

**KINGDOM OF CAMBODIA
NATIONAL RELIGION KING**



**INUNDATED FOREST FIRE PREVENTION
AND MANAGEMENT PLAN
KAMPONG CHHNANG PROVINCE
2022-2026**



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FISHERIES ADMINISTRATION AND KAMPONG CHHNANG 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).

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”.

Kampong Chhnang province consists of a part of the floodplain the lake 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 Chhnang province, rich in biodiversity and situation of flooded forest 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, provincial administration and local authorities, develops the 5-Year Inundated Forest Fire Prevention and Management Plan for Kampong Chhnang province for implementing from 2022- 2026.

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 Chhnang Administration, I sincerely support and officially declare to launch the 5-Year Inundated Forest Fire Prevention and Management Plan for Kampong Chhnang 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 24 Oct, 2022



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



Kampong Chhnang, date 28 Nov, 2022



H.E. Sun Sovannarith
Governor
Kampong Chhnang province

Acknowledge

I would like to highly thank His Excellency **Minister** of The Ministry of Agriculture Forestry and Fisheries (MAFF) for his support in the development of the CAPFISH-Capture for fisheries resources management in Cambodia. Special thanks are due to HE has assigned the Programme Steering Committee for ensuring that arrangements for working among FiA with the relevant Ministries, Development Partners at national and sub-national levels were in place and for his efforts to ensure its good coordination.

We would like to thank to **H.E. Has Sareth**, Secretary of State of the Ministry of Agriculture, Forestry and Fisheries and Chairman of the CAPFISH-Capture Program Steering Committee for his direct support and efforts to orient the program implementation in line with the Agricultural Strategic Development Plan of the Ministry of Agriculture, Forestry and Fisheries.

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The special thanks also referred to the FAO Country Representative, Ms. **Rebekah Bell**, the CTA, Mr. **David Brown** and his colleagues in the CAPFISH-Capture project for complementary supporting to develop this plan.

This inundated forest fire prevention and management plan for Kampong Chhnang province has benefited from inputs of those involve Development Partners working in the Tonle Sap region such as UNESCO, WCS, KFW, BirdLife, VSO and CI shared details of their work in Tonle Sap.

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Acronyms and abbreviations

BMC	: Banteay Meanchey
BTB	: Battambang
CAPFISH	: Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector
CBFiM	: Community Based Fisheries Management
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
FFFPPT	: Flooded Forest Fire Patrol Team
FiA	: Fisheries Administration
FiAC	: Fisheries Administration Cantonment
KCN	: Kampong Chhnang
FCA	: Fisheries Conservation Area
IFFPMP	: Inundated Forest Fire Prevention and Management Plan
KTM	: 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
SR	: Siem Reap
TSA	: Tonle Sap Authority
UNESCO	: United Nations Educational, Scientific and Cultural Organization
WGFFFM	: Working Group for Flooded Forest Fire Management

1. Introduction

The Tonle Sap 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 favorite shelters for fish and some of the world's most threatened water birds to access to spawning, breeding and feeding. According to the Fisheries Administration (FiA), fish captured from the Tonle Sap Lake provide over 80% of protein intake in the Cambodian diet.

As Cambodia's population and economy continue to grow steadily, competition of human in harvesting fisheries resources and deforestation of flooded forests for agricultural purposes, the fisheries resources in Tonle Sap Lake Region are being threatened day by day and affected negatively on fishes, wildlife, water birds and biodiversity of the Tonle Sap Lake.

In the last few years, the water level of the Tonle Sap Lake has reached low levels due to climate change, especially increase in heat, drought and storms. These factors exacerbate flooded forest fires and as a result, adversely affect Fisheries Conservation Areas (FCAs), fish and water bird refuges for spawning, breeding and food supply, particularly Prek Toal Ramsar site, the largest bird sanctuary in Southeast Asia.

There are two main factors of intentional and negligent human activities considered to be the causes of flooded forest fires in Tonle Sap's floodplains are due to accidental and intentional human activities. The accidental cases causing flooded forest fires include using fires to harvest bee honey, discarding lit cigarette butts, and leaving cooking fires without putting them out. The intentional cases are cutting and burning flooded forests to grab the land for agricultural purposes, burning dry water hyacinth for hunting turtle wildlife and clear shrubs for paving paths to place fishing gears so-called Bor and small Dai) across streams.

The flooded 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 forests will lead to the decreases in both species and population of fishes, reptiles and birds. If flooded forest was burned repeatedly it would turn into grasslands.

Similarly, the consequence of flooded forest wildfires in Tonle Sap's floodplains in the province have contributed significantly to the gradual decline in fisheries resources, including population and species of fishes, aquatic plants, birds, reptiles and mammals and lastly impact on livelihoods of fishing communities.

Seeing this consequence the Fisheries Administration (FiA), in collaboration with the FAO's complementary component of the CPAFISH project being implemented "Cambodia Programme for Sustainable and Inclusive Growth in the Fisheries Sector - CAPFISH-Capture" has identified and worked with key stakeholders involved in flooded forest fire management provincial, district, commune and community levels in Kampong Chhnang province to prepare and implement Inundated Forest Fire Prevention and Management Plan (IFFPMP) in order to reduce risks of flooded forest fires in the province. That is why the IFFPMP is developed in a participatory manner to ensure the timely responses or interventions will be implemented flexibly and smoothly.

A technical team for supporting IFFPMP development for Kampong Chhnang province, consisting of 12 officers from Department of Fisheries Conservation (DFC), Department of Fisheries Affairs (DFA) of and Fisheries Administration (FiA), Fisheries Administration Cantonment (FiAC) of Kampong Chhnang province, and the FAO's technically advisory team visited burnt flooded forest sites, gathered primary and existing data/ information at local level to prepare the IFFPMP for implementation at district and provincial levels.

The field missions were launched in May 2021 to meet relevant communities and stakeholders in target communes and districts to gather information on causes of and actions taken against flooded forest fires, institutions involved in prevention and extinguishment of flooded forest fires, existing mechanism for flooded forest fire management and its effectiveness, flooded forest restoration approaches, the need of equipment and physical infrastructure for preventing and fighting flooded forest fires. Meanwhile, GPS coordinates of burnt flooded forest sites were collected for mapping.

2. Overview of Geography, Social-economics and Biodiversity in Kampong Chhnang Province

2.1 Overview of Geography and Social-economics of Kampong Chhnang Province

Kampong Chhnang located about 91 km from Phnom Penh capital, has three main transport routes: roadway (National Road No.5), railway and waterway (Tonle Sap and Tonle Sap Lake). The province borders Kampong Cham province to the east, Kampong Speu province to the south, Kandal province to the west, Pursat province to the west and Kampong Thom to the north.

Based on the provincial topography, the province is divided into 3 zones: 1. Floodplain situated next to Tonle Sap Lake and along Tonle Sap river, which is covered by fertile sediments with potential for agricultural production; 2. Plateau area located between the railway and National Road No.5, which has potential for administrative, economic and social activities; and 3. Mountainous area in the west of the railway, bordering Kampong Speu and Pursat provinces, has potential for short-term and strategic crops, non-timber forest products and natural resource conservation.

Kampong Chhnang province covers a total area of 552,100 ha and is divided into one municipality, four districts, four Sangkats, 66 communes and 569 villages. The total population is 131,875 families, equivalent to 553,564 people (287,178 women). The main revenue of the province includes 55.1% from agricultural sector, 27.8% from industry, handicraft and construction, and 17.1% from services (Source: Kampong Chhnang provincial administration website <https://www.Kampongchhnang.gov.kh>).

In the fisheries sector, Kampong Chhnang's Fisheries Administration Cantonment (FiAC) consists of two Fisheries Administration Divisions (FiADs) and six Fisheries Administration Triages (FiATs). In addition to fishing, a number of fisherfolds, farmers and small-holder processing groups have adapted to aquaculture (fish pond and cage cultures, and fish culture in plastic bags) and processing of freshwater fishing products (dried fish, smoked fish, pest fish and fish source) to earn a daily income.

2.2 Overview of Biodiversity in the Floodplains of Kampong Chhnang Province

Kampong Chhnang province consisted of 75,539 hectares of flooded forest in Zone 3, according to Sub-Decree No. 197 dated on 29 August 2011. The province comprises of 6 Fisheries Conservation Areas (FCAs) covering a total area of 22,950 ha, 63 Community Fisheries (CFis) covering a total area of 86,700 ha in 4 districts (Kampong Tralach, Chol Kiri, Kampong Leng and Rolea Bier) as well as 43 Community Fish Refuges (CFRs) located in Kampong Tralach, Kampong Leng, Teuk Phos, Baribo, Rolea Bier and Samakki Meanchey districts. All the FCAs, CFis and CFRs are under the direct control of the FiAC in collaboration with the relevant commune authorities and the local communities.

In overall overview, Kampong Chhnang province consists of about 30% of Tonle Sap's floodplain, where flooded forest are seen, located in the north and the east of the province along Tonle Sap River in Kampong Trach, Chol Kiri, Rolea Bier, Kampong Leng and Boribo districts.

Through the use of the floodplain for agricultural activities without clear commune land use plans in the last two decades, tens of thousands of hectares of flooded forests, flooded wood shrubs and grasslands have been lost. In addition, flooded forest fires caused by intentional and unintentional human activities contributed extremely to deteriorate the remaining degraded flooded forests in terms of quality, quantity, species, structure and classification.

In general, most of the remaining flooded forests in Kampong Chhnang's floodplains are dense flooded wood shrubs (*Acacia spiralis*, *Trapa bicornis*, *Milichdes moulins*, *Cratogeomys prunifera*, *Hymenocardia wallichii*, *Bridelia ovata*, *Crateva odorata*, *Desmodium heterocarpon*, *Breynia rhamnoides*, *Dasymaschalon lomentaceum*, *Gmelina asiatica*, *Morinda persicaefolia*, etc.). The remaining flooded forests (*Barringtonia acutangula*, *Coccoloba anisopodum*, *Diospyros cambodiana*, *Terminalia cambodiana*, *Xanthophyllum cf. glaucum* and *Peltophorum pterocarpum*) are seen standing in camps along stream banks and around wetlands, especially in the FCAs. Notably, some flooded forest species of *Crudia chrysantha*, *Cynometra inaequifolia* and *Tra lork*, become rare and endangered.

Kampong Tralach district is far from Tonle Sap Lake, but Tonle Sap river is located in the east, passing through the district from north to south, that is why this district does not have flooded forest of Zone 2 and Zone 3, so flooded forest grown along the river and its tributaries were all cut for framing. Flooded forests are only remained in Chol Kiri, Rolea Bier, Kampong Leng and Boribo districts which are selected as the target districts for implementing the IFFPMP, including flooded forest restoration, in accordance with the order of the **Prime Minister Hun Sen** to the relevant ministries and the provincial governors of the provinces around the Tonle Sap Lake to participate in preventing and taking immediate actions to crack

down on flooded forest destruction for farming and reforestation, particularly in Zone 3, driving flooded forest clearance and rice cultivation in Zone 3 decreased significantly.

3. Overview of Geography, Social-economics and Biodiversity in Target Districts

As mentioned in point 2.2 above, Chol Kiri, Rolea Bier, Kampong Leng and Boribo districts are selected as the target districts, so this section will highlight the features to be presented and analyzed to determine target communes in each of the target districts that will directly contribute to the implementation of the IFFPMP in the next 5 years.

3.1 Overview of Geography, Social-economics and Biodiversity in Chol Kiri District

3.1.1 Overview of geography and social-economics in Chol Kiri district

Chol Kiri district covers a total area of 33,083 km², bordering Kampong Leng district of Kampong Chhnang province and Baray district of Kampong Thom province to the north, Kampong Trach district of Kampong Chhnang province to the south, Batheay district of Kampong Thom province to the east, and Rolea Bier district and Kampong Chhnang municipality of Kampong Chhnang province to the west. The district is divided into 5 communes and 29 villages.

Chulkiri district has a total population of 37,830 people (62,289 women), equivalent to 8,167 families, of which 1,043 are widow families). 70.7% of the total number of families engage in agricultural activities such as rice, corn, sesame, soybeans, animal husbandry (cows, buffaloes and goats), fishing (5.5%), and fish culture (4.2%). Another 0.4% engage in handicrafts (weaving, grain packing, furniture and sculpture) and 28.9% work for service delivery (business, repairing machinery and electrical devices, construction and garment workers, agricultural labors, government institutions, civil servants, NGOs, etc.).

3.1.2 Overview of biodiversity and flooded forest fires in Chol Kiri district

The entire district area is located in the floodplains along Tonle Sap river with tributaries, streams and islands, which was almost completely covered by flooded forests in the two decades ago. Nowadays, flooded forests in three out of the 5 communes (Chol Sar, Kaoh Thkov and Prey Kry) are almost completely cleared, so only two communes of Kampong Os and Peam Chhkaok, consist of remaining flooded forest.

The flooded forests remained in the two communes are located in Zone 3 within *Khlok Lhmus* FiCA and four CFis (*Phlorng Anlong Metrey*, *Kien Tama* and *Anlong Ak*) being protected by the concerned communities in collaboration with the FiA Triage and the local authorities.

The flooded forest in the four CFis are dominated by flooded wood shrubs, situating together by sites and scattering between rice fields. Some flooded trees of *Barringtonia acutangula*, *Combretum trifloratum*, *Coccoceras anisopodum*, and *Diospyros cambodiana* species with a density of about 25 trees/ha standing between the shrubs. Due to the flooded forests in the four CFis dominated by shrubs and as the subject of cut and burning for farming as well as the presence of rice fields nearby, flooded forest fires have been occurred almost every year there.

The flooded forests located in the FCA are mainly large tree species, including *Barringtonia acutangula* (dominant species), *Combretum trifloratum*, *Coccoceras anisopodum*, *Diospyros cambodiana* and *Garcinia loureiri*, with diameters ranging from 30 cm to 70 cm, heights from 7 to 12 meters, ground canopy of about 80-90%, and stand density of about 60-100 trees/ha with one or two vertical layers. Due to its location in wetlands, flooded forest fires have been rarely occurred, if any, on a small scale.

Chol Kiri district has 24 CFis, covering a total area of 20,202 ha in its five communes.

3.2 Overview of Geography, Social-economics and Biodiversity in Rolea Bier District

3.2.1 Overview of geography and social-economics in Rolea Bier district

Rolea Bier district is one of the four target districts for flooded forest fire management. This district is located in the center of the province, 33 km away from Kampong Chhnang municipality, with a total area of 70,6973 ha. It borders on the north by Boribo and Kampong Leng districts, on the east by Chol Kiri and Kampong Leng districts, on the south by Kampong Tralach and Samakki Meanchey districts, and on the north by Teuk Phos district, Kampong Chhnang province.

The district is divided into 13 communes and 135 villages with a total population of 103,2193 people (55,037 women), equivalent to 25,175 families (21.3% are widow families), of which 81.3% engage in agricultural production (rainfed rice, dry-season rice, upland rice, maize, soybean, sesame, cassava, sweet potato, cassava, cashew and mango), animal husbandry (cattle, pigs, chickens and ducks), fishing (6%), fish culture

(0.7%) and crocodile culture (0.1%). And the rest involve in handicrafts, production and services (Source: Information document on socio-economics, Rolea Bier district, 2021).

3.2.2 Overview of biodiversity and flooded forest fires in Rolea Bier district

The district consists of Tonle Sap Biosphere Reserve and “Phnom Krang Dey Meas” Protected Landscape of Ministry of Environment with an area of 287.62 ha in Svay Chrum, Srae Thmei and Pongro communes. In addition, the district has six CFI covering a total area of 765 ha located in Svay Chrum, Kouk Banteay and Tuek Hout communes and another 4 CFRs in four communes situated in the west of the district.

The eastern part of the district extends from north to south along Tonle Sap River that has many tributaries and archipelagos, where 50% of the total district area, especially in Svay Chrum, Kouk Banteay, Andoung Snay and Tuek Huot communes. Currently, the remaining flooded forests are seen around Koh Keo Lake located in Boeung Buon Mum’s FCA and in Koh Keo’s CFI in Svay Chrum commune. The flooded forests in the CFI are dominated by flooded wood shrubs and have been burnt every year, except 2021. In addition, all most of the flooded forests in three other communes are cleared for farming. That is why only Svay Chrum commune was selected as the target commune for flooded forest fire management.

The remaining flooded forests around the lake within the FCA are very degraded, while the flooded forests in the CFIs situated partly in between rice fields and along the southern bank of Preah Angkam stream are in fairly good condition dominated large flooded trees of *Barringtonia acutangula*, *Diospyros cambodiana*, *Combretum trifloratum* and *Coccoceras anisopodum* species with diameters between 20 cm to 40 cm, ground canopy of about 70-80% and tree density of around 80 trees/ha. The FiA Triage’s chief insisted the project to support the demarcation and mapping of the remaining flooded forest in the commune in order to take timely measures to prevent the expansion of farmland by clearing the existing flooded forest and flooded forest fires.

3.3 Overview of Geography, Social-economics and Biodiversity of Kampong Leng District

3.3.1 Overview of geography and social-economics in Kampong Leng district

Kampong Leng district, one of the four target districts, covers a total area of 99,767 ha, located in the northern part of the province, 21 km from Kampong Chhnang municipality. The district is divided into nine communes and 44 villages, of which 2 villages are governed by female village chiefs. The district borders on the north by Kampong Svay district, Kampong Thom province, on the south by Kampong Chhnang municipality and Chol Kiri district, Kampong Chhnang province, on the east by Santuk and Baray districts, Kampong Thom province, and on the west by Boribo and Rolea Bier districts, Kampong Chhnang province.

Kampong Leng district has a total population of 56,261 people (28,838 women), equivalent to 12,586 families (1,875 widow families), of which 82.6% are engaged in agricultural production (rice, corns, mungbeans, sesames, sweet potatoes, cassava, sugarcane, mango and cashew), animal husbandry (cow, buffaloes, goats, pigs, chickens and ducks), aquaculture (4.5%) and fishing (7.6%), and another 17.0% engage in handicrafts, garment factory, transportation and service delivery.

In agricultural sector, especially rice production, Kampong Leng district has a total area of 13,236 ha of paddy fields, of which 5,336 ha are dry season rice fields (an average yield of 2.90 tons/ha) and 9,047 ha of rainfed rice field (an average yield of 1.70 tons/ha). Almost all dry season rice fields are located in the floodplains in Zone 2 and Zone 3 (Source: Document of Information on the Socio-Economic Situation of Kampong Leng District, 2021).

3.3.2 Overview of biodiversity and flooded forest fires in Kampong Leng district

Along the western border from south to north, the district stretches along Tonle Sap river with many tributaries and small islands. The islands are being used for short-term cropping such as corn, sesame, mungbeans and sweet potatoes. In the southern part of the district, there are two mountains of *Chrak Tonsay* and *Neang Kong Rei*. The district comprises of two FCAs in Plov Tuk and Pralay Meas communes and 7 CFI in 5 communes under jurisdiction of the FiA. The district also has “Phnom Neang Kong Rey - Touk Meas” Multiple Use Area with a total area of 5,063 ha located in its five communes under jurisdiction of the Ministry of Environment.

Regarding flooded forests, they can be found in 8 out of 9 communes, including *Plov Tuk*, *Samraong Saen*, *Pou*, *Chranouk*, *Kampong Hau*, *Svay Rumpear*, *Dar* and *Pralay Meas* communes.

Samraong Saen commune: Almost all of its entire area is located in Zone 3 where consists of lowland area in the middle, stretching from north to south along river and stream bodies, which is why this area are become

huge paddy fields. The western part of the commune is also rice fields because it is close to water sources. In the north and east of the commune where degraded flooded wood shrubs exist with uneven flooded forest canopy (50-90%). Some rice fields are located between the shrubs like tiger skin. The shrub degradation is due to the repeated flooded forest fires.

Plov Tuk commune: The entire commune area is located in the floodplains and Zone 3. Since the commune is mostly covered by vast wetlands, it was designated as FCA “*Lot No.1*” where is strictly controlled by the FiAC and the CFi located nearby, so a lot of flooded forests are seen in the north, east and south as well as along the streams in the commune, comparing to the other communes in the district. The flooded forests (*Barringtonia acutangula*, *Garcinia loureiri*, *Diospyros cambodiana* and *Coccoloba anisopodumi*) are around wetlands and along rivers, and the flooded wood shrubs are near rice paddies with higher altitudes. Apart from this, there are some swamps covered with weeds and reeds.

Dar commune: About 15% of the total commune area in the west is “Phnom Neang Kong Rey - Touk Meas” Multiple Use Area and the another 40% located in the north and east is in Zone 3. There are flooded forests dominated by flooded wood shrubs remained in Zone 2 and Zone 3, mostly on either side of Zone 3’s border. In the east of Zone 3 next to the commune boundary is covered by rice fields. The degraded wood shrubs with dense or thin grown cover by site are under pressure from wildfires and deforestation for farming.

Chranouk commune: About 80% of the total area of the Commune is in Zone 3 and the another part of it is in the “Phnom Neang Kong Rey - Touk Meas” Multiple Use Area. Neally all flooded forests in Zone 2 are cleared for rice cultivation while some flooded forest patches remain in Zone 3 in the western and cetral parts of the communes with some rice paddy plots scattered from north to south across the flooded forest.

Pralay Meas commune: The whole commune area is located in Tonle Sap’s floodplains, of which 50% is in Zone 3. Almost flooded forests in Zone 2 were cleared for rice farming. As to Zone 3, some flooded wood shrubs are remained in the northern part of the commune adjacent to Plov Tuk commune, which have been burnt every year.

Kampong Hau commune: The entire commune area is in Tonle Sap’s floodplain, stretching along the Tonle Sap river but outside Zone 3. There are some flooded forests along the rivers and its tributaries, especially the most flooded forests are around the wetland in the southeastern part of the commune where flooded forest fires have been commonly happened. The flooded forests in this commune is degraded with tree density of about 30 trees/ha) and dominated by dense flooded wood shrubs.

Svay Rumpear Commune: is mostly covered by vast rice fields. Some flooded wood shrubs exist in the southern and northwestern parts of the commune with 50-80% of ground cover. Due to the flooded shrubs located near near rice fields and the whereabouts for herding domestic cattle in the dry season, many cases of flooded forest fires were reported every year.

Pou commune: is located along side Tonle Sap river with about 50% of the total commune area in Zone 3. Apart from residential land at the foothill, almost of the commune area is covered by natural waterbodies, rice fields and farm lands. A few flooded wood shrubs remained situate along natural stream and around natural ponds parallel to border line of Zone 3. Due to the small amount of flooded forest left, cases of flooded forest fires in this commune are rarely happened, but due to the relevance of flooded forest restoration and cattle raising within Zone 3 in neighboring communes, Pou commune is selected as one of the target communes in the district.

3.4 Overview of Geography, Social-economics and Biodiversity of Barobo District

3.4.1 Overview of geography and social-economics in Baribo district

Baribo district, one of the four target districts, covers th a total area of 47,123 ha, located in the northwest part of the province, 33.40 km from Kampong Chhnang municipality. The district is divided into 11 communes and 64 villages, of which 1 village are headed by woman. This district borders on the north by Kampong Leng district of Kampong Chhnang province, on the south by Rolea Bier and Teuk Phos districts of Kampong Chhnang province, on the east by Rolea Bier district, Kampong Chhnang province, and on the west by Krakor district, Pursat province.

Boribo district has a total population of 59,913 people (31,105 women), equivalent to 15,079 families (1,875 widowed families), of which 81.3% engage in agriculture (rice, corn, sesame, mungbeans, peanuts, cassava, sweet potatoes, sugar cane, cashew and mango), animal husbandry (cows, buffaoes, goats, pigs, chickens and ducks), aquaculture (0.8%) and fishing (6%). Another 9.3% involve in handicrafts, garment factory, repairing machinery and electric devices, trabsportation and public service delivery.

3.4.2 Overview of biodiversity and flooded forest fires in Baribo district

Along the western district border, Baribo district is located along Tonle Sap river, stretching from north to south with tributaries and islands. The islands are being used for short-term crops such as corn, beans, sesame and sweet potatoes. Neither FCA nor CFI exists in the district. Based on the presence of flooded forests and flooded forest fire reported, Baribo district has five communes, namely Melum, Kampong Preah Kokir, Khon Rang, Trapeang Chan and Chhnok Tru, are selected by Kampong Chhnang's FiAC to be the target communes for the implementation of the IFFMP, including flooded forest restoration.

Chhnok Tru Commune: has the most flooded forests compared to other target communes in Baribo district. This

commune is entirely located in Zone 3, bordering Tonle Sap Lake in the north and east. It has three villages, the floating fishing villages, so there no farmland in the commune territory. Almost all of the commune land is covered by flooded wood shrubs with large trees of flooded forest species such as *Barringtonia acutangula*, *Coccoloba anisopodum*, *Terminalia cambodiana* and *Diospyros cambodiana* standing scattered across the shrubs at a distance of about 20-25 meters apart. The flooded forests have been burned every year.

Kampong Preah Kokir Commune: has a lot of flooded forests remained after Chhnok Tru commune. The entire commune is located in the floodplains with archipelago along Tonle Sap river, of which about 55% of the total commune area is in Zone 3. The remaining flooded forests are found along stream sides and around wetlands, mostly in the middle of the islands. In the middle of the wetlands are swamps, covering with water grasses and reeds not susceptible to wildfire due to high humidity. The flooded wood shrubs remains less scattering around paddy fields.

Khon Rang Commune: Nearly entire area of the commune is in the floodplain. About 50% of its total area in the east and north are located in Zone 3. Flooded forests in Zone 2 are all cleared for farming. There are some degraded flooded wood shrubs remained in Zone 3 (below the border) between paddy fields and on Tonle Sap Lake shore. The flooded forests in this commune have been burned almost every year and under threat of clearance for expanding farmlands.

Trapeang Chan Commune: About 50% of its total area is in Tonle Sap floodplain, of which about 50% is in Zone 3 consisting of residential and farm lands, so flooded wood shrubs are remained scattering between paddy fields that have been quite often burnt at small scale every year due to farming activities.

Melum Commune: is located a bit far from Tonle Sap river with a slope from west to east about 10.20%. the commune is not in Zone 3 but zone 1 and 2, where are covered by residential and farm lands. Degraded flooded wood shrubs remained are seen in three sites: 1. Around the ponds and along the streams in the south next to Zone 2 border, 2. Between paddy fields in the middle of the commune, and 3. Near the road in the east of the commune next to the commune boundary.

3.5 Target Districts and Communes for Flooded Forest Fire Management

Based on the geo-physical situation of the floodplains, flooded forest fire condition and flooded forest deforestation for rice cultivation in Kampong Chhnang province, 16 target communes in 4 districts as mentioned in the Table 1 below are identified for participatory implementing the flooded forest fire management and restoration.

Table 1: Target districts and communes for flooded forest fire management in KCN province

Target districts	Target communes	
1. Kampong Leng (8 communes)	1	Chranouk
	2	Pou
	3	Phlov Tuk
	4	Kampong Hau
	5	Svay Rumpear
	6	Dar
	7	Samraong Saen
	8	Pralay Meas
2. Baribo (5 communes)	9	Kampong Preah Kokir
	10	Trapeang Chan
	11	Khon Rang

	12	Chhnok Tru
	13	Melum
3. Chol Kiri (2 communes)	14	Kampong Os
	15	Peam Chhkaok
4. Rolea Bier (1 commune)	16	Svay Chrum
4 districts		16 communes

4. Challenges of Flooded Forest Fire Management in Kampong Chhnang province

For more than a decade, flooded forest fires in the floodplains have been occurring yearly at small and large scale and are largely uncontrollable. According to reports from the communities living in the concerned area revealed that all cases of flooded forest fires are caused by intentional and unintentional human activities. Fires have long been used as a means for burning newly cut flooded forests to grab the lands for cropping, clearing residues in farmlands, cooking, burning dry shrubs for placing fishing gears, hunting wildlife, honey bee collection, and so on.

Long-standing flooded forest fires impact negatively on fisheries resources, including flooded forests, grasslands and riparian vegetation that are favorite and safe habitats for fish, reptiles and birds to breed and spawn. The latest negative impacts are the extinction of some fish species, the decline in fish size and catch, and the decreases in fisherfolk's daily income, forcing them to switch from fishing to agriculture and clear flooded forests for cultivating rice and other crops according to the market demands. Through consultation meetings with stakeholders at commune, district and provincial levels, the main causes of flooded forest fires were identified as mentioned below:

4.1 Target Districts and Communes for Flooded Forest Fire Management

Referring to the report compiled by the DFC and DFA, FiA's working group in charge of flooded forest fire management in Kampong Chhnang province after the first meetings in all the 16 target communes confirmed the key causes of the flooded forest fires as follows:

- Burning hangover of dry rice stumps or weeds in rice fields to increase soil fertilizer and clean rice fields makes the fires spread to near grasslands or/and flooded forests inadvertently.
- Burning newly cut flooded forest and shrubs for the purpose of farmland expansion.
- Clearing and burning shrubs to open strips for placing the fishing gear "Bor".
- Uncontrolled cooking fires before leaving by fisherfolks, wildlife hunters, firewood collection, honey bee collectors and animal herders.
- Inadvertently dumping lit cigarette butts into dry grasses and shrubs, bushes and piles of organic matter by smokers resulted in frequently flooded forest fires, especially along the ways in the floodplains.
- Due to negligent use of fires for collecting honey bee in the dry season, the fires spread at large scale and burnt dry grasses and flooded forests uncontrollably.
- Climate change, especially prolongation of the drought during the dry season, delays the dryness of vegetation hangover on the topsoil, increasing the likelihood of flooded forest fire occurrences.
- There are no any report regarding natural phenomena such as thunderstorms and lightning that caused flooded forest fires.

The causes of flooded forest fires, as mentioned above, are the intentional, unintentional and negligent actions of people who used fires in the floodplains. Details of these causes are researched in depth for using as a basis information for analyzing, interpreting and defining appropriate approaches to deal with flooded forest fires effectively in specific locations in the target communes.

All causes and problems of flooded forest fires raised by the stakeholders are included in the IFFPMP for KCN to ensure all issues are resolved successfully within the 5 years of the IFFPMP's implementation.

4.2 Locations and Areas of Flooded Forest Fires

According to the data of the flooded forest fires given by the FiAC, there were 48 cases of flooded forest fires in Zone 2 and Zone 3 with a total area of 3,980 ha happened in in the target communes as shown in the table 2 below.

Table 2: List of burnt flooded forest sits and areas in KCN province

No	Target district	Number of target communes	Number of flooded forest fire cases	Burnt forest area (ha)	Time of forest fires	Responses to flooded forest fires
1	Kampong Leng	8	32	3,283	Apr-May (2005-2016)	There was intervention from local authorities but unable to control, letting the fires extinguished themselves.
2	Baribo	5	15	600	Apr-May (2016-2020)	There was intervention from local authorities but unable to control, letting the fires extinguished themselves.
3	Chol Kiri	2	6	97	Apr-May (2016-2020)	There was intervention from local authorities but unable to control, letting the fires extinguished themselves.
4	Rolea Bier	1				
4 districts		16 communes	53 cases	3,980		

4.3 Stakeholders and Their Responsibilities Involve in Flooded Forest Fire Management

Flooded forests, wood shrubs, aquatic plants, grasslands, floodplains, waterbodies and wetlands are important for the lives of fauna and flora living on the land and in the water, and the Tonle Sap Basin's biodiversity is important for livelihoods of Cambodian and provides sources of high protein foods, income generation and as part of supporting the national economy.

Since the potential of fishery resources, especially flooded forests in the lowlands of the Tonle Sap Lake, which directly and indirectly benefit many people living in the area, they have been identified as involved stakeholders in the protection, conservation and prevent wildfires of flooded forest. According to the results of the study, key stakeholders are involved in engaging with local communities to prevent and prevent forest fires, as shown in the table below.

Table 3: Relevant institutes and responsibilities involve in flooded forest fire management

Stakeholder	Review	Risk Reduction	Readiness	Response	Recovery
Local communities	Follow up weather forecast related to the prolongation of the dry season and the delay of the rainy season.	Reduce access to inundated forest areas.	Disseminate information on the importance of inundated forests and impacts of flooded forest fires to biodiversity, ecology, wildlife and human life.	Participate in extinguishing flooded forest fires Support flooded forest fire-fighting equipment (power tillers, tractors, pumps, water tanks, hoses ...) as much as possible.	Join planting flooded forest seedlings in flooded forest areas degraded by wildfires and clearance for cropping. Protect and maintain natural and planted tree seedlings in flooded forest restoration sites. Maintain poles and signs placed along borders of flooded forest restoration sites.
Village Security Guards	Study and observe identification and movement of local people in zone 2 and Zone 3.	Participate in extension meetings on importance of flooded forests and effects of flooded forest fires, and help disseminate further the information to the public. Participate in strengthening the implementation of	Participate in and help watch flooded forest fires.	Mobilize local people to join flooded forest firefighting, using locally available tools such as tractors, power tillers, pumps, water cans, hoes, and so on as much as possible.	Join planting flooded forest seedlings in flooded forest areas degraded by wildfires and clearance for cropping. Help maintain poles and signs placed along borders of flooded forest restoration sites.

		the Fisheries Law.			
Community Fisheries	Record names of people accessing the inundated forest areas with their purposes during the dry season.	Participate in extension meetings on importance of flooded forests and effects of flooded forest fires, and help disseminate further the information to the CFI members.	Participate in pond/stream rehabilitation streams and conserve water for extinguish flooded forest fires Establish and maintain firebreaks to prevent the spread of flooded forest fires Readily prepare flooded forest firefighting tools for urgent needs.	Mobilize local people and participate in flooded forest firefighting, using locally available tools for putting out flooded forest fires.	Join planting flooded forest seedlings in flooded forest areas degraded by wildfires and clearance for cropping. Participate in placing and maintaining poles and signs along borders of flooded forest restoration sites.
Commune councils	Study and identify people accessing the inundated forest areas in their own territory with their purposes.	Disseminate measures to prevent and extinguish flooded forest fires Provide flooded forest fire equipment to the patrol teams. Send people to support the patrol teams as requested. Strengthen fisheries law enforcement based on the policy reform of decentralization and de-concentration in natural resource management of Commune/Sangkat.	Reserve some commune/Sangkat funds to pay for extinguishing flooded forest fires, pond/stream rehabilitation, extinguishers, fuel, and so on) Repair and prepare readily flooded forest fire extinguishers for emergency needs.	Mobilize people to join in extinguishing flooded forest fires. Participate in managing flooded forest fires directly. Gather and send firefighting tools to the scene upon requests from the patrol teams.	Cooperate and participate in flooded forest restoration in flooded forest areas were burnt and cleared for farming and burnt. Support budget to place poles and signs bel flood protection forest Disseminate the protection and maintenance of flooded forest restoration areas to the people.
Civil Society Organizations /NGOs	Study status of flooded forests and the uses of fishery resources in the floodplains to develop a plan to support the implementation of flooded forest fire management plan of FiA/FiAC and MoE/PDE.	Produce extension materials and conduct awareness raising campaign on importance of flooded forests, effects of flooded forest fires, protected area law and regulations related to flooded forest fire management.	Support budget and human resources to deliver training on flooded forest fire patrol techniques for the patrol teams.	Support budget and logistics for extinguishing flooded forest fires as possible.	Support budget and participated in flooded forest restoration process.
District and commune Police	Prepare lists of owners of tractors, cattle and farm lands, fisherfolks, honey bee collectors, and so on to identify easily the suspects who cause flooded forest fires.	Join patrols with the flooded forest fire patrol teams. Cooperate with the FiAC to prohibit and control strictly the uses of land and flooded forests in Zone 3.	Prepare firefighters and vehicles to support flooded forest fire fighting immediately.	Support firefighting equipment and participate in extinguishing flooded forest fires	Support and participate in planting flooded forest seedlings. Participate in enforcing fisheries laws against offenders who clear flooded forest and caused flooded forest fires.
District administration	Collect and sore documents/data related to flooded forest management. Issue declarations or guidance on flooded forest management, including flooded forest fires.	Disseminate information on importance of inundated forest, impacts of flooded forest fires, and law and regulations related to flooded forest fires.	Cooperate with FiAC to provide resource persons as trainers for training of flooded forest firefighting techniques for the patrol teams.	Send forces and equipment to participate in inundated forest fire-fighting as requested by the commune chiefs.	Participate in flooded forest restoration and push local authorities to help protect and maintain the forest restoration sites.

Provincial Department of Agriculture, Forestry and Fisheries (PDAFF)	Reviews reports on flooded forest fires prepared by the FiAC to comment and take measures to prevent and extinguish flooded forest fires effectively.	Supports FiAC to promote local awareness on importance of flooded forests, effects of flooded forest fires, and laws and regulations related to flooded forest management. Supports Fisheries Law enforcement.	Reports to the provincial administrative unity command on the flooded forest fire issues to get the relevant institutions at provincial level informed and ready to participate in extinguishing flooded forest fires.	Participates in extinguishing flooded forest fires and requests the intervention from district and provincial administrative unity commands.	Participate and cooperate with district, commune and village authorities and NGO partners to support the process of flooded forest reforestation.
Provincial administration and relevant entities.	Identify relevant entities at provincial level and formulate policies supporting flooded forest fire management.	Disseminate the measures to prevent and manage flooded forest fires to the relevant entities. Take legal action against persons and units which have cleared and burned flooded forests.	Provide high risk level warnings when necessary. Readily prepare forces and means to support flooded forest fire extinguishment. Provide flooded forest fire extinguishers to the patrol teams and CFis.	Send forces and means to participate in extinguish flooded forest fires urgently.	Join tree planting events. Support budget for the inundated forest restoration.
Tonle Sap Authority	Study situation of flooded forests and the uses of fishery resources in the floodplains in order to develop strategies for managing flooded forests. Inspect the poles placed along zone 3 border and place additional pole(s) within a space where distance between the 2 poles are far apart.	Produce extension materials and conduct awareness raising campaigns on importance of flooded forests, effects of flooded forest fires on people, animals, biodiversity and ecosystem of Tonle Sap basin.	Provide flooded forest fire extinguishers to the patrol teams and CFis.	Participate in extinguishing flooded forest fires by other means.	Participate and support the process of flooded forest restoration. Encourage relevant entities at sub-national level to help protect and maintain the forest rehabilitation sites.
Fisheries Administration & Fisheries Administration Cantonments	Collect and store documents related to flooded forest fire management recorded causes, extent of damage, methods of extinguishment and flooded forest fire maps. Regularly monitor flooded forest fires to update situation of flooded forests. Research and document fishery resources, ecology and livelihoods in the floodplains, especially in Zone 3.	Produce extension materials and conduct awareness raising on importance of flooded forests, effects of flooded forest fires, and laws and regulations related to flooded forest fires. Strengthen Fisheries Law enforcement.	Coordinate and support the patrol teams to monitor flooded forest fires. Coordinate and raise funds to support flooded forest fire prevention and management. Provide and monitor the uses and maintenance of firefighting equipment for urgently putting out flooded forest fires.	Lead and coordinate in extinguishing of flooded forest fires. Report and request the relevant entities for immediate actions to help extinguish flooded forest-fires. Investigate, follow up, explore and document illegal cases causing flooded forest fires in accordance with the procedure stated in the Fisheries Law.	Organize tree planting ceremonies. Protect and maintain natural and planted flooded tree seedlings in flooded forest restoration sites. Assess survival and growth rate of flooded tree seedlings in flooded forest reforestation sites.
Ministry of Environment	Conduct ecological and livelihood surveys in inundated forest areas to develop flood forest fire management plan for the Tonle Sap Lake Biosphere Reserve in conjunction with the	Produce extension materials and conduct awareness raising campaign on importance of flooded forests, effects of flooded forest fires, protected area law and regulations related to	Provide training on flooded forest fire patrol techniques to rangers and community protected area. Supply and monitor the uses and maintenance of	Assign rangers to help fight flooded forest fires occurring in and outside protected areas. Inform Provincial Department of Environment to	Participate in planting flooded forest seedlings and maintain flooded forest restoration sites within protected area.

	IFFPMP of FiA.	flooded forest fire management.	flooded forest fire extinguishers.	monitor and participate in extinguishing flooded forest fires as requested by the provincial administration.	
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The stakeholder identification is indispensable for the planning that takes into account the various target groups and their involvement at different stages (flooded forest fire prevention and control and flooded forest reforestation) of flooded forest fire management as mentioned in the five-year IFFPMP.

Those involved in the management of flooded forest fires are being considered from the groups suspected of causing the wildfires, which will receive education, outreach, flooding patrols, users of community fisheries resources, farmers, fishermen, local authorities, government agencies, non-governmental organizations (NGOs) that provide assistance to forest fire management, civil society organization (CSOs) and flood forest fire management mechanisms at the district and provincial levels.

4.4 Challenges for Taking Measures to Respond Flooded Forest Fires

According to the history of flooded forest fire management in Kampong Chhnang province, it is revealed that until now, no any flooded forest fire management structure at provincial, district or commune level has been established to address the fire problems, causing by a number of the factors as shown below:

- **Lack of flooded forest fire management mechanism:** Many cases of flooded forest fires have been occurred every year, especially in 2019s and 2020s, while flooded forests in zone 2 and zone 3 were heavily cleared for rice cultivation. CFis and local people informed the concerned FiA triage, relevant competent agencies and local authorities of the flooded forest fire cases for helping control but only a few cases of interventions offered. This may be caused by the absence of flooded forest fire management mechanism at all levels to prepare manpower, tools and budgets for preventing and extinguishing flooded forest fires in a timely manner.
- **No flooded forest fire management plan:** Due to the absence of a mechanism or coalition group consisting of members from relevant stakeholders established for flooded forest fire management at the provincial level, a systematic IFFPMP has not been developed and let flooded forest fires freely happened without controllable. In the past, despite some efforts made by CFis to put out flooded forest fires in their territories but they got less results due to lack of the readiness and equipment.
- **Limited local knowledge of flooded forest fire-related laws and the effects:** Most local people are aware of the laws related to illegal fishing as many extension meetings on this topic were organized locally and such information are shared publicly through social media such as posters, banners, radio, television, Telegram, Facebook, etc. Thus, local communities seem to have little understanding of the laws/declarations associated with flooded forest fires because the extension campaigns and materials related to participatory flooded forest fire prevention and management were delivered and distributed inadequately.

Due to the limited understanding of flood forest fire prevention and management, when local people experience flooded forest fires being occurred and are willing to put them out, but do not know clearly the reporting mechanism to report to request helps/intervention to extinguish the fires in time.

- **Difficult access to flooded forest fire areas:** Due to the geographically complex situation of the floodplains covering by dense shrubs and having no accessible road for motorized vehicles (motorcycle, power tiller and locally processed transportation vehicle), the effort for transporting water and fire extinguishers to fight the on-going flooded forest fires at the scene is hampered. The inaccessibility allows flooded forest fires to spread freely and uncontrollably until they go out on their own.
- **Lack of water:** Due to climate change in the 2019s and early 2020s in connection to the prolongation of the dry season and deposition of sediments into natural waterbodies resulted from deforestation and improper land preparation for agricultural practices in the upstream areas and, pumping ponds for fishing and irrigating dry season rice, most of natural streams and ponds

dry up during dry season. This phenomena is the major constraint that restricts the extinguishing operation of flooded forest fires.

- **Lack of budget and equipment:** Extinguishment of flooded forest fires is a very difficult task that requires all involved stakeholders at sub-national level to participate under an effective management mechanism with enough budget and equipment. The sub-national stakeholders include competent departments/entities, three-type armed forces, local authorities, government and non-government organizations, CFIs and local communities. The leading organizations for flooded forest fire control are PDAFF/FiAC, PDE and provincial, district and commune authorities. They, however, have not yet been able to fulfill this roles fully due to the lack of funds and equipment.

Due to the obstacles mentioned above, when a flooded forest fire occurred the relevant departments only had ideas on how to prevent and reduce cases of flooded forest fires, but no any unified option was implemented effectively.

4.5 Law Enforcement to Prevent Flooded Forest Fires

Flooded forest fires occur every year in the province that are most likely caused by the local people living in the involved villages and communes rather than outsiders. However, some fisherfolks and farmers from neighboring communes have entered into the floodplains in dry season for fishing, fuelwood collection, hunting wildlife, and cleaning farmlands. Therefore some cases of flooded forest fires can be caused by these groups through their careless activities of cooking, burning wastes in farmlands, cutting and burning shrubs for placing fishing gears, lighting dry water hyacinth for catching reptile, setting fire to honey bee collection, and discarding lit cigarette butts into dry bushes or/and grasses.

Flooded forest land claims and deals of agricultural lands in zone 2 and 3 in the province are common. Some land brokers or rich people hired local people by providing some money and machineries to clear and convert flooded forests into rice fields as much as they can for selling purpose. Some concrete poles put up along zone 3's border were damaged by unknown people in order to deceive the eyes of competent agencies in reason of flooded forest land encroachment and rice field expansion in zone 3.

So far, the FiAC Cantonment has investigated, prepared offense letters, arrested and sent some suspects who involved in causing flooded forest fires and clearing flooded forest lands to the provincial court for further legal action.

5. Implementation Process of the IFFPMP

To ensure the effective and timely implementation of participatory IFFPMP in accordance with the 5 "R" principles and the 3 key stages: 1.Prevention (review, risk reduction and readiness) 2.Response to flooded forest fires, and 3.Flooded forest reforestation as stated in the guidelines on the development of flooded forest fire management plan, the IFFPMP for Kampong Chhnang province should be implemented as the following procedure.

5.1 Prevention

As mentioned above, the flooded forest fire prevention step is divided into "3R" sub-steps among total "5R": 1. Review of knowledge and experience on flooded forest fire management, 2. Reduction of the probability of flooded forest fires, and 3. Readiness for prevention and extinguishing on flooded forest fires.

5.1.1 Review

Review of experiences, information, data and understanding of causes of flooded forest fires made by human or natural phenomena, wildfire behaviors, meteorological forecasts, climate, humidity situation and dry biomass and vegetation susceptible to fires in the given area and the effects of flooded forest fires in different sites over the years in the province are important to the preparation of strategic plan for prevention and management of flooded forest fires in accordance with the real situation and condition in each target commune. This review should be carried out following activities below:

A. Consultation meetings on flooded forest fire issues

Consultation meetings with FiAC, relevant sub-national government departments, local authorities, NGOs, civil society, CFIs and local community representatives were held subsequently to gather the most updated information and data on causes and behavior of flooded forest fires, elements causing the fires (drought,

heat, humidity, air, biomass residues and organic matter), groups of people suspected of causing the fires, effects of flooded forest fires, how to prevent and extinguish the fires, flooded forest restoration approaches that have been implemented so far and stakeholders involved in flooded forest fire management process.

The information gathered at this stage will be used to determine effective methods for flooded forest fire management, in particular for flooded forest fire prevention.

B. Field observation at flooded forest fire sites

Direct observation of flooded forest fire sites is conducted after the consultation meetings to gather additional information on geo-physical situation, temporary accommodation locations in or near the flooded forest fire sites, signs of flooded forest fire causes, land use patterns, land and forest cover, flooded forest species, and scope of the damage. Coordinates of the burnt locations must be collected during the observation for producing maps of flooded forest fire sites.

5.1.2 Risk Reduction

The action to reduce the risk of flooded forest fires is aimed at reducing the number of the forest fire cases maximally from the beginning of the dry season, which is the most important part of flooded forest fire prevention with low cost to reduce the damages by the wildfires, focusing on the potential causes of flooded forest fires and preventing those causes from occurring.

A. Extension material design and printing out

In order to obtain simple, easy-to-understand and meaningful extension materials for raising local awareness, the working group in charge of flooded forest management must consider the following options:

- In case there is a soft copy of existing media material on the topic of flooded forest fire prevention and management and Fisheries Law enforcement against offenders who caused flooded forest fires, the working group should use it to produce extension materials as needed as it saves times and budget.
- In case the existing data has no enough meaning, the team should consider designing images and messages for developing the new extension material with the support from the FAO's communication officer to obtain simple, easy to read and understand and meaningful one to raise the awareness of relevant stakeholders.

B. Meetings at commune level on plan for conduction local awareness raising

Meeting with representatives of WGFFFM at the district and commune levels, FFFPTs and CFIs to:

- Locate sites for placing billboards;
- Identify target groups, villages and locations for the extension campaign of participatory flooded forest fire management. The number of men and women of each target group to be invited to participate in the campaign should be equally. Use the list of those involved in using lands and fisheries resources in zone 2 and 3 to facilitate this identification.
- Introduce how to read and use the extension materials to raise local awareness to participate in preventing flooded forest fires and clearing flooded forests.
- Develop action plan for conducting extension campaign with the WGFFFM at district and commune levels, specifying their roles and responsibilities, necessary materials to be used (copies of relevant laws and legal papers, VDO spots, banner, posters, loud speakers), invitations of participants, times and venues of the extension meetings.
- Provide posters to district, commune, village administrations and CFIs to help post at the given sites before the extension meeting arrivals.

C. Local awareness raising campaign on participatory flooded forest fire management

- Install signboards, billboards at designated locations.
- Distribute educational materials such as leaflets or posters to local people
- Organize awareness raising meetings for the target groups in villages and at temporary staying locations on participatory prevention and management of flooded forest fires and strict law enforcement against those who cut and burn flooded forests.
- Gather feedbacks on issues related to prevention and extinguishment of flooded forest fires raised in the extension meeting for jointly taking further action.

D. Regular flooded forest fire patrol

The FFFPTs do patrol based on weekly and monthly patrol plans prepared and agreed by the team members and the working group at commune level. Each member must bring a portable forest fire extinguishers with them to putting out flooded forest fires as possible encountered during the patrol. In addition, in the patrol period, the FFFPTs must record activities and events of flooded forest fires and thought to cause flooded forest fires, and coordinates of the events in the distribute spread sheet format. Pictures of flooded forest fires and venues, firefighting activities, suspects of causing flooded forest fires have to be shot as evidences. The patrol team must inform chiefs of the commune and the FiA Triage on a regular basis about patrol situation, cutting flooded forests and flooded forest fire events in order to request timely intervention.

The commune and FiA triage chiefs have to get ready to follow up and communicate the FFFPTs regularly via telephone or communication radio so that they can take action in response to requests for assistance from the patrol teams in a timely manner. The commune chief must also request the immediate interventions from the WGFFFM at district or provincial levels in case that flooded forest fires are at large scale cannot be controlled by the patrol teams.

5.1.3 Readiness

The readiness is the preparation of management structure of working groups at provincial, district and commune levels, infrastructure construction and supplies of necessary tools and equipment for immediate responses to flooded forest fires happened eventually. The readiness also aims to identify stakeholders and required infrastructures and equipment to get ready for timely interventions appropriate to the extents of flooded forest fires to reduce high cost of the extinguishment due to the unpreparedness.

A. Formation of working groups for flooded forest fire management (WGFFFM) at provincial, district and commune levels

- Draft Decision Letter on establishment of Working Group for Flooded Forest Fire Management (WGFFFM) at provincial district and commune levels, including roles and responsibilities of the working group, and send this draft to the concerned provincial and district governors and commune chiefs for review and correction by their own administrative affairs.
- Collaborate with the target provincial and district administrations to organize meetings with relevant units at provincial and district levels to establish WGFFFM formally at provincial and district levels.
- Meet commune councilors and relevant stakeholders to establish Flooded Forest Fire Patrol Teams (FFFPTs) at commune-level.

B. Annual WGFFFM meeting at provincial level

Pursuant to the roles and duties of the WGFFFM at provincial level as stated in the Decision Letter signed by the H.E. Governor of Kampong Chhnang province, the FiAC, in cooperation with the provincial administration, organizes a yearly WGFFFM meeting at the provincial level to be chaired by chief of the WGFFFM (H.E. provincial governor or deputy governor) at the beginning of each year to help push and strengthen the IFFPMP's implementation at the local level effectively and timely with good cooperation from all relevant stakeholders. Participants of the meeting are all members of the WGFFFM at provincial, district and commune levels.

The agenda and objectives of the meeting is to present the annual IFFPMP at provincial level, recall roles and responsibilities of the WGFFFM and raise key issues related to communication, law enforcement, means of flooded forest fires extinguishment and budget, to be addressed immediately before the provincial governor to review and advise to ensure the IFFPMP will be implemented smoothly and effectively.

Prior to the meeting, the FiAC's officials should submit a formal request for organizing the meeting, attached with the meeting agenda, the Decision Letter of the provincial-level WGFFFM establishment, the annual IFFPMP, report of quarterly WGFFFM meeting(s) at district level, map of flooded forest fires, map of flooded forest restoration and relevant document to the working group chief for information, taking action and distributing to the relevant districts and communes to be ready to participate.

After the meeting, the FiAC shall prepare and send the meeting report to the PDAFF's director and the WGFFFM's chief for review and signing. This report will be sent further to FiA and all relevant institutions at provincial, district and commune levels for information and taking action.

C. Quarterly WGFFFM meeting at district level

The FIAC, in cooperation with the district authority, organizes WGFFFM meeting at district level on quarterly basis or as necessary to provide an opportunity for the FFFPT, the WGFFFM and the FiAC to meet and review the results of flooded forest fire management in the last three months and lay the outstanding problems on the table to be solved by the working group, especially the District Unity Command (DUC), to give suggestions and recommendations, and take action to solve those problems in time. It would be good if representatives of the FiA and the WGFFFM at provincial level attend the meeting to make the solutions more effective and cooperative.

After this meeting, the FiAC shall prepare and send the meeting report to the district governor/deputy governor, chief of the meeting, for review and signing. This report will then be sent to all relevant departments and offices at the provincial, district and commune levels for information and action.

D. Monthly FFFPT meeting at commune level

Monthly FFFPT meeting at commune level to be chaired by the concerned commune and FiA Triage chiefs should be held on monthly basis to share experiences on flooded forest fire prevention and extinguishment among the patrol teams, raise challenges encountered during patrols and seek solutions from the chairpersons for solving all the challenges to encourage the patrol teams to carry out further their duties.

After attending the training on flooded forest fire patrol techniques, the patrol team understood well the roles and responsibilities of the team, preparation of patrol plan, recording patrol events, flooded forest fire-fighting methods, extinguisher management, and relevant laws and regulations (Fisheries Law, Land Law, Sub-Decree No.197, etc.), so the monthly meeting is also aimed to review and remind the existing knowledge and provide new information and news that has just been received.

At the same time, the monthly patrol team meeting also aims to review its management structure to strengthen the roles and responsibilities of the team, which may be disrupted by some members are inactive, sick, busy with his/her own businesses or resigned from the group. The meetings are also held to inspect the condition of forest firefighting equipment to determine whether which equipment are damaged to be repaired and lost to be purchased the new ones to ensure the patrol team has enough extinguishers for putting out flooded forest fires.

Women members are encouraged to speak out the challenges of the women faced in the patrols for addressing and to encourage more women to participate in this action, especially to increase woman roles in managing flooded forests in their respective villages and communes.

Minutes of meeting must be developed at once at the end of the meeting to report to the commune chief, the

WGFFFM at district level and the FiAC's chief for information and taking action to respond to the facing challenges timely.

E. Building physical structures for flooded forest fire prevention and response

As mentioned above, the necessary physical structures to be constructed for prevention and extinguishment of flooded forest fires include placement of additional concrete poles along zone 3 border, planting poles along borders of the flooded forest fire sites, construction of flooded forest fire watching towers, and rehabilitation of ponds or streams. Due to limited budget, not all the structures needed are constructed only in the first year, but from year to year according to the priority needs set in consultation meetings at commune level and available budget. According to the procurement principles and techniques, the construction of the physical infrastructure will be carried out following the below process:

- Organize 1st consultation meeting with commune and village leaders, CFis and FFFPTs to determine the locations for construction of flooded forest fire watching towers, ponds to be rehabilitated and burnt flooded forest sites to be marked with poles and signs.
- Study technical specifications and estimated costs of every infrastructure for bidding.
- Prepare bidding documents and manage bidding process (public announcement, screening qualified engineering companies for the bidding, conduct and monitor the bidding, selected awarded engineering companies) for physical restructuring to support the flooded forest fire management.
- Sign the construction contract, inspect the construction and disbursement.

This procurement task is generally carried out by the Procurement Team of the Fisheries Administration in collaboration with the EU Procurement officers who support CAPFISH-Capture.

F. Improvement of knowledge and skill of the FFFPTs

- Prepare training manuals on flooded forest fire patrol techniques focusing on roles and responsibilities of the FFFPTs, importance of flooded forests, impacts of flooded forest fires on ecosystem of the Lake's floodplains and socio-economic, strategic flooded forest fire patrol, using smart devices to monitor and report, uses and maintenance of flooded forest fire extinguishers, how to disseminate information through social media via smart phones, Fisheries Laws and legal papers associated with flooded forest fires activity planning and report writing to be prepared by the Fisheries Administration in collaboration with NGO partner organizations
- Organize training on flooded forest fire patrol techniques for the FFFPTs at commune level to provide opportunities to all the patrol team members to share and learn experiences from each other through practical exercises by using modern techniques and tools.
- Conduct weekly and monthly meetings regularly to allow all members of the patrol teams participate in discussion on the patrol plan in a voluntary and ownership manner for implementing after the meeting. The patrol plan will be then reviewed and signed by the relevant commune chief.
- The FIA Triage and commune chiefs have to monitor and improve the practices of the knowledge gained from the training to ensure the quality and effectiveness of flooded forest fire patrol.

G. Equipping the FFFPTs with flooded forest fire-fighting tools

Equipment to be used by the FFFPTs commonly and individually for personal safety, including portable dry powder extinguisher cylinders, pump backpack sprayers, smartphones, drones, walkie-talkie, first aid kits, masks, goggles, gloves, helmets, fire-fighting shoes, hammocks, machetes, torches, motorbikes equipped with water pumps, hoses and water guns, and so on, will be purchased and distributed to the patrol teams for uses as needed.

Regulation on the use of fire extinguishers to be used by patrol team must be developed and disseminated to all of the team members through commune-level meeting to ensure the equipment are used in accordance with the guidance stated in the regulation and maintained well and long lasting.

Additional training at the commune level on the proper uses and maintenance of forest fire equipment will be provided to all the patrol teams to ensure that the extinguishers are used effectively, safely and long-lasting.

5.2 Response

The interventional phase focuses on flooded forest fire extinguishment, Fisheries Laws enforcement and regular patrol of flooded forest fires by the patrol teams under direct support of the FiA Triage and commune chiefs. In order to strengthen and empower the patrol teams to control flooded forest fires effectively, the FiA Triage and commune chiefs should instruct the patrol team to consider and implement the following important activities.

In case the patrol teams encounters flooded forest fires occurring during the patrol, each member must take measures to extinguish the wildfires according to the following instructions:

A. Small-scale flooded forest fire cases

When the patrol teams meet flooded forest fires at small scale, controllable case, the team members have to use the mobile forest fire extinguishers they brought with or items locally available there as instructed below:

- Cover mouth and nose with a mask, soaked scarf or T-shirt to reduce the absorption of smoke, ashes and dust
- Use twigs to put out the fires
- Use shovels or hoes to dig the soil to cover/extinguish the fires or create firebreaks for preventing the spread of fires
- Use water in the portable tanks to put out the fires and make sure the fires are completely extinguished before leaving the scene to avoid the fire re-occurrence

- Take photos and report the incident to chiefs of the commune and FIA Triage via mobile phone, communication radio or smart phone application (SAMRT-BalckView).

B. Meso/big-scale flooded forest fire cases

If the flooded forest fire is at large scale, the patrol teams and local firefighters must be vigilant to protect their own safety by taking flooded forest fire measures following the below instruction:

- Cover mouth and nose with a mask, soaked scarf or T-shirt to reduce the absorption of smoke, ashes and dust.
- Inform chief of the village, commune and FIA Triage via phone or communication radio about the incident in order to get helps (forces and equipment) for flooded forest firefighting from the commune, district and provincial authorities.
- Use portable fire extinguishers as much as possible to prevent the spread of flooded forest fires, keeping a safe distance from the fire to avoid eventual hazards.
- Mobilize people nearby the scene to help put out flooded forest fires by using available tools such as water pumps, power tillers, tractors, water tanks, water cans, pipes, etc.
- The commune chief must immediately notify the district governor for requesting assistance of fire-fighting trucks and fire-fighters to come to the scene to help control the flooded forest fires.
- Commune chiefs and village chiefs must mobilize people living in the villages closest to the flooded forest fire sites by bringing available equipment such as power tillers, tractors, water pumps, hoses, water tanks and cans to help extinguish the wildfires urgently.
- If fire trucks are unable to reach flooded forest fire sties, they will be used as the water supply to fill water tanks loaded on power tillers or locally processed trucks to transport the scenes for putting out the wildfires.
- In extinguishing flooded forest fires, power tillers and tractors can be used to clear strips as firebreaks where possible (grasslands, wood shrubs or bushes) to prevent the wildfire spread.
- Make sure flooded forest fires are completely extinguished to avoid the fire recurrence before leaving the scene.
- Prepare a report on the flooded forest fires, describing location, burnt flooded forest areas, causes of fires, stakeholders and number of people involved in extinguishment, types of extinguishers used, scope of damage and recommendations for considering better measures of flooded forest fire fighting to be applied in the future.

5.3 Restoration of Flooded Forest

Flooded forests in Tonle Sap's floodplains are divided into two classifications: flooded forests and flooded wood shrubs¹. Flooded forests are 07-15 meters high, mostly grow on the bank of Tonle Sap Lake and wetlands and along streams. Flooded wood shrubs are 02-04 meters high and consist of flooded trees scattering

throughout the shrubs with an average stand density of about 25-30 trees/ha.

During the rainy season, flooded forests and wood shrubs are completely submerged, unable to grow because there is not enough sunlight to photosynthesis. At this stage, all the leaves fell, rotted and became fish feeds and made the environment of the flooded forest areas more biological.

Every year, flooded forests and shrubs release large amounts of green and organic matters (barks, roots, branches and fruits) that are decomposed under natural influence into minerals such as calcium, potassium, phosphate, sulfate, etc. and disintegrated by microorganisms into salts and minerals for plant growth and soil quality maintenance with black soil. Additionally, flooded forests and shrubs help maintain water quality by providing oxygen to water and absorbing toxins such as nitrate, nitrous dioxide and calcium nitrate.

In the floodplain area, there is a lot of organic debris that originates from its flooded forest and shrubs and from the upper reaches, which decomposes and develop plankton and Zoobentos to feed on fish.

In Kampong Chhnang province, the flooded forest susceptible to fires is dense wood shrub with canopy of about 70% - 90% and height up to 4 meters. The wood shrub species include *Croton caudatus*, *Acacia spiralis*, *Uncaria homomalla*, *Ixora cuneifolia*, *Cratoxylon prunifera*, *Crataeva religiosa*, *Zizyphus sp.*,

¹ Cambodia forest cover 2014, UN-REDD, Sept 2016

Hymenocardia wallichii, *Vitex holpadenon*, *Morinda Persicaefolia*, *Antidesma ghasembilla*, *Breynia rhamnoides*, *Breynia rhamnoides*, etc.). Flooded forest trees (*Barringtonia acutangula*, *Mitragyna bruninisa*, *Combretum trifloratum*, *Xanthophyllum glancam* and *Terminalia Cambodiana*) stand scattered about 20-25 meters apart in the shrubs. The ground layers of the shrubs consist of many herbs and vines and *Mimosa pigra* are seen growing in places where shrub canopy lesser than 50%. Generally, the shrubs, underground plants and *Mimosa pigra* dry and fall off their leaves in the dry season, so such a flooded forest is more prone to wildfires in the dry season, starting from March.

In the flooded forest areas located far from streams where were burned two or three years ago, many natural regenerations are seen but most of them are shrub species and *Giant Mimosa at 2-3 meter height*. Very few tree seedlings of *Barringtonia acutangula* are growing under the shrubs and the thorny bushes which very low growth rate due to the stresses of the micro-climate (competition of sunlight, spaces, water, and nutrients).

The flooded forest areas next to the streams where were burnt for many years, especially in Kandieng district, are now covered by dense grasses and reeds of about 2-meter height, so flooded forest and shrub seedlings cannot be survived. This may be the result of repeated wildfires in that locations.

According to the limited budget for the restoration, the geographical situation and biodiversity in the burnt flooded forest location, the reforestation approaches there should be considered two options: protection and maintenance of natural regeneration and planting flooded forest seedlings in the areas where have no or very few seed trees.

5.3.1 Rapid assessment on flooded forest restoration approaches

A. Field assessment to define flooded forest restoration approaches

Rapid assessment of flooded forest fire sites is carried out to gather information/data on the extent of damage, geographical, physical, biodiversity and ecological aspects of fire-affected flooded forest areas, tree species to be selected for planting, low-cost restoration and maintenance methods, produce flooded forest restoration map, prepare low-cost flooded forest restore plan and estimated budget. This assessment will be conducted annually at the beginning of the dry season to provide sufficient time for preparation and implementation of the restoration plan.

B. First Commune-level meeting on flooded forest restoration plan

This is the first commune meeting with relevant stakeholders, including the FiA Triage, local authorities, the FFFPTs, CFIs and NGO partners to discuss action plan for flooded forest restoration, emphasizing restoration site selection, restoration with enrichment planting and protection and maintenance of natural seedlings, tree species selection, nursery establishment, seedling production by seeds or/and natural seedlings collection, site preparation, seedling transportation, mobilization of local people to participate in tree planting, support to and monitoring of tree planting, organizing tree planting ceremony, maintenance of natural and planted seedlings, assessment of seedling survival and growth rates, formation of local working groups to support the flooded forest restoration, budget needed, and writing report on results of the restoration.

C. Demarcation and mapping degraded flooded forests to be restored

The FiAC's officials, working with the FFFPTs and CFIs, locate burnt flooded forest sites to be restored with different methods, collect GPS coordinates of all the sites for mapping of flooded forest restoration, and post concrete poles and poles and signs along the boundaries of the sites to prevent them from the attempts to use land in the sites for growing rice or other crops. The map to be produced shall include the point at which concrete poles with the signs will be put up.

At the same time, village chiefs and commune chiefs should inform the people through village and commune meetings about the locations and protection of all the flooded forest restoration sites in their administrative areas and take legal action against those who did cropping or let animals into the restoration sites.

D. Protection of flooded forest restoration area

Prohibition and protection of flooded reforestation sites from releasing cattle to grazing is essential as animals will trample on flooded forest seedlings, so be sure to put up signs to inform cattle herders about the ban about prohibition of animal entry into the flooded forest restoration sites. All relevant commune and village chiefs must help disseminate this information to the local people in order to increase their participation in the reforestation in order to achieve satisfactory results.

E. Patrolling flooded forest restoration sites

It is very important that the patrol team include the inspection of the flooded forest reforestation sites in their weekly and monthly plans to ensure that all the restoration sites are safe and avoid any disruptive activities such as grazing domestic animals, cropping and wildfires that affect the seedling survival and growth.

Meanwhile, when inspecting the flooded forest restoration sites, the FFFPTs must report to the concerned chief of FiA Triages respectively about negative impacts on seedlings caused by suppression of thick grasses or water hyacinth, pests and weeds invasion making some seedlings stressed and died due to lack of sunlight, water, spaces and nutrients in order to take measures to save seedlings with silviculture operation for the sake of improvement of seedling survival and growth rate.

5.3.2 Flooded forest restoration by Assisted Natural Regeneration (ANR)

If flooded forest fire sites are near flooded forests rich in seed trees, the flooded forest restoration by enrichment planting is not necessary as the seed trees will drop and scatter seeds throughout the burnt forest areas in December, and natural seedlings will grow in late December or in January if the soil is still moist. But, if the soil is dry, the seeds will delay sprouting until the beginning of the next rainy season after three or four heavy rains. Although there are many natural seedlings, the restoration sites must be still maintained following the below guidance.

Natural regeneration of flooded forest (*Barrintonia acutangula*, *Diospyros cambodiana*, *Mitragyna bruninisa*, etc.) died under the pressures of dense shrubs and grasses, oppression of water hyacinth, trampling by domestic cattle and flooded forest fires. Therefore, maintenance and liberation of seedlings in the forest restoration sites by clearing grasses within one meter around seedling base, suppression or cutting grasses in the restoration sites, removal of water hyacinth pressing down on seedlings, and protection of the restoration sites from domestic cattle entry in the first three to four years are a must. These activities not only save the lives of tree seedlings from micro-climate pressure, but also enhance their growth.

This maintenance method is called "Assisted Natural Regeneration (ANR)" that must be applied for at least the first 3 years to keep the seedlings strong enough to overcome the competition for sunlight, nutrients, spaces and water against weeds, grasses and vegetation growing around them.

5.3.3 Flooded forest restoration by enrichment planting

A. Workshop on tree nursery management and flooded forest fire restoration approaches

The FiA's officers, in collaboration with technical staff of relevant institutions, prepare documents related to tree nursery management and flooded forest restoration approaches, which focuses on:

- **Tree nursery management:** site selection, establishment of tree nursery team (at least 40% of the total number of team members are women), designing and construction of tree nurseries, required materials, soil selection, soil mixing and placing in polybags, seed collection and propagation, natural seedling collection, care of seedlings, seedling transportation and bookkeeping.
- **Flood forest restoration approaches:** starts from site selection, rapid assessment of geography, physics, ecology and ecology of flooded forest restoration sites to determine appropriate restoration approaches for each of them and mapping. The restoration approaches include tree planting methods (cluster planting, alternative planting, mixed plating and stripped planting), selection of tree species to be planted, pit size, seedling/pit spacing, transplanting seedlings, care of seedlings, forming local teams to support flooded forest restoration (seedling planting, protection and maintenance), implementing times by stages, and papers for recording flooded forest restoration activities.

B. Support to community for tree nursery establishment

Flooded tree seedlings for forest restoration should be produced by CFIs that live near the forest restoration site as it is part of local capacity development in tree nursery management and sustainability of flooded forest restoration. Therefore, the FiAC's officials who attended the workshop on "Tree Nursery Management and Flooded Forest Restoration Approaches" have to support the CFIs to establish tree nursery for producing flooded tree seedling following below instructions:

- **Site selection for tree nursery establishment:** The most suitable location for setting up a nursery is the site where: having permanent water, non-flooded area in rainy season, near residential land easy to access the nursery for maintenance, having road for transporting nursery materials and

near the restoration site to reduce seedling transportation costs. Nursery size is varied depending on the number of seedlings to be produced.

- **Formation of seedling production group:** At least 10 people, including at least 5 women, are selected and organized as a seedling production group. The group management structure includes roles and responsibilities of the team members and benefit sharing is developed through consultation meetings among the team members to ensure the seedling production runs smoothly, successfully and transparently.
- **Strengthen capacity of seedling production group:** The FiAC will provide training through on-the-job-training on tree nursery management with practical activities of nursery installation, soil mixing, placing mixed soil in polybags, seed collection, seed propagation, seedling maintenance to the group members to ensure they can run on their own. At the same time, the FiAC has to provide knowledge to the group on seedling nursery production planning, bookkeeping to monitor and record times and activities carried out by each team member, materials used for the seedling production, number of seedlings by species and costs.

As locally available materials for seedling production are limited, the FiAC should provide some materials such as nets, pillars, plastic bags, watering cans, wire and fertilizer as mentioned in the training to support the tree nursery installation and flooded forest seedling production.

- **Technical support to seedling production group:** Every FiA Triage involved in flooded forest restoration has to assign an officer to assist the seedling production teams established within the FiA Triage on a regular basis to prepare tree nursery and maintain flooded forest seedlings by actual stages.

C. Second Commune-level meeting on action plan for flooded forest restoration

A 2nd consultation meeting at commune level to review and finalize the flooded forest restoration plan drafted in the 1st meeting is necessary for implementing next month. More importantly, it examines the local working arrangements that have been promised to be done after the first meeting and confirms the mobilization of local communities to participate in upcoming tree planting events. The participants of the meeting include FiAC's officers, local authorities, CFIs and FFFPTs.

D. Organizing tree planting ceremony

Flooded tree planting ceremony should be held in each target district to promote joint efforts from every milieu for flooded forest protection, flooded forest fire management and flooded forest restoration. The ceremony has to be held under chairmanship of the district governor, and if possible, the presence of the provincial governor and/or the FiA's Director General as chair of the event will mark it historically important and be considered as a nationwide outreach campaign for fisheries resource management and flooded forest restoration in Cambodia.

Information, messages and pictures of the flooded tree planting ceremony are widely shared through public media as part of education to raise public awareness on fisheries resource management, in particular the flooded forest management in the Tonle Sap Lake region.

The FiAC will play an important role in facilitating the discussions with the WGFFFFM at district and commune levels on organization of tree planting ceremony, including inviting honorable guests, venue preparation, seedling transportation, master of ceremony, tree planting materials, snacks, sharing information through public media and logistics.

E. Supporting and monitoring tree planting

To ensure the tree planting is carried out well, after attending the workshop on "Tree Nursery Management of Flooded Forest Fire Restoration Approaches", the FiAC's officers in charge of flooded forest restoration should follow the below activities:

- Briefly review the tree planting techniques before planting seedlings, specifying safe seedling transportation, pit size, pit spacing, pitting, tearing polybags, transplanting seedlings, filling up pits and tamping down the soil after planting, strengthening seedlings with wooden sticks, and watering if the soil is too dry.
- Mark spots to be pitted with wooden/bamboo sticks to avoid planting seedlings too close together and under tree shade or in the bush.

- During transportation of seedlings from the nursery to the restoration sites, the nursery team leader must record numbers of seedlings taken out and damaged by the transportation by species, specifying the damaging reasons.
- Divide a flooded forest restoration site into sub-blocks for tree planting by different groups to be easy for monitoring by the local working teams. This will help the teams to determine numbers of seedlings planted, seedlings planted technically incorrect, seedlings damaged during planting and identification of the responsible planting groups for replanting.
- Support and monitor tree planting by local people to ensure dug pit size, transplanting seedlings, seedling species, filling up pits, strengthening of seedlings and polybag collection are applied in accordance with the technical guidance.
- **Prepare report on planting flooded forest seedlings:** The FiAC plays an important role in preparing reports on the results of the planting after the event is completed. This report has to be reviewed and approved by the PDAFF's director and copied to WGFFMs at provincial and district levels and the relevant commune chiefs for information. This report must provide accurate figures on planting area, numbers of planted and damaged seedlings by species, planting methods, number of participants and the reforestation map as it is important for monitoring and evaluation of the IFFPMP's implementation.

F. Maintenance of flooded forest restoration sites

To ensure high survival and growth rates, both planted and natural seedlings in the forest restoration sites need to be maintained. Based on the actual situation of each restoration site, the seedling maintenance methods to be applied include the protection of the restoration sites from invasion of domestic animals, cropping and wildfires as well as liberation of seedlings from oppression by water hyacinth, weeds and shrubs. Detailed techniques of flooded tree seedling maintenance are included in the training on "Tree Nursery Management and Flooded Forest Restoration Approaches" to be organized for FiAC's officers during late 2022.

G. Seedling survival and growth rate monitoring

It is necessary to start monitoring the survival and growth rates of seedlings at the beginning of the dry season when seedlings are at age of two years-old to know the survival rate and growth of seedlings by species and location. This assessment should be performed every two years at the same sample plots.

The main purposes of the assessment are to find out the factors that cause seedlings to die and grow slowly and to recommend methods to make seedlings that were planted and will be planted in the future grow better according to the actual geographical and biological conditions of each site, such as protection of flooded forest sites from disturbing activities, prevention of flooded forest fires, replacement planting, enrichment planting, maintenance, seedling liberation, etc.

6. Gender Equality and Child Labor in Implementation of the IFFPMP

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

To contribute to boost the equal participation of men and women in decision making and activity implementation in the working groups at commune, district, provincial levels, the Departments of Fisheries Conservation and Department of Fisheries Affairs will work with the Gender Working Group of the FiA to ensure the negative effects of gender inequality are addressed in the implementation of this plan, providing equal opportunities for men and women in the composition of the flooded forest fire management structures at all levels, and the consideration of women's needs and barriers in the implementation of this plan.

Some considerations regarding the establishment of clear implementation mechanism to achieve gender equality through awareness raising, services and legal support are outlined below:

- Ensure equal participation of women and men in all activities of flooded forest fire prevention and management and decision-making in planning, implementation and monitoring of plan implementation, emphasizing women's workloads in it.
- Encourage women to actively participate in the WGFFM at provincial, district and commune levels,

paying attention to the objectives and interests of women.

- Provide equal opportunities for women to participate in skill training and consider their needs and interests.
- Promote the application of modern technology appropriate to women's abilities and work.
- Protect children under age of 18 and pregnant women from potentially dangers of flooded forest fire extinguishment and improve working conditions and skills for youth participation in the forest fire management by ensuring health and working safety at anywhere.
- Demonstrate the valuable roles and responsibilities of women and men in fisheries development and conservation as well as in awareness raising campaigns on participatory flooded forest fire management.

7. Framework of the IFFPMP

Currently, the FiAC in Kampong Chhnang province has no the IFFPMP and lack of resources to respond to flooded forest fires. Many cases of flooded forest fires were reported by CFis and local people to the relevant units, especially the FiAC and commune authority, but no any immediate intervention were acted effectively to respond the reported wildfires. Remote locations of flooded forest fires, inaccessible roads, lacks of manpower, budget and equipment also contribute to the failure. Lately, the DFC provided a number of dry powder fire extinguishing cylinders to CFis through the FiAC for use to put out flooded forest fires as needed.

In order to support the flooded forest fire management efforts being been carried out by relevant stakeholders at sub-national level, the FiA in collaboration with the FAO of CAPFISH-Capture, developed the 5-year IFFPMP for 2022-2026 with the following framework.

7.1 Implementation Period: 2022 – 2026

The mandate of the flooded forest fore prevention and management plan is five year.

7.2 Goal

Flooded forests in Kampong Chhnang province are well managed and protected and flooded forest cover increased under the effective management of flooded forest fire management mechanisms at provincial, district and commune levels with fully participation of relevant stakeholders.

7.3 Objective

To meet the above objectives, achieving some of the following goals will contribute significantly to meet the set objectives:

- Participatory awareness and participation in prevention and management of flooded forest fires enhanced.
- Areas of flooded forests and grassland affected by wildfires dropped down significantly.
- All fire-damaged flooded forests restored through protection, maintenance and enrichment replanting to benefit ecosystems, high-nutrient organic food sources and fishing community livelihood.

7.4 Expected Outputs

Expected output 1: Readily effective review, risk reduction and readiness for forest fire protection and response.

The first result of responding to 3 "R" out of 5 "R" is a review of flooded forest fire challenges, reducing risks of flooded forest fires, and readiness of forces and equipment to put out flooded forest fires immediately in good cooperation with local authorities at all levels, relevant stakeholders, NGO partners and local communities.

Activities to be implemented to meet the first expected outputs include meetings with relevant stakeholders to discuss establishment of WGFFFM at district and provincial levels, formation of FFFPTs at commune level, extension materials needed, local awareness raising, required flooded forest fire extinguishers, training on flooded forest fire patrol techniques, supporting and strengthening flooded forest fire patrol, and Fisheries Law enforcement to prevent flooded forest destruction and fires.

Expected output 2: Improved responsive actions to inundated forest fires

The second expected result focuses on coordination with local authorities, relevant institutions, CFIs and local communities to get timely intervention in extinguishing flooded forest fires. This expected output also aim to strengthen Fisheries Law enforcement and increase successful rate of prosecution against illegal activities in flooded forest destruction, both inside and outside the judicial system.

Expected output 3: Improved restoration of fire-damaged and degraded flooded forests

The third expected output focuses on improvement of cover of fire-affected flooded forests through application of different flooded forest restoration approaches such as prevention of flooded forest encroachment for farming, banning domestic animal grazing in the restoration sites, prevention of reoccurrence of flooded forest fires, enrichment planting and Assisted Natural Regeneration (ANR).

Protection and maintenance of flooded tree seedlings as part of Assisted Natural Regeneration will be carried out in places where natural generation and planted seedlings do not grow well, some seedlings die after growing for a while, seeds do not germinate, low density of natural flooded tree seedlings (<200 seedlings/ha) and low seedling growth rate due to natural barriers. Planting flooded forest seedlings (*Barringtonia acutangula*, *Diospyros cambodiana*, *Peltophorum pterocarpum*, etc) will be applied in places the areas where no seed trees nearby or flooded forest seedlings.

7.5 Estimated Budget

The budget for implementing the five-year IFFPMP is estimated at about US\$ 1,263,980 in total.

The IFFPMP for KCN province is compiled in accordance with “**Guidelines for Developing Tonle Sap Inundated Forest Fire Management Plans**” developed by CAPFISH-Capture Project and 5 R’s Principle (Review, Risk Reduction, Readiness, Response and Restoration). This principle is very useful in providing sufficient information to write the IFFPMP for the implementers to ensure that they can achieve the above three expected outputs.

The IFFPMP is also developed based on Community Fisheries Management Plans (CFiMPs), which is a way to integrate community decisions into implementation of the IFFPMPs as part of the implementation of CFiMPs. This plan not only engages all stakeholders provide techniques, equipment and workforces in strategic implementation of prevention and management of flooded forest fires but also raise local awareness on impacts of the forest fires, flooded forest restoration approaches as well as the law, sub-decrees and regulations related to clearing and burning flooded forests, which are stated in Articles 26, 27 and 28, Chapter 6 of the Fisheries Law, and Sub-Decree No.197 on Boundary Demarcation of Flooded Forests Surrounding Tonle Sap Lake in the six provinces.

Both men and women, especially those vulnerable to flooded forest fires, play an equally important role in participating in the 5 R’s principle for flooded forest fire prevention and management. In this context, however, protection of women and children from hazardous works of flooded forest fires must be guaranteed.

On the other hand, local authorities and CFIs that have experienced flooded forest fires in their management areas must make the local people aware of the importance of the wildfire prevention and management in connection with public interest of fisheries resources in the areas as majority of the local communities depend on fishery resources, including the use of floodplain lands for agricultural production.

8. Monitoring and Evaluation Framework

To monitor and evaluate the IFFPMP’s implementation thoroughly, a monitoring and evaluation team must be set up with members from representatives of relevant institutions at national and sub-national levels, such as:

- **Relevant institutions at national level:** DFC and DFA of FiA, MAFF, Tonle Sap Authority, Ministry of Water Resources and Meteorology, Department of Inland Water Conservation of MoE, and development partners (FAO, UNESCO, WCS, RECOFTC, FACT, JICA, CSLEP, and so on),
- **Relevant institutions at sub-national level:** Local authorities at provincial, district and commune levels, PDAFF, FiAC, provincial department of Environment, provincial department of Water Resources and Meteorology, Office of Agriculture, Natural Resources and Environment, community fisheries and NGO partners.

The FAO's Monitoring and Evaluation Specialist (MES) and Development Partners (DPs) will support FiA to do a survey on flooded forest fire prevention and management and develop baseline survey to be used by the Monitoring and Evaluation Team (MET) to follow up, monitor and evaluate the impact of the IFFPMP's implementation.

The MOE and DPs will also assist the MET to develop their involved monitoring and evaluation system and update the monitoring and evaluation based on reports on the results of the plan. A brief involved project frameworks for monitoring and evaluation of the IFFPMP's Implementation will be prepared separately for chiefs of the MET and senior officials of relevant institutions to use easily in a short time period for monitoring and evaluation of the results of the plan implementation.

This monitoring and evaluation will be carried out by the MET to determine the extents of the IFFPMP's objectives, goals and expected outputs achieved, cost effectiveness and the overall impacts of flooded forest fire prevention and management in KCN province.

Additionally, the MET will gather the most updated information/data on number of cases, locations and scopes of flooded forest fires, plant species burnt, suspects caused flooded forest fires, workforces participated and equipment used in flooded forest fire management process, flooded forest fire intervention effectiveness, operational costs and strategic challenges, etc. to recommend, direct and better the IFFPMP's implementation.

The internal assessment will be conducted annually. Assessment by external experts should be carried out twice a year, in the middle of and before the end of the IFFPMP's implementation. The DFC and DFA prepare terms of reference of the external evaluators, manage the recruitment process and oversee the assessment result.

Strengths, weaknesses and challenges identified by the assessment will be used to improve knowledge and experiences for steering the IFFPMP's implementation in the presence and future.

Aerial photos shot by drones during field mission provide help detailed views in each area of topography, land and forest covers, land use patterns, flooded forest sites newly cleared and burnt, dry flammable wastes on the land, hotspot areas where are sources of causing flooded forest fires, existing physical infrastructures, roots for traveling and transporting (waterways and by land), etc. Such images will help identify flooded forest fire locations susceptible to wildfires, factors that can trigger flooded forest fires, access to the floodplain for extinguishing flooded forest fires that provide easiness for developing the IFFPMP.

The leaders of the FiA, FiAC and the provincial and district administrations who are the chiefs/members of the WGFFFM will monitor and evaluate the implementation of the IFFPMP as needed in the fields by using the monitoring and evaluation framework to evaluate the actual results, impacts of the plan implementation and accountability.

9. Activity and Budget of the IFFPMP for Kampong Chhnang Province (2022-2026)

No	Activities	Indicators (5 years)	Responsible		Budget (2022- 2026)	2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)				2026 (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 flooded forest fire protection.					482,780																			
1.1	Review forest fire behavior and lessons learnt on flooded forest fire prevention and intervention and for restoration approach have been applied.					18,000																			
1.1.1	Conduct consultation meetings with stakeholders at commune level to collect information on flooded forest fire behavior and forest fire prevention, intervention and restoration approach have been applied (70\$ x 16 meetings x 5 years).	80 meetings at commune level 20 reports at district level.	FiA	FiAC	5,600	1,120				1,120				1,120				1,120				1,120			
						16 meetings 4 reports				16 meetings 4 reports				16 meetings 4 reports				16 meetings 4 reports				16 meetings 4 reports			
						H		H				H				H				H				H	
1.1.2	Conduct site observation at fire-affected flooded forests to gather information on physical condition, scope of damages, land use patterns, coordinates and mapping fire-affected flooded forests at district level [(45\$ x 3 days x 16 communes) + (60\$ x 4 maps) x 5 years.	16 reports at district level	FiA	FiAC	12,000	2,400				2,400				2,400				2,400				2,400			
						4 reports				4 reports				4 reports				4 reports				4 reports			
						H	H			H	H			H	H			H	H			H	H		
1.1.3	Organize meeting with the provincial governor and representatives of relevant provincial department to present and endorse the IFFPMP for implementation (400\$/meeting).	1 meeting	FiA	FiAC	400	400				1 meeting															
						H																			
1.2	Risk Reduction: Reduce risks of flooded forest fires by promoting local awareness on participatory flooded forest fire prevention and intervention.					135,200																			
1.2.1	Produce and distribute posters for promoting awareness of local communities and involved stakeholders (1.5\$ x 100 posters x 16 communes x 5 years).	8,000 posters	FiA	FiAC	12,000	2,400				2,400				2,400				2,400				2,400			
						1,600 sheets				1,600 sheets				1,600 sheets				1,600 sheets				1,600 sheets			
						H				H				H				H				H			
1.2.2	Produce and erect educational signboards at crowded sites and along main roads in the floodplains (300\$ x 2 signboards x 16 communes).	32 signboards	FiAC	Local authorities	9,600	4,800				4,800															
						16 sets				16 sets															
						H				H															
1.2.3	Develop lists of stakeholders (tractor/power tiller owners, farmers, fisherfolks, buffalo/cowherds, hunters, and so on) involved in using resources in Zone 2 and 3 at commune level (100\$x16communesx5 years).	16 lists to be updated on yearly basis.	FiAC	Local authorities	8,000	1,600				1,600				1,600				1,600				1,600			
						16 lists				16 updated lists				16 updated lists				16 updated lists				16 updated lists			
								H				H				H				H				H	
1.2.4	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 16 communes x 5 years).	160 meetings	FiAC	Local authorities	24,000	4,800				4,800				4,800				4,800				4,800			
						32 meetings				32 meetings				32 meetings				32 meetings				32 meetings			
						H	H			H	H			H	H			H	H			H	H		
1.2.5	Set up, structure and restructure Flooded Forest Fire Patrol Teams (FFFPTs) and develop monthly flooded forest fire patrol plan (100\$ x 1 meeting x 16 communes).	16 teams	FiAC	Local authorities	1,600	1,600				16 teams															
						H																			
1.2.6	Conduct regularly flooded forest fire patrol, 5 days/month (250\$ x 4 months x 16 communes x 5 years).	1,600 days	FiAC	Local authorities	80,000	16,000				16,000				16,000				16,000				16,000			
						320 times				320 times				320 times				320 times				320 times			
						H	H			H	H			H	H			H	H			H	H		
1.3	Readiness: prepare structures, equipment and personnel for flooded forest fire prevention and intervention.					329,580																			
1.3.1	Equip FFFPTs with flooded forest fire extinguishing tools and strengthen coordination among WGFFM at provincial and district and CFFPTs at commune level.					227,080																			
1.3.1.1	Meeting with district and provincial administrations to establish WGFFM at district and provincial levels (100\$ x 8 meetings).	1 group at provincial level & 4 groups at district level.	FiAC	PDAFF	800	800				8 meetings															
						H																			
1.3.1.2	Organize annual WGFFM meetings at provincial level to discuss challenges faced, interventions respond the challenges for bettering prevention and reponses to flooded forest fires (1,800\$ x 1 meeting x 5 years).	5 meetings	FiA, FiAC & PDAFF	WGFFM at provincial level	9,000	1,800				1,800				1,800				1,800				1,800			
						1 meeting				1 meeting				1 meeting				1 meeting				1 meeting			
						H	H			H	H			H	H			H	H			H	H		

1.3.1.3	Conduct quarterly WGFFM meetings at district level to discuss challenges faced, find solutions to solve the challenges and monthly flooded forest fire patrol plan (450\$ x 2 meeting x 4 districts x 5 years).	40 meetings	FiAC	WGFFFM at district level	18,000	3,600 8 meetings	3,600 8 meetings	3,600 8 meetings	3,600 8 meetings	3,600 8 meetings
						H H	H H	H H	H H	H H
1.3.1.4	Procure and purchase power tillers equipped with 2 motorized pumps, 1,000-liter water tank and 2 water pressure guns and 2 roles of hose (4,200\$ x 1 tiller x 16 communes).	16 tillers	FiA	FiAC	67,200		37,800 9 tillers	29,400 7 tillers		
							H	H		
1.3.1.5	Procure and purchase 32 motorcycles for flooded forest fire patrol (2,300\$ x 2 motorcycles x 16 communes)	32 units	FiA	FiAC	73,600		41,400 18 units	32,200 14 units		
							H	H		
1.3.1.6	Procure and purchase portable forest fire extinguishing tools (first aid, camping tents, knapsacks, portable water pump sprayer, goggle, boot, binocular,..) for the patrol teams (1,200\$ x 2 sets x 16 communes)	32 sets	FiA	FiAC	38,400		19,200 16 sets		19,200 16 sets	
							H		H	
1.3.1.7	Conduct meetings with CFFPTs at commune level to distribute and guide the teams how to use and condition for using flooded forest fire extinguishers (100\$ x 2 meetings x 16 communes).	32 meetings	FiAC	Commune authority	3,200		1,600 16 meetings		1,600 16 meetings	
							H		H	
1.3.1.8	Attend ToT at provincial level on Flooded Forest Fire Patrol Techniques using smart tools for FiAC officers and WGFFM's members (2,160\$ x 2 courses)	2 courses	FiA	FiAC	4,320		2,160 1 course		2,160 1 course	
								H		H
1.3.1.9	Conduct 2-day training on Flooded Forest Fire Patrol Techniques at district level for FFFPTs [(20\$ x 25 ps x 2 days) + (45\$ x 3 days x 2 trainers) + (100\$ training materials)] x 4 districts x 2 trainings.	8 courses	FiAC	WGFFFM at district level	12,560		6,280 4 courses		6,280 4 courses	
							H		H	
1.3.2	Build physical infrastructures for flooded forest fire prevention				102,500					
1.3.2.1	Build watch towers for the commune flooded forest fire patrol teams to observe flooded forest fires (8,000\$ x 10 towers).	10 units	FiA	FiACs & local authorities	80,000		32,000 4 units	24,000 3 units	24,000 3 units	
							H H	H H	H H	
1.3.2.2	Rehabilitate natural ponds to retain water for putting flooded forest fires and fish conservation (4,500\$ x 5 ponds).	5 locations	FiA	FiACs & local authorities	22,500		13,500 3 ponds	9,000 2 ponds		
							H H	H H		
2	Output 2: Improved response actions to fires in inundated forest areas				115,900					
2.1	Follow up daily report and stand by for urgent flooded forest fire intervention as required by the patrol teams (130\$ x 3 cases x 16 communes x 5 years).	240 cases	FiAC	Local authorities	31,200	9,360 72 cases	7,800 60 cases	6,240 48 cases	4,680 36 cases	3,120 24 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 (50\$ x 2 ps x 4 districts x 4 days).	1 course	FiA	FiAC	1,600		1,600 1 course			
							H			
2.3	Strengthen law enforcement against offenders who set flooded forest fires and/or encroached inundated forest lands illegally (130\$ x 3 cases x 16 communes x 5 years).	240 cases	FiAC	Local authorities	31,200	9,360 72 cases	7,800 60 cases	6,240 48 cases	4,680 36 cases	3,120 24 cases
						H H	H H	H H	H H	H H
2.4	Maintain forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100\$ x 5 months x 16 communes x 5 years).	Lump sump	FiAC	Local authorities	40,000	7,680 L.sum	7,680 L.sum	7,680 L.sum	7,680 L.sum	7,680 L.sum
						H H	H H	H H	H H	H H
2.5	Organizing provincial workshop for exchanging lessons learnt and experiences on flooded forest fire prevention and intervention (3,900\$ x 1 time).	1 workshop	FiA	FiAC	3,900				3,900 1 workshop	
									H	
2.6	Reward individuals who participated actively or injured in flooded forest fire prevention and intervention (50\$ x 160 people)	160 people	FiAC	Local authorities	8,000	2,400 48 cases	2,000 40 cases	1,600 32 cases	1,200 24 cases	800 16 cases
						H H	H H	H H	H H	H H

3 Output 3: Improved restoration of fire damaged areas of inundated forests.					654,800					
3.1	Conduct rapid assessment to identify reasonably technical-sound approaches for flooded forest restoration, including mapping [(100\$ x 3 days x 4 districts) + (60\$ x 3 maps)] x 5 years	5 reports at provincial level	FiA/FAO	FiAC	6,600	1,320	1,320	1,320	1,320	1,320
						1 report	1 report	1 report	1 report	1 report
						H		H		H
3.2	Mark boundaries of burnt flooded forest sites by concrete poles with small signboards (40\$ x 875 poles).	875 poles	FiAC	CFis and local authorities	35,000	10,500	8,750	7,000	5,250	3,500
						262 poles	218 poles	175 poles	132 poles	88 poles
						H H		H H		H H
3.3	Participate in provincial workshops on tree nursery management and flooded forest restoration approaches (1,700\$ x 2 workshops)	2 workshops	FiA	FAO	3,400	1,700			1,700	
							1 workshop		1 workshop	
						H		H		
3.4	Conduct consultation meetings at commune level with stakeholders to discuss flooded forest restoration plan (100\$ x 16 meetings x 5 years).	80 meetings	FiAC	Local authorities	8,000	1,600	1,600	1,600	1,600	1,600
						16 meetings	16 meetings	16 meetings	16 meetings	16 meetings
						H		H		H
3.5	Establish tree nursery at the FiA Triage to produce flooded tree seedlings for the flooded forest restoration (2,000/4 sites).	4 nurseries	FiAC	FiA triages	8,000	4,000	4,000			
						2 nurseries	2 nurseries			
						H H		H H		
3.6	Support CFis to establish tree nurseries and produce flooded tree seedlings for planting in flooded forest restoration sites (300\$ x 16 nurseries).	16 nurseries	FiAC	CFis	4,800	2,400	2,400			
						8 nurseries	5 nurseries			
						H H		H H		
3.7	Support and monitor tree planting carried out by local communities in fire-damaged flooded forest sites, including tree planting materials.	500 hectares	FiAC	CFi/local communities	15,000	3,000	3,000	3,000	3,000	3,000
						100 ha	100 ha	100 ha	100 ha	100 ha
						H H		H H		H H
3.8	Cost for seedlings, transportation and planting (1\$ x 1,100 seedlings x 500 ha).	550,000 seedlings	FiAC	CFi/local communities	550,000	45,000	45,000	45,000	45,000	45,000
						110,000 seedlings	110,000 seedlings	110,000 seedlings	110,000 seedlings	110,000 seedlings
						H		H		H
3.9	Maintain flooded tree seedlings in flooded forest restoration sites (lumpsum: 18,000\$)	900 hectares	FiAC	CFis	18,000	0	2,000	4,000	6,000	6,000
						0 ha	100 ha	200 ha	300 ha	300 ha
						H H		H H		H H
3.10	Conduct seedling survival and growth rate monitoring in 180 ha of forest restoration sites (lump sum: 8,000\$/400ha).	400 hectares	FiAC	CFis	6,000			1,500	1,500	3,000
								100 ha	100 ha	200 ha
								H		H
4 Backstopping, monitoring and evaluation of the implementation of the IFFPMP.					10,500					
4.1	Participate in baseline survey to be conducted by the working teams of FiA and CAPFISH project (lump sum: 1,500\$).	1 time	FiA/FAO	FiAC, WGFFM	1,500	1,500				
						1 time				
						H				
4.2	Participate in monthly backstopping missions of FiA's working teams to support and direct the IFFPMP's implementation (90\$ x 5 time x 4 districts x 5 years).	100 times	FiAC	FiAC, WGFFM	9,000	1,800	1,800	1,800	1,800	1,800
						20 times	20 times	20 times	20 times	20 times
						H H		H H		H H
Grand Total:					1,263,980					

10. Activity and Budget of the IFFPMP at District Level (20021-2025)

10.1 Activity and budget of the IFFPMP for Chol Kiri district

No	Activities	Indicators (5 years)	Responsible		Budget (2022-2026)	2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)				2026 (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 flooded forest fire protection.				73,670																								
1.1	Review Flooded forest fire behavior and lessons learnt on forest fire prevention and intervention and for restoration approach have been applied.				2,300																								
1.1.1	Conduct consultation meetings with stakeholders at commune level to collect information on flooded forest fire behavior, prevention, intervention and restoration approach have been applied (70\$ x 1 meeting x 5 years).	10 meetings at commune level 5 reports at district level.	FiA	FiAC	700	140		140		140		140		140		140		140		140		140		140		140		140	
						2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report		2 meetings 1 report	
						H			H			H			H			H			H			H			H		
1.1.2	Conduct site observation at fire-affected flooded forests to gather information on physical condition, scope of damages, land use patterns, coordinates and mapping fire-affected flooded forests at district level [(45\$ x 3 days x 1 commune) + (60\$ x 1 map) x 5 years.	5 reports at district level	FiA	FiAC	1,500	300		300		300		300		300		300		300		300		300		300		300		300	
						1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report	
						H	H			H	H			H	H			H	H			H	H			H	H		
1.1.3	Organize meeting with the provincial governor and representatives of relevant provincial department to present and endorse the IFFPMP for implementation (100\$).	1 meeting	FiA	FiAC	100	200																							
						1 meeting																							
						H																							
1.2	Risk Reduction: Reduce risks of flooded forest fires by promoting local awareness on participatory forest fire prevention and intervention.				16,900																								
1.2.1	Produce and distribute posters for promoting awareness of local communities and involved stakeholders (1.5\$ x 100 posters x 2 communes x 5 years).	8,000 posters	FiA	FiAC	1,500	300		300		300		300		300		300		300		300		300		300		300		300	
						200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets		200 sheets	
						H			H			H			H			H			H			H			H		
1.2.2	Produce and erect educational signboards at crowded sites and along main roads in the floodplains (300\$ x 2 signboards x 2 communes).	32 signboards	FiAC	Local authorities	1,200	600		600																					
						2 sets		2 sets																					
						H			H																				
1.2.3	Develop lists of stakeholders (tractor/power tiller owners, farmers, fisherfolks, buffalo/cowherds, hunters, and so on) involved in using resources in Zone 2 and 3 at commune level (100\$ x 2 communes x 5 years).	2 lists (to be updated on yearly basis).	FiAC	Local authorities	1,000	200		200		200		200		200		200		200		200		200		200		200		200	
						2 lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists		2 updated lists	
								H			H			H			H			H			H			H			
1.2.4	Promote awareness of target communities on participatory flooded forest fire management, Fisheries Law, flooded 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		600		600		600		600		600		600		600		600		600		600		600	
						4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings		4 meetings	
						H	H			H	H			H	H			H	H			H	H			H	H		
1.2.5	Set up, structure and restructure Flooded Forest Fire Patrol Teams (FFFPTs) and develop monthly forest fire patrol plan (100\$ x 1 meeting x 2 communes).	2 teams	FiAC	Local authorities	200	200																							
						2 teams																							
						H																							
1.2.6	Conduct regular forest fire patrol, 5 days/month (250\$ x 4 months x 2 communes x 5 years).	200 days	FiAC	Local authorities	10,000	2,000		2,000		2,000		2,000		2,000		2,000		2,000		2,000		2,000		2,000		2,000		2,000	
						40 times		40 times		40 times		40 times		40 times		40 times		40 times		40 times		40 times		40 times		40 times		40 times	
						H	H			H	H			H	H			H	H			H	H			H	H		
1.3	Readiness: prepare structures, equipment and personnel for flooded forest fire prevention and intervention.				54,470																								
1.3.1	Equip FFFPTs with forest fire extinguishing tools and strengthen coordination among WGFFM at provincial and district and CFFPTs at commune level.				33,970																								
1.3.1.1	Meeting with the district administration to establish WGFFM at district and provincial levels (100\$ x 2 meetings).	1 working group at district level	FiAC	PDAFF	200	200																							
						2 meetings																							
						H																							

1.3.1.2	Participate in annual WGFFM meetings at provincial level to discuss challenges faced, interventions to respond the challenges for better future prevention and intervention to flooded forest fires (450\$ x 1 meeting x 5 years).	5 meetings	FiA, FiAC & PDAFF	WGFFM at provincial level	2,250	450 1 meeting	450 1 meeting	450 1 meeting	450 1 meeting	450 1 meeting											
						H	H			H	H			H	H			H	H		
1.3.1.3	Conduct quarterly WGFFM meetings at district level to discuss challenges faced, find solutions to solve the challenges and monthly flooded forest fire patrol plan (450\$ x 2 meeting x 5 years).	40 meetings	FiAC	WGFFM at district level	4,500	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings											
						H	H			H	H			H	H			H	H		
1.3.1.4	Procure and purchase power tillers equipped with 2 motorized pumps, 1,000-liter water tank and 2 water pressure guns and 2 roles of hose (4,200\$ x 1 tiller x 2 communes).	2 tillers	FiA	FiAC	8,400		4,200 1 tiller	4,200 1 tiller													
							H			H											
1.3.1.5	Procure and purchase 4 big motorcycles for flooded forest fire patrol (2,300\$ x 2 motorcycles x 2 communes)	4 units	FiA	FiAC	9,200		4,600 2 units	4,600 2 units													
							H			H											
1.3.1.6	Procure and purchase portable forest fire extinguishing tools (first aid, camping tents, knapsacks, portable water pump sprayer, goggle, boot, binocular,..) to the patrol teams (1,200\$ x 2 sets x 2 communes)	4 sets	FiA	FiAC	4,800		2,400 2 sets			2,400 2 sets											
							H			H											
1.3.1.7	Conduct meetings with FFFPTs at commune level to distribute and guide the teams how to use and condition for using forest fire extinguishers (100\$ x 2 meetings x 2 communes).	4 meetings	FiAC	Commune authority	400		200 2 meetings			200 2 meetings											
							H			H											
1.3.1.8	Attend ToT at provincial level on Flooded Forest Fire Patrol Techniques using smart tools for FiAC officers and WGFFM's members (540\$ x 2 courses)	2 courses	FiA	FiAC	1,080		540 1 course			540 1 course											
								H			H										
1.3.1.9	Conduct 2-day training on Flooded Forest Fire Patrol Techniques at district level for FFFPTs [(20\$ x 25 ps x 2 days) + (45\$ x 3 days x 2 trainers) + (100\$ training materials)] x 2 trainings.	2 courses	FiAC	WGFFM at district level	3,140		1,570 1 course			1,570 1 course											
							H			H											
1.3.2	Build physical infrastructures for forest fire prevention				20,500																
1.3.2.1	Build watch towers for flooded forest fire patrol teams to observe flooded forest fires (8,000\$ x 2 towers).	2 towers	FiA	FiACs & local authorities	16,000		8,000 1 tower	8,000 1 tower													
							H	H		H	H										
1.3.2.2	Rehabilitate natural ponds to retain water for putting flooded forest fires and fish conservation (4,500\$ x 1 pond).	1 location	FiA	FiACs & local authorities	4,500		4,500 1 location														
							H	H													
2	Output 2: Improved response actions to fires in inundated forest areas				15,675																
2.1	Follow up daily report and stand by for urgent flooded forest fire intervention as required by the patrol teams (130\$ x 3 cases x 2 communes x 5 years).	30 cases	FiAC	Local authorities	3,900		1,170 9 cases	1,040 8 cases	6,240 48 cases	780 6 cases	390 3 cases										
							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 (50\$ x 2 ps x 4 days).	1 course	FiA	FiAC	400		400 1 course														
								H													
2.3	Strengthen law enforcement against offenders who set flooded forest fires and/or encroached inundated forest lands illegally (130\$ x 3 cases x 2 communes x 5 years).	30 cases	FiAC	Local authorities	3,900		1,170 9 cases	1,040 8 cases	6,240 48 cases	780 6 cases	390 3 cases										
							H	H		H	H			H	H			H	H		
2.4	Maintain forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100\$ x 5 months x 2 communes x 5 years).	Lump sump	FiAC	Local authorities	5,000		1,000 L.sum	1,000 L.sum	1,000 L.sum	1,000 L.sum	1,000 L.sum										
							H	H		H	H			H	H			H	H		
2.5	Organizing provincial workshop for exchanging lessons learnt and experiences on flooded forest fire prevention and intervention (975\$ x 1 time).	1 workshop	FiA	FiAC	975					975 1 workshop											
											H										

2.6	Reward individuals who participated actively or injured in flooded forest fire prevention and intervention (50\$ x 30 people)	30 people	FiAC	Local authorities	1,500	450	400	300	200	150
						9 persons	8 persons	6 persons	4 persons	3 persons
						H H	H H	H H	H H	H H
3 Output 3: Improved restoration of fire damaged areas of inundated forests.					82,725					
3.1	Conduct rapid assessment to identify reasonably technical-sound approaches for flooded forest restoration, including mapping [(100\$ x 3 days) + (60\$ x 1 map)] x 5 years	5 reports at provincial level	FiA/FAO	FiAC	825	165	165	165	165	165
						1 report	1 report	1 report	1 report	1 report
						H	H	H	H	H
3.2	Mark boundaries of burnt forest sites by concrete poles with small signboards (40\$ x 110 poles).	110 poles	FiAC	CFis and local authorities	4,400	1,320	1,080	880	640	480
						33 poles	27 poles	22 poles	16 poles	12 poles
						H H	H H	H H	H H	H H
3.3	Participate in provincial workshops on tree nursery management and flooded forest restoration approaches (1,700\$ x 2 workshops)	2 workshops	FiA	FAO	850		425		425	
							1 workshop		1 workshop	
							H		H	
3.4	Conduct consultation meetings at commune level with stakeholders to discuss flooded forest restoration plan (100\$ x 2 meetings x 5 years).	10 meetings	FiAC	Local authorities	1,000	200	200	200	200	200
						2 meetings	2 meetings	2 meetings	2 meetings	2 meetings
						H	H	H	H	H
3.5	Establish tree nursery at the FiA Triage to produce flooded tree seedlings for the flooded forest restoration (2,000/1 site).	1 nursery	FiAC	FiA triages	2,000		2,000			
							1 nursery			
							H H			
3.6	Support CFis to establish tree nurseries and produce flooded tree seedlings for planting in flooded forest restoration sites (300\$ x 2 nurseries).	16 nurseries	FiAC	CFis	600	300	300			
						1 nursery	1 nursery			
						H H	H H			
3.7	Support and monitor tree planting carried out by local communities in fire-damaged flooded forest sites, including tree planting materials.	62 ha	FiAC	CFi/local communities	1,860	420	360	360	360	360
						14 ha	12 ha	12 ha	12 ha	12 ha
						H H	H H	H H	H H	H H
3.8	Cost for seedlings, transportation and planting (1\$ x 1,100 seedlings x 62 ha).	68,200 seedlings	FiAC	CFi/local communities	68,200	15,400	13,200	13,200	13,200	13,200
						seedlings	seedlings	seedlings	seedlings	seedlings
						H	H	H	H	H
3.9	Maintain flooded tree seedlings in the forest restoration sites (lumpsum: 2,240\$ / 112 ha)	112 ha	FIAC	CFis	2,240		280	520	720	720
							14 ha	26 ha	36 ha	36 ha
							H H	H H	H H	H H
3.10	Conduct seedling survival and growth rate monitoring in 180 ha of flooded forest restoration sites (lump sum: 750\$ / 50 ha).	50 ha	FiAC	CFis	750			210	180	360
								14 ha	12 ha	24 ha
								H	H	H
4 Backstopping, monitoring and evaluation of the implementation of the IFFPMP.					2,438					
4.1	Participate in baseline survey to be conducted by the working teams of FiA and CAPFISH project (lump sum: 188\$).	1 time	FiA/FAO	FiAC, WGFFM	188	188				
						1 time				
						H				
4.2	Participate in monthly backstopping missions of FiA's working teams to support and direct the IFFPMP's implementation (90\$ x 5 time x 5 years).	25 times	FiAC	FiAC, WGFFM	2,250	450	450	450	450	450
						5 times	5 times	5 times	5 times	5 times
						H H	H H	H H	H H	H H
Grand Total:					174,508					

1.3.1.3	Conduct quarterly WGFFM meetings at district level to discuss challenges faced, find solutions to solve the challenges and monthly flooded forest fire patrol plan (450\$ x 2 meeting x 5 years).	10 meetings	FiAC	WGFFM at district level	4,500	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings
						H H	H H	H H	H H	H H
1.3.1.4	Procure and purchase power tiller equipped with 2 motorized pumps, 1,000-liter water tank and 2 water pressure guns and 2 roles of hose (4,200\$ x 1 tiller).	1 power tiller	FiA	FiAC	4,200		4,200 1 tiller			
							H			
1.3.1.5	Procure and purchase big motorcycles for flooded forest fire patrol (2,300\$ x 2 motorcycles)	2 units	FiA	FiAC	4,600		4,600 2 units			
						H	H			
1.3.1.6	Procure and purchase portable forest fire extinguishing tools (first aid, camping tents, knapsacks, portable water pump sprayer, goggle, boot, binocular,..) to the patrol teams (1,200\$ x 2 sets)	2 sets	FiA	FiAC	2,400		1,200 1 set		1,200 1 set	
							H		H	
1.3.1.7	Conduct meetings with FFFPTs at commune level to distribute and guide the teams how to use and condition for using flooded forest fire extinguishers (100\$ x 2 meetings).	2 meetings	FiAC	Commune authority	200		100 1 meeting		100 1 meeting	
							H		H	
1.3.1.8	Attend ToT at provincial level on Flooded Forest Fire Patrol Techniques using smart tools for FiAC officers and WGFFM's members (540\$ x 2 courses)	2 courses	FiA	FiAC	1,080		540 1 course		540 1 course	
								H		H
1.3.1.9	Conduct 2-day training on Flooded Forest Fire Patrol Techniques at district level for FFFPTs [(20\$ x 25 ps x 2 days) + (45\$ x 3 days x 2 trainers) + (100\$ training materials)] x 2 trainings.	2 courses	FiAC	WGFFM at district level	3,140		1,570 1 course		1,570 1 course	
							H		H	
2 Output 2: Improved response actions to fires in inundated forest areas					8,525					
2.1	Follow up daily report and stand by for urgent flooded forest fire intervention as required by the patrol teams (130\$ x 3 cases x 5 years).	15 cases	FiAC	Local authorities	1,950	650 5 cases	520 4 cases	390 3 cases	260 2 cases	130 1 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 (50\$ x 2 ps x 4 days).	1 course	FiA	FiAC	400		400 1 course			
							H			
2.3	Strengthen law enforcement against offenders who set flooded forest fires and encroached inundated forest lands illegally (130\$ x 3 cases x 5 years).	15 cases	FiAC	Local authorities	1,950	650 5 cases	520 4 cases	390 3 cases	260 2 cases	130 1 cases
						H H	H H	H H	H H	H H
2.4	Maintain forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100\$ x 5 months x 5 years).	Lump sump	FiAC	Local authorities	2,500	500 L.sum	500 L.sum	500 L.sum	500 L.sum	500 L.sum
						H H	H H	H H	H H	H H
2.5	Organizing provincial workshop for exchanging lessons learnt and experiences on flooded forest fire prevention and intervention (975\$ x 1 time).	1 workshop	FiA	FiAC	975				975 1 workshop	
									H	
2.6	Reward individuals who participated actively or injured in flooded forest fire prevention and intervention (50\$ x 15 people)	15 people	FiAC	Local authorities	750	250 5 persons	200 4 persons	150 3 persons	100 2 persons	50 1 persons
						H H	H H	H H	H H	H H
3 Output 3: Improved restoration of fire damaged areas of inundated forests.					45,613					
3.1	Conduct rapid assessment to identify reasonably technical-sound approaches for flooded forest restoration (82\$ x 5 years).	5 reports at district level	FiA/FAO	FiAC	413	82 1 report	85 1 report	82 1 report	82 1 report	82 1 report
						H	H	H	H	H
3.2	Mark boundaries of burnt flooded forest sites by concrete poles with small signboards (40\$ x 95 poles).	95 poles	FiAC	CFis and local authorities	3,800	1,200 30 poles	1,000 25 poles	800 20 poles	800 20 poles	
						H H	H H	H H	H H	
3.3	Participate in provincial workshops on tree nursery management and flooded forest restoration approaches (425\$ x 2 workshops)	2 workshops	FiA	FAO	850		425 1 workshop		425 1 workshop	
							H		H	

3.4	Conduct consultation meetings at commune level with stakeholders to discuss flooded forest restoration plan (100\$ x 1 meeting x 5 years).	5 meetings	FiAC	Local authorities	500	100	100	100	100	100
						1 meeting	1 meeting	1 meeting	1 meeting	1 meeting
						H	H	H	H	H
3.5	Establish tree nursery at the FiA Triage to produce flooded tree seedlings for the flooded forest restoration (2,000 / 1 site).	1 nursery	FiAC	FiA triage	2,000	2,000				
						1 nursery				
						H	H			
3.6	Support CFis to establish tree nurseries and produce flooded tree seedlings for planting in flooded forest restoration sites (300\$ x 1 nursery).	1 nursery	FiAC	CFis	300	300				
						1 nursery				
						H	H			
3.7	Support and monitor tree planting carried out by local communities in fire-damaged flooded forest sites, including tree planting materials.	32 ha	FiAC	CFi/local communities	960	180	240	180	180	180
						6 ha	8 ha	6 ha	31 ha	31 ha
						H	H	H	H	H
3.8	Cost for seedlings, transportation and planting (1\$ x 1,100 seedlings x 32 ha).	35,200 seedlings	FiAC	CFi/local communities	35,200	6,600	8,800	6,600	6,600	6,600
						6,600 seedlings	8,800 seedlings	6,600 seedlings	6,600 seedlings	6,600 seedlings
						H	H	H	H	H
3.9	Maintain flooded tree seedlings in the flooded forest restoration sites (lumpsum: 1,200\$ / 60 ha)	60 ha	FIAC	CFis	1,200	120	280	400	400	400
						6 ha	14 ha	20 ha	20 ha	20 ha
						H	H	H	H	H
3.10	Conduct seedling survival and growth rate monitoring in 180 ha of flooded forest restoration sites (lump sum: 390\$ / 26 ha).	26 ha	FiAC	CFis	390		90	120	180	
							6 ha	8 ha	12 ha	
						H		H		H
4	Backstopping, monitoring and evaluation of the implementation of the IFFPMP.				2,344					
4.1	Participate in baseline survey to be conducted by the working teams of FiA and CAPFISH project (lump sum: 94\$).	1 time	FiA/FAO	FiAC, WGFFM	94	94				
						1 time				
						H				
4.2	Participate in monthly backstopping missions of FiA's working teams to support and direct the IFFPMP's implementation (90\$ x 5 time x 5 years).	25 times	FiAC	FiAC, WGFFM	2,250	450	450	450	450	450
						5 times	5 times	5 times	5 times	5 times
						H	H	H	H	H
Grand Total:					88,701					

10.3 Activity and budget of the IFFPMP for Kampong Leng district

No	Activities	Indicators (5 years)	Responsible		Budget (2022-2026)	2022 (by quarter)				2023 (by quarter)				2024 (by quarter)				2025 (by quarter)				2026 (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 flooded forest fire protection.					244,870																			
1.1	Review flooded forest fire behavior and lessons learnt on flooded forest fire prevention and intervention and for restoration approach have been applied.					4,900																			
1.1.1	Conduct consultation meetings with stakeholders at commune level to collect information on flooded forest fire behavior, prevention and intervention, and flooded forest restoration approach have been applied (70\$ x 8 meetings x 5 years).	40 meetings at commune level 5 reports at district level.	FiA	FiAC	2,800	560		560		560		560		560		560		560		560		560		560	
						8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report	8 meetings	1 report
						H		H		H		H		H		H		H		H		H		H	
1.1.2	Conduct site observation at fire-affected flooded forests to gather information on physical condition, scope of damages, land use patterns, coordinates and mapping fire-affected flooded forests at district level [(45\$ x 3 days x 8 communes) + (60\$ x 1 map) x 5 years.	5 reports at district level	FiA	FiAC	6,000	1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200	
						1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report		1 report	
						H	H			H	H			H	H			H	H			H	H		
1.1.3	Organize meeting with the provincial governor and representatives of relevant provincial department to present and endorse the IFFPMP for implementation (100\$).	1 meeting	FiA	FiAC	100	100																			
						1 meeting																			
						H																			
1.2	Risk Reduction: Reduce risks of flooded forest fires by promoting local awareness on participatory forest fire prevention and intervention.					67,600																			
1.2.1	Produce and distribute posters for promoting awareness of local communities and involved stakeholders (1.5\$ x 100 posters x 8 communes x 5 years).	4,000 posters	FiA	FiAC	6,000	1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200		1,200	
						800 sheets		800 sheets		800 sheets		800 sheets		800 sheets		800 sheets		800 sheets		800 sheets		800 sheets		800 sheets	
						H		H		H		H		H		H		H		H		H		H	
1.2.2	Produce and erect educational signboards at crowded sites and along main roads in the floodplains (300\$ x 2 signboards x 8 communes).	16 signboards	FiAC	Local authorities	4,800	2,400		2,400																	
						8 sets		8 sets																	
						H		H																	
1.2.3	Develop lists of stakeholders (tractor/power tiller owners, farmers, fisherfolks, buffalo/cowherds, hunters, and so on) involved in using resources in Zone 2 and 3 at commune level (100\$ x 8 lists x 5 years).	8 lists (to be updated on yearly basis).	FiAC	Local authorities	4,000	800		800		800		800		800		800		800		800		800		800	
						8 list		8 updated lists		8 updated lists		8 updated lists		8 updated lists		8 updated lists		8 updated lists		8 updated lists		8 updated lists		8 updated lists	
								H		H		H		H		H		H		H		H		H	
1.2.4	Promote awareness of the target communities on participatory flooded forest fire management, Fisheries Law, forest fire-related sub-decree, norms, policies and regulations (150\$ x 2 meetings x 8 communes x 5 years)	80 meetings	FiAC	Local authorities	12,000	2,400		2,400		2,400		2,400		2,400		2,400		2,400		2,400		2,400		2,400	
						16 meetings		16 meetings		16 meetings		16 meetings		16 meetings		16 meetings		16 meetings		16 meetings		16 meetings		16 meetings	
						H	H			H	H			H	H			H	H			H	H		
1.2.5	Set up, structure and restructure Flooded Forest Fire Patrol Teams (FFFPTs) and develop monthly flooded forest fire patrol plan (100\$ x 1 meeting x 8 communes).	8 teams	FiAC	Local authorities	800	800																			
						8 teams																			
						H																			
1.2.6	Conduct regular flooded forest fire patrol, 5 days/month (250\$ x 4 months x 8 communes x 5 years).	800 days	FiAC	Local authorities	40,000	8,000		8,000		8,000		8,000		8,000		8,000		8,000		8,000		8,000		8,000	
						160 times		160 times		160 times		160 times		160 times		160 times		160 times		160 times		160 times		160 times	
						H	H			H	H			H	H			H	H			H	H		
1.3	Readiness: prepare structures, equipment and personnel for flooded forest fire prevention and intervention.					168,370																			
1.3.1	Equip FFFPTs with flooded forest fire extinguishing tools and strengthen coordination among WGFFM at provincial and district and CFFPTs at commune level.					102,370																			
1.3.1.1	Meeting with the district administration to establish WGFFM at district and provincial levels (100\$ x 2 meetings).	1 working group at district level	FiAC	PDAFF	200	200																			
						2 meetings																			
						H																			
1.3.1.2	Participate in annual WGFFM meetings at provincial level to discuss challenges faced, interventions to respond the challenges for better future prevention and intervention to flooded forest fires (450\$ x 5 meetings).	5 meetings	FiA, FiAC & PDAFF	WGFFM at provincial level	2,250	450		450		450		450		450		450		450		450		450		450	
						1 meeting		1 meeting		1 meeting		1 meeting		1 meeting		1 meeting		1 meeting		1 meeting		1 meeting		1 meeting	
						H	H			H	H			H	H			H	H			H	H		

1.3.1.3	Conduct quarterly WGFFM meetings at district level to discuss challenges faced, find solutions to solve the challenges and monthly flooded forest fire patrol plan (450\$ x 2 meeting x 5 years).	10 meetings	FiAC	WGFFM at district level	4,500	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings
						H H	H H	H H	H H	H H
1.3.1.4	Procure and purchase power tiller equipped with 2 motorized pumps, 1,000-liter water tank and 2 water pressure guns and 2 roles of hose (4,200\$ x 8 tiller).	8 power tiller	FiA	FiAC	33,600		16,800 4 tiller	16,800 4 tiller		
						H	H			
1.3.1.5	Procure and purchase big motorcycles for flooded forest fire patrol (2,300\$ x 2 motorcycles x 8 communes)	16 units	FiA	FiAC	36,800		18,400 8 units	18,400 8 units		
						H	H	H		
1.3.1.6	Procure and purchase portable forest fire extinguishing tools (first aid, camping tents, knapsacks, portable water pump sprayer, goggle, boot, binocular,..) to the patrol teams (1,200\$ x 2 sets x 8 communes)	16 sets	FiA	FiAC	19,200		9,600 8 sets		9,600 8 sets	
						H			H	
1.3.1.7	Conduct meetings with FFFPTs at commune level to distribute and guide the teams how to use and condition for using flooded forest fire extinguishers (100\$ x 2 meetings x 8 communes).	16 meetings	FiAC	Commune authority	1,600		800 8 meetings		800 8 meetings	
						H			H	
1.3.1.8	Attend ToT at provincial level on Flooded Forest Fire Patrol Techniques using smart tools for FiAC officers and WGFFM's members (540\$ x 2 courses)	2 courses	FiA	FiAC	1,080		540 1 course		540 1 course	
							H		H	
1.3.1.9	Conduct 2-day training on Flooded Forest Fire Patrol Techniques at district level for FFFPTs [(20\$ x 25 ps x 2 days) + (45\$ x 3 days x 2 trainers) + (100\$ training materials)] x 2 trainings.	2 courses	FiAC	WGFFM at district level	3,140		1,570 1 course		1,570 1 course	
						H			H	
1.3.2	Build physical infrastructures for flooded forest fire prevention				66,500					
1.3.2.1	Build watch towers for flooded forest fire patrol teams to observe flooded forest fires (8,000\$ x 6 towers).	6 towers	FiA	FiACs & local authorities	48,000		16,000 2 towers	16,000 2 towers	16,000 2 towers	
						H H	H H	H H		
1.3.2.2	Rehabilitate natural ponds to retain water for putting forest fires and fish conservation (4,500\$ x 4 ponds).	4 locations	FiA	FiACs & local authorities	18,000		9,000 2 locations	9,000 2 locations		
						H H	H H			
2	Output 2: Improved response actions to fires in inundated forest areas				55,825					
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (130\$ x 3 cases x 8 communes x 5 years).	120 cases	FiAC	Local authorities	15,600	4,680 36 cases	3,900 30 cases	3,120 24 cases	2,340 18 cases	1,560 12 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 (50\$ x 2 ps x 4 days).	1 course	FiA	FiAC	400		400 1 course			
							H			
2.3	Strengthen law enforcement against offenders who set flooded forest fires and/or encroached inundated forest lands illegally (130\$ x 3 cases x 8 communes x 5 years).	120 cases	FiAC	Local authorities	15,600	4,680 36 cases	3,900 30 cases	3,120 24 cases	2,340 18 cases	1,560 12 cases
						H H	H H	H H	H H	H H
2.4	Maintain forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100\$ x 5 months x 8 communes x 5 years).	Lump sump	FiAC	Local authorities	20,000	4,000 L.sum	4,000 L.sum	4,000 L.sum	4,000 L.sum	4,000 L.sum
						H H	H H	H H	H H	H H
2.5	Organizing provincial workshop for exchanging lessons learnt and experiences on flooded forest fire prevention and intervention (975\$ x 1 time).	1 workshop	FiA	FiAC	975				975 1 workshop	
									H	
2.6	Reward individuals who participated actively or injured in flooded forest fire prevention and intervention (50\$ x 65 people)	65 people	FiAC	Local authorities	3,250	1,000 20 persons	800 16 persons	650 13 persons	500 10 persons	300 6 persons
						H H	H H	H H	H H	H H
3	Output 3: Improved restoration of fire damaged areas of inundated forests.				323,010					
3.1	Conduct rapid assessment to identify reasonably technical-sound approaches for flooded forest restoration (82\$ x 5 years).	5 reports at district level	FiA/FAO	FiAC	3,300	660 1 report	660 1 report	660 1 report	660 1 report	660 1 report
						H	H	H	H	H

3.2	Mark boundaries of burnt flooded forest sites by concrete poles with small signboards (40\$ x 400 poles).	400 poles	FiAC	CFis and local authorities	16,000	4,800	4,000	3,200	2,400	1,600
						120 poles	100 poles	80 poles	60 poles	40 poles
						H H	H H	H H	H H	H H
3.3	Participate in provincial workshops on tree nursery management and flooded forest restoration approaches (425\$ x 2 workshops)	2 workshops	FiA	FAO	850		425		425	
							1 workshop		1 workshop	
						H		H		
3.4	Conduct consultation meetings at commune level with stakeholders to discuss flooded forest restoration plan (100\$ x 8 meetings x 5 years).	40 meetings	FiAC	Local authorities	4,000	800	800	800	800	800
						8 meetings	8 meetings	8 meetings	8 meetings	8 meetings
						H	H	H	H	H
3.5	Establish tree nursery at the FiA Triage to produce flooded tree seedlings for the flooded forest restoration (2,000 / 1 nursery).	1 nursery	FiAC	FiA triage	2,000		2,000			
							1 nursery			
						H H				
3.6	Support CFis to establish tree nurseries and produce flooded tree seedlings for planting in flooded forest restoration sites (300\$ x 8 nurseries).	8 nurseries	FiAC	CFis	2,400		1,200	1,200		
							4 nurseries	4 nurseries		
						H H	H H			
3.7	Support and monitor tree planting carried out by local communities in fire-damaged flooded forest sites, including tree planting materials.	250 ha	FiAC	CFi/local communities	7,500	1,500	1,500	1,500	1,500	1,500
						50 ha	50 ha	50 ha	50 ha	50 ha
						H H	H H	H H	H H	H H
3.8	Cost for seedlings, transportation and planting (1\$ x 1,100 seedlings x 250 ha).	275,000 seedlings	FiAC	CFi/local communities	275,000	55,000	55,000	55,000	55,000	55,000
						55,000 seedlings	55,000 seedlings	55,000 seedlings	55,000 seedlings	55,000 seedlings
						H	H	H	H	H
3.9	Maintain flooded tree seedlings in flooded forest restoration sites (lumpsum: 9,960\$ / 448 ha)	448 ha	FiAC	CFis	8,960		1,000	1,960	3,000	3,000
							50 ha	98 ha	150 ha	150 ha
						H H	H H	H H	H H	
3.10	Conduct seedling survival and growth rate monitoring in 180 ha of flooded forest restoration sites (lump sum: 3,000\$ / 200 ha).	200 ha	FiAC	CFis	3,000			750	750	1,500
								50 ha	50 ha	100 ha
							H	H	H	
4	Backstopping, monitoring and evaluation of the implementation of the IFFPMP.				3,000					
4.1	Participate in baseline survey to be conducted by the working teams of FiA and CAPFISH project (lump sum: 94\$).	1 time	FiA/FAO	FiAC, WGFFM	750	750				
						1 time				
						H				
4.2	Participate in monthly backstopping missions of FiA's working teams to support and direct the IFFPMP's implementation (90\$ x 5 time x 5 years).	25 times	FiAC	FiAC, WGFFM	2,250	450	450	450	450	450
						5 times	5 times	5 times	5 times	5 times
						H H	H H	H H	H H	H H
Grand Total:					626,705					

10.4 Activity and budget of the IFFPMP for Baribo district

No	Activities	Indicators (5 years)	Responsible		Budget (2022- 2026)	2022		2023		2024		2025		2026																
			Lead	Support		(by quarter)				(by quarter)				(by quarter)																
						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 flooded forest fire protection.				132,020																									
1.1	Review flooded forest fire behavior and lessons learnt on flooded forest fire prevention and intervention and for restoration approach have been applied.				5,600																									
1.1.1	Conduct consultation meetings with stakeholders at commune level to collect information on flooded forest fire behavior, prevention and intervention, and flooded restoration approach have been applied (70\$ x 5 meetings x 5 years).	25 meetings at commune level 5 reports at district level.	FiA	FiAC	1,750	350		350		350		350		350																
						5 meetings 1 report					5 meetings 1 report					5 meetings 1 report					5 meetings 1 report					5 meetings 1 report				
						H			H			H			H			H			H			H			H			H
1.1.2	Conduct site observation at fire-affected flooded forests to gather information on physical condition, scope of damages, land use patterns, coordinates and mapping fire-affected flooded forests at district level [(45\$ x 3 days x 5 communes) + (60\$ x 1 map) x 5 years.	5 reports at district level	FiA	FiAC	3,750	750		750		750		750		750																
						1 report					1 report					1 report					1 report					1 report				
						H	H				H	H				H	H				H	H				H	H			
1.1.3	Organize meeting with the provincial governor and representatives of relevant provincial department to present and endorse the IFFPMP for implementation (100\$/meeting).	1 meeting	FiA	FiAC	100	200																								
						1 meeting																								
						H																								
1.2	Risk Reduction: Reduce risks of flooded forest fires by promoting local awareness on participatory flooded forest fire prevention and intervention.				42,250																									
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).	8,000 posters	FiA	FiAC	3,750	750		750		750		750		750																
						500 sheets					500 sheets					500 sheets					500 sheets					500 sheets				
						H					H					H					H					H				
1.2.2	Produce and erect educational signboards at crowded sites and along main roads in the floodplains (300\$ x 2 signboards x 5 communes).	10 signboards	FiAC	Local authorities	3,000	1,500		1,500																						
						5 sets					5 sets																			
						H					H																			
1.2.3	Develop lists of stakeholders (tractor/power tiller owners, farmers, fisherfolks, buffalo/cowherds, hunters, and so on) involved in using resources in Zone 2 and 3 at commune level (100\$ x 5 communes x 5 years).	5 lists (to be updated on yearly basis).	FiAC	Local authorities	2,500	500		500		500		500		500																
						5 lists					5 updated lists					5 updated lists					5 updated lists					5 updated lists				
											H					H														
1.2.4	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		1,500		1,500		1,500		1,500																
						10 meetings					5 meetings					5 meetings					5 meetings					5 meetings				
						H	H				H	H				H	H				H	H				H	H			
1.2.5	Set up, structure and restructure Flooded Forest Fire Patrol Teams (FFFPTs) and develop monthly flooded forest fire patrol plan (100\$ x 1 meeting x 5 communes).	5 teams	FiAC	Local authorities	500	500																								
						5 teams																								
						H																								
1.2.6	Conduct regular flooded forest fire patrol, 5 days/month (250\$ x 4 months x 5 communes x 5 years).	500 days	FiAC	Local authorities	25,000	5,000		5,000		5,000		5,000		5,000																
						100 times					100 times					100 times					100 times					100 times				
						H	H				H	H				H	H				H	H				H	H			
1.3	Readiness: prepare structures, equipment and personnel for flooded forest fire prevention and intervention.				84,170																									
1.3.1	Equip FFFPTs with flooded forest fire extinguishing tools and strengthen coordination among WGFFM at provincial and district and CFFPTs at commune level.				68,170																									
1.3.1.1	Meeting with the district administration to establish WGFFM at district and provincial levels (100\$ x 2 meetings).	1 working group at district level	FiAC	PDAFF	200	200																								
						2 meetings																								
						H																								

1.3.1.2	Participate in annual WGFFM meetings at provincial level to discuss challenges faced, interventions to respond the challenges for better future prevention and intervention to flooded forest fires (450\$ x 1 meeting x 5 years).	5 meetings	FiA, FiAC & PDAFF	WGFFM at provincial level	2,250	450 1 meeting	450 1 meeting	450 1 meeting	450 1 meeting	450 1 meeting
						H H	H H	H H	H H	H H
1.3.1.3	Conduct quarterly WGFFM meetings at district level to discuss challenges faced, find solutions to solve the challenges and monthly flooded forest fire patrol plan (450\$ x 2 meeting x 5 years).	40 meetings	FiAC	WGFFM at district level	4,500	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings	900 2 meetings
						H H	H H	H H	H H	H H
1.3.1.4	Procure and purchase power tillers equipped with 2 motorized pumps, 1,000-liter water tank and 2 water pressure guns and 2 roles of hose (4,200\$ x 1 tiller x 5 communes).	5 power tillers	FiA	FiAC	21,000		12,600 3 tillers	8,400 2 tillers		
							H	H		
1.3.1.5	Procure and purchase 4 big motorcycles for flooded forest fire patrol (2,300\$ x 2 motorcycles x 5 communes)	10 units	FiA	FiAC	23,000		13,800 6 units	9,200 4 units		
							H	H		
1.3.1.6	Procure and purchase portable forest fire extinguishing tools (first aid, camping tents, knapsacks, portable water pump sprayer, goggle, boot, binocular,..) to the patrol teams (1,200\$ x 2 sets x 5 communes)	10 sets	FiA	FiAC	12,000		6,000 5 sets		6,000 5 sets	
							H		H	
1.3.1.7	Conduct meetings with FFFPTs at commune level to distribute and guide the teams how to use and condition for using the forest fire extinguishers (100\$ x 2 meetings x 5 communes).	10 meetings	FiAC	Commune authority	1,000		500 5 meetings		500 5 meetings	
							H		H	
1.3.1.8	Attend ToT at provincial level on Flooded Forest Fire Patrol Techniques using smart tools for FiAC officers and WGFFM's members (540\$ x 2 courses)	2 courses	FiA	FiAC	1,080		540 1 course		540 1 course	
							H		H	
1.3.1.9	Conduct 2-day training on Flooded Forest Fire Patrol Techniques at district level for FFFPTs [(20\$ x 25 ps x 2 days) + (45\$ x 3 days x 2 trainers) + (100\$ training materials)] x 2 trainings.	2 courses	FiAC	WGFFM at district level	3,140		1,570 1 course		1,570 1 course	
							H		H	
1.3.2	Build physical infrastructures for flooded forest fire prevention				16,000					
1.3.1.1	Build watch towers for the flooded forest fire patrol teams to observe flooded forest fires (8,000\$ x 2 towers).	2 towers	FiA	FiACs & local authorities	16,000		8,000 1 tower	8,000 1 tower		
							H H	H H		
2	Output 2: Improved response actions to fires in inundated forest areas				35,875					
2.1	Follow up daily report and stand by for urgent forest fire intervention as required by the patrol teams (130\$ x 3 cases x 5 communes x 5 years).	75 cases	FiAC	Local authorities	9,750	2,860 22 cases	2,470 19 cases	1,950 15 cases	1,430 11 cases	1,040 8 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 (50\$ x 2 ps x 4 days).	1 course	FiA	FiAC	400		400 1 course			
							H			
2.3	Strengthen law enforcement against offenders who set flooded forest fires and/or encroached inundated forest lands illegally (130\$ x 3 cases x 5 communes x 5 years).	75 cases	FiAC	Local authorities	9,750	2,860 22 cases	2,470 19 cases	1,950 15 cases	1,430 11 cases	1,040 8 cases
						H H	H H	H H	H H	H H
2.4	Maintain forest fire extinguishing equipment and buy additional required forest fire extinguishing tools (100\$ x 5 months x 5 communes x 5 years).	Lump sump	FiAC	Local authorities	12,500	2,500 L.sum	2,500 L.sum	2,500 L.sum	2,500 L.sum	2,500 L.sum
						H H	H H	H H	H H	H H
2.5	Organizing provincial workshop for exchanging lessons learnt and experiences on flooded forest fire prevention and intervention (975\$ x 1 time).	1 workshop	FiA	FiAC	975				975 1 workshop	
									H	
2.6	Reward individuals who participated actively or injured in flooded forest fire prevention and intervention (50\$ x 50 people)	50 people	FiAC	Local authorities	2,500	750 15 persons	600 12 persons	500 10 persons	400 8 persons	250 5 persons
						H H	H H	H H	H H	H H
3	Output 3: Improved restoration of fire damaged areas of inundated forests.				203,453					

3.1	Conduct rapid assessment to identify reasonably technical-sound approaches for flooded forest restoration, including mapping [(100\$ x 3 days) + (60\$ x 1 map)] x 5years	5 reports at district level	FiA/FAO	FiAC	2,063	412	412	412	412	412					
						1 report	1 report	1 report	1 report	1 report					
						H		H		H		H		H	
3.2	Mark boundaries of burnt flooded forest sites by concrete poles with small signboards (40\$ x 270 poles).	270 poles	FiAC	CFis and local authorities	10,800	1,320	1,080	880	640	480					
						81 poles	68 poles	54 poles	40 poles	27 poles					
						H H		H H		H H		H H		H H	
3.3	Participate in provincial workshops on tree nursery management and flooded forest restoration approaches (425\$ x 2 workshops)	2 workshops	FiA	FAO	850		425		425						
							1 workshop		1 workshop						
						H		H							
3.4	Conduct consultation meetings at commune level with stakeholders to discuss flooded forest restoration plan (100\$ x 5 meetings x 5 years).	25 meetings	FiAC	Local authorities	2,500	500	500	500	500	500					
						5 meetings	5 meetings	5 meetings	5 meetings	5 meetings					
						H		H		H		H		H	
3.5	Establish tree nursery at the FiA Triage to produce flooded tree seedlings for the flooded forest restoration (2,000 / 1 site).	1 nursery	FiAC	FiA triage	2,000		2,000								
							1 nursery								
						H H									
3.6	Support CFis to establish tree nurseries and produce flooded tree seedlings for planting in flooded forest restoration sites (300\$ x 5 nurseries).	5 nurseries	FiAC	CFis	1,500		900	600							
							3 nurseries	2 nurseries							
						H H		H H							
3.7	Support and monitor tree planting carried out by local communities in fire-damaged flooded forest sites, including tree planting materials.	156 ha	FiAC	CFi/local communities	4,680	930	960	930	930	930					
						31 ha	32 ha	31 ha	31 ha	31 ha					
						H H		H H		H H		H H		H H	
3.8	Cost for seedlings, transportation and planting (1\$ x 1,100 seedlings x 156 ha).	171,600 seedlings	FiAC	CFi/local communities	171,600	34,100	35,200	34,100	34,100	34,100					
						34,100 seedlings	35,200 seedlings	34,100 seedlings	34,100 seedlings	34,100 seedlings					
						H		H		H		H		H	
3.9	Maintain flooded tree seedlings in the flooded forest restoration sites (lumpsum: 5,600\$ / 280 ha)	280 ha	FiAC	CFis	5,600		620	1,220	1,880	1,880					
							31 ha	61 ha	94 ha	94 ha					
						H H		H H		H H		H H		H H	
3.10	Conduct seedling survival and growth rate monitoring in 180 ha of flooded forest restoration sites (lump sum: 1,860\$ / 124 ha).	124 ha	FiAC	CFis	1,860			465	465	930					
								31 ha	31 ha	62 ha					
								H		H		H			
4	Backstopping, monitoring and evaluation of the implementation of the IFFPMP.				2,719										
4.1	Participate in baseline survey to be conducted by the working teams of FiA and CAPFISH project (lump sum: 469\$).	1 time	FiA/FAO	FiAC, WGFFM	469	469									
						1 time									
						H									
4.2	Participate in monthly backstopping missions of FiA's working teams to support and direct the IFFPMP's implementation (90\$ x 5 time x 5 years).	25 times	FiAC	FiAC, WGFFM	2,250	450	450	450	450	450					
						5 times	5 times	5 times	5 times	5 times					
						H H		H H		H H		H H		H H	
Grand Total: 374,066															

11. Annexes

Annex 1: List of flooded forest species in Tonle Sap’s floodplains, Kampong Chhnang province

ល.រ	ឈ្មោះខ្មែរ (Khmer Name)	ឈ្មោះវិទ្យាសាស្ត្រ (Scientific Name)
១	កក់ត្រុង ឬ តាទូក	<i>Cyperus elatus</i>
២	កក់ត្រាម	<i>Cyperus kyllingia or nemoralis</i>
៣	កប្បាសព្រៃ	<i>Croton krabas or Cochlopermum religiosum</i>
៤	កង្កើតឈាម	<i>Capparis microcantha (Dc.)</i>
៥	កណ្តុរ	<i>Neptunia oleracea</i>
៦	កណ្តក់	
៧	កណ្តុរអង្គុំ	
៨	កណ្តូងស្រែ	<i>Polygonum tomentosum</i>
៩	កណ្តាប់ចម្កេរ	<i>Pouzolzia zeylamica</i>
១០	កង្កែប	<i>Xanthophyllum glancam</i>
១១	កង្កៀវ	
១២	ក្រូច	<i>Nauclea officinalis</i>
១៣	ក្រូច	<i>Mimusops elengil</i>
១៤	ក្រូចឆ្មារ ឬ ឱស្រីង	<i>Cordia Sp</i>
១៥	កាណៅ “ តែប៉ូ ”	<i>Raphanus sativus</i>
១៦	កាតិល ឬ ក្រូចចៅ	<i>Corchorus capsularis</i>
១៧	កំរង់ត្នំ	
១៨	កំរង់ល្ងាស (រឿ)	<i>Catharanthus roseus</i>
១៩	កំរង់ល្ងាសក្រណាម (ឈ្មោល)	<i>Ludwigia adscenden</i>
២០	កំប្រាម	<i>Acacia caesia</i>
២១	កំប្រុក “ ឈ្នើយ ”	
២២	កំប្រុក	<i>Eichhornia crassipes</i>
២៣	ក្រូច ឬ ក្រាស	<i>Quassia harmandiana</i>
២៤	ក្រូចកោះ (ដុះក្នុងព្រៃកោះកាម)	<i>Sindora maritima</i>
២៥	ក្រូចកោះព្រៃក	<i>Sindora “ Meritima ? ”</i>
២៦	ក្រូចចាប់	<i>Trapa bicornis</i>
២៧	ក្រូចរឹបស	<i>Lumnitzera racemosa (Willd)</i>
២៨	ក្រូចរឹបក្រណាម	<i>Lumnitzera coccinea (W & A)</i>

២៩	ក្រូចកំប្រុក	<i>Hydnocarpus anthelminthica</i>
៣០	ក្រូចកំប្រុក	<i>Hydnocarpus saigonensis</i>
៣១	ក្រូចរឿម	<i>Pentapetes phoenicea</i>
៣២	ក្រូចរាំង	<i>Popowia diospyrifolia</i>
៣៣	ក្រាស់	<i>Samandura harmendii</i>
៣៤	កោងកាងឈ្មោល	<i>Rhizophora mucronata</i>
៣៥	កោងកាងរឿ	<i>Rhizophora conjugata (Linné)</i>
៣៦	ខ្នាស់	<i>Diospyros sylvatica (Roxb)</i>
៣៧	ខ្នាស់មាត់	<i>Dalbergia herrida</i>
៣៨	ខ្នាញ (ដុះក្នុងព្រៃកោះកាម)	<i>Heritiera littoralis</i>
៣៩	ខ្នឹង (ដុះក្នុងព្រៃកោះកាម)	<i>Calophyllum inophyllum</i>
៤០	ខ្នុរ	<i>Stephegyne pavifolia or Mitragyna brunonis</i>
៤១	ខ្នុរមីក	<i>Stephegyne “ Diversifolia ? ”</i>
៤២	ខោលតាមព្រៃ	<i>Castanopsis pierres</i>
៤៣	ប្បាយ	<i>Heritiera littoralis</i>
៤៤	ប្បូ	<i>Cudrania cambodiana</i>
៤៥	បក់	<i>Pistia stratiotes</i>
៤៦	បក់តូច	<i>Phoenix paludosa</i>
៤៧	បក់តាម	<i>Lemna minor</i>
៤៨	បក់តូច	
៤៩	បក់តូច ឬ បក់តូចរឿ	<i>Marsilia quadrifolia</i>
៥០	បា	<i>Butea frondosa (Roxb)</i>
៥១	បា	<i>Nipa fruticans</i>
៥២	បំបក់ឈរាំង (ដុះក្នុងព្រៃកោះកាម)	<i>Terminalia catappa</i>
៥៣	បំប្រុក	<i>Albizia lebbekoides</i>
៥៤	បំប្រុក	
៥៥	ប្រកែង	<i>Coccoceras anisopodium</i>
៥៦	បៅប្រាម	
៥៧	ប្រើស	<i>Milichdes moulins or Euphorbia millii ch-des moulins</i>
៥៨	បំប្រុកឈ្មោល “ ឆៅកំរង ឆៅ ស្ទឹងឈ្មោល ”	<i>Avicennia intermedia or Avicennia marina intermedia (Griff)</i>
៥៩	បំប្រុក	<i>Cynometra “ Inaequifolia ? ”</i>
៦០	ប្រើស	<i>Dasymaschalon lomontaceum</i>

៦១	ឈូក	<i>Nelumbo nucifera</i>
៦២	ឈើស័ង	<i>Excoecaria agallocha (Lu)</i>
៦៣	រៀ	<i>Morinda</i>
៦៤	រៀមីក ឬ រៀស្យាត	<i>Morinda persicaefolia</i>
៦៥	រោងក្អម	
៦៦	រាង្សៀបក្អម	<i>Antidesma ghaesembilla</i>
៦៧	រោងកង	<i>Tetracera scabdens (L) or Tetracera sarmentosa</i>
៦៨	រំនុរ	<i>Gardenia Sp or Angkorensis pitard</i>
៦៩	តាបុត " តាបុត "	<i>Carapa moluccensis</i>
៧០	តាមែម	
៧១	តាសែម " តាសែន "	<i>Xanthophyllum glaucum</i>
៧២	តាសៀវ	<i>Phyllanthus Sp</i>
៧៣	តាអោត	<i>Oncosperma</i>
៧៤	ត្រូវ	<i>Terminalia cambodiana</i>
៧៥	ត្រកូន	<i>Ipomoea aquatica</i>
៧៦	ត្រកៀក(ត្រាវៀ)	<i>Acanthus ilicifolius (L)</i>
៧៧	ត្រសក	
៧៨	ត្រយក់	
៧៩	ត្រាវអណ្តូត	<i>Colocasia esculenta</i>
៨០	ត្រាវ	<i>Crateva andansonii or odorata</i>
៨១	ត្រក់មីក	<i>Xyris indica</i>
៨២	ត្រាង	
៨៣	ត្រើមអណ្តើក	<i>Exora cuneifolia, Var.varians</i>
៨៤	ត្រាវ	<i>Crataeva religiosa (Bl)</i>
៨៥	ត្រាវ	<i>Crataeva nurvata (Ham)</i>
៨៦	ត្រាវ	<i>Crataeva nurvala (Buch)</i>
៨៧	ត្រាវ	<i>Diospyros Sp</i>
៨៨	ត្រង់ប្រសេម	
៨៩	ត្រង់អាយុត ឬ ត្រង់ល្អិត	<i>Albizia myriophylla</i>
៩០	ត្រាលស្យាតស្យា	<i>Uvaria rufa</i>
៩១	ត្រេងព្រៃ	<i>Vitex holpadenon</i>
៩២	ត្រុងកល្លុះ	<i>Randia longifera (Benth)</i>

៩៣	ត្រេងព្រី ឬ ត្រេងព្រីវៀ	<i>Bridelia cambodiana (Bl)</i>
៩៤	ត្រេងព្រី	<i>Bridelia ovata</i>
៩៥	ត្រេងព្រី (ត្រេងព្រីវាល ឬ មត្របង្ក)	<i>Mimosa pigra</i>
៩៦	ត្រេងព្រី ឬ ត្រេងព្រីវាល	<i>Acacia spiralis</i>
៩៧	ត្រេងព្រី	<i>Cynodon dactylon</i>
៩៨	ត្រេងព្រី	
៩៩	ត្រេងព្រី " ត្រេងព្រី "	<i>Phoenix paludosa (Roxb)</i>
៩០០	ត្រេងព្រី	<i>Gardenia philastreii</i>
៩០១	ត្រេងព្រី	<i>Hibiscus tiliaceus</i>
៩០២	ត្រេងព្រី ឬ ត្រេងព្រី	<i>Acrostichum aureum (L)</i>
៩០៣	ត្រេងព្រី " ត្រេងព្រី " "	<i>Carapa obovata (Keon)</i>
៩០៤	ត្រេងព្រី ឬ ត្រេងព្រី	<i>Croton caudatus</i>
៩០៥	ត្រេងព្រី	<i>Croton joufra</i>
៩០៦	ត្រេងព្រី	
៩០៧	ត្រេងព្រី	<i>Phyllanthus Sp</i>
៩០៨	ត្រេងព្រី	<i>Phyllanthus lasodiifolius</i>
៩០៩	ត្រេងព្រី " ត្រេងព្រី "	<i>Bruguiera caryophylloides</i>
៩១០	ត្រេងព្រី " ត្រេងព្រី "	<i>Bruguiera gymnorhiza (Lam)</i>
៩១១	ត្រេងព្រី (ត្រេងព្រីព្រៃពោធិកាម)	
៩១២	ត្រេងព្រី	<i>Bambusa arundinacea</i>
៩១៣	ត្រេងព្រី	<i>Mimusops ?</i>
៩១៤	ត្រេងព្រី	
៩១៥	ត្រេងព្រី	<i>Calamus Sp</i>
៩១៦	ត្រេងព្រី	<i>Stenochlaena palustris</i>
៩១៧	ត្រេងព្រី	<i>Diospyros beaudii</i>
៩១៨	ត្រេងព្រី	<i>Nymphaea lotus</i>
៩១៩	ត្រេងព្រី	<i>Nymphaea stelata</i>
៩២០	ត្រេងព្រី (ត្រេងព្រីព្រៃពោធិកាម)	<i>Hernandia</i>
៩២១	ត្រេងព្រី	
៩២២	ត្រេងព្រី	<i>Hymenocardia wallichii</i>
៩២៣	ត្រេងព្រី	<i>Breynia rhamnoides</i>
៩២៤	ត្រេងព្រី ឬ ត្រេងព្រី	<i>Homalium brevidens</i>

១២៥	រទាំង ឬ កាទាំង	<i>Homalium griffithianum</i>
១២៦	រោក់ទឹក ឬ រោក់	<i>Calamus salifolius (Bece)</i>
១២៧	រំទង់	<i>Nymphaea nouchali</i>
១២៨	រំដេញត្រក	<i>Elaeocarpus madopetalus</i>
១២៩	រំដេញទឹក	<i>Elaeocarpus Sp</i>
១៣០	រំដេញត្រក	<i>Elaeocarpus griffithii</i>
១៣១	រុក្ខជាតិស្បាត (មុះក្នុងព្រៃកោងកាង)	<i>Scaevita</i>
១៣២	រុន	<i>Schumannianthus dichotomus</i>
១៣៣	រាំងទឹក (រាំងភ្លើង)	<i>Barringtonia acutangula</i>
១៣៤	រាំងទឹក (រាំងឈយ)	<i>Barringtonia micrantha</i>
១៣៥	រំទឹក	<i>Homonoia riparia</i>
១៣៦	លាមកចុះ	<i>Fluggea microcarpa (Bl) or Fluggea virosa(Roxb ex Willd)Baill</i>
១៣៧	ល្វា	<i>Ficus hispida</i>
១៣៨	ល្បែង	<i>Cratoxylum cochinchinense</i>
១៣៩	រំព្រឹទ្ធិកណ្តោះ	<i>Euphorbia hirta</i>
១៤០	រំព្រឹទ្ធិស្រង	<i>Calycopteris floribunda</i>
១៤១	រំព្រឹទ្ធិចុយ	<i>Parameria glandulifera or Streptocaulon juvenos</i>
១៤២	រំព្រឹទ្ធិម្លូងព្រះ	<i>Quisqualis densiflora</i>
១៤៣	រំព្រឹទ្ធិត្រី	<i>Ichnocarpus frutescens (L)</i>
១៤៤	រំព្រឹទ្ធិត្រីពិត	<i>Cayratia trifolia</i>
១៤៥	រំព្រឹទ្ធិត្រីសង	<i>Combretum trifoliatum (Vent)</i>
១៤៦	រំព្រឹទ្ធិតាមើក	<i>Merremia hederacea (Burin f.)</i>
១៤៧	រំព្រឹទ្ធិប្រេង	<i>Derris trifolia</i>
១៤៨	រំព្រឹទ្ធិអណ្តាតត្រកូត	<i>Aniscia martinicensis</i>
១៤៩	សណ្តាន់	<i>Garcinia loureiri</i>
១៥០	សម្បុរ	<i>Uncaria homomalla</i>
១៥១	សន្តែ	
១៥២	ស្នូងដំរី	<i>Nymphoides indica</i>
១៥៣	ស្នូងអំបោះ	<i>Nymphoides hydrophylla</i>
១៥៤	ស្និ	<i>Crudia chrysantha</i>
១៥៥	ស្នួត	<i>Ficus heterophylla</i>
១៥៦	សារាយសាប	<i>Utricularia aurea</i>

១៥៧	សារាយតូ	<i>Hydrilla verticillata</i>
១៥៨	ស្នាព្រៃ (មុះក្នុងព្រៃកោងកាង)	
១៥៩	ស្នាបឆប់	
១៦០	ស្នាបទា	<i>Cammelina salicifolia</i>
១៦១	ស្នាច់ “ កម្រមាត ” (មុះក្នុងព្រៃកោងកាង)	<i>Malaleuca leucadendrom</i>
១៦២	ស្នាច់ក្រហម (មុះក្នុងព្រៃកោងកាង)	<i>Eugenia zeylamica</i>
១៦៣	ស្នាឈើទឹក	<i>Grewia sinuala</i>
១៦៤	សំរឹត	
១៦៥	សំរឹក	<i>Melanolepis vilifolia(Oktze) or Grewia urenaefolia(Gagnep)</i>
១៦៦	សេរា ស	<i>Lophopetalum fimbrialum</i>
១៦៧	សេរា ក្រហម	<i>Cryptocarya oblongifolia</i>
១៦៨	ស្នា	<i>Sesbania javanica</i>
១៦៩	ស្នា (មុះក្នុងព្រៃកោងកាង)	<i>Canavalis</i>
១៧០	ស្នា (មុះក្នុងព្រៃកោងកាង)	<i>Ipomaea pescaprae</i>
១៧១	ស្នា (មុះក្នុងព្រៃកោងកាង)	<i>Tribulus terrestris</i>
១៧២	ស្នាអង្កក់ទឹក ឬ ស្នាត្រក់ទឹក	
១៧៣	ស្នាអំណៅរៀប	
១៧៤	ស្នែ	<i>Ceriops roxburghians or Ceriops decandra</i>
១៧៥	ស្នែខ្មែរ	<i>Ceriops candolleana</i>
១៧៦	ស្នែរៀម “ ឆៅទឹកលាប ឃៅ តាចៀ ”	<i>Avicennia officinallis</i>
១៧៧	ស្នែរៀម	<i>Desmondium heterocarpon</i>
១៧៨	ស្នួលទឹក	<i>Dalbergia nigrescens</i>
១៧៩	សើក	
១៨០	ស្នៅរៀ	<i>Gmelina asiatica</i>
១៨១	ស្នែរៀម	
១៨២	ស្នែរៀម	
១៨៣	សំរា (សំរា)	<i>Sonneratia alba or Sonneratia acida</i>
១៨៤	សំរាស	<i>Sonneratia griffithi</i>
១៨៥	សំរិលទឹកព្រៃ	<i>Cynometra “ Dongnaiensis ? ”</i>
១៨៦	អាណៀ ឬ រញ្ជា	<i>Schoutenia godefroyana</i>
១៨៧	អាណៀ (អាណៀ)	<i>Stixis obtusifolia</i>

Annex 2: List biodiversity in Tonle Sap's floodplains, Kampong Chhnang province

ឈ្មោះខ្មែរ	ឈ្មោះអង់គ្លេស	ឈ្មោះវិទ្យាសាស្ត្រ	កំណត់សម្គាល់
ត្រី			
ត្រីជីវី	Marble goby	Oxyeleotris marmorata	
ត្រីសណ្តាយ	Wallago	Wallago attu	
ត្រីរីស	Striped Snakehead	Channa striata	
ត្រីឆ្មាំង	Asian redbtail catfish	Hemibagrus nemarus	
ត្រីរៀល	Siamese mud carp	Cirrhinus siamensis	
ត្រីខ្លាន់	Spotted hampala barb	Hampala dispar	
ត្រីកំភ្លាញ	Gourami	Trichogaster Microlepis	
ត្រីឆ្កែ	Giant snakehead	Cyclocheilichthys enoplos	
ត្រីក្រាញ	Climbing perch	<i>Anabas testudineus</i>	
ត្រីឆ្កែ	Peacock eel	<i>Macragnathus facus</i>	
ត្រីឆ្អិន	Mekong silver barb	<i>Hypsibarbus pierrei</i>	
ត្រីអណ្តែង	Walking catfish	<i>Clarias batrachus</i>	
ត្រីលិញ	Lesser bighead carb	<i>Thynnichthys Thynnoides</i>	
ត្រីក្រស	Dusky face carp	<i>Osteochilus lini</i>	
ត្រីប្រកែង	Snail eating barb	<i>Puntioplites proctozyson</i>	
ត្រីតាអោន	Trey Taoun	<i>Ompok eugeneiatus</i>	
ត្រីកញ្ចុះ	White-line catfish	<i>Mystus albolineatus</i>	
ត្រីស្លាត	Bronze featherback	<i>Notopterus notopterus</i>	
សត្វស្លាប			
ក្រសារប្រផេះ	Purple heron	<i>Ardea purpurea</i>	
គ្រាល	Sarus Crane	<i>Grus antigone</i>	
ខ្វែក	Eurasian woodcock	<i>Scolopax rusticola</i>	
មាន់ទឹក	White-breasted waterhen	<i>Amaurornis phoenicurus</i>	
ក្អែក	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	
កុកគ្រោងធំ	Great White Egret	<i>Ardea alba</i>	
ទុង	Spot-billed pelican	<i>Pelecanus philippensis</i>	
ស្មៅញ	Oriental Darter	<i>Anhinga melanogaster</i>	
ជុំជុំ	Red-legged Crake	<i>Rallina fasciata</i>	
ទោម	Purple Swampphen	<i>Porphyrio porphyrio</i>	
តូម	Black-backed Swamp hen	<i>Porphyrio indicus</i>	
ត្រដក់ធំ	Greater Adjutant	<i>Leptoptilos dubius</i>	
រនាលពណ៌	Painted Stork	<i>Mycteria leucocephala</i>	
ទាព្រៃ	Wood duck	<i>Aix sponsa</i>	
ប្រីក	Lesser whistling duck	<i>Dendrocygna javanica</i>	
ឧដ្ឋសត្វ			
អណ្តើកស្រែ	Rice field Turtle	<i>Malayemys subtrijuga</i>	
អណ្តើកសកល	Yellow-headed temple turtle	<i>Heosemys annandalii</i>	
កន្ទាយ	Asiatic soft-shell turtle	<i>Amyda cartilaginea</i>	
អណ្តើកព្រិច	Black marsh turtle	<i>Siebenrockiella crassicollis</i>	
ពស់ព្រៃ	Posh Trey	<i>Homalopsis buccata</i>	
ពស់ត្រីរីស	Posh Trey Rosh		
ពស់ព្រលិត	Posh Prolet	<i>Enhydriis</i>	
ពស់កាចាន់	Bocouti Posh Kachan		

ពស់ផ្អក			
ពស់ចាន់មម	Bocouti		
ពស់ថ្លាន់	Python	Papuan python	
ពស់លើ	Tentacle water snake	Erpeton tentaculatus	
ពស់វែក	Cobra		
ថនិកសត្វ			
ស្វាស	White Monkey		
ស្វាខ្មៅ	Blake Monkey	;	
កញ្ជ្រាង	Fox	Vulpes Vulpes	
ភ្នំ	Otter	Aonyx cinerea	

Annex 3: Flooded forest fire maps in Kampong Chhnang province

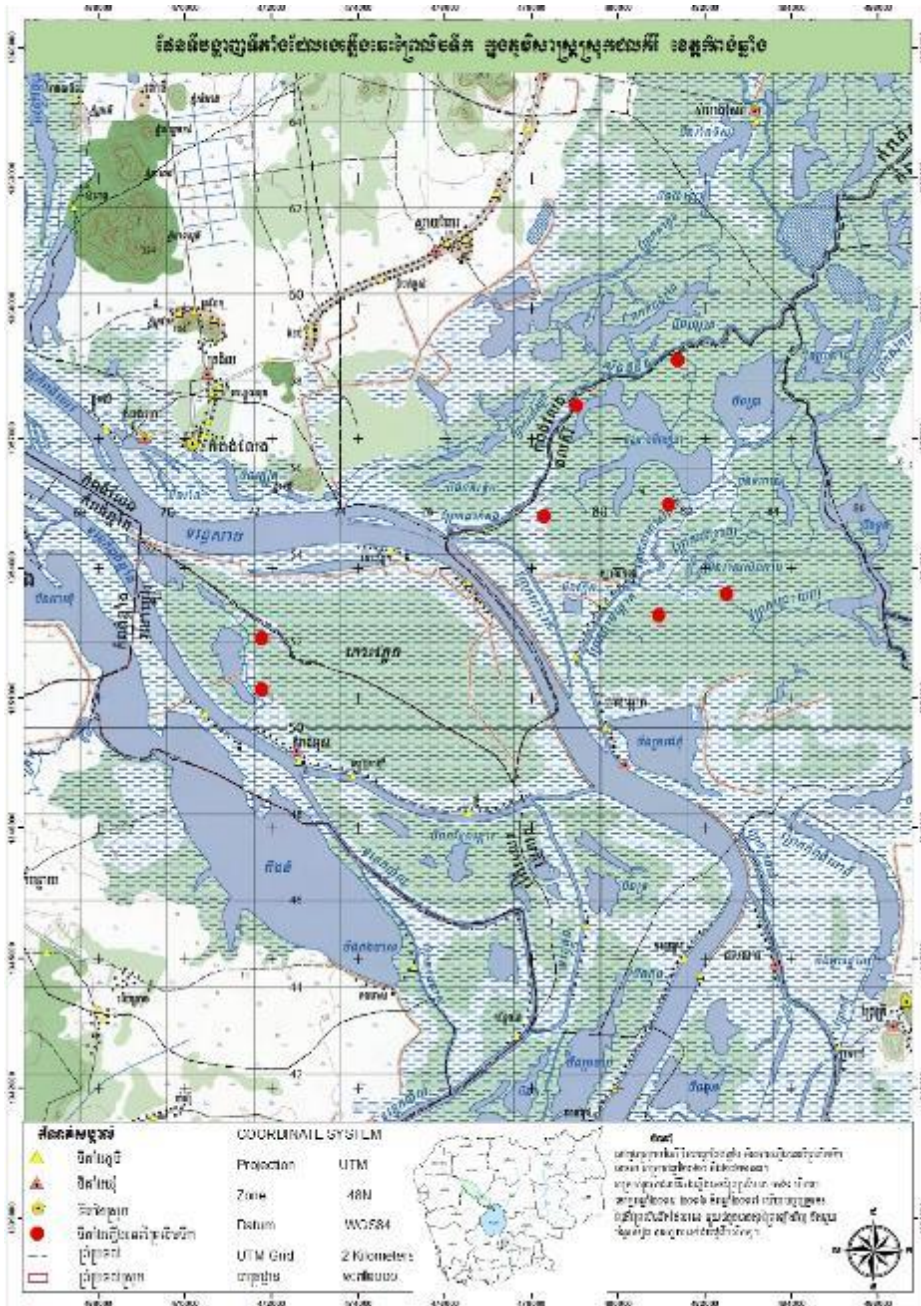


Figure 1: Flooded forest fire map in Chol Kiri district, KCN province

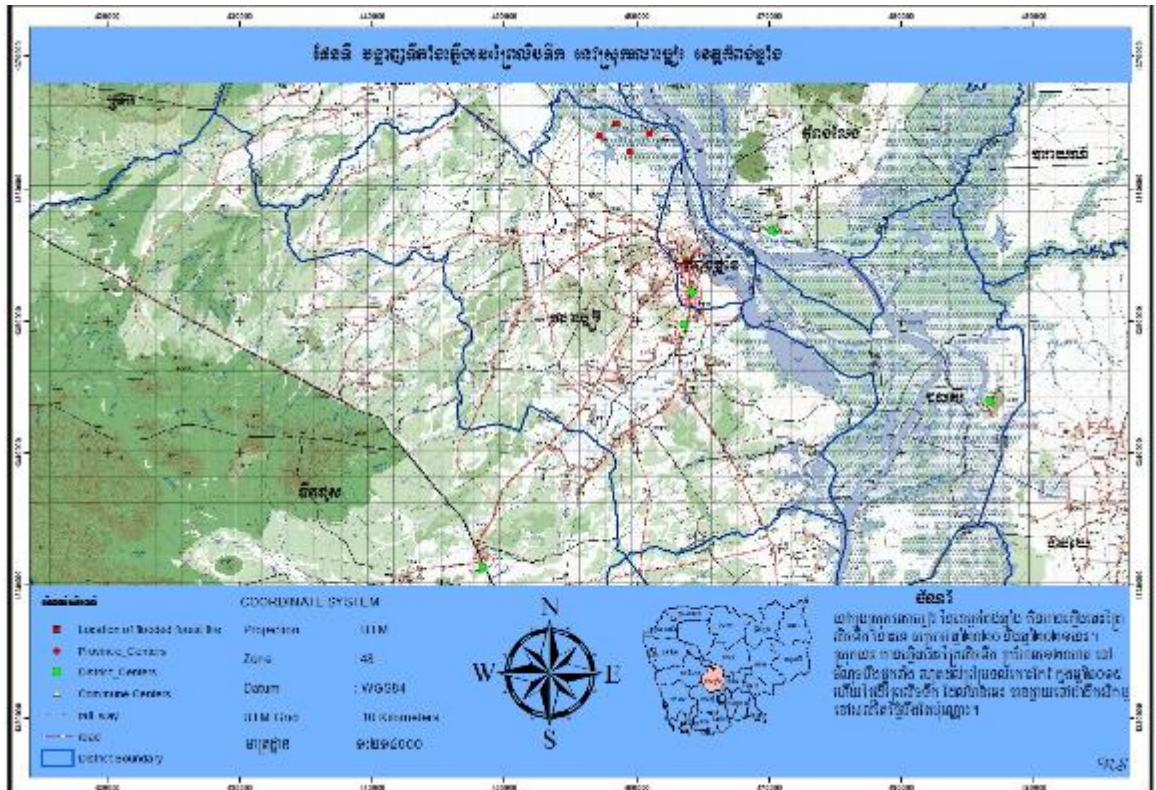


Figure 2: Flooded forest fire map in Rolea Bier district, KCN province



កម្មវិធីជំរុញកំណើនវិស័យផលិតផលប្រកបដោយចីរភាព និងបរិយាប័ន្ន (ផ្នែកនេសាទ)

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