



Situation Analysis at Three Project Sites on the Tonle Sap Lake, Cambodia

An exploration of the socio-economic, institutional, and political context for community-based fisheries management

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LIST OF ACRONYMS

ADB	Asian Development Bank
CBO	Community-Based Organization
CCF	Coalition of Cambodian Fishers
CFi	Community Fisheries
CPA	Community Protected Area
FACT	Fisheries Action Coalition Team
FCA	Fish Conservation Area ¹
FCZ	Fish Conservation Zone ²
FiA	Fisheries Administration
IUCN	International Union for Conservation of Nature
MAFF	Ministry of Agriculture, Forestry and Fisheries
MoE	Ministry of Environment
UNDP	United Nations Development Programme
TSCP	Tonle Sap Conservation Project
TSLP	Tonle Sap Livelihoods Project

¹This is an unofficial project term, which will be used to refer to the sites chosen for community-based protection under the EU-NSA project. These sites have multiple and mixed jurisdictions; comprising CFi, CPA, and FCA areas.

²This term is used to refer to the recently declared government conservation areas on the Tonle Sap, which overlay many of the former fishing lots. This is not an official term, but it is a widely used English term for the new government-declared conservation areas.

EXECUTIVE SUMMARY

This report presents the findings of a situation analysis conducted for the European Union-funded Non-State Actors project in Cambodia, which will be implemented by the International Union for Conservation of Nature (IUCN) and the Fisheries Action Coalition Team (FACT) over four years (2013-2016). The situation analysis examines the socio-economic, institutional, and political dynamics affecting fisheries management and livelihoods at the three project sites on the Tonle Sap: *Plov Touk* Commune in Kampong Chhnang Province; *Boeung Tonle Chhmar* in Peam Bang Commune, Kampong Thom Province (hereafter referred to as *Boeung Chhmar*); and *Kampong Phluk* Commune in Siem Reap Province.

These sites were selected for a range of reasons, including: (i) clear opportunities for the project to have a positive social and environmental impact, through the implementation of community-based Fish Conservation Areas (FCAs); and (ii) potential for the project to build on existing relationships and initiatives at each site. The project comes at a time of tremendous change in governance arrangements and property regimes on the Tonle Sap following the abolition of all private fishing lots in March 2012. Thus, the analysis also attempts to gauge the impacts and implications of these changes for local villagers and other resource-users and stakeholders.

Research and data collection involved meetings with stakeholders and project staff, field visits and desktop research. Two to three days of fieldwork was conducted at each site in March-April 2013. The field research involved unstructured interviews, key actor interviews, and focus group sessions that employed a series of participatory rural appraisal techniques with a range of actors, including Community Fisheries (CFI) committee members, Community-Based Organisations (CBOs), and randomly selected villagers. Data was collected to inform the design and implementation of the project with particular attention paid to potential opportunities and risks arising from the project, especially for poor or vulnerable families.

In general, findings indicate that villagers are happy with the abolition of the fishing lots because they perceive that it has resulted in increased fish availability and in most instances freedom to fish in former lot areas from which they were previously excluded. Villagers also reported increases in the amount and size of fish that they could catch, although this apparent recovery was not the case for all species and requires further investigation. It is also vital to acknowledge that the apparent benefits of lot abolition are not necessarily distributed evenly among fishers. There are three reasons for this: (i) some villagers lost jobs and businesses that depended on operation of the lots; (ii) others lost their lot-dependent fishing rights (negotiated with the former lot owners) due to the conversion of some lots into no-take FCZs that do not allow access rights; and (iii) villagers are now competing with a significant influx of outsiders and non-permanent fishers on the lake, some of whom use illegal and intensive fishing gear that continues to exhaust the fishery at the expense of the poorest fishers. Resoundingly, across all three sites, “illegal fishing by outsiders” was seen as the major new challenge for fishers’ livelihoods on the lake, although in this complex environment villagers themselves were not exempt from illegal fishing either.

In terms of livelihoods and food security, each site has a high proportion of poor families with approximately 50% considered poor according to government poverty categories 1 and 2. Livelihoods are highly dependent on fishing, with villagers reporting that over 95% of household income came from fishing in *Kampong Phluk* and *Boeung Chhmar*, with slightly less high rates in *Plov Touk*. The poorest families, which comprise 13-20% of the population in each site, are very vulnerable. They live on a day to day basis; if they fail to catch fish or acquire wage labour on a given day, then they have no food or money left in reserve. Food security is not only a pressing concern for these families but also bears on the less poor families in terms of nutrition and the *range* of foods they consume (e.g., vegetables). The level of vulnerability and food insecurity is also highly seasonal depending on water levels and water quality, which impact fishing capacity.

The three sites vary considerably in terms of local conditions, histories, institutions and livelihoods. The distinguishing features of each site are as follows:

- **Boeung Chhmar** has five villages, 500-700 permanent families, and hundreds of semi-permanent or transient others. The commune primarily consists of floating villages that are highly dependent on fishing. Due to their lack of access to land, fishing represents 99% of livelihoods. Fishery management institutions are complex, with Ministry of Environment (MoE) and Fisheries Administration (FiA) playing overlapping and conflicting roles in the oversight of fishing areas and activities. Furthermore, community-based institutions are hard to develop due to the remoteness of some villages and the significant transient population, which includes many Vietnamese fishers. Although most families appear to use illegal fishing equipment to survive, this situation may change with improved management in the wake of lot abolition. Environmental degradation also appears to be an issue here, with mass fish mortality due to shallow water and storms, although further research is required into this matter. The project is likely to focus on the MoE Community Protected Area (CPA) in Balot.
- **Plov Touk** has three villages and approximately 800 families. Due to wartime displacement, 40% of this population lives in the neighbouring commune of Prolay Meas. Fishing comprises 70% of people's livelihoods with the other 30% derived from dry-season cash crop farming (e.g., sesame and mung bean). A new fish conservation zone has been created in former Lot 1, negatively impacting villagers in Slort. Moreover, the new committee for this area is considered weak; it is unable to prevent outsiders from fishing and is not trusted by villagers due its hasty, top-down creation by the FiA. The project may support implementation of this new conservation zone or the protection of a different site, known as the Ghost Forest in Peam Knong, which is backed strongly by community members and has additional values (e.g., cultural, tourism).
- **Kampong Phluk** has three villages and 718 families, all of whom are permanent Khmer residents. The villagers have built tall stilt houses due to seasonal flooding, which inundates the area for six months per year. The commune has strong local institutions with one CFI committee in place since 2001 and three CBOs. These have been facilitated by FACT and are networked with the Coalition of Cambodian Fishers (CCF). Over 95% of the population depends on fishing but income is supplemented by small businesses, tourism, and labouring both locally and in other provinces (e.g., cassava farming in eastern Cambodia). Tourism is substantial but most benefits appear to be captured by the company SEAPAC and do not play a major role in local livelihoods. In former Lot 4, a new conservation zone has been created. However, it is far from the villages and its management must be shared with the neighboring commune. The project may choose to focus on the protection of sites that are of greater importance to villagers such as the Lesser Whistling-Duck Canal (Prek Provoeuk), which is already the focus of CFI activity; and former Lot 5, which could benefit local families if the FiA was willing to share management authority with the CFI. This is an issue of long-standing contention.

Finally, the report makes recommendations for project implementation and monitoring protocols, especially in the light of emerging risks and opportunities. The primary risk is that the project becomes consumed in government agendas; particularly if it engages in the implementation of new conservation zones that now overlay large portions of the former lots. This could undermine the core project objectives of fostering civil society and encouraging community-based or non-state management of fisheries resources. Conversely, with careful engagement, the project has significant opportunity to achieve these goals and positively influence the trajectory of governance on the lake, in this highly dynamic and uncertain post-lot era.

អត្ថន័យសង្ខេប

ឯកសារនេះរៀបរាប់ពីលទ្ធផលនៃការសិក្សា “វិភាគស្ថានភាព” ដែលបានធ្វើឡើងសម្រាប់គម្រោងគាំទ្រដល់ស្ថាប័នមិនមែនរដ្ឋាភិបាលក្នុងប្រទេសកម្ពុជា ដែលផ្តល់មូលនិធិដោយ សហភាពអឺរ៉ុប ដែលនឹងត្រូវអនុវត្តដោយ អង្គការសហភាពអន្តរជាតិដើម្បីការអភិរក្សធម្មជាតិ (IUCN) និងសម្ព័ន្ធភាពដើម្បីអភិរក្សធនធានជលផល (FACT) ក្នុងរយៈពេល ៤ឆ្នាំ (២០១៣ ដល់ ២០១៦)។ ការវិភាគស្ថានភាពនេះបានសិក្សាអំពីស្ថានភាពសេដ្ឋកិច្ចសង្គមស្ថាប័ន និងនយោបាយដែលមានឥទ្ធិពលលើការគ្រប់គ្រង វិស័យជលផល និងមុខរបរចិញ្ចឹមជីវិតនៅក្នុងតំបន់គោលដៅ៣កន្លែងរបស់គម្រោងនៅបឹងទន្លេសាបរួមមាន ឃុំផ្លូវទឹកនៃខេត្តកំពង់ឆ្នាំងតំបន់បឹងទន្លេសាបក្នុងឃុំពាមបាងនៃខេត្តកំពង់ធំនិងឃុំកំពង់ភ្លុកនៃខេត្តសៀមរាប។

តំបន់ទាំងនេះត្រូវបានជ្រើសរើសដោយផ្អែកលើមូលហេតុមួយចំនួនរួមមាន ១. ជាឱកាសច្បាស់ល្អសម្រាប់គម្រោងក្នុងការផ្តល់ភាពវិជ្ជមានលើផ្នែកសង្គមនិងបរិស្ថានតាមរយៈការអនុវត្ត ការការពារតំបន់អភិរក្សជលផល ដោយផ្អែកលើសហគមន៍ និង ២. ជាសក្តានុពលសម្រាប់គម្រោងក្នុងការកសាងទំនាក់ទំនងដែលមានស្រាប់ និងកិច្ចដូចផ្ដើមនានានៅតាមតំបន់គោលដៅនីមួយៗ។ គម្រោងបានរៀបចំបង្កើតឡើងនៅពេលដែលមានការផ្លាស់ប្តូរសំខាន់មួយនៃការរៀបចំអភិបាលកិច្ច និងរបបនៃការគ្រប់គ្រងធនធានជាលក្ខណៈកម្មសិទ្ធិ នៃបឹងទន្លេសាប បន្ទាប់ពីមានការលុបបំបាត់នេសាទអាជីវកម្មឯកជនទាំងអស់នៅក្នុងខែមីនាឆ្នាំ២០១២។ ដូច្នេះការវិភាគនេះក៏មានគោលបំណងវាយតម្លៃផងដែរអំពីផលប៉ះពាល់និងផលវិបាកនានានៃការផ្លាស់ប្តូរនេះទៅលើប្រជាជនមូលដ្ឋាន និងអ្នកប្រើប្រាស់ធនធានផ្សេងៗនិងរួមទាំងអ្នកពាក់ព័ន្ធនានាផងដែរ។

ការប្រមូលទិន្នន័យបានធ្វើឡើងតាមរយៈកិច្ចប្រជុំជាមួយអ្នកពាក់ព័ន្ធនានា និងបុគ្គលិកគម្រោងចុះផ្ទាល់តាមមូលដ្ឋាន និងការស្រាវជ្រាវតាមឯកសារពាក់ព័ន្ធនានា។ ការងារចុះសិក្សាតាមមូលដ្ឋានមានរយៈពេល ២ ថ្ងៃកន្លះ ទៅ ៣ ថ្ងៃ នៅតាមតំបន់គោលដៅនីមួយៗក្នុងចន្លោះខែមីនានិងខែមេសាឆ្នាំ២០១៣ដោយលោកស្រីបណ្ឌិត សារ៉ាម៉ៀលនិងបុគ្គលិកគម្រោងលោក សិនភក្តី មកពីអង្គការសហភាពអន្តរជាតិដើម្បីការអភិរក្សធម្មជាតិ (IUCN) និងលោក ខៀវវុទ្ធី មកពីអង្គការសម្ព័ន្ធភាពដើម្បីអភិរក្សធនធានជលផល (FACT)។ការសិក្សានៅតាមមូលដ្ឋាន រួមមានការសម្ភាសន៍តាមគ្រួសារ ការសម្ភាសន៍ជាមួយបុគ្គលសំខាន់ៗកិច្ចប្រជុំពិភាក្សាក្រុម ដោយប្រើ វិធីសាស្ត្រ “ការវាយតម្លៃជនបទដោយមានការចូលរួម” ជាមួយក្រុមគោលដៅសំខាន់ៗដូចជាសមាជិកគណៈកម្មការសហគមន៍នេសាទ អង្គការមហាជននិងតំណាងអ្នកភូមិដែលជ្រើសរើសដោយចៃដន្យ។ការប្រមូលទិន្នន័យនេះត្រូវបានប្រមូលក្នុងគោលបំណងដើម្បីផ្តល់ព័ត៌មានបន្ថែមដល់ការរៀបចំផែនការ និងអនុវត្តគម្រោងគាំទ្រដល់ស្ថាប័នមិនមែនរដ្ឋាភិបាលដែលផ្តល់មូលនិធិដោយ សហភាពអឺរ៉ុប ហៅកាត់ថាគម្រោង EU-NSA ដោយផ្ដោតការយកចិត្តទុកដាក់សំខាន់ទៅលើកាលានុវត្តភាព និងហានិភ័យនានាដែលកើតមានឡើងនៅពេលអនុវត្តគម្រោងនេះជាពិសេសគឺការយកចិត្តទុកដាក់ចំពោះក្រុមគ្រួសារក្រីក្រឬងាយរងគ្រោះ។

ជាទូទៅលទ្ធផលនៃការសិក្សានេះបានបង្ហាញថាអ្នកភូមិសប្បាយចិត្តជាមួយនឹងការលុបបំបាត់នេសាទពីព្រោះការលុបនេះបានធ្វើឲ្យមានការកើនឡើងនូវប្រភេទត្រីនិងផ្តល់សេរីភាពក្នុងការនេសាទក្នុងតំបន់អតីតឡូត៍នេសាទដែលកាលពីមុនប្រជាជននេសាទពុំត្រូវបានអនុញ្ញាតឲ្យចូលនេសាទឡើយ។ អ្នកភូមិក៏បានប្រាប់ឲ្យដឹងផងដែរអំពីការកើនឡើងនូវបរិមាណ និងទំហំត្រីដែលពួកគេអាចនេសាទបាន ទោះបីយ៉ាងណាក៏ដោយការស្តែង ចេញនៃការកើនឡើងវិញនៃធនធានជលផលនេះ ពុំបានឆ្លុះបញ្ចាំងគ្រប់ករណីនៃប្រភេទត្រីទាំងអស់

នោះទេ ដែលលទ្ធផលនេះតម្រូវឲ្យមានការសិក្សាស៊ីជម្រៅបន្ថែមទៀត។ វាក៏មានសារៈសំខាន់ផងដែរដែលត្រូវទទួលស្គាល់ថាការលុបឡើងនៃសាទនេះពុំបានផ្តល់ផលប្រយោជន៍ស្មើគ្នាចំពោះគ្រប់ប្រជាជនសាទទាំងអស់នោះទេ។ វាមានមូលហេតុសំខាន់បីចំពោះប្រការនេះគឺ ១. អ្នកភូមិខ្លះបាត់បង់ការងារនិងមុខរបរបស់ពួកគេដែលធ្លាប់តែពឹងផ្អែកលើការធ្វើអាជីវកម្មឡើងនៃសាទ ២. អ្នកខ្លះបាត់បង់សិទ្ធិនៃសាទរបស់ខ្លួនដែលធ្លាប់ប្រកបមុខរបរប្រវាស់ជាមួយ ម្ចាស់ឡើងពីមុនដោយសារតែការប្រែក្លាយតំបន់អតីតឡើងនៃសាទទៅជាតំបន់អភិរក្សជលផលថ្មី(តំបន់ហាម ឃាត់ដាច់ខាត)ពុំត្រូវបានផ្តល់សិទ្ធិឲ្យប្រជាជនសាទចូលនេសាទក្នុងតំបន់នោះឡើយ ៣. បច្ចុប្បន្នអ្នកភូមិកំពុង ប្រកួតប្រជែងជាមួយប្រជាជនមកពីខាងក្រៅដែលបានចូលមកនេសាទយ៉ាងច្រើនកុះករនិងអ្នកនេសាទដែលចូលមកនេសាទតាមរដូវកាលបណ្តោះអាសន្នក្នុងបឹងទន្លេសាបដែលពួកគេមួយចំនួនប្រើប្រាស់ឧបករណ៍ខុសច្បាប់ និងបំផ្លិចបំផ្លាញខ្លាំងក្លាដល់ធនធានជលផលធ្វើទាំងនេះបានបន្តធ្វើឲ្យហិចហោចដល់ធនធានជលផល ដែលធ្វើឲ្យប៉ះពាល់ដល់ប្រជាជនសាទក្រីក្រ។ អ្វីដែលគួរឲ្យចាប់អារម្មណ៍យ៉ាងខ្លាំងនៅតំបន់គោលដៅទាំងបីគឺ ការនេសាទខុសច្បាប់ដែលត្រូវបានមើលឃើញថាជាបញ្ហាប្រឈមថ្មីដល់មុខរបរចិញ្ចឹមជីវិតរបស់ប្រជាជនសាទនៅបឹងទន្លេសាប។

ចំពោះផ្នែកមុខរបរចិញ្ចឹមជីវិត និងសន្តិសុខស្បៀងវិញតំបន់នីមួយៗមានអត្រាខ្ពស់នៃចំនួនគ្រួសារក្រីក្រដែលមានគ្រួសារប្រមាណ៥០% ជាគ្រួសារក្រីក្រដោយយោងតាមចំណាត់ថ្នាក់ក្រីក្រ១ និង២របស់រាជរដ្ឋាភិបាល។ លើសពីនេះមុខរបរចិញ្ចឹមជីវិតគឺពឹងផ្អែកខ្លាំងលើការនេសាទ ដែលប្រាក់ចំណូលគ្រួសារប្រមាណ ៩៥% បានមកពីមុខរបរនេសាទក្នុងឃុំកំពង់ត្បូង និងឃុំពាមបាងបឹងឆ្មារ។ គ្រួសារក្រីក្របំផុត ដែលមានប្រមាណ ១៣ទៅ២០% នៃចំនួនប្រជាជនសរុបក្នុងតំបន់គោលដៅនីមួយៗ គឺងាយនឹងទទួលរងគ្រោះខ្លាំង។ ពួកគេរស់នៅប្រកបរបរនេសាទបាន១ថ្ងៃសំរាប់១ថ្ងៃ ប្រសិនបើពួកគេរកក្រីមិនបាន ឬក៏គ្មានគេជួយធ្វើការជាមួយករណីនោះពួកគេនឹងគ្មានអាហារបរិភោគ ឬប្រាក់សំរាប់សន្សំទុកឡើយ។ សន្តិសុខស្បៀងមិនគ្រាន់តែជាបញ្ហាព្រួយបារម្ភចំពោះមុខប៉ុណ្ណោះទេប៉ុន្តែវាក៏ជាបង្អែករបស់គ្រួសារក្រីក្រពាក់ព័ន្ធនឹងផ្នែកអាហារូបត្ថម្ភនិងប្រភេទអាហារទ្រទ្រង់ដទៃទៀតដែលពួកគេត្រូវការ (ឧទាហរណ៍ដូចជាប្រភេទបន្លែ)។ កម្រិតនៃភាពងាយរងគ្រោះនិងអសន្តិសុខស្បៀង គឺក៏មានអត្រាខ្ពស់តាមរដូវកាលផងដែរគឺអាស្រ័យតាមកម្ពស់ទឹក និងគុណភាពទឹកដែលកត្តាទាំងនេះមានឥទ្ធិពលដល់សមត្ថភាពនៃការនេសាទត្រី។

តំបន់គោលដៅទាំង៣កន្លែងមានស្ថានភាពខុសគ្នាតាមលក្ខខណ្ឌមូលដ្ឋានប្រវត្តិសាស្ត្រស្ថាប័នគ្រប់គ្រងធនធានជលផល និងមុខរបរចិញ្ចឹមជីវិត។ ការកំណត់លក្ខណៈនិងភាពខុសគ្នានៃតំបន់នីមួយៗគឺ៖

(១) តំបន់បឹងឆ្មារឃុំពាមបាងមាន ០៥ ភូមិប្រជាជនចំនួន៥០០-៧០០គ្រួសារ និងមានរាប់រយគ្រួសារទៀតរស់នៅអចិន្ត្រៃយ៍ ០៦ ខែ រីបណ្តោះអាសន្ន (តាមរដូវកាល)។ ស្ថានភាពភូមិក្នុងឃុំគឺជាភូមិបណ្តែតទឹកដែលមានប្រជាជនភាគច្រើនពឹងផ្អែកយ៉ាងខ្លាំងលើធនធានត្រី។ ដោយសារតែពួកគេគ្មានដីសម្រាប់ដាំដំណាំដូច្នេះ៩៩% នៃមុខរបរចិញ្ចឹមជីវិតរបស់ពួកគេគឺការនេសាទ។ ស្ថាប័នគ្រប់គ្រងវិស័យជលផលគឺមានភាពស្មុគស្មាញដោយសារតែមានភាពមិនច្បាស់លាស់ និងជាន់តួនាទីនៃសមត្ថកិច្ចគ្រប់គ្រងរវាងក្រសួងបរិស្ថាននិងរដ្ឋបាលជលផល។ បន្ថែមលើសនេះការកំណត់បង្កើតស្ថាប័នដោយផ្អែកលើសហគមន៍ គឺមានការលំបាកដោយសារតែស្ថានភាពដាច់ស្រយាលនៃភូមិមួយចំនួន និងអត្រាខ្ពស់នៃចំនួនប្រជាពលរដ្ឋរស់នៅបណ្តោះអាសន្នដែលរួមមានអ្នកនេសាទជនជាតិវៀតណាមផងដែរ។ គ្រួសារភាគច្រើនបានប្រើប្រាស់ឧបករណ៍នេសាទខុសច្បាប់ដើម្បីផ្គត់ផ្គង់ជីវភាពរស់នៅប្រចាំថ្ងៃរបស់ពួកគេ ប៉ុន្តែស្ថានភាពនេះអាចផ្លាស់ប្តូរនៅពេលដែល

ការគ្រប់គ្រងធនធានផលជលត្រូវបានពង្រឹងឲ្យមានភាពល្អប្រសើរបន្ទាប់ពីការលុបឡើងនៃសាទ។ ភាពចរន្ត
បរិស្ថានក៏ជាបញ្ហាប្រឈមមួយផងដែរនៅក្នុងតំបន់នេះ ដែលធ្វើឲ្យត្រីងាប់យ៉ាងច្រើនដោយសារតែទឹកកក
និងខ្យល់ព្យុះ។ គម្រោងEU-NSAនឹងផ្ដោតការជួយគាំទ្រនិងជួយសម្របសម្រួលដល់សហគមន៍តំបន់
ការពារធម្មជាតិនៃក្រសួងបរិស្ថានក្នុងភូមិបាឡូត។

(២) ឃុំផ្លូវទឹក មាន៣ភូមិ និងចំនួនប្រជាជនប្រមាណ៨០០គ្រួសារ។ ប៉ុន្តែដោយសារតែសម័យសង្គ្រាម
បានផ្លាស់ប្តូរប្រជាជន ៥០%ទៅរស់នៅក្នុងឃុំជិតខាងគឺឃុំប្រឡាយមាស។ ប្រជាពលរដ្ឋ៧០% ប្រកបរបរ
នេសាទ និង៣០%ផ្សេងទៀតប្រកបរបរដាំចំការដំណាំ (ឧទាហរណ៍ល្ងូនិងសណ្តែកបាយ)។ តំបន់អភិរក្សថ្មីមួយ
ត្រូវបានបង្កើតឡើងក្នុងតំបន់អតីតឡូត៍នេសាទលេខ១ ដែលបង្កផលប៉ះពាល់អវិជ្ជមានដល់ប្រជាជននៅ
ភូមិស្លត។ ម្យ៉ាងវិញទៀតគណៈកម្មការសហគមន៍នេសាទថ្មី ដែលទើបបង្កើតឡើងសម្រាប់គ្រប់គ្រងតំបន់
អភិរក្សថ្មីនេះនៅមានសមត្ថភាពទន់ខ្សោយនៅឡើយ ដែលពុំអាចការពារការចូលមកនេសាទខុសច្បាប់
អ្នកមកពីខាងក្រៅ និងពុំត្រូវបានទទួលការទុកចិត្តពីអ្នកភូមិដោយសារតែគណៈកម្មការនេះ ត្រូវបានរៀបចំឡើង
ដោយរដ្ឋបាលផលជលមានភាពប្រញាប់ប្រញាល់ និងតាមអភិក្រមពីលើមកក្រោម។ គម្រោង EU-NSA
អាចនឹងជ្រើសរើសដើម្បីបញ្ចូលការអនុវត្តគម្រោងក្នុងតំបន់អភិរក្សថ្មីនេះ។ ជាជម្រើសគម្រោងអាចនឹងគាំទ្រ
ការការពារតំបន់ផ្សេងមួយទៀត គឺតំបន់ព្រៃខ្មៅក្នុងភូមិពាមខ្ពង់ដែលតំបន់មួយនេះត្រូវបានគាំទ្រយ៉ាងខ្លាំង
ពីសមាជិកសហគមន៍មូលដ្ឋាន និងមានតម្លៃនៃការអភិរក្សបន្ថែមដូចជាតម្លៃផ្នែកវប្បធម៌ និងទេសចរណ៍។

(៣) ឃុំកំពង់ត្បូង មាន៣ភូមិ និងប្រជាជន ៧១៨ គ្រួសារ ដែលអ្នកភូមិទាំងអស់ គឺជាជនជាតិខ្មែររស់នៅ
អចិន្ត្រៃយ៍។ អ្នកភូមិកសិករមានសសរទ្រខ្ពស់ៗ ដើម្បីការពារទឹកជំនន់តាមរដូវកាលដែលជនលិចតំបន់នេះ
ក្នុងរយៈពេល ៦ខែក្នុង១ឆ្នាំ។ ឃុំមានក្រុមស្ថាប័នមូលដ្ឋានរឹងមាំដូចជាមានគណៈកម្មការសហគមន៍នេសាទ
១ កន្លែងដែលបានបង្កើតឡើងតាំងពីឆ្នាំ២០០១ និងមានអង្គការមហាជន ៣ ក្រុម។ ក្រុមស្ថាប័នមូលដ្ឋាន
ទាំងនេះទទួលបានការជួយសម្របសម្រួលពី អង្គការសម្ព័ន្ធភាពដើម្បីអភិរក្សធនធានផលជល (FACT)
និងបានកសាងបណ្តាញជាមួយសម្ព័ន្ធប្រជាជននេសាទកម្ពុជា (CCF)។ មុខរបរចិញ្ចឹមជីវិតរបស់ប្រជាជនច្រើនជាង
៩៥% នៅពឹងផ្អែកលើការនេសាទនិងរួមផ្សំជាមួយនឹងចំណូលបន្ថែមពីការលក់ដូរខ្នាតតូចទេសចរណ៍
និងការធ្វើជាកម្មករនៅក្នុងមូលដ្ឋាន និងតាមបណ្តាខេត្តនានា (ឧទាហរណ៍ធ្វើការជាកម្មករចំការដំឡូងមីនៅ
ភូមិភាគខាងកើតនៃប្រទេសកម្ពុជា)។ សកម្មភាពទេសចរណ៍ក្នុងតំបន់ គឺមានសារៈសំខាន់
ប៉ុន្តែគួរឲ្យស្តាយផលប្រយោជន៍ភាគច្រើនហាក់បីដូចជាបានទៅក្រុមហ៊ុនស៊ីដែក(SEAPAC) ហើយពុំមានតួនាទី
សំខាន់សម្រាប់មុខរបរចិញ្ចឹមជីវិតក្នុងមូលដ្ឋានឡើយ។ តំបន់អតីតឡូត៍នេសាទលេខ៤ត្រូវបានបង្កើតជាតំបន់
អភិរក្សថ្មី។ ប៉ុន្តែតំបន់នេះស្ថិតនៅឆ្ងាយពីភូមិហើយការគ្រប់គ្រងតំបន់នេះត្រូវបានចែកការគ្រប់គ្រងរួមជាមួយ
ឃុំនៅក្បែរនោះ។ គម្រោង EU-NSA អាចនឹងជ្រើសរើសដើម្បីផ្ដោតការយកចិត្តទុកដាក់លើការការពារតំបន់
ដែលផ្តល់ប្រយោជន៍ខ្លាំងដល់អ្នកភូមិមូលដ្ឋាន ដូចជាតំបន់ព្រៃកប្រវឹកដែលបានបង្កើតសកម្មភាពសហគមន៍
នេសាទនៅទីនោះ និងតំបន់អតីតឡូត៍នេសាទលេខ៥ជាតំបន់ដែលអាចផ្តល់ផលប្រយោជន៍ ដល់គ្រួសារ
មូលដ្ឋានប្រសិនបើរដ្ឋបាលផលជលបានមានចេតនាឬឆន្ទៈផ្ទេរការគ្រប់គ្រងឲ្យសហគមន៍នេសាទ។ តំបន់អតីត
ឡូត៍លេខ៥នេះ គឺជាតំបន់មានបញ្ហាដែលមានការតវ៉ាទាមទារដោយប្រជាសហគមន៍ជាយូរមកហើយ។
ជាចុងក្រោយ របាយការណ៍នេះផ្តល់ជាអនុសាសន៍ដល់ការអនុវត្តគម្រោង និងជាពិធីសារត្រួតពិនិត្យតាមដាន
ជាពិសេស គឺបង្ហាញឲ្យដឹងអំពីកាលានុវត្តភាព និងហានិភ័យនានា។ ហានិភ័យចម្បង គឺជាគម្រោងអាច

នឹងពាក់ព័ន្ធយ៉ាងឆាប់រហ័សទៅនឹងរបៀបវារៈរបស់រដ្ឋាភិបាល ជាពិសេសបើសិនគម្រោងចង់ ចូលរួមពាក់ព័ន្ធ ក្នុងការអនុវត្តនៅក្នុងតំបន់អភិរក្សជលផលថ្មីជាច្រើន ដែលបច្ចុប្បន្នមានទីតាំងត្រួតស៊ីគ្នាយ៉ាងធំជាមួយនឹង តំបន់អតីតឡូត៍នេសាទ។ ហានិភ័យនេះអាចធ្វើឲ្យបរាជ័យដល់គោលបំណងស្នូលរបស់គម្រោង ដែលជួយ ពង្រឹងសង្គមស៊ីវិល និងលើកទឹកចិត្តឲ្យមានការគ្រប់គ្រងធនធានជលផលដោយសហគមន៍ ឬគ្រប់គ្រងដោយ ស្ថាប័នមិនមែនរដ្ឋាភិបាល។ ផ្ទុយមកវិញជាមួយនឹងការចូលរួមក្នុងការអនុវត្តដោយមានការប្រុងប្រយ័ត្ន គម្រោងមានកាលានុវត្តភាពច្រើន ដើម្បីសម្រេចបានគោលដៅទាំងនេះ និងមានឥទ្ធិពលជាវិជ្ជមានចំពោះគោលដៅ នៃមាតិកានៃអភិបាលកិច្ចក្នុងបឹងទន្លេសាប ក្នុងសម័យកាលក្រោយការលុបឡូត៍នេសាទ ដែលមិនទាន់មាន ភាពច្បាស់លាស់នោះ។

1. INTRODUCTION

The European Union in Cambodia, through its Non-State Actors in Natural Resource Management and Social Development initiative, has funded a 4-year project (2013-2016) on the Tonle Sap, which will be implemented by the International Union for Conservation of Nature (IUCN) and its local partner, the Fisheries Action Coalition Team (FACT). This project aims to support local government, community, and civil society efforts to manage fisheries resources at three sites on the Tonle Sap Lake. Its objectives are to “strengthen the capacity of Community Fisheries (CFi) to sustainably and equitably manage fish resources in the Tonle Sap”, specifically through the implementation of fish conservation areas (FCAs) under local natural resource management plans supported by local CFi and commune structures. These FCAs will be implemented at three sites (see Figure 1).

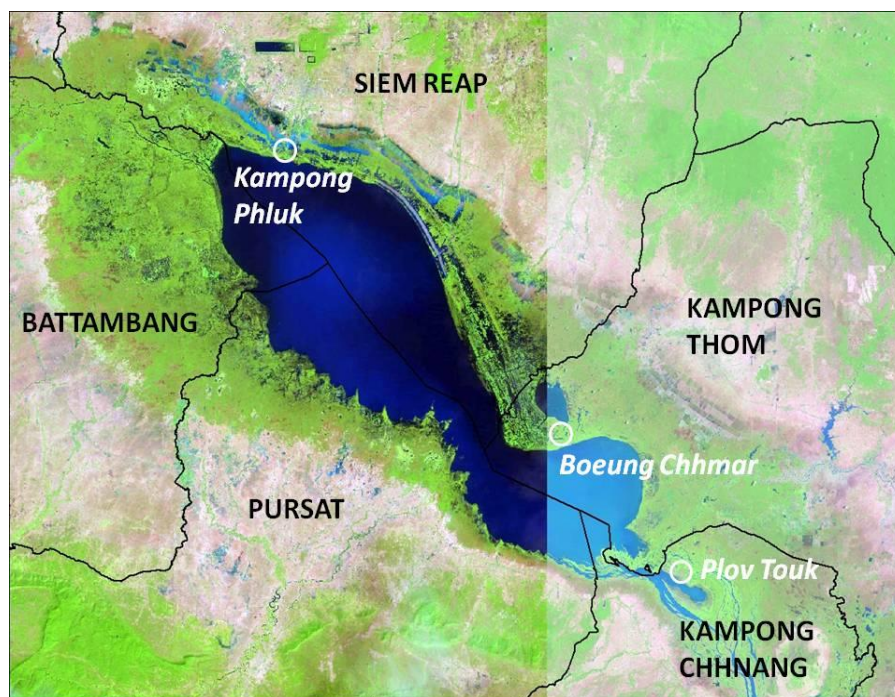


Figure 1. Locator map of three project sites

In light of encouraging evidence about the potential effectiveness of protected areas in conserving fish stock in the marine sector (Halpern 2003) and in community fish refuges in Cambodia (Joffre et al. 2012), it is anticipated that well-implemented FCAs will lead to the recovery and maintenance of fish populations within relatively short time-frames. In turn, this should support livelihoods through larger fish sizes, increased fish populations, and stronger community-based institutions for fisheries management and problem-solving around natural resources. This situation analysis, which examines the socio-economic, institutional, and political dynamics affecting fisheries management and livelihoods at three sites on the Tonle Sap, is intended to inform the design and implementation of the project by highlighting opportunities and risks that may arise for local communities and other project stakeholders.

The report presents the results of the situation analysis, which started in March 2013 with a series of site visits. The analysis focuses on the social context of the proposed FCA sites and provides insights into the institutional dimensions of site management and community-based organising through creation of bodies like CFi committees. Key objectives of the analysis were to: (i) identify specific issues, constraints and opportunities that may affect the design, implementation and potential outcomes of the project; (ii) assess any risks that could arise from FCA implementation for local communities, such as the potential distribution of costs and benefits from the FCA and other project activities, and the likely effects of this on vulnerable households and social cohesion; (iii) in light of these risks, propose measures that the project can take to mitigate against these; and (iv) provide recommendations on future monitoring and evaluation protocols, including ideas for measuring change in local food security and nutrition.

2. BACKGROUND

Fisheries management on the Tonle Sap

Fish, livelihoods and politics are intimately connected in Cambodia. In recent years, this has made the Tonle Sap Lake the scene of dramatic social and environmental transformation. For example, in 2011, poor villagers became increasingly vocal about declining fish stocks and over-exploitation of fisheries by powerful elites and private lot owners (CGIAR 2012). In response, the Prime Minister took radical action: he created an inspection panel to investigate the situation; issued an order to stop illegal fishing on the Tonle Sap; and in March 2012, abolished all 35 private fishing lots. These actions ended a fishing regime that had been in place since the French colonial period and propelled fisheries management on the lake into a new phase with unpredictable social and environmental consequences (Cooperman et al. 2012; Marschke 2012). In the wake of these changes, many noted the potential for a tragedy of the commons scenario (Kong 2012), while others linked the cancellation of the fishing lots to Hun Sen's political motivations given the looming commune and national elections in 2012-2013. Questions were therefore raised about whether the cancellation of the fishing lots was actually intended to enable recovery of fish stocks, with consequent benefits for poor families, or whether it reflected other more populist-political designs. Also of note, given the political dynamics at play, was that the abolition was a unilateral decision from "the top", involving little consultation with the FiA and apparently no forward planning³.

Since the lots were abolished, efforts to develop a legitimate and sustainable fisheries management regime have commenced. Although the process is being led by government, communities have been given a strong mandate to manage the former fishing lots and help reduce illegal activity (e.g., following Hun Sen's Order 443 on 24 April 2012, which called for "establishment of community fisheries to manage fishing lots that the Royal Government abolished"). This mandate makes use of the 2007 Community Fisheries Sub-Decree, which was promulgated after many years of debate (Levinson 2002). The legal creation of community fisheries must follow a set of well-defined steps, outlined in the sub-decree, which includes resource mapping and the development of rules and regulations for fisheries management.

Alongside the promotion of community fisheries, referred to as *sahakoum* in Khmer, the government has emphasised the creation of new conservation zones where the fishing lots once operated. Fifty of these new zones have been created on the lake, two of which overlap with the proposed FCAs for this project (*Kampong Phluk* and *Plov Touk*)⁴. These new



Community fishery committee in Kampong Phluk

conservation zones have been created through top-down processes with limited community participation and no open discussion of potential livelihood impacts. According to the FiA cantonment officers, the new conservation zones "belong to the national level" and that villagers have "a right to participate in protection through the *sahakoum*". Thus, many of the new *sahakoum* (CFi) entities created by the FiA since April 2012 appear to be vehicles for government-led law enforcement in areas that were formerly

³The lack of forward planning is indicated by the fact that the re-designation of the former lots as CFi and conservation zones was largely "reactionary", coming after the abolition of the lots, without due process (S. Mahood, pers. comm.).

⁴Prior to this there were only six conservation areas on the lake. Apparently 10% of the former lots have now been designated as conservation or no-take zones with the idea that fish will "spill out" into surrounding CFi areas, an idea that has been hard to realise in practice due to poor design/location/management of the new conservation areas (S. Mahood, pers. comm.).



Small scale fishers on the Tonle Sap lake

under fishing lots⁵. The FiA director in Kampong Chhnang said: “We are here in the town, and cannot see the lake... thus it is the villagers who must stop the illegal activity”. Villager reports from all three sites confirm the government-dominated management of new CFi entities, and that they remain only partially implemented. This approach is not an ideal model for community-based conservation, which in theory should empower communities to devise and implement natural resource management plans themselves (Brosius et al. 2005).

Finally, with the management regime in flux, observers working with communities now note that illegal fishing has become the “new challenge” for livelihoods and resource conservation; particularly fishing conducted by “rich middlemen and Vietnamese” who use sophisticated equipment⁶. The majority of people interviewed for the situation analysis saw illegal fishing as a major issue. One local leader in *Kampong Phluk* captured these concerns succinctly, saying: “*if the government can crack down on illegal activity, then there will be enough fish for everyone*”. In response to such commentary, and perhaps in the heat of the election campaign, the government has taken additional measures to tackle illegal fishing. As of April 2013, new multi-agency protection teams will operate law enforcement activities on Tonle Sap⁷. It is unclear how these teams will interact with underlying CFi committees and conservation areas. In this rapidly evolving governance arena, much remains to be seen.

Communities and livelihoods on the Tonle Sap

There are said to be three kinds of fishing people on the Tonle Sap lake: permanent residents living in floating villages; permanent residents of villages that are on land for six months and on water for six months; and transient fishers who live on the land and come to fish for three months each year, with the onset of the dry season and after the rice harvests in November. Fishing livelihoods are finely tuned and highly seasonal. Fishers must make decisions about how to invest their effort in response to myriad risks, trade-offs, and opportunities. They must also account for the dynamic effects of factors such as seasonal changes in water level and quality; weather



Temporary fishers

⁵At a fundamental level, I would suggest that these new conservation areas are an effort by the government to assert ownership over the former fishing lots, which previously generated government revenue through royalties. The conservation areas provide an opportunity for FiA to leverage new informal taxes, and it comes as no surprise that people perceive that the conservation areas are located where most of the fish are (S. Mahood, pers. comm.). Literature on the use of natural resources laws for revenue generation in Southeast Asia is instructive (Sikor and To 2011).

⁶References to “the Vietnamese” were frequent during the course of research, but the commentary was not nuanced, with little acknowledgement that many are long-term ethnic Vietnamese residents of Cambodia, who are also poor. Further work is required to understand precisely who the Vietnamese fishers are.

⁷These multi-agency teams will include (at least) officials from MoE, FiA, Ministry of Water Resources and Meteorology, police, and local authorities.

events; the coming and going of migrants; fish movements around the lake, ponds, canals and tributaries; the role of management and legal instruments, such as the closed season on the lake from October to January; and potential variations in markets that affect fish prices, relationships with middlemen and fuel prices. These factors shape livelihood decision-making in complex and interrelated ways (Marschke and Berkes 2006).

Local decisions about fishing strategies and investment of effort are particularly critical because livelihoods on the Tonle Sap generally lack diversity and people are highly dependent on fishing (Baran et al. 2007). This means that, if fishers suffer from poor catches due to declining stocks and/or bad luck, or if they experience 'shocks' such as storms or theft that lead to broken or lost fishing equipment, then they can become vulnerable very quickly. People have some capacity to respond to these stresses and shocks, reflecting a degree of *resilience* (Marschke and Berkes 2006), but the lack of livelihood diversification options has both social and environmental implications. For example, if fish stocks decline, fishers do not necessarily stop fishing. Rather, to sustain fish catches, they invest more time and resources in fishing, and there is a strong temptation to use illegal and non-traditional fishing gear.

A range of these socio-ecological dynamics was evident during the situation analysis. For instance, it appears that the 2012 closure of the fishing lots has enabled the fishery to recover somewhat and/or made more fish available for local communities, but this needs to be verified⁸. Meanwhile, there is evidence that villagers are diversifying their income sources through farming and a range of labouring opportunities, which may increase resilience over time⁹.

In light of villagers' high vulnerability and dependence on fishing, strong efforts to support community-based natural resource management and advocacy on the Tonle Sap have been made in recent years. Most notably, the Cambodian Coalition of Fishers (CCF) is a grassroots advocacy network that has lobbied government and was apparently instrumental in triggering the abolition of the fishing lots in 2012. FACT has built the CCF's capacity since 2000 and has supported its efforts to establish dialogue with government. However, "political problems" and conflicts



Livelihoods on the Tonle Sap depend on a wide range of fishing activities

⁸Some observers suggest that fish stock recovery is unlikely in the 1-2 years since abolition. Furthermore, a major compounding factor in understanding the impact of lot abolition is the magnitude of the annual flood, which was large (leading to greater fish numbers) in 2012, the year of lot abolition (S. Mahood, pers. comm.).

⁹The motivations for and effects of this livelihood diversification need further investigation. Until recently, diversification would have been driven in part by declining fish stocks and loss of fishing livelihoods due to the private lots, and the ongoing need to cover household health and education expenses.

have made the process difficult, even though these were apparently “resolved” in 2011¹⁰. The CCF now holds workshops three times a year at which they can make public statements and raise issues with government, although relationships with the FiA are still delicate.

Since the lot abolition, the CCF has demanded that only “family fishing gear” be permitted on the lake¹¹. This would enable poor fishermen to make a living, while restricting the catches of commercial and elite players that use expensive and intensive fishing equipment, which is often illegal. However, this measure is yet to be implemented and those who catch the most fish have the most equipment and resources (e.g., good boats, ability to hire labour, long nets). This presents a classic common pool resource problem, in which community members are unable to *exclude others* or prevent them from resource-intensive fishing that comes at a collective cost (Ostrom 1990).

The other significant work by FACT and CCF is the creation of CBOs. The Tonle Sap now has 69 CBOs and their capacity is growing. The creation of CBOs is seen as a way to bypass government bureaucracy in the operation of conventional CFi committees, which require signatures from officials at *all levels* and must follow the CFi sub-decree step by step. In contrast, CBOs require only a signature from the commune chief. They have therefore provided the basis for activities such as savings groups, self-help groups, and awareness-raising about human rights and democracy. Critically, CBOs enable advocacy on behalf of fishermen, which is harder to achieve through the FiA-influenced CFi committees. Therefore, they function as an important complement to these committees, although there are no particular rules as to how they should co-ordinate with the CFi committees. The CBO model is promising and has received assistance from international donors such as Forum Syd and McKnight Foundation.

3. SITUATION ANALYSIS

Aims and scope

The three field sites were visited to examine the local institutional environment; the level and nature of community organisation, with a focus on state-society relationships; livelihoods, food security and equity issues; and the state of the fisheries resource, as perceived by local people. Particular attention was also paid to the implications of the FCAs for income and food security. In keeping with these aims, the situation analysis for each site is presented under the following headings:

- *Site overview*: describes the location, setting and villages.
- *Status and management of the fishery*: describes local perceptions of the resource, the current management regime and structures, and key historical moments that shape the present.
- *Institutional context and community organisation*: describes the CFi status, CBOs, state-society relations, and other conservation initiatives.
- *Livelihoods and food security*: includes livelihoods description and ranking, analysis of wealth distribution, seasonality and diversity of livelihoods, and food security issues.
- *Potential impact of FCA*: explores potential impacts of proposed FCA sites, and alternative sites.

Data collection and methodology

Research methods used in this study derive from the qualitative social sciences, especially anthropology and geography. To the extent possible, the approach has been to “give people voices” through the

¹⁰According to FACT, these political problems peaked in 2010 with an impasse between CCF and the FiA. This was resolved in 2011 when CCF members met the National Senate Committee, which enabled them to communicate with the Prime Minister. FACT claims that this meeting eventually led to the abolition of the fishing lots but Hun Sen probably had other reasons and motivations for the lot abolition that came into play.

¹¹This was a common suggestion among villagers (*Nesat Leakanak Kruosa*): “If fishing on the lake is traditional then it will be sustainable and there will be enough to go around”. The implication is that when more intensive equipment is used, problems arise with over-fishing and inequality. However, “family fishing gear” remains poorly defined and enforced in Cambodia, meaning that “medium scale” equipment is now becoming the *de facto* family scale, reflecting the ratchet effect of fishing capacity (Ron Jones, pers. comm.).

research process, by listening to them carefully, recording their words in full, and conveying their views and perspectives accurately through the written report.

A range of data collection techniques was used, including: key actor interviews, participant observation, unstructured and semi-structured interviews, and focus group sessions in which participatory rural appraisal tools were used (Chambers 1993; Russel and Harshbarger 2003). These research methods were employed as consistently as possible across the three field sites, which were visited by the 3-person team for 2.5 days per site¹². Although a generic interview guide was used, specific questions were tailored to circumstances and opportunities as they arose. All interviews were conducted in Khmer by the research team, with responses translated on-the-spot and written down in English.



Focus group in Kampong Phluk

Two focus group discussions were conducted at each site (see table). The first included all members of the *sahakoum*. This group was questioned about fisheries management, community-based natural resource management, and asked to draw a sketch map of the area. The sketch maps indicate key features of the local landscape from a community perspective, and they have been reproduced electronically in this report, in the hope that they become a project resource.

The second focus group was with a collection of 7-10 “ordinary citizens” (*prochijoeun toemeda*), the majority from poorer families. To assemble these groups, families were either randomly selected from the village chief’s list of residents (in *Balot* village near *Boeung Tonle Chhmar*); or, where there was no list of local residents, chosen to represent a cross-section of poorer people from across the commune or village (in *Kampong Phluk* and *Plov Touk*). Some selection bias may have occurred due to: (i) the need to find villagers who were available at relatively short notice, and who were not busy farming or fishing during the morning, and (ii) the involvement of local leaders in selecting and calling participants for the meeting in *Kampong Phluk* and *Plov Touk* communes. A small *per diem* was given to focus group attendees to cover their food and fuel costs associated with attendance. The energy and interest at each focus group discussion conveyed a clear sense that local people were happy to share their ideas and be given a voice through the research process. Approximately equal numbers of men and women participated in the focus groups.



Meeting with CBO in Kampong Phluk

Finally, it must be noted that our position was not neutral. The team consisted of two Cambodians employed as project staff and one foreigner who, from the perspective of local people, represented potential access to external resources. Although this may have influenced some responses, it was accounted for in the analysis and did not compromise the research. Furthermore, during the fieldwork in Boeung Chhmar, we were escorted by MoE rangers and we stayed at the MoE ranger station. This was difficult at times, as it was apparent that villagers were unwilling to speak about their fishing activities in the rangers’ presence.

¹²The research team was led by Dr Sarah Milne and Mr Sorn Pheakdey (IUCN) with assistance from Mr Khieu Vuthoun (FACT). Another FACT officer joined the Kampong Pluk visit but she was not involved in data collection or translation.

Table: Data collection activities and timeline

Location	Dates 2013	Activities
Meetings with staff and partner organisations in Phnom Penh and provincial capitals (Siem Reap, Kampong Chhnang, and Kampong Thom)	12 March-5 April (over 12 days)	<p>Meetings with:</p> <ul style="list-style-type: none"> • Mr Kong Kimsreng, Senior Programme Officer, IUCN Cambodia • Mr Om Savath, Director, FACT • FiA cantonment directors/deputies in Kampong Chhnang, Siem Reap, and Kampong Thom • FACT project staff in Siem Reap • Dr Eric Baran, Senior Scientist, WorldFish • FACT project officer in Kampong Chhnang
Field Trip to Boeung Chhmar, Kampong Thom Province	14-16 March (2.5 days)	<ul style="list-style-type: none"> • Focus group meeting with villagers in Balot • Interviews with four villagers in two villages • Meetings with Balot deputy village chief, two commune councillors • Interviews with MoE staff: Balot ranger chief and deputy director of Boeung Chhmar core area • Visit to CPA site and visit to new conservation site (former Lot 6) • Focus group with CPA committee in Balot
Field Trip to Plov Touk, Kampong Chhnang Province	17-19 March (2.5 days)	<ul style="list-style-type: none"> • Focus group with villagers in Peam Knong • Focus group with CFI committee • Meetings with commune chief, deputy commune chief, commune council members • Visit to proposed FCA site at Slort and another potential site in Peam Knong known as the Ghost Forest • Interviews with four villagers
Field trip to Kampong Phluk, Siem Reap Province	2-5 April (3 days)	<ul style="list-style-type: none"> • Focus group meeting with commune residents • Focus group with CFI committee • Meeting with CBO • Interviews with five villagers • Meetings with commune chief, second deputy commune chief, village chief in Kouk Kdol, and the head of the CBO network in Siem Reap who is also deputy CFI committee chief • Visit to proposed FCA site at former Lot 4

4. BOEUNG CHHMAR, KAMPONG THOM PROVINCE

Site overview

This site is located in *Peam Bang* Commune of *Stoung* District. *Stoung* is a large town on the eastern shore of the Tonle Sap. *Boeung Chhmar* is difficult to access from *Stoung* when the water level is low, however, so we accessed *Boeung Chhmar* by crossing the lake from *Kampong Lourn* in Pursat Province. There are five villages in this populous commune, all of which are floating villages: *Doung Sdeung* with 100-200 families; *Balot* with 35-100; *Povouey* with over 100; *Peam Bang* with about 200; and *Pichkrey* with 100. Exact population figures could not be obtained and were highly variable due to the large transient and semi-permanent populations. Permanent residents were said to be those who had resided in the commune for over 10 years. A sketch map of the area drawn by villagers in the focus group is reproduced below (Figure 2).

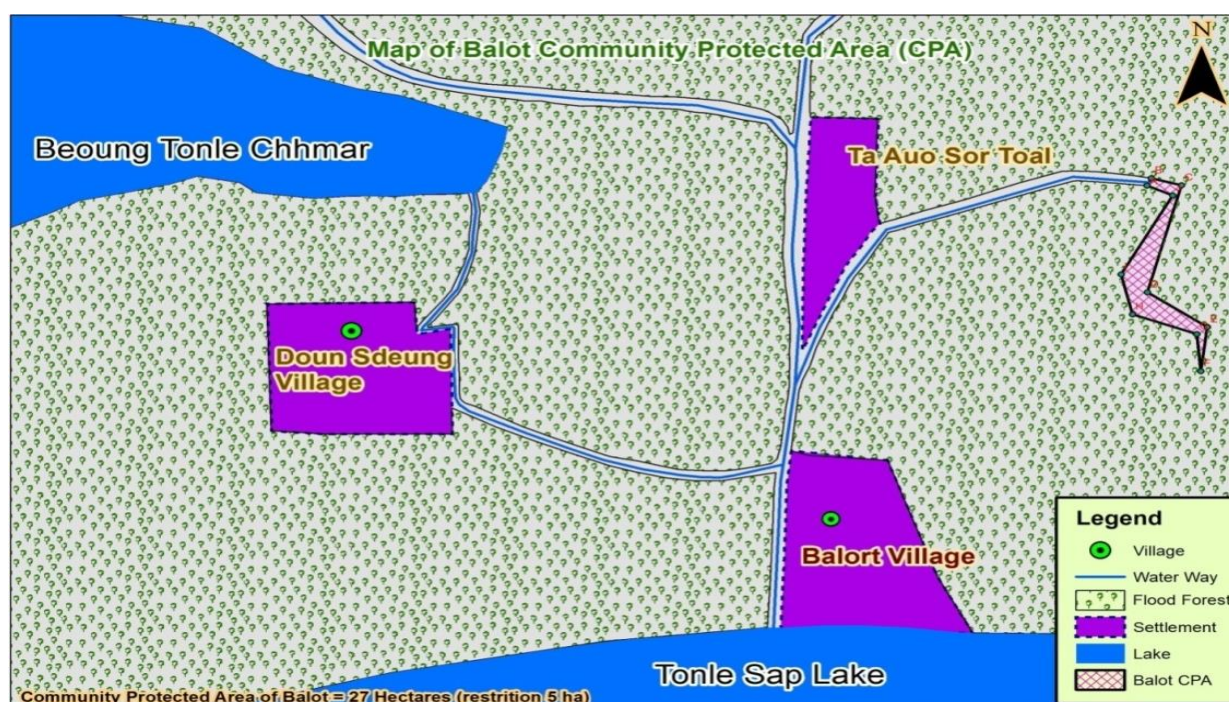
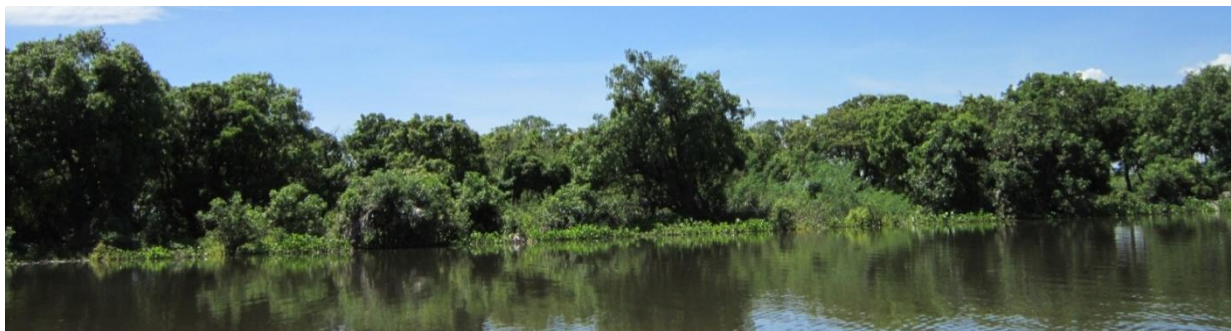


Figure 2. Sketch map of proposed project site and surrounding villages near Boeung Chhmar

Many transient fishers are either rice farmers from other provinces or Vietnamese from *Kampong Lourn*. When Khmer farmers lack rice or are no longer busy farming, they come to the lake to fish, staying 3-4 months at a time. Commune Council members said that although the commune population is officially 680 families, there are many additional outsiders or non-permanent residents (at least another 680 families). The distribution of permanent and non-permanent families is uneven between villages, e.g., *Doeung Sdeung* has only 10% “outsiders” but *Balot* has many more. Counted among the outsiders and non-permanent residents are the Vietnamese, who represent approximately 20% of the commune population in *Peam Bang*. Only 10 Vietnamese households have their names in the village book as permanent residents. The explanation for this is that the Vietnamese families “come and go depending upon their business”, which includes fishing and trading. They are said to fish more intensively than ordinary Khmer people, working harder and using more expensive/intensive equipment.

Boeung Chhmar is one of the three core protection zones in the MoE-managed Tonle Sap Biosphere Reserve, a multiple-use area encompassing the whole lake. The site has unquestionable biodiversity values and rich birdlife (e.g., 10,000 pelicans were observed in June 2012). As the site is under MoE protection, the community-managed fishing area in *Balot* is called a community protected area (CPA)¹³. The CPA is the proposed site for the project. It was chosen for contrast and comparison with FiA-managed CFI areas in the other two sites.

¹³There was apparently only 1 MoE-backed CPA in the Boeung Chhmar core area.



Flooded forest in Boueng Chhmar

In addition to the CPA, there are also three CFI areas in the commune, which appear to overlap with the MoE managed protected area: in *Peam Bang*, *Dourng Sdeung*, and *Povouey*.

Much of the situation analysis was focused on *Balot* due to its proximity to the CPA. According to the deputy village chief, *Balot* has 27 permanent families, and over 100 migrant families, mainly from *Stoeung*, who arrive in December and leave in June. Among the migrants, villagers said they know only about 5% of the families personally: those who return annually for fishing. There are also two sub-villages of *Balot* called *Ta Our Sar Tuol*, which has only 5-14 permanent households, and *Plov Touk*, which has about 10 temporary families¹⁴. In addition to the migrant families, many outsiders from nearby fishing villages (Kampong Thom, Siem Reap, and Kampong Chhnang) come to fish illegally for 4-5 days at a time. This was cause for concern among fishermen in *Balot* who saw the outsiders as competitors.

Unlike the other two project sites, the villages in *Boeung Chhmar* are dispersed and some are quite far from each other (e.g., one hour by boat). Governance is affected by the distance of leaders from villages and the large transient population. For example, the commune chief is said to be rarely seen because he lives in *Stoeung*, the district capital. This remoteness also affects services and markets. There is one health post and an NGO clinic, said to be insufficient. Essential goods come in from *Chnort Trou* and *Kampong Lourng*, each about one hour away. Finally, mobility is hard when the water is low: big boats are unable to get around due to shallow water and even small boats bottom out on *Boeung Chhmar*. In addition, old nets in the water regularly get entangled in motors and many canals are congested with water hyacinth hampering travel.

Status and management of the fishery

Since the abolition of the fishing lots, many people say that the fish are coming back. Villagers have reported that the fish are now bigger and more plentiful. However, as in other sites on the lake, villagers reported a selective recovery whereby some fish species had reappeared while others had not¹⁵. Since abolition of the lots, villagers were happy with the freedom to fish where they wanted, and most villages reported an improvement in their livelihoods, due to greater access to fish¹⁶. In relation to this, one commune councillor was keen to emphasise that illegal fishing had also declined dramatically since abolition of the lots because people were no longer forced to use “non-traditional” gear in order to catch the few small fish that were available. However, this comment was rather anachronistic, given others’ accounts of the prevalence and rise of illegal fishing since abolishment of the lots.

There are four former lots in Peam Bang Commune: Lot 6 (*Tonle Chhmar*), Lot 7 (*Pichkrey*), Lot 4 (*Balot*), and Lot 5 (*Peam Bang*). Lots 4 and 6 have been converted for conservation, and Lots 7 and 5 have been given to villages as open access resources. The two new conservation zones, declared in March 2012, were implemented within a week for immediate approval of the Prime Minister.

¹⁴Even the permanent households move around in their floating houses, hence the population range.

¹⁵In *Balot*, they said that expensive fish like *trei ros* (*Channa straiata*) had declined, which they suggested might be related to increasing numbers of *trei deap* (*Channa micropeltes*), which eats *trei ros* (*Channa straiata*). Overall, they said that *trei chhpen* (*Hypsibarbus spp.*) had increased. The differential recovery rates are to be expected given the very short time since abolition of the lots.

¹⁶Some said their livelihoods had improved 10%. Others cited their increased ability to catch fish, e.g., one woman said that during the time of the lots they could only net 1-2 kg of fish/day and now they can net 10-20 kg. Others measured the improvement in terms of changing net size: last year they used 0.05 nets, this year they are using 0.08, because there are more and bigger fish.



Doun Sdeung village

Villagers generally complained about these new conservation zones and they particularly disagreed with the conservation of former Lot 6¹⁷ where they were now hesitant to fish because “authorities would confiscate their equipment and fine them”. The CPA committee members and villagers did not know about the management of the new conservation zones but they were aware that FiA, MoE and MPs were involved. Notably, villagers said that they had not been called to any meetings about the governance changes, nor had there been any awareness-raising or boundary demarcation to make people aware of the new conservation areas. Some local authorities and MoE officers also complained about the lack of consultation from the “high level”. It was unclear whether the CPA overlapped with the new conservation zones or not – this requires further liaison and clarification of boundaries.

In spite of the new conservation zones and governance arrangements, illegal fishing is still considered a major issue in the area although the subject is sensitive. According to villagers and local authorities, the main illegal activities are: (i) *Mong houn* used on the lake to encircle fish, this method can yield 200-500 kg in one night; (ii) *Saichkrahaom* (literally “red meat”), which is an illegal red coloured net from Thailand, with very small holes; (iii) electro-fishing, which is said to be predominantly used by outsiders; and (4) use of a light at night time to coax fish into long nets.

Finally, the question of environmental degradation around *Boeung Chhmar*, and the implications of this for fish populations, also requires further investigation. The issue emerged when villagers, rangers, and FiA officials spoke of a large storm in May 2012, which occurred when the water level was very low. This stirred up sediments from the



Villagers have observed more and bigger fish since the abolishment of lots

lake floor, causing a lack of oxygen in the water, and the death of seven tonnes of fish. Villagers were apparently very happy because they made *prahoc* with the dead fish, but questions were raised about what would happen if more storm events like this occurred. Although most said that the fish die-off was a natural phenomenon, this kind of event demonstrates plausible links to climate change and environmental degradation, e.g., extreme weather events combined with low water levels caused by dry-season irrigation and increased sedimentation from erosion due to forest loss and land-use change¹⁸. Conservation in shallow areas may therefore require more than just protection; other interventions to prevent mass die-offs of fish may also be necessary.

Institutional context and community organisation

Both MoE and FiA play roles in protecting the *Boeung Chhmar* area. Broadly speaking, MoE protects biodiversity and natural resources like flooded forest and wildlife (i.e., the biosphere reserve), while the

¹⁷Former Lot 6 was divided so that 90% went to conservation and 10% went to the people: it is strictly protected with no fishing permitted at all. The FiA plans to install a station for protection of the area in cooperation with local authorities.

¹⁸Interestingly, a similar storm event was reported in the news in May 2013, after fieldwork was conducted.

FiA focuses on fish and prevention of illegal fishing. Since 2000, MoE has received international support for its program in *Boeung Chhmar*, initially from the ADB and later from the UNDP Tonle Sap Conservation Project (TSCP) in which IUCN played a role. MoE has a strong presence in the area, for example:

- *Doeung Sdeung* hosts the imposing MoE headquarters for management of the *Boeung Chhmar* core area. This now run-down structure is built on tall stilts to accommodate seasonal floods and accessible only via a set of broken stairs in the dry season. The station was constructed with funds from an ADB loan.
- There are 15 MoE rangers and 1 deputy director stationed in the area: 8 at headquarters; 3 in *Balot*; and 5 at *Povouey*.
- The ranger based at *Balot* was said to be a “local authority” himself. He was very involved in the affairs of *Balot* and is the main person responsible for the CPA.

IUCN has a long-standing relationship with MoE at this site. This means that the project may acquire “the face” of the MoE at the local level, with villagers being unable to distinguish between projects and actors. This could constrain some of the relationships that IUCN wishes to build with communities in the *non-state* domain, and potentially also with FiA in the area.

The proposed project site in *Boeung Chhmar* is the MoE-approved CPA, which is similar to the CFI concept but is allowed for under Cambodia’s Protected Area Law. The CPA covers 27 hectares, including a 5-hectare FCA classified for strict protection, which is located over a deep pool (*anlong*) next to the sub-village of *Ta Our Sar Tuol*. The CPA has been demarcated and contains mainly flooded forest.

The CPA or *sahakoum* in *Balot* was formed in 2006-2007 through TSCP. Its creation emerged from village protests over the privatisation of fishing grounds by local authorities, reflecting a strong community will to protect the area. According to the local MoE ranger, the CPA was well protected during the TSCP time. Back then, the area was properly demarcated with signboards and patrolled regularly. No outsiders were allowed into the 27 hectares and there were no hyacinth traps¹⁹. He said the goal of the CPA was to enable the community to “protect mother fish and biodiversity” and that the *sahakoum* could catch illegal fishers in the area themselves or in collaboration with MoE rangers.

However, management of the CPA has lapsed for at least the past two years. For example:

- Signboards have been destroyed and the old UNDP station at the site is derelict.
- The *sahakoum* has not had regular meetings in years. Of the seven original committee members, only two have remained living in the village. The chief of the *sahakoum* apparently left the village in 2010 “to go farming” and has not returned.
- Illegal hyacinth traps were seen right next to the strictly protected 5-hectare deep pool and villagers in *Balot* blamed villagers in *Ta Our Sar Tuol* for fishing in that area.

In spite of the lapse in management, villagers are keen to re-form the committee and resume protection of the CPA, which they say they have been unable to do in the absence of external support. A new committee election will probably be required, along with selection of a new *sahakoum* chief. There is currently a *de facto* committee in operation (with support from MoE), consisting of two old committee members and four new “candidates” who wish to stand for election. The *sahakoum* lacks budget, which they need for boats and fuel to conduct patrols. Committee members also want support for training, capacity building, and a station at the deep pool. In addition, committee members said that they wanted strong official backing for the *sahakoum* so that outsiders would recognise them and they could therefore enforce the law and/or their own rules and regulations.

¹⁹Illegal floating fish traps of hyacinth, harvested 1-2 times a year.

Villagers' and committee members' primary motivation for re-establishing the CPA is apparently their concern about the outsiders who come to fish in areas they perceive to be "their" fishing grounds. One committee members said: "When the fish come, the outsiders come... they have a lot of modern equipment. They stay for a few days and collect a lot of fish, all kinds of fish... then they leave. It's not sustainable"²⁰. Committee members said: "if we have a clear committee and boundary, then we can control the outsiders".

In addition to the CPA, there are three CFI sites in the commune, which are apparently more advanced in implementation than the CPA. These CFI sites (in *Peam Bang*, *Dourng Sdeung*, and *Povouey*) are connected to the CCF and receive funds from Forum Syd and FACT. Conservation International also supports two community rangers in each of the three CFI sites to monitor otters and birds. The situation



Drawing a sketch map in Balot

analysis did not collect detailed information about these sites but their presence does have an impact on the CPA and the area's governance²¹.

Finally, on top of the layers of law enforcement and *sahakoum* entities that already exist in *Boeung Chhmar*, there was much discussion of the new committee or working group established to manage the new conservation zone in former Lot 6. This group, supervised by the provincial governor, consists of FiA, MoE, Military Policy, police, commune chief, and *sahakoum*²². The group has no budget, so it must leverage fines from those who conduct illegal activity in order to continue to operate. Nevertheless, the MoE Director at *Boeung Chhmar* said that the creation of the working group had improved cooperation between MoE and MAFF. He also emphasised that the *sahakoum* could not protect this area alone: "if we give it to them, they will destroy it like anarchy... it's because they want money and they will do corruption with outsiders" he said. The villagers had a counter-narrative, saying that the working group itself was involved in corruption and that they had recently written a letter of complaint to the provincial governor about the problem²³. Villagers called for a consultative process on the new conservation zone and clear boundary demarcation so that they would not have to pay arbitrary bribes to the working group before going fishing.

Livelihoods and food security

In *Boeung Chhmar*, about 65% of the population is considered poor, falling into either category 1 or 2 of the government's poverty rankings. Each village is said to have 10-20 "very poor" families, depending on village size. These families have only wooden row boats, and they must fish everyday in order to eat, selling most of their catch to buy rice. One local leader's explanation for this ongoing poverty was that fish catches had declined in recent years and that there were many "new" people and outsiders competing for fish in the area. Since the abolition of the lots, however, livelihoods have started to improve. These narratives indicate people's high dependence on fish in *Boeung Chhmar*, and the lack of other livelihood options.

²⁰These outsiders operate in groups of 10-15 boats. They are said to catch 400-500 kg of fish/day, "even fish with eggs".

²¹Villagers in *Balot* also complained about the CFI committees in *Peam Bang* and *Povouey*. The establishment of the *sahakoum* was said to give them power so that only their relatives could get fish and outsiders had to pay for access.

²²The *sahakoum* referred to here appears to be the CFI structure for *Boeung Chhmar* rather than the CPA structure.

²³Other versions of this story suggest that the CFI committee was just jealous because they could no longer receive bribes for illegal fishing in *Boeung Chhmar* and that the money was now being taken by the working group.

On average, poorer families fish for 2-3 hours/day and can catch 5-10 kg of fish or more if they are lucky. Villagers sell all of their catch immediately except what they keep for their own consumption. Some families are also involved in fish processing, such as making *prahoc* and smoking fish, to sell to “rich” families and traders. Previously, people would also raise fish, but FiA rangers have prohibited this because they were keeping invasive species. Although they are permitted to raise native fish now, no one bothers because it is not profitable.

There are 4-5 middlemen who come to *Peam Bang* to buy fish, which they transport to *Kampong Lourn* in *Pursat* or *Stoung* in *Kampong Thom* depending on the season²⁴. The price depends on the market and the middlemen. Fishermen have relatively little bargaining power because: (i) they must sell their fish immediately before it spoils, and (ii) the distance from *Boeung Chhmar* to other markets is prohibitive for one family to travel alone to sell 10-20 kg of fish. Families therefore rely on middlemen, who buy fish at 3,000R/kg in *Peam Bang* and sell it for 10,000R/kg in *Kampong Lourn*²⁵. This mark-up would more than cover the transportation costs of fish. The middlemen apparently coordinate with each other so that they all offer the same price to villagers: “you cannot win”, said one villager.

People in the commune also have some farmland located in an area that was formerly grassland and is now used for dry season rice production. This 600-hectare area, 5 km from Povouey, was apparently a “gift” from the government to compensate for declining fish stocks pre-2012. However, the livelihood ranking for *Balot* near the CPA, did not mention farming as a livelihood activity. Thus, farming in practice has little bearing on people’s livelihoods near the CPA.



Oriental Darters in the Balot CPA, which overlaps with the proposed FCA

Sap because “around *Boeung Chhmar* is all conservation”. However, they conceded that they did get fish from around the deep pool of the CPA and from the nearby canals that connect with *Boeung Chhmar*. Illegal fishing was often discussed in our interviews and illegal fishing equipment featured prominently in the livelihoods ranking to the extent that villagers appear unable to function without it. Especially around the village were illegal fish traps made from floating beds of water hyacinth (*krosong komplauk*). The hyacinth beds are left for long periods so that they become fish habitat. Twice a year, all the fish are trapped and scooped up from underneath the floating bed (*hum*), each time yielding at least 50 kg of fish depending on the trap size. These traps lined most canals. Apparently, not everyone participated in the activity since it was illegal and one “had to pay authorities” to use the trap. There seemed to be quite

As indicated, the focus group on livelihoods was conducted in *Balot* but it did not include *Ta Our Sar Tuol* villagers²⁶. In *Balot*, people depend entirely on fishing. The surrounding forests are used only for fuel wood and wild vegetable collection. *Balot* is small and everyone is said to be related to each other except for the “Vietnamese group”. The village appeared to be poorly administered: there is no village book recording resident families and the village chief is not widely respected. “He doesn’t know how to talk” was one complaint made about him. There is no school.

Villagers said that the most important place for their fishing activity is the Tonle

²⁴ *Stoung* is three hours away in the low water season because you must travel by boat and motorbike.

²⁵ The price of fish was variable, however. Some fish, like snakehead fish (*trei chhdao*), can fetch 5,000-6,000R/kg.

²⁶ The focus group with the committee members was held in *Ta Our Sar Tuol*, along with some household interviews, so I consider that cross-checking is adequate for the situation analysis.

clear (informal) rules around the traps, including protocols for finding a spot that was unclaimed, and how much money to pay in bribes per square metre of floating bed²⁷.

Most vulnerable families in *Balot* face issues such as:

- Debt: about 20 out of the 27 permanent families are indebted. They borrow cash and rice from the local shop owner. The cash is used to pay medical bills and buy fishing equipment such as nets and hooks.
- Poor water quality, depending on the season, and lack of drinking water: Currently, villagers drink and bathe in the lake but they use purification salts to clean the water. Nevertheless, skin diseases and diarrhoea are a constant problem
- Lack of fish and rice when the water is “spoiled” in July-September: During this time villagers eat *prahoc*, which they have stored from earlier. They can borrow from the grocery shop in *Balot* if they need rice or money; the shop owner is a “good woman” who does not charge interest when she knows the people.
- Nutritional deficiencies that derive from a lack of vegetables in people’s diets: Some people said they eat wild water convolvulus (*trokouen*) and occasionally buy vegetables from Vietnamese traders. This would need to be a focus of food security interventions.

Potential impact of the FCA

The potential impact of the CPA on livelihoods cannot be understood in isolation from the wider governance context, which currently entails shifting property regimes and new enclosures. Analysis of *where* people go to fish, and the relative importance of the CPA for fishing, is necessary; along with an examination of seasonal variation in the use of the CPA resources. Some local leaders said that if CPA protection in *Balot* was done properly, it would protect fish without affecting local livelihoods. Committee members were interested in the CPA because it would enable local villagers to exclude outsiders.

Further analysis is required on how the new conservation zones *near* to the CPA are affecting livelihoods. The conservation of former Lot 6 received many complaints and was said to have a negative impact on people’s livelihoods because there was “too much conservation”. However, this was contested. For example, the MoE ranger said that villagers still went there at night time to get fish illegally and that only sometimes they get caught. He saw the conservation of Lot 6 as vitally important in “preventing disaster”, saying that if the fish in that lot could be protected, then the numbers would increase and fish would spread everywhere, benefitting everyone²⁸.

5. PLOV TOUK COMMUNE, KAMPONG CHHNANG PROVINCE

Site overview

Plov Touk Commune is an important conservation site because of its location at the connection between the Tonle Sap and the Tonle Sap River. Settlements are not located directly on the lake but float along the banks of the *Plov Touk* River. This river is tidal and forms an estuary where it connects to the lake with extensive mud-flats in the low water season. Dry-season farming is conducted along the banks of the river, in a strip about 500 m wide, beyond which is forest. The sketch map of this site, produced by villagers during the focus group, is reproduced on the following page (Figure 3).

There are three villages in *Plov Touk* Commune: *Peam Knong* with 329 families; *Thnor Cheu Teal* village with 338 and the commune temple; and *Slort* with 130. Administration of villages in this commune is complicated due to the movements of people during the civil war and the inconsistent handling of village names and administrative boundaries. This has resulted in a situation where the government officially recognises three villages in the commune but there are actually six. These circumstances arose because villagers were evacuated from the area in 1979 and forced to settle in the neighbouring commune of

²⁷For a 50 m² floating bed, the fee is apparently 1,000,000R. The profits were not guaranteed, however, so it was seen as risky and not necessarily worth doing.

²⁸This, of course, depends upon how well rangers can enforce the rules and boundaries.

*Prolay Meas*²⁹ where they re-made their homes and villages. Thus, each village of *Plov Touk* has its double in *Prolay Meas* Commune because of the period of displacement (1979-1993)³⁰. Some villagers never moved back to *Plov Touk* but they still claim land and fish resources inside the commune. Thus, people now distinguish between the villages by referring to them as “inside” and “outside”, e.g., *Thnor Cheu Teal* “*Knong*” or *Thnor Cheu Teal* “*Kraw*”.

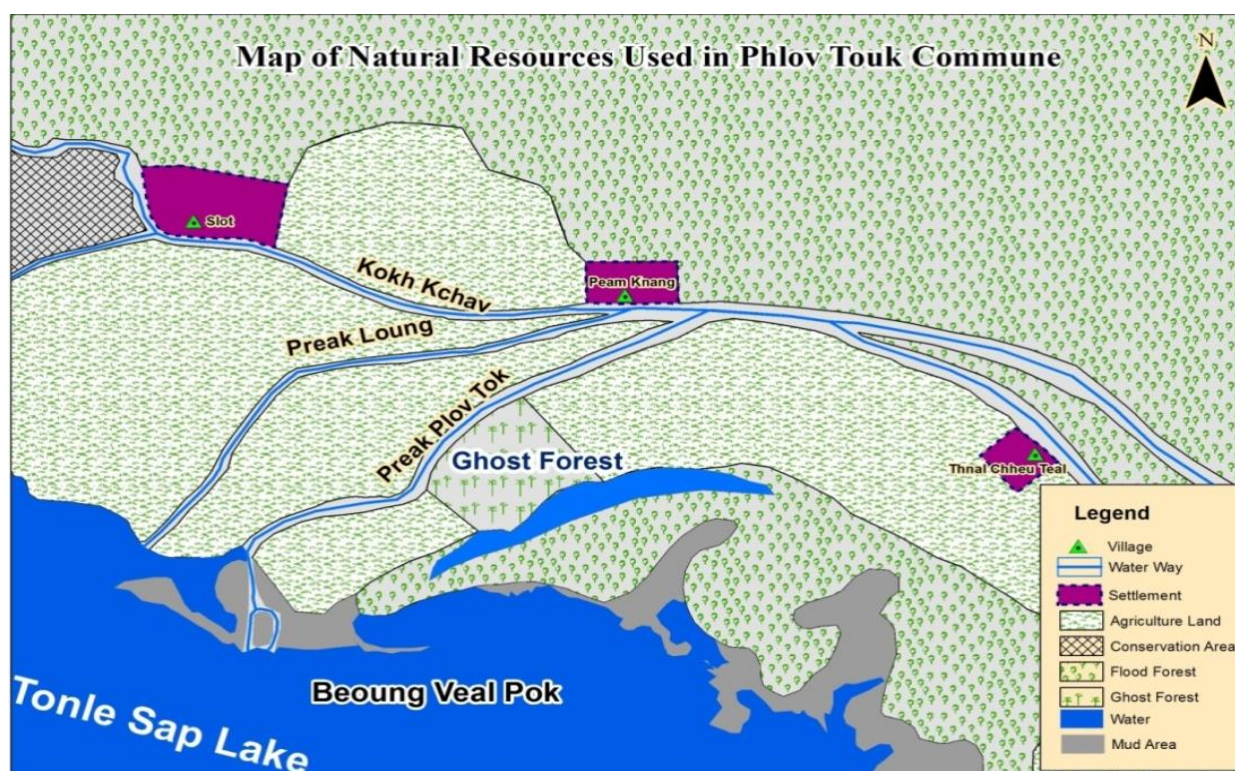


Figure 3. Adapted sketch map of Plov Touk commune and proposed project area

The six villages are administered by *Plov Touk* commune even though the three “outside” villages are physically located in the neighbouring commune³¹. The village populations cited above are aggregated: in practice, 60% of the population lives inside and 40% outside. The commune covers 20,638 hectares of land and water. From February to July they have land to farm, after which the land floods. Beyond the farmland there is forest, which is protected as the *Prey Kos* conservation area under MoE. According to FACT, the flooded forest needs “only to be protected” here, since it is in good condition, i.e., re-planting is not required.

In recent years, there have been several NGO and donor-funded projects in the commune, but none are currently active. These included: (i) UN Population Fund, addressing women’s affairs, sexual health, and domestic violence; (ii) UNDP, which supported protection of the proposed *Prey Kos* conservation area within the Tonle Sap Biosphere Reserve; (iii) JICA, which provided a boat to transport children to school; and (iv) WCS, which has some sites for protection of the Critically Endangered Bengal Florican.

Slot, which is the village nearest to the proposed FCA for the project, was difficult to access from *Peam Khong* as the canals were clogged with water hyacinth. This village has large abandoned houses that were previously occupied by the lot owners and associated businessmen.

²⁹This commune is about one hour away by boat. Our team went past there when catching the boat from *Plov Touk* to Kampong Chhnang. It is a very populated commune, with a lot of land (not floating).

³⁰Villagers’ resettlement to *Plov Touk* was incomplete and delayed because the area was a Khmer Rouge stronghold until 1987 and fighting continued in the area between forest-based Khmer Rouge and government soldiers until 1993.

³¹For example, outside villagers must come to *Plov Touk* to have their birth and marriage certificates organised.



Floating houses in Peam Knong village

conservation of the lot near *Slort*, it appears that the village has experienced a downturn due to loss of employment opportunities and fishing rights that were previously derived from the lot (see below for further discussion).

Status and management of the fishery

During the 1980s the commune was unpopulated and it was said to be very rich in fish. However, villagers complained that fish populations have declined significantly since then, especially due to the many “outsiders” from provinces around the lake who came to fish in the area. The outsiders are transient and are seen to compete with local villagers over local fish catches. Approximately 50% are Vietnamese, 20% are ethnic Cham, and 30% are Khmer. Since March 2012, many more outsiders have apparently come, some even coming from very far-away provinces. They are attracted by the new opportunity to catch fish, since abolition of the lots.

Perhaps for this reason, villagers were rather ambivalent about the abolition of the lots. They reported that fish numbers had increased but that the benefits have not necessarily accrued to the commune. Some argued that fish catches have continued to decline since abolition of the lots due to: (i) FiA corruption, which means that the law is never enforced; (ii) an attitude that “people only think of themselves”, meaning that they “steal” resources rather than protect them; and (iii) inability of commune authorities to exclude outsiders because they have insufficient power to ask them to leave and return home. The project will have an opportunity to address some of these governance weaknesses.

Two potential fish conservation areas in *Plov Touk* were investigated in detail. The first is the new conservation zone near *Slort* created from former Lot 1 in March 2012, and the second is an older CFI area in a place known as the Ghost Forest (*Prey Kmoch*).

The new conservation area in former Lot 1 is the proposed FCA for the project. Originally, Lot 1 was over 7,000 hectares, but the government FCZ is 2,000 hectares. In spite of its size, villagers complained about having lost their fishing rights in the old lot area. The area was put under conservation through a national sub-decree without consultation with local authorities or villagers. Therefore, from the community perspective, its foundations and design are highly problematic. From a conservation perspective, however, the large no-take zone may be important for the integrity of the lake’s fish resources as a whole.

According to the FiA cantonment, the rationale for conservation of former Lot 1 is that it has: (i) flooded forest, which is important for fish breeding; (ii) biodiversity, including many birds; and (iii) special fish of high value such as *trei mao* (black fish), *trei chhdao* and *trei rosh* (*Channa striata*), *trei reach* (Mekong giant catfish, *Pangasianodon gigas*), and *trei dam rei* (*Oxyeleotris marmorata*)³³, which were valuable to the former lot owners. The area is shallow in places, but also has deep pools; both of which are said to be important for fish conservation. Notably, the cantonment said that the function of the new conservation zone is primarily to protect the valuable fish, rather than to provide habitat for fish breeding *per se*. The

³²More information is required on this. The area is said to be mainly in Kampong Thom and is a long-standing conservation area. There is apparently a CPA associated with the area too.

³³This list of important fish came from the FiA cantonment director. His claims need to be verified.

other reason cited for protecting former Lot 1 is that it is next to Lot 2 in Kampong Thom, which has also been gazetted for conservation³⁴.

All of our informants said that the new conservation zone in former Lot 1 needs additional implementation. It will require rules and regulations, a management plan, and proper demarcation. Although some temporary demarcation poles have been erected, they are easily removed. The *sahakoum* said that it has been involved in stopping some offenders in the area: they catch people and call the FiA and the police to come and arrest them. But implementation appears ad hoc. Thus, it is no surprise that the cantonment welcomed IUCN as a “partner organisation” to support implementation in the new conservation zone, citing that “FiA has a plan, but no budget”.

The second area, which has potential as a FCA for the project, is the Ghost Forest (*Prey Kmoch*) near *Peam Knong*. The *sahakoum* members in *Peam Knong* said that if they could choose what area to protect they would focus their efforts on this area. They said that they could protect this with “90-100% effectiveness” because people see the benefits in protecting the site. According to the *sahakoum*, the area is important for the following reasons: (i) it has a deep water pool that is 600 m long in the canal, where fish remain during the low water season; (ii) it is next to the Ghost Forest, which is a traditional burial area of villagers and is associated with many taboos³⁵; and (iii) behind the Ghost Forest is a large pond, which is also full of fish and is surrounded by additional forest that provides habitat for birds and monkeys.

Although the entire area is underwater in the high-water season, villagers wish to protect it when the



water is low. Villagers say that if the deep water pool is well protected in the dry season, then everyone will benefit from increased fish populations in the high water season. The Ghost Forest site received some project support from UNDP in the past but it was not sustained, thus there is no formal-legal protection of the area³⁶.

Ghost Forest, proposed FCA

Institutional context and community organisation

The *sahakoum* for CFi management formed in May 2012 is only partially implemented. In the words of the deputy commune chief: “the *sahakoum* has a head, but it lacks a body and legs”, meaning that it exists as a committee but requires wider membership and popular recognition. It lacks an operating budget and several steps in the CFi guidelines have yet to be implemented (e.g., resources map, boundary demarcation, and the FiA agreement). That said, a small informal budget seems to be available for patrolling in cooperation with local authorities and for the establishment of a guard post in the middle of the conservation area. In addition, committee members said that they often spend their own money to

³⁴This lot has apparently been set aside for fish conservation since the French colonial time, although its status is unknown.

³⁵When the water is high, villagers place coffins in the tree tops in the ghost forest. The bodies are then buried in the ground, once the water levels drop. Villagers said that if people cut trees in the ghost forest, then they will be unlucky. There were many stories of this happening, but in spite of local beliefs the forest was still considered to be threatened by agricultural expansion.

³⁶UNDP originally planned to do eco-tourism at the site, but since there was no guesthouse the plan was cancelled.

patrol in the new conservation zone but had not received reimbursement from FiA. This requires verification.

The *sahakoum* exists at the commune level but is unwieldy because of the commune's large area, which everyone recognised. The committee has 11 members from the three villages. However, the representatives from *Thnol Cheu Teal* had already left the committee because they said the new conservation zone was irrelevant to them because it was too far away from their fishing areas. Thus, in practice, the committee consists of members from only *Slort* and *Peam Bang*. Another problem with the committee, according to local leaders, is that people do not understand or trust it.

This is because it was set up in a top-down fashion, with the FiA facilitating the election very rapidly, without strong village participation³⁷. The FiA is perceived as “the boss” of the *sahakoum*, and part of this dynamic is a notion that the *sahakoum* “does not listen to villagers”. This has led to accusations that the *sahakoum* is involved in “getting power” from the FiA and in corruption associated with management of the new conservation zone³⁸. For example, if the *sahakoum* catches you fishing in the new conservation zone, then it is said that they will extract fines or bribes. This situation perpetuates because there is no management plan and no clear implementation of the *sahakoum*. Overwhelmingly, the *sahakoum* was seen as an instrument of the FiA and only exists because the FiA did not have staff or local knowledge to manage the new conservation zone itself.



Focus group meeting in Plov Touk

The *sahakoum* faces challenges if it is to serve the interests of villagers. The commune councillors proposed several options for reform: the committee composition could be changed; another election could be held; or the *sahakoum* could be given three months to build its membership to at least 100 people. Another option is to create village-level *sahakoum* structures. *Peam Knong* villagers were keen on this to protect the Ghost Forest; and it seems that former Lot 1 would be best managed by *Slort* alone. The FiA cantonment office said that they intended for committees to be formed at the village level but that the commune committee should also be kept in place³⁹.

Livelihoods and food security

Although fishing is the most important livelihood activity in *Plov Touk*, farming occurs in the low water season. The commune chief said that local livelihoods are weak, with 60-80% of families living in poverty. The participatory wealth-ranking exercise indicated a 50% poverty rate. Generally, poor villagers must go fishing every day or they “do not have anything to eat”. Most poor families can sell 1-2 kg of fish per day, yielding an average income of 4,000-5,000R/day. They sell these small amounts of fish to local buyers who store the fish on ice for the middlemen who come at the end of each day⁴⁰. In July-August, when the

³⁷The *sahakoum* themselves were frustrated by this. They said a lot of high-level authorities from Phnom Penh were involved, who pushed for things to happen quickly. Thus, the commune chief was asked to provide the names for the election candidates in the evening and the election took place on the following morning. Only 100 villagers came to the election. It was held one month before the commune council elections. Apparently, the FiA explained that part of the rush was to prevent committee candidates from having time to campaign through their networks, which would have led to cronyism. So only those who were already prepared could get elected.

³⁸Similarly, it was said that the *sahakoum* was only created so that the FiA could have “its eye” on the new conservation area; when FiA officials visit they ask *sahakoum* to show them around.

³⁹The FiA-*khan* suggested that current committee members should be separated out by village to become the chief and deputy chief of the new village committees. Additional village committee members could then be elected.

⁴⁰There are apparently six middlemen in the commune and “some Vietnamese” also come to buy fish. The dynamics of these trade-market-pricing-debt relationships along the fish value chain require further research.

water is spoiled and there are no fish, poor households often borrow money in order to buy food. When the water drops, and their fishing income returns, they can pay back their debt.

Livelihoods are very seasonal, especially for the poor. When the water is low, villagers mainly fish in the local canal rather than the lake because they are also farming nearby. The poor in particular are engaged as farm labourers or contract and rental farmers. Villagers said that a key dry season fishing strategy was the use of illegal hyacinth traps for which they had to pay money to the authorities. In the wet season, the water becomes very deep in *Plov Touk*, which makes fishing harder. Many villagers migrate to Kampong Thom when the lake floods as it is shallower and fish congregate for feeding.

Major everyday household expenses, which are covered by income from fishing and farming, include purchase of rice, fuel, schooling, medical bills, and fishing equipment. People face many risks, such as having their fishing gear confiscated by the FiA (because it is deemed illegal) or stolen by outsiders, which can push families into poverty and debt. As a result, around 80% of families are in debt. Not everyone can pay it back, and this has even caused some families to “run away”. There are many private lenders in the commune who do not charge interest on loans but who insist on buying people’s farming harvests at low prices. The loans are for immediate survival, such as for rice and medical bills, as well as for covering the costs of farming inputs (e.g., labour, pesticides). Another strategy for covering income gaps is remittances. Many families from *Plov Touk* send their children to work in Phnom Penh (20% of families) or abroad to Thailand and Malaysia (10% of families). The money from remittances is then spent on “luxuries” like house repairs and machinery.



Most poor families can sell 1-2 kg of fish/day, yielding an average income of 4,000-5,000R/day

Finally, there does seem to be some NGO support for livelihoods in the area: an NGO apparently helped with the school and provision of drinking water, including a reverse osmosis machine.

The role of farming

In *Plov Touk*, most villagers farm to supplement their livelihoods. Crops are grown in February-July when the water is low, and include mung and soy beans, pumpkin, and sesame⁴¹. These are cash crops, although some corn is grown for home consumption. People said they do not bother to plant rice because mice and worms eat it. There is reportedly a lot of pesticide use on the cash crops.

Farming has only recently become a feature in local livelihoods. It now contributes around 30% to livelihoods, while fishing contributes the remaining 70%. Farming started after the war with a cooperative

⁴¹Black sesame was being planted and sold for 6,800R/kg. The commune councillor who we spoke to said that she had 6-7 hectares of sesame farm from which she earned 30,000,000R. She hired labourers, which cost 450,000R/month or 15,000R/day/person.

farming group (*kromsamaky*) in the 1980s⁴². However, it was not until 2000 that villagers received private titles to the land, apparently as a compensatory measure from the government due to declining fish stocks. This was followed in 2007 by a farming boom, which has caused a small portion of families (5-10%) to stop fishing altogether in the farming season. Farming is now recognised as a way to make money. For example, some said farming was a way to “to buy a fibreglass motorboat” worth US\$1,000⁴³. They also said that although most families farmed (around 60%) it was really an occupation of “the rich” who could hire labourers to do weeding and harvesting. Labour rates are 20,000R/day for men and 10,000R/day for women in *Peam Knong*. The rich could also rent their land to poor people to farm.

The profitability of farming has apparently led to illegal clearing of flooded forest, especially as farming was seen as a back-up for declining fish stocks⁴⁴. Some villagers cleared 400-500 m back into the forest from the “head” of their land on the canal. This was seen as unfair by some local leaders, who complained that the commune had legitimised the theft of state land by issuing titles to such farms. Encroachment of this kind has been most prominent in *Slort*, where 80% of villagers are now said to participate in farming. In *Slort*, some people have land but do not know how to farm, so they hire cheap labour from the “upland” provinces⁴⁵. Forest clearing was also reported to be an issue in the far-away reaches of the commune near Kampong Thom. These areas are being infiltrated by illegal squatters who hunt birds and wildlife. Local authorities say they lack the resources to manage the problem.

Potential impact of the FCAs

The impacts of the new government conservation zone, former Lot 1, are uncertain, complex and differentiated. This is particularly true for nearby *Slort* where villagers reported mixed experiences and opinions. Some said that their livelihoods had declined after the abolition of Lot 1 due to the loss of labouring opportunities and fishing activity, i.e., the right to sell their fish-catch to the lot owner under contract⁴⁶. The former lot owner also apparently used to contain fish in the lot area by blocking off some canals, which made fishing easier. Now, with prevention of most fishing in the conservation zone and with fish movements being entirely free, villagers said it was harder to find fish. This suggests that fishing intensity on the lake has decreased since abolition, which was the intention of the fisheries reform.

However, there were contradictory narratives about former Lot 1. The commune chief said that around 10% of villagers in *Slort* used the new FiA conservation area illegally, often at night, which meant that their livelihoods were actually better than before. Furthermore, it was said that only 20-30% of former Lot 1 is actually under conservation, and the rest had been allocated to the people: but the role of this open access area in local livelihoods is unknown.

Villagers consistently said that the benefits of protecting former Lot 1 would not necessarily accrue to them. For example, the new conservation zone is unlikely to have any impact on villagers in *Peam Knong* and *Thnol Cheu Teal* since these villages are far away and they have been long accustomed to the area being used by the lot owner, although villagers in *Slort* may benefit. The main worry for all villagers was that, due to poor law enforcement, the benefits of conserving Lot 1 would go to outsiders. This concern was not just about fish but also management of flooded forest areas within the former lot. These areas are apparently now threatened by uplanders who come to burn the forest and graze their cattle there; an activity that was previously not permitted by the lot owner. Villagers want to stop this but

⁴²The land is also said to have been farmed since the 1970s, but during the Khmer Rouge time the forest grew back in some areas. Later, some of these areas were demarcated and protected by MoE as flooded forest.

⁴³In contrast to wooden boats, which are slow, cheap, and take a lot of fuel to run (rather like an old car).

⁴⁴Although, given that fish rely on flooded forest for breeding, the expansion of farming may cause further declines in fish stock, signalling a potentially vicious cycle.

⁴⁵Labour rates for those from upland provinces are lower because they “already have rice” so they work for 12,000R/day. In the fishing villages, people have to buy rice so their daily rate is higher, e.g., 30,000R/day.

⁴⁶This was a contract arrangement called *pawah* by which the lot owner allowed villagers to fish in the lot. Villagers could keep 30% of the fish and had to give 70% to the lot owner. Others talked about selling all of the fish they caught to the lot owner at very low prices. e.g., for fish sold by the lot owner at 5,000R/kg, villagers were forced to sell at 1,500R/kg.

they say “the outsiders don’t listen”. This indicates an urgent need for the *sahakoum* to gain more legitimate authority and for management plans and property rights to be clarified.

In contrast, the alternative conservation area proposed by villagers of *Peam Knong*, the Ghost Forest, appears to present a win-win situation. Villagers said that conservation of the deep pools would only increase the local fish population. Before this could be implemented they said it would be necessary to relocate 5-7 families who had recently settled by the pool. This was not seen as an issue because these families were not considered to be poor and commune authorities could easily facilitate their removal, although more investigation into the situation is required. Furthermore, villagers said they do not depend on fishing from the deep pools near the Ghost Forest because they are too busy farming in the low water season. Given its low opportunity cost and proximity to villages, conservation of the Ghost Forest was a popular idea, especially among residents of *Peam Knong*.

6. KAMPONG PLUK, SIEM REAP PROVINCE

Site overview

Kampong Phluk means Elephant Tusk Port. The site experiences tremendous seasonal change: half the year it is accessible by land, and half the year it is only accessible by boat. Houses are built on tall stilts to accommodate this; they do not float as in the other sites. The only dry ground in the commune during the high water season was around the temple. There is one canal that connects all the villages to the lake in the dry season. The canal needs to be dredged annually to maintain access. The sketch map of the commune, drawn by villagers, is reproduced on the following page (Figure 4).

The commune is comprised of three contiguous villages, of which the furthest from the lake is *Thnowt Kambot* with 248 families; followed by *Dei Krahaom* with 189; and then *Kouk Kdol* with 281, which is about 1km away from the water’s edge. There are a total of 3,469 people, although the exact population is unclear because of newcomers who have not yet been counted in the commune chief’s book.

In terms of government services, there is a school near the fish market at *Rolous* paid for out of the 2011 commune budget, but no adequate local health care. That said, *Kampong Phluk* is not as remote as the other sites in the project given its proximity to Siem Reap.

The commune covers 12,329 hectares, of which 6,748 is flooded forest, 111 is conservation forest for eco-tourism, 48 is allocated as a tourist site, and 14 is for residential areas. The commune is said to be important for conservation due to the large area of flooded forest, which villagers have actively protected since the 1980s. The flooded forest serves as a fish breeding ground and protects the village from storms and waves.

There is also a long history of NGO and donor support in this commune. FAO ran a natural resource management project in 2002-2006; UNDP/GEF provided a small grant to support eco-tourism; and ADB ran the Tonle Sap Livelihoods Project (TSLP) in 2007-2010, which included a now defunct water treatment system⁴⁷ and a fish raising project. FACT runs a range of community-based activities in *Kampong Phluk* covering: (i) facilitation of three CBOs linked to the CCF network; (ii) development of the site as a model for climate change adaptation; (iii) support for patrolling at the *Prek Provoeuk* CFI site; (iv) running of a working group that solves problems with local authorities, as well as various trainings and public forums for villagers; and (v) implementation of a range of livelihood activities. The project needs to connect to and build upon these activities, which are already well developed and supported by strong local leadership⁴⁸. Furthermore, given *Kampong Pluk*’s advanced stage of community organising, it can serve as an example for other sites on Tonle Sap that are less developed.

⁴⁷The ADB project was implemented in 2010 and provided a UV treatment plant with water distribution piping. It failed for various reasons, in part because villagers did not want to pay for the water at 1,000R/m³. The plant has now broken down.

⁴⁸For example, the head of the CBO network in Siem Reap is a leader from *Kampong Phluk*, named Orm Cheum. He acted as a facilitator and host to our research team during the situation analysis.

Despite the strong community-based organising and fisheries management in the commune, FACT staff emphasised that they did not have much influence over the new conservation zones and the *sahakoum* formed after the abolition of the lots. They said that these new structures were strictly under the FiA's control.

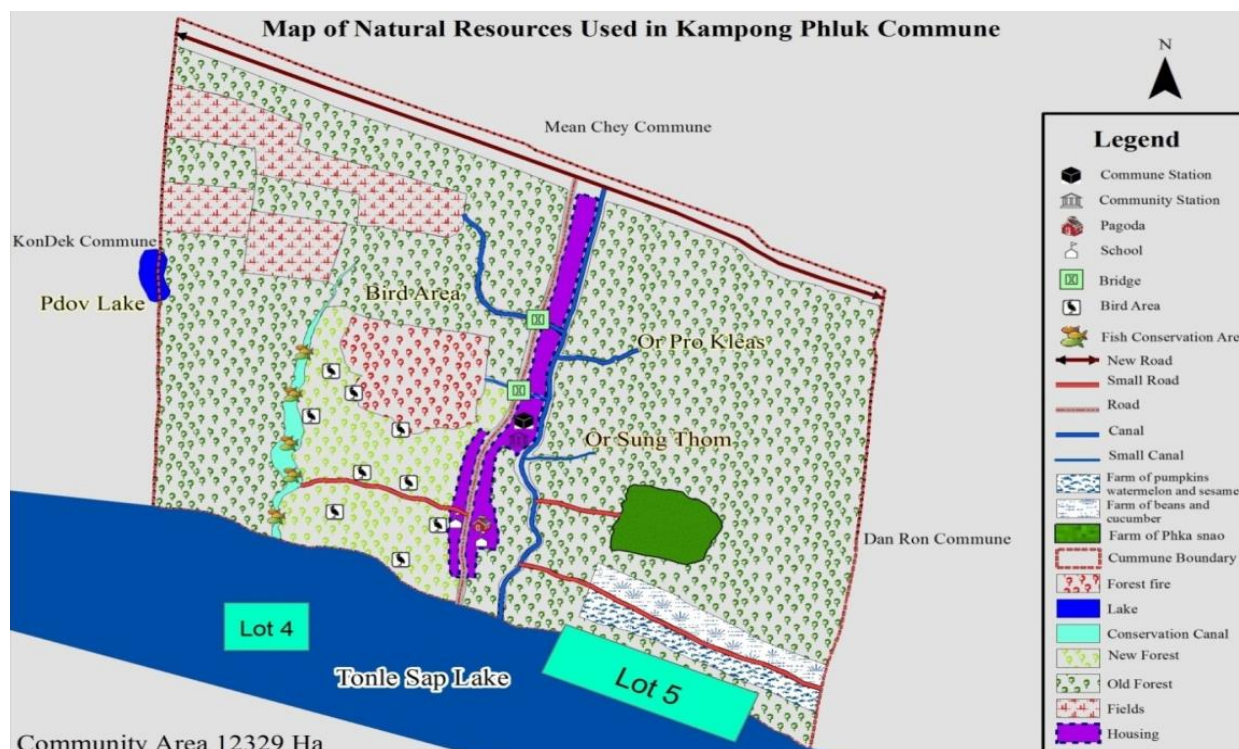


Figure 4. Adapted sketch map of Kampong Phluk

Status and management of the fishery

Villagers consistently said that the fish populations had recovered since abolition of the lots. However, they saw the recovery as selective, because some fish species were yet to reappear. Large scale illegal fishing is now said to be the “biggest issue” in *Kampong Phluk* because it impacts small-scale family fishing. The most common illegal activities were said to include: (i) using two boats on either side of a long net, which is dragged through the lake, and (ii) electro-fishing of various kinds⁴⁹. As in the other communes, much of the illegal fishing was officially no Vietnamese residents in *Kampong Phluk*⁵⁰. Khmer outsiders also play a role in exploitation. Apparently, they come daily to fish in the commune and some set up temporary homes on the lake shore, especially in December-January. Many come from other parts of the lake, not just from the farming provinces.

Local authorities were concerned about this because it causes “unsustainable exploitation”. For example, the Village Chief of *Kouk Kdol* said: “if the government can crack down on illegal activity, then maybe there would be enough fish to go around”. A consistent narrative among villagers and local leaders was that everyone fishing on the lake, including outsiders, should only be allowed to use traditional or small-scale fishing gear as this would ensure sustainability⁵¹. However, these rules have not been implemented and many complaints were heard about corruption among “those who are meant to protect the fishery”. For example, bigger operators with illegal nets longer than 100 m are apparently required to pay bribes or informal taxes to the FiA. Unofficial payments depend upon the type of illegal fishing gear used.

⁴⁹All of the illegal fishing methods are referred to using Vietnamese words: e.g., *yangkao*, *saiyueng*, *shipruing*.

⁵⁰The Vietnamese are said to reside in neighbouring communes like *Chong Knies*. In 2004, four Vietnamese families asked to come and stay in *Kampong Phluk* but the commune refused because they were afraid that the Vietnamese would use illegal and destructive fishing equipment.

⁵¹It seems that this is an NGO or FACT narrative that villagers were telling us. Whether they really want to convert back to traditional gear needs further investigation.

In terms of governance, there are now three areas for fish conservation in the commune: (i) the newly declared 986-hectare subset of former Lot 4, which some refer to as the *Trei Kes* conservation zone; (ii) the “mother fish” conservation area in *Prek Provoeukor* “Lesser Whistling-Duck Canal”, which consists of flooded forest and nesting sites and is also important for bird conservation⁵²; and (iii) an old government reserve that has been looked after by the FiA since the 1960s. There is also former Lot 5 in the commune, which was abolished in 2001 and handed back to the people⁵³. The reasons for this are complex but originate in conflicts between local villagers and the former lot owner⁵⁴. A subset of former Lot 4 is the proposed FCA and the focus of the situation analysis.

The new conservation zone, declared in 2012 in former Lot 4, was selected by the FiA. As has happened elsewhere, a *sahakoum* was hastily formed to assist with the protection of the area. The FCZ site is located in the centre of former Lot 4 (covering 60% of the original Lot 4 area) with a community fishing zone located around the perimeter (40% of original area). Villagers are happy that Lot 4 was cancelled but they complained of their inability to exclude outsiders from Pursat and Battambang who come to catch fish from the community fishing zone. The site is a favourite spot for fishing because it is very deep, apparently the deepest part of the lake, and this is widely known.

FACT and the FiA in Siem Reap both emphasised the importance of protecting former Lot 4 because of its deep pools, which need protection from illegal fishing when the water is low (January to April). However, Lot 4 is more than 5 km from the village and is considered too far to reach by row boat. This means that only families with machine boats can access the fish there, implying that poor families are unlikely to benefit much from protection of this site. Nevertheless, villagers in general are happy that Lot 4 has been cancelled, because in the past they could never access the area, which was aggressively defended by the former lot owner. There are boundary makers to indicate the location of the new conservation zone, but these are temporary and made of wood, requiring costly and ongoing maintenance.



CBO group in Kampong Phluk

The governance arena in *Kampong Phluk* remains highly contested. Illegal activity apparently intensified in late 2012 in former Lot 4 and in other conservation zones⁵⁵. This was followed by a crackdown on illegal activity in March 2013, by the FiA and a mixed team of police and Military Police. As a result, 3-4 local villagers were apparently arrested, and are still in jail for having fished inside the core protection area for former Lot 4. Some village leaders said they were happy with this outcome because it had reduced the incidence of “destructive fishing”, delivering an immediate benefit to everyone in terms of better fish catches. The role of the new *sahakoum* in cooperating with these multi-agency law enforcement efforts is

⁵²This area apparently burned on 27 July 2010 causing loss of forest and bird nesting areas and a bird hide. Villagers are actively trying to restore the area now. The area is 1.2 km x 1.6 km in size.

⁵³Some cross-checking on the date of abolishment is required. H.E. Nao Thouk thought it was earlier than 2001.

⁵⁴The conflict is a big story in the village. In 2001, villagers apparently went to collect firewood in Lot 5 and the owner arrested them and tried to fine them. Having no money to pay, the villagers went to jail. This was then reported to HE Siangnum (*oknya* and legislator) who raised this with the Prime Minister who subsequently cancelled Lot 5 when he visited the area to open a new pagoda before the 2002 elections.

⁵⁵Villagers reported that illegal activity is mainly in conservation areas. This could be because there are more fish there but also because access is controlled by the FiA and only those who can afford to pay bribes dare to enter into these exclusive zones.

unclear and changing⁵⁶ but it will no doubt influence how the project is perceived vis-à-vis the government.

Institutional context and community organisation

Kampong Phluk began organising community-based fisheries management in 1998 with support from FAO and the provincial FiA⁵⁷. This led to the formal creation of the CFI or old *sahakoum*. All the legal steps were completed and the CFI was approved by MAFF. However, the CFI still lacks funding, capacity, and a clear mandate; making implementation of the natural resource management plan an ongoing issue.

The history of the CFI is important because it shapes present dynamics and politics. After the CFI was formed in 2001, Lot 5 was cancelled due to conflicts between villagers and the lot owner. This meant that the CFI was given the mandate to protect former Lot 5, which they called the “mother fish conservation area”. The CFI apparently protected the area so well that by 2004 local fish catches had increased by 40%. This attracted the attention of the FiA, which was accustomed to deriving benefits from a government reserve adjacent to former Lot 5. The FiA became envious of “fish leakage” from its reserve to the better-protected CFI site, which in turn benefitted poor families who could fish around the boundary. Conflicts between villagers and the FiA emerged over the management of former Lot 5 and the FiA cancelled the CFI’s mandate to protect the area in 2005⁵⁸.

In 2006-2007, the CFI was given a new area to protect, *Prek Provoeuk*, and this remains its current remit. The CFI’s responsibility does not extend to management of former Lot 4 (that is the new *sahakoum*’s role), and its 11-member committee works closely with the CBOs with support from FACT and Forum Syd. Protection of *Prek Provoeuk* occurs only when the water is low, as the area becomes an isolated deep pond that serves as a refuge for breeding fish or “mother fish”. It covers only 200 m x 30 m, is far from the lake, and its protection does not impinge on FiA income from the former Lot 5. However, villagers complain that its protection brings them no benefit: “it is too far away and too small”, they said, “and fishing around the boundary is not possible because it’s a canal”.

The villagers want to return to protecting former Lot 5, which is 2 km from the village, closer than former Lot 4 and accessible by row boat. Thus, it can deliver greater benefits for poorer families. The CFI has asked to be allowed to protect the area three times (in 2001, 2007, and 2008) but the FiA has refused. Indeed, the area is so coveted that the former lot owner has apparently tried to buy it back three times. His last bid was US\$200,000, although this was denied by FiA. Now the area is fished “anarchically” with many outsiders using illegal methods and presumably FiA leveraging considerable income. Small-scale family fishing is not possible. When asked if it would be possible to reinstate CFI management of former Lot 5, the FiA in Siem Reap responded “No, if you do that there will be too much conservation”. Somewhat confusingly, the protection of *Prek Provoeuk* appears to fall under a commune-wide natural resource management plan. This plan was developed in 2006 with support from FAO and FiA. The ADB also provided support for “sustainable environmental management” around this time⁵⁹. Among other things, it specifies how the commune’s forests should be managed in relation to timber and firewood harvesting⁶⁰. This is important, since all families depend on local fuel wood for cooking. However, FACT

⁵⁶For example, the FiA cantonment informed us that in April 2013 there was a new regulation (*sochornor*) that enforcement be undertaken by a multi-agency team of MoE, commune council, police, Military Police, FiA, and *sahakoum*. Some suggest that this will only lead to more corruption given that more agencies are involved, each with their own financial needs. Deputy Prime Minister Yim Chay Li also apparently advised that FiA officials must be stationed in the new conservation areas and that their boundaries must be demarcated and policed.

⁵⁷The name of the FAO advisor is Patrick Evans. He would be a good source of historical data on the site.

⁵⁸Explanations for the abolition of former Lot 5 CFI area are complicated. FiA maintains that the *sahakoum* had started to extract bribes for illegal fishing in its area. The *sahakoum* maintains that the FiA was jealous of the CFI protection measures, which caused fish from the government reserve area to take refuge in the CFI area, thus causing loss of income for FiA (derived from illegal fishing in the reserve area).

⁵⁹In 2003, the ADB supported the Tonle Sap Sustainable Environmental Management Project, which was followed by the Tonle Sap Livelihoods Project, an ADB loan supporting aquaculture and fish-raising, etc.

⁶⁰The plan allocates four blocks for timber harvesting, which are rotated annually. One family gets 7m³/year of wood.

and the CFI committee did not have copies of the commune natural resource management plan, suggesting that implementation is not as smooth as hoped. The new conservation zone in former Lot 4 is jointly managed across two communes. The CFI committee has members from *Chong Knies* and *Kampong Phluk* but the chief is from *Chong Knies* since it is closer to the site. The *sahakoum* for managing former Lot 4 is perceived to have been created by the FiA with the involvement of the provincial and district governors. The election of the *sahakoum* was dubious as it was orchestrated by the district and only local officials participated in voting for government-picked candidates. Villagers were not



Houses in Kampong Phluk in the late dry season

involved in the process. There are six *sahakoum* members, three for *Kampong Phluk* and three for *Chong Kneas*, but they have not held any meetings and all communications are by phone between the committee chief and the FiA. Committee involvement in protection has been minimal with most patrolling conducted by FiA, MPs, police, and commune officials. The committee has been told that there is a management plan but no one has seen it.

Each of the three villages in *Kampong Phluk* has a CBO and a committee of seven members.

These were established in 2009 and are very active. They support livelihood activities such as savings groups, fish raising, capacity building, and loans for small-scale businesses such as selling vegetables. The CBOs support over 100 widows in the commune⁶¹ who are unable to fish and must rely on other income generation activities. The CBOs have also been able to mainstream their work into the Commune Investment Planning (CIP) process, which has enabled them to receive funds from MOI.

The CBOs are active in building human resources and raising awareness about basic rights, conservation, gender, and climate change. Conservation activities focus on *Preik Prowok* and they patrol there once a month in the low water season. The gender work focuses on reducing domestic violence and promoting women's rights to participate in domestic and public decision-making⁶². The climate change work focuses on adaptation and building resilience through activities like fish raising, vegetable planting, and restoration of flooded forest.

There are two CFI or *sahakoum* entities in *Kampong Phluk*, one old and one new, but they are often referred to collectively. Overall, villagers perceive the role of the *sahakoum* in protecting resources as important, especially in controlling the activity of outsiders and protecting the fishery for local families: "if we did not have the *sahakoum* then the activity of outsiders would be worse", one villager said. Thus, the *sahakoum* strengthens property claims for villagers, but only if it is not used as an instrument by the FiA. As indicated above, the relationship between the CBO and CFI structures is unclear and may be evolving.

Livelihoods and food security

The catch-cry of villagers and local authorities in *Kampong Phluk* is that 97% of people rely on fishing for their livelihood and 3% of people do other things, like working as labourers for other fishermen, repairing fishing boats, and selling things⁶³. However, village focus groups reveal complex, highly seasonal, and

⁶¹The three villages of *Kampong Phluk* apparently have 35, 49, and 42 widows, making a total of 126 female-headed households. This high rate of widows is apparently not only due to the war but also to disease and high HIV prevalence.

⁶²For example, there is now a woman's forum at the commune level and the deputy commune chief is a woman.

⁶³These figures were used by commune authorities.

diverse livelihoods. In January-May, people are busy because it is hard to catch fish; in March-May, income can be supplemented with labouring on the local bean farm (owned by outsiders); and in July-August, when the water is “smelly” and the fishing season is closed, people migrate outside the village to do labouring jobs. Pig raising is increasingly popular⁶⁴, but fish raising much less so, as it is seen as something that only “rich” people can do.

When the water is low, the lake is the main place where villagers fish, although sometimes people fish in ponds closer to their houses. When the water is high, villagers can “go everywhere” to fish. Some villagers travel far out onto the lake, leaving at 4 AM and returning at 4 PM to sell their catch. The majority travel up to 30-40 km away (70% of households, not the “very poor” nor the “wealthy”), with some travelling up to 80 km away. Only those with big boats and powerful motors can reach the far-away places where many fish are to be found. These people are considered to be rich and they have resources to employ poorer villagers to work on their boats. The ordinary small-scale fishing families remain closer to shore, catching fish for their own subsistence and to sell if there is a surplus. According to the village chief of *Kouk Kdol*, since the fishing lots were cancelled, villagers on average can catch 10 kg of fish/day. Of this, they eat 2 kg, sell 5 kg, and make *prahoc* (fermented fish) with the remaining 3 kg.

Every day, traders from the “high land” (*khangleu*) come to buy fish in *Kampong Phluk*. There are three known traders who buy at the canal’s edge and two others who operate elsewhere. Each trader buys 500-1,000 kg of fish from approximately 40 families. Pricing depends on the type and size of the fish⁶⁵. Traders in *Kampong Phluk* sell the fish at *Rolours* market to other traders who take the fish to Siem Reap and Phnom Penh. The most expensive fish, *Trei proma* (*Boesemania microlepis*), is dried and then sold to Vietnam and Thailand. Each trader employs 2-3 workers who earn 5,000-10,000R/day depending on the amount of fish that is caught. Fish traders secure the loyalty of fishermen as their “clients” by lending them money. One trader we spoke to said that most fishermen were indebted to him and that he had loaned them a total of 3,000,000R (US\$750). He does not charge interest but if villagers cannot pay back the loans then they must give him their fish. In the peak fishing season, traders can buy and move up to nine tonnes of fish/day. However in April, when this study was conducted, the amount being bought/trader/day was 1-2 tonnes from 20-40 fishermen.

Within the commune boundary there is some farmland for the dry season cultivation of mung beans and rice⁶⁶. However, this land is owned by outsiders from the upland provinces” (*srok leu*) and villagers receive no benefit from the farming other than occasional labouring work. However, villagers do have home gardens, which they use when the water is low. They grow fruit and vegetables, mainly for home consumption, although some produce is sold. When the water is high, they depend entirely on the market for fruit and vegetables. After a 2010 forest fire threatened people’s homes⁶⁷, there has been a move to clear forest near the village. People are now clearing the forest up to 100 m from the road, to protect homes and create more space for farming. As a result, some families are experimenting with dry season cash crops like mung beans.

Families are vulnerable in *Kampong Phluk* due to: (i) the effects of natural disasters, (ii) increases in the number of fishermen using the lake, and (iii) increasing prevalence of illegal or mechanised fishing, which destroys traditional gear and captures all fish indiscriminately. There was a strong narrative that, in the past, upland people relied on farming for income but now they fish as well because “they want money” and are “greedy”⁶⁸. Those from the land are said to be “not so poor” but they want money quickly. The

⁶⁴The pigs eat rice, fish, hyacinths, and water convolvulus.

⁶⁵For example, ranging from the most expensive *proma* fish (*Boesemania microlepis*) at 20,000R/kg, 10,000R/kg for *chhdao* fish (*Channa micropeltes*), to 2,000R/kg for *chongkeing* (*Puntius falcifer*) and *kes* (*Micronema bleekeri*). The poor people catch the fish of least value. Fish is also valued by size, e.g., 20,000R/kg for fish over 2 kg, 8,000R/kg for fish under 2 kg, and 4,000R/kg for small fish.

⁶⁶The acquisition of these farmlands by outsiders was the result of land grabbing. The 1,500-hectare bean farm was acquired in the 1980s and the rice land was cut from the original forest by neighbouring commune residents in 2001. Titles have now been awarded for these historical land thefts and the land has been sold on to many private owners.

⁶⁷There have been a number of incidences of destructive fires. In response, the company (SEAPAC) bases a water truck for fire-fighting in the village.

⁶⁸This was the impression of the Village Chief in *Kouk Kdol*. They outsiders apparently come from nearby communes.

poorest families now generally serve as labour for large-scale fishers. For example, people are hired to put nets and traps out/brush bundle trap (*konsom*), ⁶⁹ and to help with long drag nets (*saiyeung*). Daily wages range from 8,000 to 15,000R/day.

The NGO Living Lake, in collaboration with FACT and Forum Syd through the CBOs, has been involved in helping very poor families. Support to poor households has included fish raising (12 households), purchase of tourist row boats (10 households), and the establishment of small-scale business for selling vegetables, soup, sweets, and fish processing (>10 households). There is a plan to increase this project in 2013 to reach 100 families and include new activities such as pig raising. Small loans are offered to poor households at an annual interest rate of 1%. Some activities, like fish raising, have been less successful than others.

Remittances also play a role in livelihoods. For example, some households have family members working in Phnom Penh, Siem Reap, and Battambang, and there are 2-3 families with members in Thailand. More significantly, around 30% of families are involved in seasonal labouring on cassava and rubber plantations in Mondulhiri, Ratanakiri, and Kampong Thom. This started in 2011 and increased in 2012. Many women and men go to labour in the plantations when it is planting and harvesting season and when there is little work in the village. They go in groups and can earn 15,000R/day⁷⁰. This labour migration occurs during the closed season on Tonle Sap (June-October) when fishing is prohibited. There was a suggestion that this labour migration also occurs because of declining fishery resources and hence loss of livelihood opportunities. The CBOs offer a channel for women to discuss their livelihood concerns. These include issues like: female-headed households cannot fish far from home; there is lack of drinking water and health care in the village; and young girls need educational opportunities⁷¹. The CBOs also collect their own funds (1,000R/member/month), which are used to pay for patrolling, administration, and to help sick people. Lack of drinking water is said to be the biggest livelihood issue, especially in the low water season. To alleviate this, the CBOs and commune council have plans to restore old ponds (*srah*) that can be used for water storage and/or dig new ones. The climate change adaptation project apparently helped dig one pond in 2012 in *Thnowt Kambot*, but the other two villages have not received



Fish trade in Kampong Phluk

⁶⁹In *Kampong Phluk*, people do not make the hyacinth traps seen elsewhere but they do make a similar trap from tree branches that are left in place for long periods.

⁷⁰This is the wage rate for planting. Harvesting payments are made per tonne of product harvested and/or 500R/basket of cassava that is peeled and chopped. Companies send out brokers to recruit labour from the village and transport them in hired company cars.

⁷¹Opportunities for girls to learn have now been provided by an NGO called Room to Read, which offers scholarships.

this kind of support. Due to water quality issues, ponds are said to be better than wells for domestic water supply.

Tourism

There is a major tourism business in *Kampong Phluk*. The focus of activity is around a resort built on stilts in the flooded forest. Here tourists are brought to sit and eat in a pleasant environment, with prices to match, and there is a long board-walk through the tree-tops. This entire facility is owned by a private investment company, SEAPAC, which belongs to a young *oknya* who used his government connections to arrange an exclusive contract for his business with the commune council.



Tour boats in Kampong Phluk late dry season

The tourism revenue is huge, especially in the peak tourist season from August to January when it would reach at least US\$10,000/day. SEAPAC monopolises the tourism business in the area and villagers are not allowed to establish new restaurants or tour boats that would compete with SEAPAC's operations. SEAPAC's contract with the commune council, signed in 2011, is for 99 years. It was facilitated by district and provincial officials and approved by the Prime Minister. Although the contract included provisions for benefit-sharing with villagers, villagers claim that this has not been implemented properly. Villagers have complained to the district governor, demanding that some eco-tourism revenue be shared and managed through a local committee⁷².

As a result, *some* community-based tourism activities are underway, which should enable all families to benefit from the tourist traffic. For example, not far from the SEAPAC resort is a community-run floating station that was built with a UNDP small grant in 2006. Through this station, there is an arrangement for villagers to take tourists on tours of the flooded forest in small row boats carrying two tourists per boat. For each trip, a US\$5 fee is charged: the community committee receives US\$1 and puts the money into a community fund for village development and conservation⁷³; US\$2 is kept by the boat rower as private income; and US\$2 is paid to the tour operator who brings the tourists to take the row boat. The opportunity to row the boat is rotated around the village so that everyone gets a turn and income is distributed. One commune official said that there can be up to 100 rowboat trips/day. In 2012, Living Lake purchased 30 boats so that poor families could participate and benefit. However, when many tourists come, they are still short of rowboats and villagers must hire other people's boats in order to participate as rowers⁷⁴. Much of the rowing is done by women because the men are out fishing or labouring. There are two privately run guesthouses in the village although they appear run-down and infrequently used. Similarly, there are four floating restaurants that are privately owned and run by wealthier villagers who have escaped the SEAPAC monopoly⁷⁵.

⁷²The villagers demanded in their letter that governance be strengthened and that a new CFI committee be elected to manage a community run eco-tourism station. To some extent, this appears to have happened. It is unclear when this occurred although SEAPAC's operations have apparently been underway since 2009.

⁷³The community funds are used to support sick people, protection of *Prek Provoeuk*, and repair of the floating station. Annual revenue is about US\$2,250. None of this is spent on former Lot 4 protection, since it is less community-driven and is very new.

⁷⁴It costs 2,000R to rent the boat for 30 minutes. One household can row two times per month in the peak season.

⁷⁵The head of the CBO committee told me that new restaurants cannot be opened in competition with SEAPAC and that SEAPAC had tried to have the existing floating restaurants shut down through the commune officials. One restaurant that escaped the monopoly is well connected to the government: it is run by a local policeman and a Danida-funded speed boat (being used privately) was observed parked out the front.

The privately-run transportation of tourists from Siem Reap to SEAPAC's resort in *Kampong Phluk* is far more profitable than the community row boats. This traffic consists of around 30-40 large motorboats every day, carrying 10-30 people/boat. These boats are privately owned but the owners must pay a licence fee of US\$600-US\$1,000/boat to SEAPAC. The fees depend on boat size. Traffic is strictly controlled and the boats are numbered by the company. There are a total of 178 licensed boats in total (123 small ones, 37 big ones). Some villagers get work driving the motorboats and one boat driver gets US\$30/month.



Tourists apparently pay a US\$1/person entry fee to SEAPAC plus their boat ticket, amounting to large revenues because there are about 1,000 tourists a day in the peak season. This points to highly inequitable distribution of tourism benefits and further research is required to examine how the situation could be improved.

Thousands of tourists visit Kampong Phluk every year

Potential impact of the FCA

Villagers are generally happy with the idea of protecting the new conservation area in former Lot 4. The overall sentiment was that, although dry season fishing prohibitions in the area are hard for some people, in the end “everyone can benefit” because the fish spread everywhere in the wet season, even close to people’s houses in the village so “widows can also benefit too”. FACT staff expressed the same idea: that conserving former Lot 4 would be good for livelihoods because when the water rises, the fish are dispersed. Similarly, the FiA cantonment thought that the livelihood impacts of conserving former Lot 4 would be minimal but for different reasons: he said that anything would be better than the “greediness” of the former lot owner. All agreed that the new conservation area is far away and quite large. Protection will require resources such as radio, telephone, fuel, boats, guard posts, etc.

More analysis will be required to understand the likely differentiated social impacts of conserving former Lot 4. For example, due to the distance of the site from the village, it is said that poor people are rarely able to fish in the area and would be less likely to engage in conservation efforts. On the other hand, more wealthy fishers have the resources to fish there and “they dare” to go. The sub-text of this is that they are either prepared to pay fines if they get caught or they have already paid the authorities before entering the area. Thus, initial analysis suggests that conservation will come at a cost for the rich but will benefit the poor, if implemented properly.

7. RECOMMENDATIONS

Risks of fish conservation areas and how to mitigate these

In general, there is low risk that the strengthening of conservation in targeted FCA sites will have harmful impacts on the poorest and most vulnerable families. If valuable fishing resources can be protected from the reach of more powerful and well-resourced fishers who conduct intensive and illegal fishing, then the poor are likely to benefit. However, implementing conservation that impacts powerful, local actors is challenging. Thus, conservation could trigger conflicts within communities, or between CFi groups and powerful others, as property and access regimes change. Tackling these issues, especially through community organising, could be a key contribution of the project.

Each of the project sites has a high proportion of very poor families who are food insecure. For many, if they fail to catch fish or acquire wage labour on a daily basis, then they have no food or money in

reserve. Although the level of vulnerability is highly seasonal, it appears that lot abolition is improving the situation overall due to promising signs that fish populations will increase and greater community access to fisheries. However, livelihood improvements for the poor can only be achieved if intensive illegal fishing is prevented. Furthermore, consideration of food security needs to consider more than just food *availability*, which is usually discussed in terms of fish and rice. Attention must also be paid to nutrition. For example, in many poor families, vegetable consumption appears to be low due to the lack of farms or home gardens, especially in *Boeung Chhmar*. In such contexts wild vegetables are often consumed, but further investigation of the role of wild food in food security is required (Toledo and Burlingame 2006).

The major risk for the project relates to its engagement and positioning vis-à-vis government. The new conservation zones that the project intends to protect in *Kampong Phluk* and *Plov Touk* have been created quickly and in a top-down fashion. The associated *sahakoum* entities are therefore weak at the grass-roots level and intimately connected to government at higher levels. Thus, the project needs to find a way to build the legitimacy of these new *sahakoum* entities in the eyes of villagers and/or focus on creating new village-level *sahakoum* with appropriately implemented elections and/or work with old CFI structures that need re-invigorating. In this task, engaging existing CBOs and/or creating new CBOs could be a way to strengthen local engagement. CBOs can also bypass CFI implementation issues, if they arise (e.g., gaining permission from FiA for proposed activities), although the project should try hard to work with existing CFI structures first.

A final note of caution relates to the conflicting roles of MoE and FiA, especially in the *Boeung Chhmar* area, although more widely in the context of recent fisheries reform and management of the Tonle Sap biosphere reserve. The project will need to navigate carefully through these relationships, being sure not to precipitate conflicts and to ensure that roles and responsibilities of each agency are clear.

Monitoring and evaluation

Monitoring the project's social and environmental impacts will require the collection of baseline data and selection of indicators. The project would benefit from linking with existing research projects such as the fishery valuation project implemented by WorldFish (WF) and adapting their data collection instruments to develop the monitoring protocol⁷⁶. Following the example of WF, a standardised approach to monitoring livelihoods using standard poverty measures would be strategic. For example, the project could use a set of indicators used by the National Institute of Statistics (NIS), the national census, and the Ministry of Planning's poverty categorisation methods. Measures of nutrition can be aligned with other standards, e.g., from UNDP indicators. Finally, the Most Significant Change (MSC) method provides a complementary or alternative way to measure local social and environmental changes, especially those that could be missed in an overly quantitative or structured approach to monitoring (Davies and Dart 2005; Wilder and Walpole 2008).

Based upon the results of the situation analysis, potential indicators include:

- Food consumed by a sample of the poorest families (e.g., 20 families/site).
- Average fish catch of poorest families, sampled by season.
- Amount of fish bought at each site by traders or middlemen.
- Number of incidences of illegal fishing in the FCA from CFI records.
- Number of meetings of CFI committee.
- % of households with access to safe drinking water.
- % of households that say they have enough food to eat.

To keep the monitoring costs down, a carefully designed sample will be required that targets a range of households that are likely to be impacted by the new FCAs. Baseline data is worth collecting but it will be hard to attribute observed social and environmental changes to project activities *per se*. This is due to: (i)

⁷⁶This project is funded by the Australian Centre for Agricultural Research (ACIAR) until 2015. The lead researcher, Dr Eric Baran, is happy to collaborate with the project. They have surveyed 700 households over one year, covering four seasons.

rapid rates of background change occurring on the lake in terms of governance and human and fish populations, among other things; (ii) significant natural variation in the system between years, e.g. flood size, which affects fish stocks; and (iii) the fact that the conservation areas where the project will intervene already exist and/or are under management, meaning that a “before” and “after” view of FCA implementation will not be gained from the monitoring effort. Finally, attention to gender and women’s roles is necessary, especially to understand food security issues at the household level. Women need to be included in the monitoring samples and some indicators could be gender disaggregated.

Another strategy for monitoring could be to take a more participatory approach, having villagers themselves devise indicators and measure change in a form of community-level “adaptive learning”. This could strengthen local participation and empowerment across a range of issues, not just fisheries.

Project design and implementation

Below is a list of recommendations and ideas that relate to project design and implementation, both in general and for each site. The list is not in order of importance.

In general

1. Geo-referenced versions of the sketch maps produced during the situation analysis should be made for everyday use by the project, CFI members, and villagers.
2. The partnership with FACT needs to be discussed as it appeared that the new FACT staff did not have TORs and there was virtually no communication or integration between the project and existing FACT activities at the project sites, especially in *Kampong Phluk*. There are a lot of potential synergies between this project and FACT’s other work, including (i) the Increasing Access to Public Information (IAPI) for fishermen⁷⁷ project, and (ii) McKnight and Forum Syd-funded work to strengthen fishers’ rights. These linkages and synergies must be maximised.
3. A catalogue of fishing gear should be produced for use at project sites. Names of fishing gear were highly site-specific and varied between sites, and not all project staff were aware of the range of fishing gear in use, how it is referred to locally, and whether it is legal. The catalogue could include photos of gear, information on the cost, labour requirements, fish catch, and the kinds of people that use the equipment. Resources and catalogues of this kind should already be available (e.g., FACT’s 2009 work on the family scale fishing gear *prakas*), and these can be adapted for project purposes.
4. Consideration is needed on how the project positions itself vis-à-vis government. For example, will it assist in implementation of the government’s new conservation zones? Or will it place greater emphasis on participatory planning and management of fisheries, through local communities? This will require a fine balance, to ensure that the project does not just implement and finance government agendas.
5. The key findings in this report need to be translated into Khmer and checked by villagers, as well as FACT and IUCN staff. This helps with dialogue between the project and stakeholders.
6. Support for community-based patrolling was requested by villagers. The project could allocate resources for this if they are not available from elsewhere (e.g., CIP).
7. Exchanges could be conducted between the sites so that communities can share experiences.
8. A clear policy on community participation will be required. In areas where people are poor, taking a day off from fishing to attend a meeting comes at a great cost. Some compensation is necessary.

Boeung Chhmar

9. The project should try to build relationships with communities independently of MoE in order to cultivate the civil society space that it seeks. This is not to say that existing structures should not be engaged, but more to emphasise the need for balance and neutrality, if possible.

⁷⁷This is being implemented by the Advanced Policy Institute (API) in partnership with FACT.

10. Community organising here is a big challenge because of the mobility and transience of the population. The community engagement strategy will need to target permanent families but find ways to engage outsiders too.

Plov Touk

11. A commune based natural resource management planning process is needed to finalise site selection for the project, e.g., between the new fish conservation zone and the proposed Ghost Forest (*Prey Knoch*) area. The Ghost Forest is seen as easier to protect and its protection will deliver direct benefits at the local level but for villagers in *Peam Krong* only. Protection for flooded forest may also be worth pursuing.
12. At present, the *sahakoum* exists at the commune level, which is too large. It should be re-created or scaled down to operate at the village level. This was also recommended by the FiA. Whether the project focuses on *Slort* or *Peam Krong* needs discussion.
13. A new CBO (or CBOs) could be formed in *Plov Touk*: it is faster and easier than the CFI option. The fishermen in *Plov Touk* could also join the CCF, if they are interested.
14. Villagers in *Slort* should probably be given some user rights in the new conservation zone, as it seems that the open access portion of the former lot is of limited benefit to them. This could be elaborated in rules and regulations for management of the site, if/when they are developed by the project or others (e.g., FiA and the new *sahakoum*).
15. The new fish conservation zone is considered too big and too far away to protect as a community-based undertaking, although there may be biological reasons to justify its conservation. Furthermore, it appears that the benefits of protection would mainly accrue to the outsiders who fish there, not the local villagers. Something tangible and meaningful to villagers must be devised instead.

Kampong Phluk

16. It is assumed that the project will strengthen the committee, set up a management plan, implement rules and regulations, etc., but if this is to occur with the new committee then the project will need to work across two communes. If the existing CFI in *Kampong Phluk* becomes the focus, then a way for the old and the new *sahakoum* to work together must be found.
17. The management of Lot 4 should, if possible, occur within the existing commune-level CFI set up in 2001 rather than through the new joint-commune committee set up by the FiA in 2012, since the latter lacks legitimacy and is spread between two communes. New rules and regulations for Lot 4 need to be integrated into the existing CFI rules and regulations.
18. The existing (old) CFI needs to be reorganized and reinvigorated. A key issue is that the previous CFI chief has now been elected as the commune clerk and a replacement has yet to be found. The old rules and regulations need to be located, and then updated in a participatory way. Perhaps re-election of some committee members will be required. It seemed that plans for this were already underway so there may be a new committee elected in April 2013, the management plan can then be updated.

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Annex 1: Question guide for Key Actor interviews, Committee interviews, and the Focus Group Discussions

1. Village chief, commune chief, deputies, other local leaders

How many households? How many groups (*krom*)? What ethnicities are here? (e.g.; Khmer, Cham, Vietnamese)

How long has village been here? Does the village move with the seasons?

What are the main livelihoods in the village? What are the five most important ones? What is the role of fishing?

Food security: how many families lack food to eat?

Is debt a problem for people?

What health problems are there? Is there a health post we can visit?

Do people use land-based resources to do farming and/or collect fuelwood, or other things?

Do people work for wages and/or travel to work and send money home? (e.g., remittances)

Of the fish that people catch, what proportion do they sell? Who buys? Do people process the fish (or snakes, snails, crabs, other/s) before selling?

What other things do people sell? (e.g., vines, vegetables, prahoc, water hyacinth)

What are the most important sources of income in the community; both in cash and in kind? How do poor people's sources of income compare to the 'rich'?

What are the most positive things in the village/what are they hopeful about?

What are the biggest issues/problems in the village?

2. CFI or CPA Committee meeting:

How was the committee formed? When? By whom?

What is your role and responsibility?

How do you relate to the Commune Council and the FiA? What other organisations do you relate to?

Do you have a management plan? What ideas do you have about fishery management?

Do you meet regularly?

What have you achieved since the CFI started?

What challenges do you face?

Sketch map of the community fishery/fish resources used by village:

- Where do people go fishing? (Villagers and outsiders)
- Where are areas of conflict?
- Do outsiders come to use resources?
- Where is the FCZ? What are the impacts on livelihoods and fish populations?
- Is there a flooded forest? Is it threatened?
- What are the threats to the fishery?

Timeline (10 years)

- Fish availability over time; e.g. catch / hours spent fishing
- Size of fish caught and types of fish caught
- Technology changes

History of fish management: Fishing lots cancelled, committee formation, and events or incidents

3. Focus group discussions

Sketch map

- Where are the resources people use, households, infrastructure and main features of the village

- Where are areas of conflict and scarcity?
- Do outsiders come to use resources?

Seasonal calendar

- Matrix for each month: rainfall and flooding; village location; fishing activities (types and locations); busy time; the time when fishers don't have enough food for subsistence; labour time; farming/land use; outsiders coming;
1. How does rainfall vary over the year?
 2. What are the busiest months of the year?
 3. At what time of the year is food scarce?
 4. How does income vary over the year for men and women?
 5. How does expenditure vary over the year for men and women?
 6. When is most fishing work carried out by women?
 7. When is most fishing work carried out by men?
 8. When is most other work carried out by women? (paid – labour; unpaid -processing fish, agriculture, collection of resources like fuelwood, other)
 9. When is most other work carried out by men? (paid - labour, unpaid -processing fish, agriculture, collection of resources like fuelwood, other)

Wealth ranking

- Develop the criteria for rich, medium, poor, very poor

Then estimate number of households in each category.

4. Interviews with vulnerable households

- How long have you lived here?
- What do you do for your livelihood? (e.g.; fishing, cash income)
- Do you sell fish? To who? What profit do you make?
- Do you catch enough fish to eat?
- Do you have enough rice to eat? How do you get rice?
- If you lack food, what do you do? Can you borrow from relatives?
- What would you like to do to improve your livelihood situation?
- If they protect some parts of the lake and do not allow fishing, would this affect you?

Annex 2: Results from wealth ranking, seasonal calendar and livelihoods ranking

1. Peam Knong Village, Plov Touk Commune

(a) Wealth ranking – Plov Touk

Very poor ⁷⁸	Poor	Medium	Rich
<p>Many children who are small and therefore need to be taken care of.</p> <p>No motor-driven boat.</p> <p>No fishing gear.</p> <p>Houses with thatched rooves.</p> <p>Houses are damaged in many places and are small in size.</p> <p>Residents earn an income of 5000-6000 Riel per day.</p> <p>Provide labour in exchange of wages.</p>	<p>They have fishing gear; such as hooks and rented nets (4-5 dai⁷⁹).</p> <p>Because they do not own their own nets; the fishers must rent, borrow, or attain a loan to buy a net⁸⁰.</p> <p>Have a small-sized boat; sometimes installed with a small motor.</p> <p>Income of 10,000 Riel per day, or they catch 10 kg of fish per day.</p> <p>Some have small-sized farmland, but they mainly rent land for cultivation from others.</p> <p>50% have a TV and radio and 50% do not have any such electronics.</p>	<p>Have their own nets.</p> <p>Have bamboo fish traps or <i>lorp</i> (<i>tul</i>, the eel trap called <i>loan</i>, etc).</p> <p>Have big motorboats called <i>bala</i> in Khmer.</p> <p>They have about 2 ha of land.</p> <p>They have a generator for recharging batteries in order to access electricity.</p> <p>They have a small grocery shop.</p> <p>Can earn an income of 20,000-30,000 Riel/day.</p>	<p>Houses are made of wood.</p> <p>Own a grocery shop.</p> <p>Lend money to people.</p> <p>Have a big or small <i>bala</i> and a small motorboat (a boat with an engine used for travelling).</p> <p>Own 5 ha of farm land.</p> <p>Act as middleman.</p> <p>These middlemen buy crops from farmers after harvest.</p> <p>Sell gasoline and medicine.</p>
20%	30%	40%	10%

⁷⁸The Ministry of Planning has made the categories of “Poor 1” and “Poor 2”; where Poor 1 is the poorest section of the population.

⁷⁹‘Dai’ is the measure of the length of a fishing net. Here, 1 dai is between 40-50 m.

⁸⁰If one has this fishing gear, then one is considered rich.

(b) Seasonal Calendar – Plov Touk

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Sesame crop (2.5 months), pumpkin (3.5 months)	✓	✓	✓	✓	✓	✓						
Yellow and green beans (2.5 months) ⁸¹	✓	✓	✓	✓	✓	✓						
Put fishing net ⁸²	✓✓	✓✓	✓	✓	✓	✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓
When a lot of fish can be caught	✓	✓	✓									
When people are very busy (100%) ⁸³	✓	✓	✓✓	✓✓	✓	✓						
When people are relatively busy (70%)							✓	✓	✓	✓	✓	✓
The most difficult times for fishing due to wind, rain, wave action								✓	✓	✓		
When people are ill (in hot weather)			✓	✓	✓							
Clean water	✓	✓							✓✓	✓✓	✓✓	✓✓
Polluted water						✓	✓	✓				
Muddy water			✓	✓	✓							
<i>Lorp tul</i> (bamboo fish traps) ⁸⁴ , <i>loan</i> (eel traps) and <i>riey santouich</i> (hook lines)					✓	✓	✓	✓	✓	✓	✓	✓
<i>Krosong komplauk</i> (put net around; refer to footnote 83 below)		✓	✓									

⁸¹Farming commences when the water level drops.

⁸²Put nets are used all the time, but in the dry season they are only used in the deep pools (called *anlong*) and they cannot be used in shallow places. "Putting the net" means placing the nets across the flow of water, so that the fish are trapped in it in the cross-sectional flow.

⁸³The community is busy due to farming activities. If they have a farm, they will fully pursue farming and stop fishing during this period.

⁸⁴Only in the rainy season, when the water starts to flood.

Outsiders come here; Khmer uplanders, Cham (20-30%) and Vietnamese (50%)	✓✓	✓✓	✓			✓	✓	✓	✓	✓	✓	✓
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(c) Livelihood rankings – Plov Touk

(Note: Fishing activities and farming activities were ranked separately)

Kind of livelihood activity	Most important livelihood activities (1=most important, 2=next most important etc.)	Activities listed but not ranked as 'important'
Fishing	1: <ul style="list-style-type: none"> Put nets Put fishing hooks Fish trap for snakehead fish (<i>lorp tul</i>)⁸⁵ 2: <ul style="list-style-type: none"> Eel trap (<i>loan</i>) 3: <ul style="list-style-type: none"> Hyacinth trap (<i>krosong kapauk</i>) 	<ul style="list-style-type: none"> Traps with long nets, 30-50 m (<i>robung lorp</i>)⁸⁶
Farming	1: <ul style="list-style-type: none"> Sesame Pumpkin 2: <ul style="list-style-type: none"> Mung and soy beans 3: <ul style="list-style-type: none"> Corn 	
Fish raising		<ul style="list-style-type: none"> Raise <i>trei pra</i> and <i>trei peau</i> (both the terms refer to Bodhi fish)
Labour (for wages of 15,000-20,000 Riel/day per person)		<ul style="list-style-type: none"> Harvest sesame Clear the grass from the pumpkin crop Harvest beans and pumpkin Put fishing nets (i.e.; big ones that need 4-5 people) Harvest catch from the hyacinth fish trap (<i>Hum krosong komplauk</i>)
Other activities		<ul style="list-style-type: none"> Buy fish Own a grocery shop Make fermented fish called <i>prahoc</i> and also to make <i>pa'or</i> (another kind of <i>prahoc</i>) Smoke fish Dry fish

⁸⁵For snakehead or other expensive fish (such as *trei moule* and *trei ros*), they are worth at least 5000Riel/kg.

⁸⁶Long nets, attached to bamboo poles, where a boat is needed to drive across it.

2. Balot village, Peam Bang Commune

(a) Wealth ranking – Boeung Chhmar

Very poor	Poor	Medium	Rich
<p>Small rowing boats, but with no motor.</p> <p>A lot of children.</p> <p>No phone.</p> <p>Have one type of net only; called <i>os onchong</i> or <i>reay mong</i> (that catches fish in the cross-flow across the canal or on the edge of water hyacinth).</p> <p>Can catch 1-2 kg fish per day for “eating” only, i.e. the money from what they sell is used to buy rice⁸⁷.</p>	<p>Have a small boat with a small motor, no <i>bala</i>.</p> <p>Thatched roof houses and some houses are made wood</p> <p>Sometimes they have no food to eat (localised referred to as <i>daik bai mdong ka</i>).</p> <p>Small TV</p> <p>Phone</p> <p>5-10 kg of fish per day.</p> <p>Can buy a quantity of rice over 5 kg which lasts a few days (i.e., with some to spare)⁸⁸.</p> <p>Fishing gear: <i>Reay mong</i> is used across the stream or in water hyacinth and <i>os onchong</i>.</p> <p>Can buy fish to smoke and sell it for processing.</p> <p>Houses are made using small pieces of wood.</p>	<p>Have a machine-operated motorboat and 2-3 boats running on a motor (referred to as <i>kanort</i>).</p> <p>Have a wooden house.</p> <p>Have a TV and a CD player.</p> <p>Can catch 50 kg of fish, more or less, but this is not regular (i.e., 50 kg per day or per time, but they don't go to fish regularly).</p> <p>Have <i>ouan</i> (a type of net), with a length of 100m⁸⁹.</p> <p>Can buy smoked fish from others, and then sell this onwards.</p>	<p>Have a grocery shop.</p> <p>Own an ice factory.</p> <p>Sell gasoline.</p> <p>They don't only go fishing, but also buy fish for sale.</p> <p>Own a generator for recharging batteries.</p> <p>Loan money to others</p>
<p>4 families</p> <p>[13%]</p>	<p>13 existent families and 3 new⁹⁰ households (16 in total).</p> <p>[53%]</p>	<p>6 families</p> <p>[20%]</p>	<p>4 families</p> <p>[13%]</p>

⁸⁷They live on a day-to-day basis, with nothing to spare.

⁸⁸They can catch fish for personal consumption over 2-3 days, in one time.

⁸⁹A net over 100 m in length is considered illegal.

⁹⁰This means that they have been settled in the village for a long time, but have not registered as residents in the village records as yet.

(b) Seasonal Calendar - Boeung Chhmar

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Fishing season	✓	✓	✓	✓	✓	Closed season	Closed season	Closed season	Closed season	✓	✓	✓
<i>Trousaich</i> ⁹¹ (<i>saich krahaom</i>) Long fishing net used by 3 people	✓	✓	✓	✓	✓	✓✓	✓✓	✓	✓	✓	✓	✓
Kapauk (<i>kromsom komplauk</i>) Water hyacinth trap		✓ Put trap	✓ Put trap	✓ Harvest after 1-2 days	✓ Harvest after 1-2 days ⁹²							
<i>Os ouen</i> less than 100 m in length. ⁹³		✓	✓	✓	✓	✓						
<i>Mong wai</i> Mesh size of 6 cm		✓	✓	✓	✓	✓						
<i>Lorp tul</i> (fish trap)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Lorp korb</i> (fish trap)		✓	✓	✓	✓	✓						
<i>Loan antoung</i> (Eel trap)						✓	✓	✓				
Head-torch fishing Considered illegal.										✓	✓	
<i>Chhnork</i> (plug) 15m ² . Uses a									✓	✓	✓	✓

⁹¹Red net or 'trou' uses bamboo sticks.⁹²During that time, money must be given to authorities.⁹³If the net is over 100 m, it is illegal. Fishing can only take place in shallow water, because people need to stand up. Therefore this can be possible in the dry season alone.

torch to attract fish. Considered illegal.												
<i>Dong komplauk</i> (rainy season version, where the net goes underneath)									✓	✓	✓	✓
Put in a long line of fishing hooks (<i>da-k riey santouich</i>) ⁹⁴	✓	✓				✓	✓	✓	✓	✓	✓	✓
The most busy time for livelihood activities (even though all times of year are busy)	✓	✓	✓	✓✓	✓✓	✓✓						
Difficult time (eases in January, as the water levels drop)	✓						✓	✓	✓	✓	✓	✓
Smelly water (<i>tuk sa'oich</i>)							✓	✓	✓			
Clean water (<i>tuk saat</i>)	✓	✓ (first muddy)								✓	✓	✓
Muddy water (<i>tuk laok</i>)		✓	✓	✓	✓	✓	✓					
A lot of outsiders ⁹⁵		✓	✓	✓	✓✓	✓✓	✓✓					
Some outsiders								✓	✓	✓	✓	

⁹⁴Just for everyday food, not so important.

⁹⁵During peak periods, there are groups of families which have 15-30 boats.

(c) Livelihoods ranking – Boeung Chhmar

Kind of livelihood activity	Most important livelihood activities (1=most important, 2=next most important etc.)	Activities listed but not ranked as 'important'
Fishing	<p>1:</p> <ul style="list-style-type: none"> The red fish net with small holes (<i>dak tru saich</i> and <i>lorp saich</i>) <p>2:</p> <ul style="list-style-type: none"> Floating water hyacinth trap (<i>Dourng komplauk</i>) Various techniques with long nets, e.g. hitting fish to bring them into the net, or using a head-torch with a battery to lure fish into the net (<i>mong proyung</i> and <i>mong wai</i>) A 95 m long net, which 2 people hold with bamboo sticks at either end (<i>ouk oung</i>) Fish traps above and below the water (e.g., <i>lorp tul</i> and <i>lorp kop</i>) <p>3:</p> <ul style="list-style-type: none"> Family fishing net – catches small amounts of fish for everyday consumption (<i>Riey mong</i>) Put hooks (<i>Riey santouich</i>) 	<ul style="list-style-type: none"> Cast net (<i>Chapniang</i> and <i>bang somnanh</i>) Eel trap (loan <i>antoung</i>) Bamboo fish trap (<i>dak chuch</i>)⁹⁶ Variations of the floating trap used in hyacinth or branches (<i>krosong kompues</i>) for capturing small shrimp. Other traps and methods such as <i>saiyeung</i>, <i>os onchong</i> and <i>dak lob</i>. Resources other than fish, which are sold: <i>leas</i> (small freshwater clam) and water snake.
Fish processing		<ul style="list-style-type: none"> Smoke fish. Make <i>prahoc</i>, <i>pa'or</i> or <i>mam</i>. Dry fish.
Trading and other business		<ul style="list-style-type: none"> Sell fish. Buy fish from others for sale. Grocery shop (3 households only) – selling gasoline, vegetables etc.
Other activities		<ul style="list-style-type: none"> Get firewood. Get the young leaves of the <i>reang</i> tree to eat with <i>prahoc</i> (a tree species in the flooded forest). Collect wild vegetables like lotus, water convolvulus and fresh shoots (<i>prolet</i>, <i>trokouen</i> and <i>troui-snau</i>) for eating and selling locally.

⁹⁶There is a Khmer song about the *chuch* trap and a snake fish “you are not strong, get out of my way”. Snake fish is strong in the water, but eventually the trap wins.

3. Kampong Pluk commune – a mixture of people from all villages

(a) Wealth ranking – Kampong Pluk

Very poor (<i>kror 1</i>)	Poor (<i>kror 2</i>)	Medium	Rich
<ul style="list-style-type: none"> - Lots of children (5-10) - Widows - Old and disabled people - No fishing gear - Have one small rowing boat or no boat at all. - Have no regular jobs. - Work as labourers. - Ill for a lot of the time. - Owe money and have debt/liabilities. 	<ul style="list-style-type: none"> - Small business-owners. - Have one small machine boat. - Have many children. - They have a net span between 2.5 cm-3.5 cm. - They have <i>krosom</i>. - Owe money and have debt. - They are workers. - Some people are widows, disabled and elderly. - Can catch small fish of around 5-10 kg per day. - Have one mobile phone (if they do not catch fish, then they become like <i>Kror 1</i>). 	<ul style="list-style-type: none"> - Have a big machine-run boat with a diesel engine. - Have various kinds of fishing gears for use during all seasons. - Have enough facilities and equipment for living (e.g., a TV). - Can catch fish between 15-30 kg per day (these are medium-size fish of value 2500-3000 Riel/kg) such as <i>trey leich pee</i> - Some buy and sell fish. - Have a small grocery shop. - Put <i>Sayeun</i> trap (medium amount, around 500 traps). 	<ul style="list-style-type: none"> - They own a machine-run boat for tourists and around 2-3 boats only for this purpose. - Have large-scale fishing gear. - Own a big grocery shop - Have farming land: <i>dei srei</i> and <i>dei chamka</i>. - Have a motorbike - Mechanical mule⁹⁷ - They have 1000-2000 sayeun traps. - Have many nets with a total length of between 100-150 dai (1 dai=50m). - Have between 2-6 workers. - Can buy and sell fish and dried shrimp.
2 (17%)	4 (33%)	5 (42%)	1 (8%)

(b) Seasonal calendar – Kampong Pluk

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Closed season for fishing						✓ (1 st)	✓	✓	✓ (30 th)			
Open season	✓	✓	✓	✓	✓					✓	✓	✓
Most important month for fishing	✓✓	✓✓								✓	✓	✓
Lack of fish – difficult to catch and due to the closed season			✓✓	✓✓	✓✓	✓	✓	✓	✓			

⁹⁷It is a kind of fishing gear which uses a machine with a mule.

Polluted water (<i>tuk soo</i>)							✓	✓	✓			
Muddy water (<i>tuk laok</i>)		✓	✓✓	✓✓	✓✓	✓						
Good water (<i>tuk saat</i>)	✓								✓✓ (overlaps with spoiled water)	✓✓	✓	✓
Fishing gear: Put net with mesh size of 2.5 cm-6 cm (extending between 100-300 m in length)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Put net with mesh size of 6 cm-12 cm	✓	✓	✓	✓	✓					✓	✓	✓
<i>Krosom</i>	✓	✓	✓	✓	✓					✓	✓	✓
<i>Sayeun</i>	✓	✓				✓	✓	✓	✓	✓	✓	✓
Raising pigs, chicken and ducks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rowing boats for tourists	✓✓	✓				✓	✓	✓	✓✓	✓✓	✓✓	✓✓
Selling groceries	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Illegal fishing (<i>sipreuing</i>)	✓	✓	✓								✓	✓
<i>Mong wel</i> (also illegal)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Yang Khao</i> (first time this year)	✓											✓
Electric fishing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outsiders come to fish here	✓											✓
Busiest month	✓	✓	✓	✓	✓							
Most difficult month to pursue livelihoods			✓	✓	✓	✓✓	✓✓	✓✓			✓	✓
Leave to work outside of the village				✓	✓	✓						

(c) Livelihood ranking – Kampong Pluk

Kind of livelihood activity	Most important livelihood activities (1=most important, 2=next most important etc.)	Activities listed but not ranked as 'important'
Fishing	<p>1.1</p> <ul style="list-style-type: none"> Using nets (<i>mong rief</i>): There are two kinds of nets; first with a size of 0.025-0.06 m used by the poor, and with a size of 0.06-0.12 m used by the rich⁹⁸. The lengths extend up to a maximum of 100 m, but some people have nets up to 300 m which is illegal. <i>Krosong</i> (important for poor people): Mostly used in the dry season, this is a trap that uses tree branches to catch fish; similar to the floating hyacinth trap. <p>1.2</p> <ul style="list-style-type: none"> <i>Saiyeung</i>: Used for catching shrimp, it looks like an eel trap that has metal wire nets or mesh. It is mainly used in the rainy season. 	<ul style="list-style-type: none"> <i>Lorp</i> – A long fish trap, with some funnelling to increase the catchment size and channel the fish inside it for capture. <i>Mong os dei</i> or <i>mong woat</i> – A long hand net, with one person operating it on each end. They walk and catch fish. <i>Mong hum os dei</i> - Similar to the above, but it is longer, and circles around and scoops fish into it. <i>Santouich</i> – These are hooks mainly used by the poor, because they cannot buy <i>saiyeung</i> and nets.
Selling and growing vegetables		<ul style="list-style-type: none"> Grow vegetables locally, and buy from 'upland' people to sell in the village, Home gardens: Sell about 20% of the total produce and eat the rest at home; including herbs and greens, lemongrass (<i>sletkreyz</i>) and mint (<i>chi</i>), eggplant, gourd, wax gourd, pumpkin, corn, mung beans etc.
Fish processing		<ul style="list-style-type: none"> Make <i>prahoc</i> and <i>mam</i> Smoked fish Dried fish and shrimp Fish cakes Fish sauce
Raising animals	<p>3:</p> <ul style="list-style-type: none"> Pig-raising 	<ul style="list-style-type: none"> Ducks and chickens Fish-raising (<i>trei pra</i> and catfish)
Selling things	<p>2:</p> <ul style="list-style-type: none"> Grocery shops and selling things such as rice-porridge, deserts and sweets, petrol and diesel, coffee, ice, noodles etc. 	<ul style="list-style-type: none"> Buy fish to sell to middleman. Recharge batteries. Sell timber (for houses and boats). Sell firewood to others in the village.
Labour for wages		<ul style="list-style-type: none"> Harvest beans Spread nets Put <i>saiyeung</i> traps Harvest from <i>krosom</i> traps
Tourism	<p>4:</p> <ul style="list-style-type: none"> Boat-rowing for tourists by rotation and sharing the earnings collectively 	

⁹⁸This is similar to *mong saich*. They think the smaller holed nets are illegal, but it needs to be checked.



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