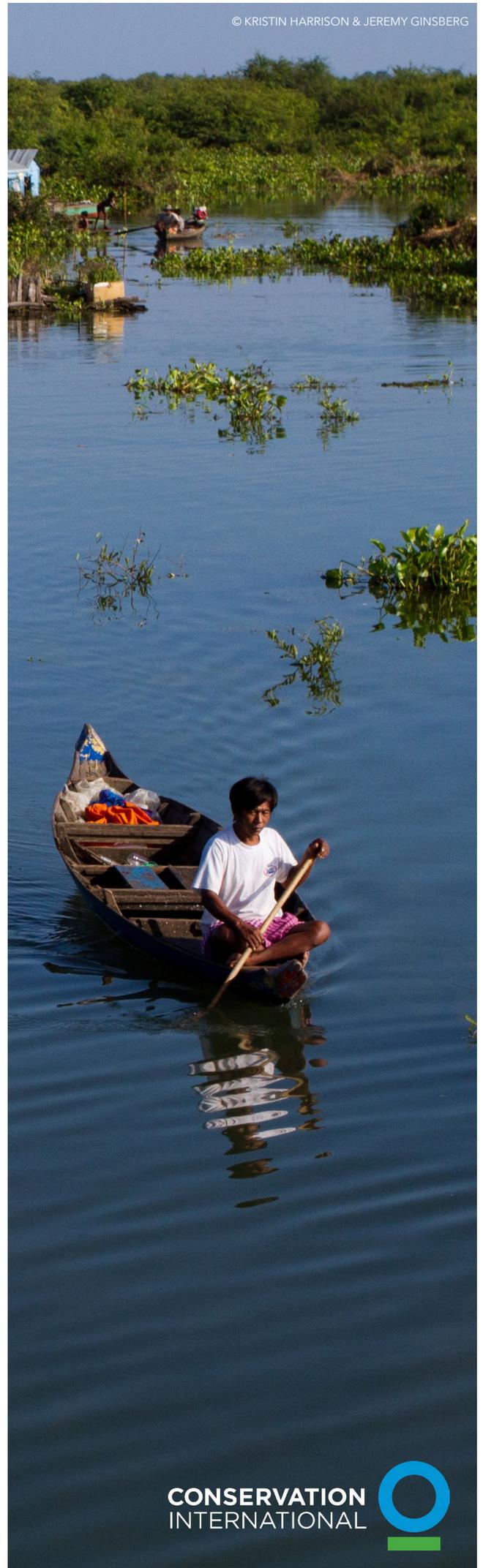


# CAMBODIA'S TONLE SAP LAKE

## INVESTING IN TRANSFORMATIVE IMPACTS

The Tonle Sap Lake has been so often referred to as 'Cambodia's beating heart', it has become a cliché. But it is so apt. A hugely productive inland fishery, it provides critical protein to the nation, which even with the lake's resources, suffers from a 45% rate of childhood malnutrition.

By expanding and contracting its surface area approximately six-fold with the annual rainy and dry seasons, the lake also fertilizes soils which support millions of rice farmers around its peripheries. It is indisputably a critical national asset. Yet poorly planned and under-resourced governance, a growing population of migrant fishers, and climate change are threatening the lake with ecological collapse. Conservation International (CI) has developed a model, in partnership with lake-based communities and local government, to improve management approaches on the lake and to adapt and fortify the livelihoods of those reliant on it in the face of changes beyond their control. Our integrated, bottom up approach has shown fantastic results, and become widely recognized as best practice by both government and peer organisations.



# SUPPORTING COMMUNITY FISHERIES

A Community Fishery Committee (CFC) is a group of citizens who live in or near the fishing area and voluntarily undertake to manage the fishery according to a Management Plan which they must submit to the Cambodian Fisheries Administration (FiA) for signoff. Whilst about 175 community fisheries have been established in villages on and around the Tonle Sap most need significant capacity building and support before they are ready to execute their responsibilities.

CI has delivered scores of trainings to CFCs in our target area, covering GPS use, patrol techniques, data collection and organization via SMART, bookkeeping and financial management, report writing, grant writing and many others.

## 5 year Achievements: 16 Community Fishery Committees fully functional

**16 community fisheries committees** have, with CI's assistance, prepared, submitted and had their Management Plans approved by the national Fisheries Administration.

**6,000ha of fish sanctuary has been protected.**

**Four 'dry season ponds' have been established** to protect fish stocks through the hot dry season when lake levels are low, to improve stocks for when the rain returns. As a result, in the 2017 wet season, fishermen reported an increase of fish catch from 7kg per day, to 25kg per day, and a fishing peak that was prolonged an extra two weeks from normal.

**Two rice field fishery ponds have been established** which have increased fish catch from 3.81kg to 4.38kg in just their first year.

**Three 'Mini Trust Funds' have been established** for CFCs which are being responsibly managed by CFCs and are covering costs for CFC core activities.

The CFCs for whom we have reduced our support over time are **continuing to deliver well on their management plans.**

**Voluntary community involvement in CFC activities is increasing** markedly following visible results delivered by the CFCs.

**CI has fostered vastly improved relationships between the FiA and the CFCs**, who are now working together, often independent of CI, to solve fisheries problems. Includes establishment of a Fisheries Coordination Team comprising provincial authorities and CFC representatives to collectively solve fisheries problems on the Lake.



“CI’s long-term support of the community’s fisheries, biodiversity and livelihoods makes [them] of the most relevance to sustaining the wild-capture fisheries of Cambodia and the Mekong River Basin. Every fisher (women and men), and government official interviewed during the process of the evaluation stated that this was their viewpoint regarding CI.”

**- External evaluation funded by USAID, 2016**

# STRENGTHENING WOMEN'S INCOME STREAMS

Women are particularly vulnerable to poverty on the Tonle Sap, and there are a high proportion of female-headed households (ADB 2005). Women have less property rights than men, and less access to credit, paid employment, education, or health services. However, fish processing activities make up an important source of income for floating households in Tonle Sap Lake communities, and these activities are managed solely by women.

## 5 year Achievements: 17 women's fish processing groups and two marketing groups established.

**194 women are producing better fish products**, using quality ingredients, proper packaging and improved health and safety processes.

At the group level, **the selling price of prahok has increased between 14% to 133%**.

**Smoked fish sale prices have increased 30%**.

**Transport costs for getting product to market have been cut** between 50% and 70% through collective marketing.

**Increased annual income** per fish processing household of 16%.

The groups are **securing contracts to supply retail outlets** in Phnom Penh.

## DEVELOPMENT OF A NEW FISH SMOKING STOVE

Smoked fish is a popular 'processed fish' product in Cambodia and one of the main ways women in our target villages were aiming to add value to fish before taking them to market. The traditional smoking stoves are made of bamboo and zinc, have a short lifespan and an open fire design which means smoke moves freely though family homes, and acute respiratory infection is one of the major causes of childhood mortality on the Lake (ADB 2005). House fires have also occurred as a result of untended stoves.

## 5 year Achievements: Fish smoking made more sustainable.

52 fuel-efficient smoke stoves are being utilized by villagers. Developed by CI in partnership with the women in our target villages, the stoves:

- produce an end **product which fetches 30% higher price than the traditional stove**;
- **use 50% less fuel-wood**. This means an annual saving 35m<sup>3</sup> of flooded forest timber per year per stove and an estimated 18 days per stove in women and girls' time spent collecting firewood;
- **save** an estimated 0.84 tonnes of CO<sub>2</sub> per year per stove, or **over 43 tonnes of CO<sub>2</sub> per year** across all the new stoves now in use;
- take 45 minutes less to cook each batch; and
- **have an enclosed design that reduces family smoke inhalation**, affords better protection against fire spread and frees up women's time.

By 2014, the financial, health and environmental benefits of the stove were self-marketing, and CI did not need to facilitate any demonstration workshops beyond the first few. There is now a waitlist for purchase.



"With previous smoke stove, we could not control the fire and spent a lot of time minding the stove but the new smoke stove is helps keep the fire contained very well. In addition, when we are smoking fish, we can now make prahok as well!"

**- Srey Mom, Leader of the Savings Group and member of the Fish Processing Group, in Akol Village**

# FOSTERING A CULTURE OF SAVING

Saving money is difficult, and families can easily slip into debt when forced to rely on local money lenders or middlemen who can charge up to 15% interest; a generally unpayable amount, which often forces the taking of further loans. 'Savings Groups' are small collectives which focus on pooling savings and providing an opportunity for members to take out small loans with minimal interest.

## 5 year Achievements: 16 women's Savings Groups established.

**249 women are members of Savings Groups** set up by CI.

Women are honoring their repayments, and accumulated capital is increasing, leading to a **positive change in community attitudes toward saving perceptions** within the community.

In the last 5 years, the nine savings groups had **collectively saved US\$24,421.87**.

CI has recorded a **70% reduction in the flow of funds** from CI's target community **to external lending agencies and microfinance institutions**.

**76% of the loans** taken from the Savings Groups are for **women's business development purposes**.

The percentage of **families ranked as 'very poor'** in CI's target areas **decreased from 68% to 34%** between 2011 and 2016.

**Savings groups are generating sufficient capital** to contribute to the CFCs, **giving women greater decision-making authority** in the CFC meetings.



"I bought some land with the money saved through the Savings Group! Next I plan to set up a small restaurant to serve the garment factories, and we can serve the fish that my husband catches to the customers."

**- Mrs Preap Channa, member of Akol Village Savings Group**

# ENABLING EVIDENCE-BASED DECISION MAKING

Cambodia's history means it is severely data deficient. Over the past 3 years with a US\$700k investment from the John D and Catherine T MacArthur Foundation, CI has worked with a consortium of university partners (University of Washington, Boston University, University of Canterbury and Arizona State University) to tackle some of the key knowledge gaps hindering long term planning for the Lake.

## 5 year Achievements: Critical knowledge gaps being filled.

**An interactive model (MIMES/MIDAS)** has been developed which **allows policy makers to understand the consequences of different development decisions** on the Tonle Sap and food security.

**New understanding of fish migration routes** which can help **inform decisions about hydropower dam location and design.**

**Enhanced government comprehension** of how to prepare the Tonle Sap fishery and communities for climate change.

**Groundbreaking research** on the ecology of the lake has revealed the impact of overfishing, and **provides impetus for more stringent management.**

**Standardised methods for monitoring fish catches** across the Lake and Cambodia have been developed in partnership with the Fisheries Administration.

# IMPROVING LAW ENFORCEMENT

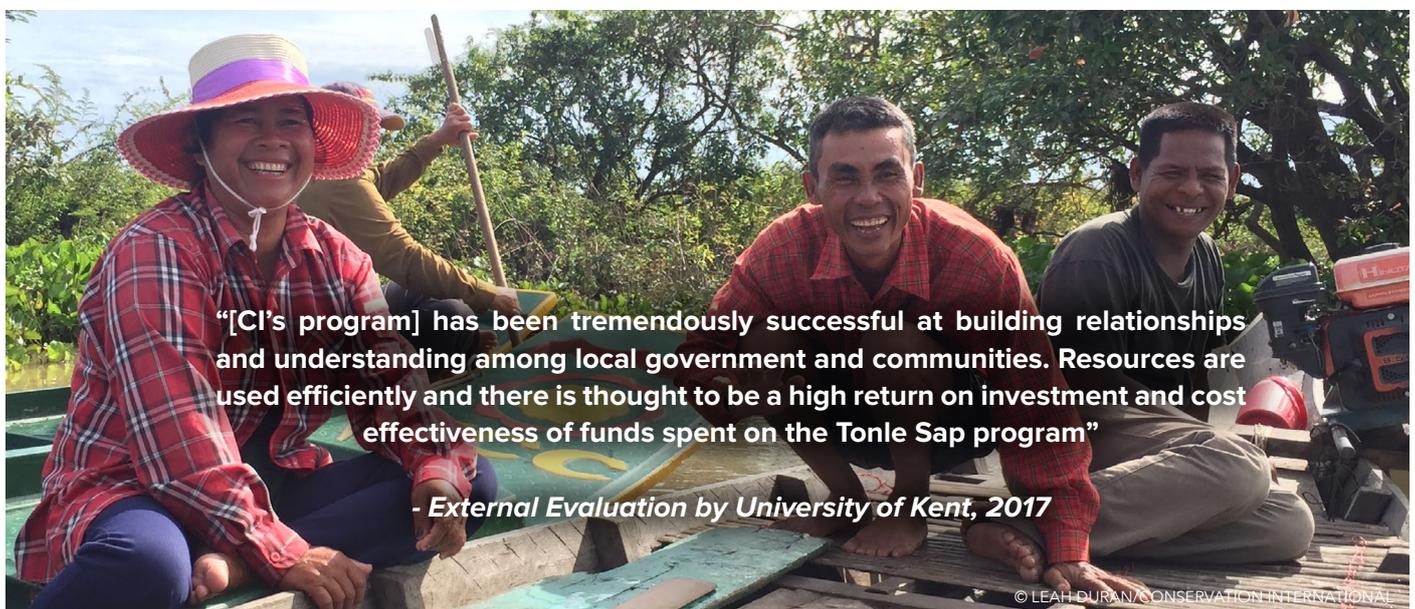
Whilst both the CFCs and the FiA patrol fisheries areas, only the FiA has the right to arrest illegal fishers. This makes communications and cooperation between the CFCs and the FiA essential for successful law enforcement. Traditionally CFCs have regarded the FiA with suspicion, and the FiA, CFCs with disregard. CI has worked hard to show what results are possible when mutual trust and respect drives collaboration.

## 5 year Achievements: Illegal fishing drastically reduced.

**A Fisheries Coordination Team (FCT)** has been established as a formal link between provincial authorities and local fishers.

By mid-2017, instances of **illegal fishing** in the Community Fisheries Zones had **decreased by as much as 90%** from before CI's intervention.

**Minimum catch has increased from 6kg to 14kg.** This represents the catches of the poorest fishers, providing essential sustenance and income for families in our target villages. We expect that over time the fish populations in this area will continue to recover from previous overfishing and this minimum catch will continue to grow.



**"[CI's program] has been tremendously successful at building relationships and understanding among local government and communities. Resources are used efficiently and there is thought to be a high return on investment and cost effectiveness of funds spent on the Tonle Sap program"**

**- External Evaluation by University of Kent, 2017**

# PROTECTING AND RESTORING FLOODED FORESTS

The flooded forests support rich biodiversity, including almost a third of Cambodia's globally threatened fauna. They serve as the nesting grounds for many of the world's endangered water bird species. These include milky storks, spot-billed pelicans, painted storks, lesser adjutants and greater adjutants. The forests are home to two species of otter including the largest known population of the world's rarest otter, the endangered hairy-nosed otter.

## 5 year Achievements: Forest loss halved.

About **25,000 hectares of flooded forest areas were conserved**, showing continued presence of at least 21 globally threatened species.

**Illegal deforestation rates have halved** in our target areas.

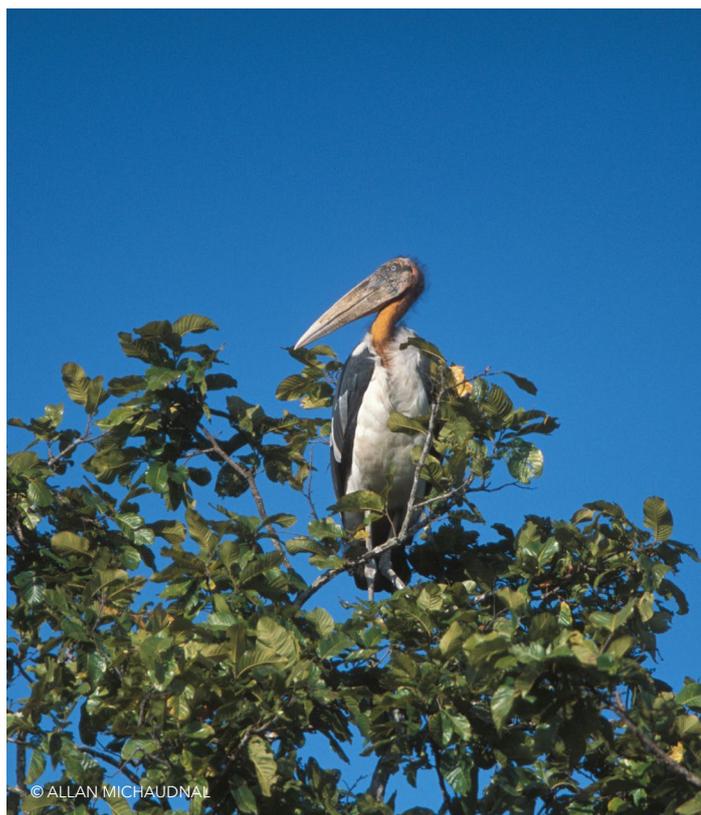
**160 hectares of flooded forest was replanted** in five locations, with a total number of 99,741 seedlings.

**Community-owned and managed seedling nurseries** have been established, now **receiving commercial orders**.

**CFCs are now able to manage** the entire process of raising, planting, maintaining, and replacing seedlings themselves, **with very little technical assistance from CI**.

Nationally listed as **Critically Endangered, river terns (*Sterna aurantia*)**, were recorded repopulating our replanting sites in November 2015. The current national population is estimated at no more than 100-200 individuals.

**Endangered Greater Adjutant and Vulnerable Lesser Adjutant** were recorded making use of CI's replanted sites in April 2016.



"I have seen the return of wildlife in our conservation areas that we thought we had lost forever. Otters, rare waterbirds... Now we see the real value of our forest conservation areas."

- Mr Dok Sokha, Head of Srey Cheok Village