosemys annandalii*	អណ្តើកសកល	
Asiatic soft-shell turtle	*Amyda cartilaginea*	កន្ធាយ	
Black marsh turtle	*Siebenrockiella crassicollis*	អណ្តើកព្រិច	
Bird			
Purple heron	*Ardea purpurea*	ក្រសាប្រផេះ	
Sarus Crane	*Grus antigone*	គ្រាល	
Eurasian woodcock	Scolopax rusticola	ខ្វែក	
White-breasted waterhen	*Amaurornis phoenicurus*	មាន់ទឹក	
Indian Cormorant	*Phalacrocorax fuscicollis*	ក្អែក	
Kong			
Toung	*Spot-billed pelican*	ទុង	
Oriental Darter	*Anhinga melanogaster*	ស្មោញ	
Dom Dor			
Ktoum			
Black-backed Swamp hen	Porphyrio indicus	គូម	
Greater Adjutant	Leptoptilos dubius	ត្រដក់ធំ	
Painted Stork	Mycteria leucocephala	រនាលពណ៌	
Wood duck	Aix sponsa	ទាព្រៃ	
Lesser whistling duck	Dendrocygna javanica	ប្រវឹក	

Snake			
Posh Trey	Homalopsis buccata		
Posh Trey Rosh			
Posh Prolet	Enhydris		
Bocouti Posh Kachan			
Posh Pha Ok			
Bocouti (Posh Channa Mom)			
Python	Papuan python	ពស់ថ្លាន់	
Tentacled snake	Erpeton tentaculatus		
Cobra		ពស់វែក	
Others			
White Monkey		ស្វាស	
Blake Monkey		ស្វាខ្មៅ	
Fox		កញ្ជ្រោង	
Otter		កេ	

Annex 2: List of inundated tree species in Kampong Thom's floodplain areas

ល.រ	ឈ្មោះខ្មែរ (Khmer Name)	ឈ្មោះវិទ្យាសាស្ត្រ (Scientific Name)
១	កក់ធ្លុង ឬ តាទូក	*Cyperus elatus*
២	កក់ក្តាម	*Cyperus kyllingia or nemoralis*
៣	កញ្ជាស់ព្រៃ	*Croton krabas or Cochlopermum religiosum*
៤	កញ្ជ្រៀតាឈាង	*Capparis microcantha* (Dc.)
៥	កញ្ឆែត	*Neptunia oleracea*
៦	កណ្តុក	
៧	កន្ទុយអន្ទង់	
៨	កន្ទាំងឃែ	*Polygonum tomentosum*
៩	កណ្តាប់ចង្អៀរ	*Pouzolzia zeylamica*
១០	កន្សៀង	*Xanthophyllum glancam*
១១	កន្សៀវ	
១២	ក្តុម	*Nauclea officinalis*
១៣	ក្តុល	*Mimusops elengil*
១៤	កាព្រីង ឬ ចំព្រីង	*Cordia Sp*
១៥	កាពៅ “ ឆៃថាវ ”	*Raphanus sativus*
១៦	កាធិត ឬ ក្រចៅ	*Corchorus capsularis*
១៧	កំពង់ត្នុំ	
១៨	កំពឹងពួយស (រឿ)	*Catharanthus roseus*
១៩	កំពឹងពួយក្រហម (ឈ្មាល)	*Ludwigia adscenden*
២០	កំព្រាម	*Acacia caesia*
២១	កំប្លុក “ ឈ្លើយ ”	
២២	កំភ្លាក	*Eichhornia crassipes*
២៣	ក្រ ឬ ក្រាស	*Quassia harmandiana*
២៤	ក្រកោះ (ដុះក្នុងព្រៃកោងកាង)	*Sindora maritima*
២៥	ក្រកោះព្រែក	*Sindora* “ *Meritima* ? ”
២៦	ក្រចាប់	*Trapa bicornis*
២៧	ក្រញឹបស	*Lumnitzera racemosa* (Willd)
២៨	ក្រញឹបក្រហម	*Lumnitzera coccinea* (W & A)
២៩	ក្របៅក្លែធំ	*Hydnocarpus anthelminthica*
៣០	ក្របៅក្លែតូច	*Hydnocarpus saigonensis*
៣១	ក្រញូម	*Pentapetes phoenicea*
៣២	ក្រវ៉ាន់	*Popowia diospyrifolia*
៣៣	ក្រាស់	*Samandura harmendii*
៣៤	កោងកាងឈ្មោល	*Rhizophora mucronata*
៣៥	កោងកាងញី	*Rhizophora conjugata* (Linné)
៣៦	ខ្លាស់	*Diospyros sylvatica* (Roxb)
៣៧	ខ្លាយមាន់	*Dalbergia herrida*
៣៨	ខ្សាយ (ដុះក្នុងព្រៃកោងកាង)	*Heritiera littoralis*
៣៩	ខ្ទីង (ដុះក្នុងព្រៃកោងកាង)	*Calophillum inophillum*
៤០	ខ្ទុម	*Stephegyne pavirfolia* or *Mitragyna brunonis*
៤១	ខ្ទុមទឹក	*Stephegyne* “ *Diversifolia* ? ”
៤២	គោលតាយព្រៀម	*Castanopsis pierres*
៤៣	ឃ្លាយ	*Heritiera littoralis*
៤៤	ឃ្លេ	*Cudrania cambodiana*
៤៥	ចកធំ	*Pistia stratiotes*
៤៦	ចកតូច	*Phoenix paludosa*
៤៧	ចកចាយចា	*Lemna minor*
៤៨	ចង្កូមក្រពើ	
៤៩	ចន្ទល់ភ្នំ ឬ រល្លិ៍ខ្លាល់ត្រី	*Marsilia quadrifolia*
៥០	ចា	*Butea frondosa* (Roxb)
៥១	ចាក	*Nipa fruticans*
៥២	ចំបក់ចារាំង (ដុះក្នុងព្រៃកោងកាង)	*Terminalia catappa*
៥៣	ចំបុក	*Albizia lebbekoides*
៥៤	ចំបួង	
៥៥	ច្រកែង	*Coccoceras anisopodum*
៥៦	ចៅព្រាម	
៥៧	ផ្តឹងចាស់	*Milichdes moulins* or *Euphorbia millii ch-des moulins*
៥៨	ឆំពុឈ្មោល “ នៅកំពត ហៅ ស្មីឈ្មោល ”	*Avicennia intermedia* or *Avicennia marina intermedia* (Griff)
៥៩	ឆាំព្រីង	*Cynometra* “ *Inaequifolia* ? ”
៦០	ជើងចាប	*Dasymaschalon lomentaceum*

៦១	ឈូក	*Nelumbo nucifera*
៦២	ឈើទាល	*Excoecaria agallocha* (Lu)
៦៣	ញ័រ	*Morinda*
៦៤	ញ័រទឹក ឬ ញ័រស្វាត	*Morinda persicaefolia*
៦៥	ដោះក្តម	
៦៦	ដង្កៀបក្តាម	*Antidesma ghaesembilla*
៦៧	ដោះគង់	*Tetracera scabdens* (L) or *Tetracera sarmentosa*
៦៨	ដៃខ្លា	*Gardenia Sp* or *Angkorensis pitard*
៦៩	តាបូន " តាប៊ូន "	*Carapa moluccensis*
៧០	តាម៉ែន	
៧១	តាសែង " តាសែន "	*Xanthophyllum glaucum*
៧២	តាសៀវ	*Phyllanthus Sp*
៧៣	តាអោន	*Oncosperma*
៧៤	ថ្លូរ	*Terminalia cambodiana*
៧៥	ត្រកួន	*Ipomoea aquatica*
៧៦	ត្រចៀកក្រាញ់	*Acanthus ilicifolius* (L)
៧៧	ត្រសោក	
៧៨	ត្រយ៉ក់	
៧៩	ត្រាវអណ្តែត	*Colocasia esculenta*
៨០	ទ្វាន់	*Crateva andansonii or odorata*
៨១	ទ្វក់ទឹក	*Xyris indica*
៨២	ទ្វាង	
៨៣	ទ្វើមអណ្តើក	*Ixora cuneifolia, Var.varians*
៨៤	ទន្លា	*Crataeva religiosa* (Bl)
៨៥	ទន្លា	*Crataeva nurvata* (Ham)
៨៦	ទន្លាប់	*Crataeva nurvala* (Buch)
៨៧	ទន្លាប់	*Diospyros Sp*
៨៨	ទ្រនំប្រទេស	
៨៩	ទ្រនំអាម្វត ឬ ទ្រនំល្អិត	*Albizia myriophylla*
៩០	ទ្រាលស្បាតស្វា	*Uvaria rufa*
៩១	ទៀនព្រៃ	*Vitex holpadenon*
៩២	ធ្នងកញ្ចុះ	*Randia longifera* (Benth)

៩៣	ធ្មេញត្រី ឬ ធ្មេញត្រីរឿ	*Bridelia cambodiana* (Bl)
៩៤	ធ្មេញត្រី	*Bridelia ovata*
៩៥	បន្លាយួន (បន្លាអ្វាស ឬ មជូរយក្ស)	*Mimosa pigra*
៩៦	បន្លាស្អិត ឬ ចាយរំណើប	*Acacia spiralis*
៩៧	បបុស	*Cynodon dactylon*
៩៨	ឃាតាម	
៩៩	ប៊ីង " ហែង "	*Phoenix paludosa* (Roxb)
១០០	បាក់ដង	*Gardenia philastrei*
១០១	បើស	*Hibiscus tiliaceus*
១០២	ប្រង់ ឬ ប្រាង	*Acrostichum aureum* (L)
១០៣	ប្របុន " ដំបូព្រែក "	*Carapa obovata* (Keon)
១០៤	ប្របូយ ឬ ប្របូយមេ	*Croton caudatus*
១០៥	ប្របូយឈ្មោល	*Croton joufra*
១០៦	ប្រតាម	
១០៧	ប្រនេញឈ្មោល	*Phyllanthus Sp*
១០៨	ប្រនេញញី	*Phyllanthus lasodiifolius*
១០៩	ប្រសក់ឈ្មោល " ឬ ធំ "	*Bruguiera caryophylloides*
១១០	ប្រសក់ញី " ឬ តូច "	*Bruguiera gymnorhiza* (Lam)
១១១	ប្រសាក់ (ដុះក្នុងព្រៃកោងកាង)	
១១២	ឫស្សីព្រៃ	*Bambusa arundinacea*
១១៣	ស្លប	*Mimusops ?*
១១៤	ស្លាំ	
១១៥	ផ្តៅទឹក	*Calamus Sp*
១១៦	ផ្តៅ	*Stenochlaena palustris*
១១៧	ផ្លាល	*Diospyros bejaudii*
១១៨	ព្រលិតអាចម៍មាន់	*Nymphaea lotus*
១១៩	ព្រលិតស្បូង	*Nymphaea stelata*
១២០	ពោធិ៍ខ្លែ (ដុះក្នុងព្រៃកោងកាង)	*Hernandia*
១២១	ភូង	
១២២	ភ្នំភ្លើង	*Hymenocardia wallichii*
១២៣	ម្លូកព្រាប	*Breynia rhamnoides*
១២៤	រទាំង ឬ អាទាំង	*Homalium brevidens*

១២៥	រទាំង ឬ កាទាំង	*Homalium griffithianum*
១២៦	រពាក់ទឹក ឬ រពាក់	*Calamus salifolius* (Bece)
១២៧	រំចង់	*Nymphaea nouchali*
១២៨	រំយាញភ្លែក	*Elaeocarpus madopetalus*
១២៩	រំយាញទឹក	*Elaeocarpus Sp*
១៣០	រំយាញភ្នុក	*Elaeocarpus griffithii*
១៣១	រុក្ខជាតិស្បាត (ផុះតួចប្រែភាសាកាង)	*Scaevita*
១៣២	រុន	*Schumannianthus dichotomus*
១៣៣	រាំងទឹក (រាំងភ្លើង)	*Barringtonia acutangula*
១៣៤	រាំងទឹក (រាំងបាយ)	*Barringtonia micrantha*
១៣៥	រៃទឹក	*Homonoia riparia*
១៣៦	ឈាចខ្ទុះ	*Fluggea microcarpa* (Bl) or *Fluggea virosa*(Roxb ex willd)Baill
១៣៧	ល្វា	*Ficus hispida*
១៣៨	ល្ងៀង	*Cratoxylum cochinchinense*
១៣៩	វល្លិ៍ទឹកដោះ	*Euphorbia hirta*
១៤០	វល្លិ៍ខ្សុយ	*Calycopteris floribunda*
១៤១	វល្លិ៍ធុយ	*Parameria glandulifera* or *Streptocaulon juventos*
១៤២	វល្លិ៍ម្លូងព្រះ	*Quisqualis densiflora*
១៤៣	វល្លិ៍ត្រី	*Ichnocarpus frutescuns* (L)
១៤៤	វល្លិ៍ត្រពិត	*Cayratia trifolia*
១៤៥	វល្លិ៍ត្រស់	*Combretum trifoliatum* (Vent)
១៤៦	វល្លិ៍តាម៉ើក	*Merremia hederacea* (Burm f.)
១៤៧	វល្លិ៍ប្រេង	*Derris trifolia*
១៤៨	វល្លិ៍អណ្ដាតត្រកួត	*Aniscia martinicensis*
១៤៩	សណ្ដាន់	*Garcinia loureiri*
១៥០	សង្វៀរ	*Uncaria homomalla*
១៥១	សង្កែ	
១៥២	ស្លុងជើ	*Nymphoides indica*
១៥៣	ស្លុងអំពោះ	*Nyphoides hydrophylla*
១៥៤	ស្ដី	*Crudia chrysantha*
១៥៥	ស្លុត	*Ficus heterophylla*
១៥៦	សារាយសាប	*Utricularia aurea*
១៥៧	សារាយធូ	*Hydrilla verticillata*
១៥៨	ស្វាព្រៃ (ផុះតួចប្រែភាសាកាង)	
១៥៩	ស្វាបត់	
១៦០	ស្វាបទា	*Cammelina salicifolia*
១៦១	ស្មាច់ “ កម្រមាន ” (ផុះតួចប្រែភាសាកាង)	*Malaleuca leucadendrom*
១៦២	ស្មាច់ក្រហម (ផុះតួចប្រែភាសាកាង)	*Eugenia zeylamica*
១៦៣	ស្វាយទឹក	*Grewia sinuala*
១៦៤	សំប៊ីត	
១៦៥	សំរក	*Melanolepis vilifolia*(Oktze) or *Grewia urenaefolia*(Gagnep)
១៦៦	សេរា ស	*Lophopetalum fimbrialum*
១៦៧	សេរា ក្រហម	*Cryptocarya oblongifolia*
១៦៨	ស្នោ	*Sesbania javanica*
១៦៩	ស្នាំ (ផុះតួចប្រែភាសាកាង)	*Canavalis*
១៧០	ស្នាំ (ផុះតួចប្រែភាសាកាង)	*Ipomaca pescaprae*
១៧១	ស្នាំ (ផុះតួចប្រែភាសាកាង)	*Tribulus terrestris*
១៧២	ស្នាំអន្ទក់ទឹក ឬ ស្នាំទ្លុក់ទឹក	
១៧៣	ស្នាំអំពៅខ្សប	
១៧៤	ស្មែ	*Ceriops roxburghians* or *Ceriops decandra*
១៧៥	ស្មែខ្មៅ	*Ceriops candolleana*
១៧៦	ស្មែសមុទ “ ទៅទឹកសាប ហៅ តាបាញ់ ”	*Avicennia officinallis*
១៧៧	ស្មែងក្របី	*Desmondium heterocarpon*
១៧៨	ស្លូលទឹក	*Dalbergia nigrescens*
១៧៩	សើក	
១៨០	អញ្ញាញ	*Gmelina asiatica*
១៨១	អំពៀង	
១៨២	អំពួង	
១៨៣	អំពា (សំពា)	*Sonneratia alba* or *Sonneratia acida*
១៨៤	អំពុស	*Sonneratia griffithi*
១៨៥	អំពិលទឹកព្រៃ	*Cynometra* “ *Dongnaiensis* ? ”
១៨៦	អាញ្ញ ឬ រញ្ញា	*Schoutenia godefroyana*
១៨៧	អាវ៉ុក្របី (អាវ៉ុក្រោះ)	*Stixis obtusifolia*

Annex 3: Map of fire-damaged flooded forest areas in KPT province

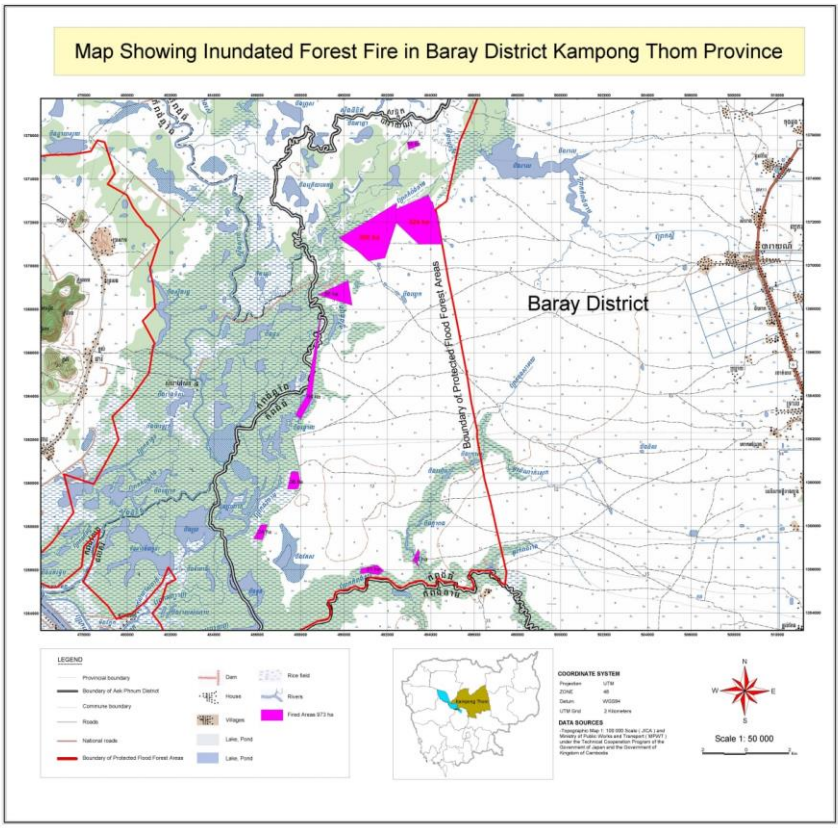

Figure 1: Map of fire-damaged flooded forest areas in Baray and Tang Kouk districts

Source: Department of Fisheries Affair, Fisheries Administration, 2019, Phnom Penh Cambodia.

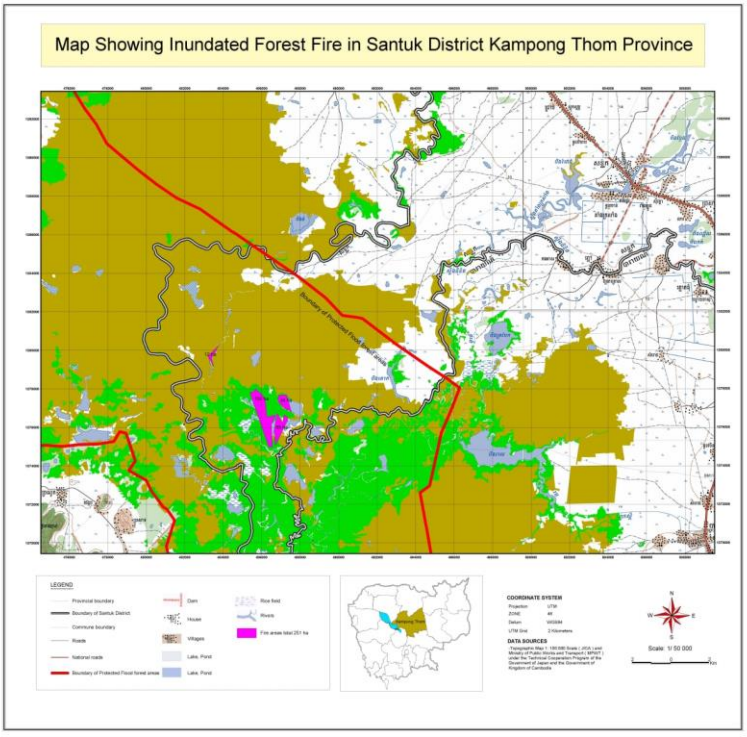

Figure 2: Map of fire-damaged flooded forest areas in Santuk district

Source: Department of Fisheries Affair, Fisheries Administration, 2019, Phnom Penh Cambodia.

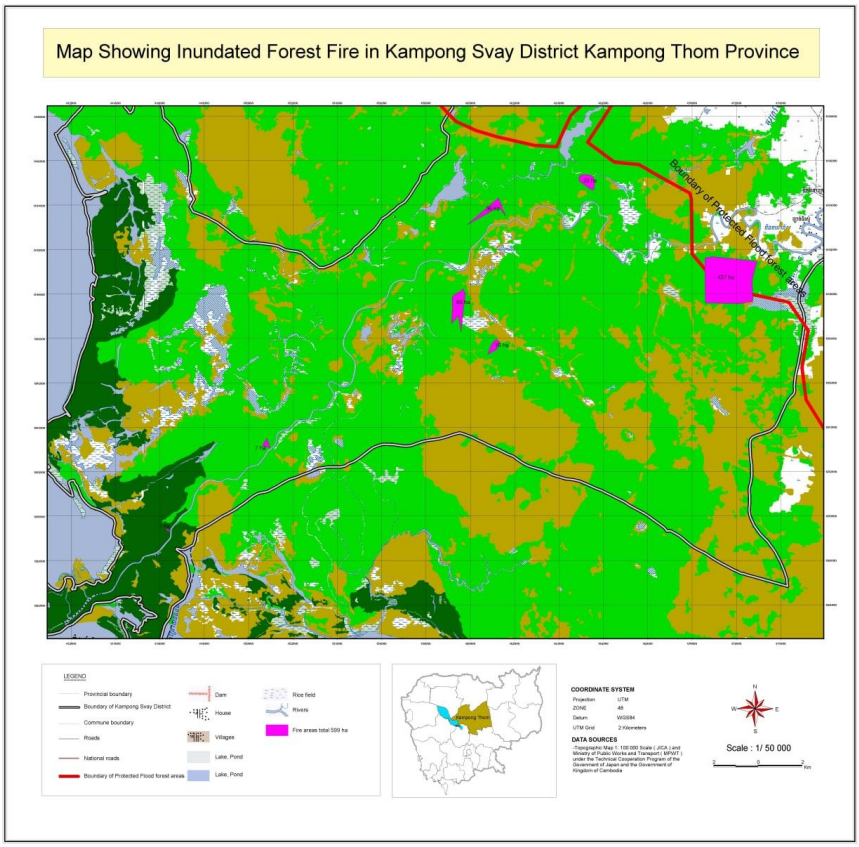

Figure 3: Map of fire-damaged flooded forest areas in Kampong Svay district, KPT province

Source: Department of Fisheries Affair, Fisheries Administration, 2019, Phnom Penh Cambodia.

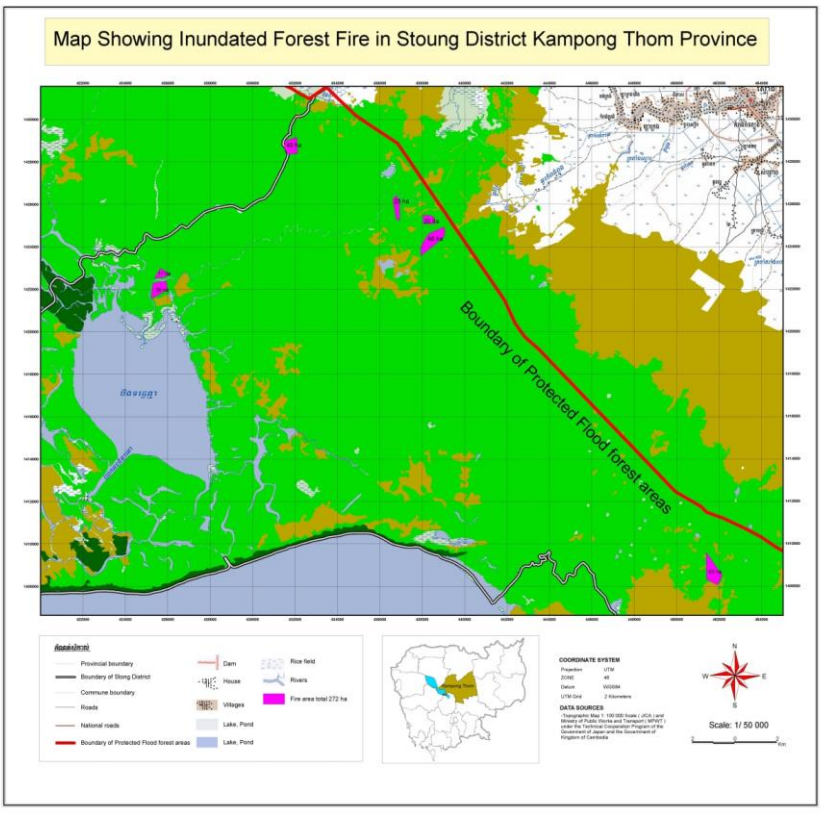

Figure 4: Map of fire-damaged flooded forest areas in Stoung district, KPT province

Source: Department of Fisheries Affair, Fisheries Administration, 2019, Phnom Penh Cambodia.

កម្មវិធីជំរុញកំណើនវិស័យជលផលប្រកបដោយចីរភាព និងបរិយាប័ន្ន (ផ្នែកនេសាទ)

Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector: Capture Component

(ខាបហ្វីស-ខាបឆឺ) (CAPFISH-Capture)

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