



桃園市群眾服務協會
Serve the People Association



Briefing Paper No. 2 Wi-Fi: Available at Sea — but Not for Fishers

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Introduction

Migrant fishers in Taiwan’s distant water fishing industry, their unions, and international allies have launched a global solidarity campaign called “Wi-Fi NOW for Fishers’ Rights at Sea,” demanding mandatory access to free Wi-Fi for fishers on board Taiwanese distant water fishing vessels. **Wi-Fi access is necessary for fishers to be able to exercise their freedom of association and right to collective bargaining so that they can defend their other fundamental labor rights under international law.**¹ Taiwan, the United States, and other key markets, as well as vessel owners, global seafood buyers, and investors, each have a critical role to play to make this happen.

The Wi-Fi NOW for Fishers’ Rights at Sea campaign presents this second briefing paper, *Wi-Fi: Available at Sea — but Not for Fishers*, to answer Frequently Asked Questions (FAQs) about the current availability of Wi-Fi on distant water fishing vessels. In an industry made possible by advanced technology, satellite Wi-Fi has become widely available on distant water fishing vessels at a reasonable cost. This briefing paper shows that installing Wi-Fi equipment on board

vessels is only a minute fraction of the cost of constructing a distant water fishing vessel, and its monthly costs are but a small fraction of existing labor costs. Moreover, the technology is only becoming increasingly advanced and affordable.

In fact, Wi-Fi is already available at sea, not only for seafarers outside the fishing sector, but also for captains and senior crew on many Taiwanese distant water fishing vessels — yet fishers remain excluded. Employers in Taiwan’s distant water fishing industry continue to deny fishers access to Wi-Fi, creating conditions of total isolation for their workforce for months at a time, in violation of the International Labour Organization (ILO) Work in Fishing Convention, 2007 (No. 188) (C188) and fundamental labor standards.

Fishers are being excluded from a technology that is essential for their fundamental labor rights at work. With Wi-Fi becoming ever more available even thousands of miles at sea, now is the time to ensure its expansion in Taiwan’s distant water fishing fleet, including for the fishers whose labor makes the industry possible.

Background

Experts define distant water fishing as “the practice of commercial fishing vessels operating outside the territorial waters of their countries of origin, usually extending their range of action to faraway places.”² Taiwan’s distant water fishing fleet — composed of more than 1,100 Taiwanese-flagged vessels and 259 flag of convenience (FOC) vessels³— is the second largest in the world and a major part of both Taiwan’s economy and the global fishing industry.⁴ U.S. corporations such as Walmart, Costco, and Bumble Bee Seafood imported \$129 million of Taiwanese seafood in 2020.⁵ Migrant workers comprise the vast majority of fishers in Taiwan’s distant water fishing fleet and are predominantly from other countries in the Indo-Pacific: Indonesia, the Philippines, and Vietnam.⁶

However, migrant fishers in Taiwan’s distant water fishing industry are afforded fewer labor protections and often subjected to brutal living and working conditions, including total isolation with zero communication with the outside world. Fishers are not only unable to contact their families while on board vessels, but also denied the ability to exercise their freedom of association and report labor violations to their unions or other

service providers — and this is while they work and live on ships that legally spend up to 10 months at sea and travel from Taiwan to places as far as Argentina. Without freedom of association, fishers are unable to uphold their fundamental labor rights to work in a non-discriminatory, safe, and healthy workplace without conditions of forced labor. In fact, there have been numerous reports of labor abuses, including forced labor and even deaths of fishers, in Taiwan’s distant water fishing industry.⁷



FAQs on Availability of Wi-Fi at Sea

1 How is technology already used in the distant water fishing industry?

Technology has made distant water fishing possible in the first place. While fishers have fished far from their country's domestic waters as early as the 16th century,⁸ with industrialization and the invention of steam trawlers in the late 19th century, the distant water fishing industry expanded.⁹ As coastal fish stocks began to be depleted, fishing vessels needed to venture further out at sea, and countries began to extend the jurisdiction of their territorial seas.¹⁰

Distant water fishing fleets grew throughout the second half of the 20th century, and the catching power of vessels increased thanks to technological advancements stemming from World War II, including long-range navigation (LORAN), radar, and sonar technology.¹¹ Other technological advancements, including steel hulls, diesel-fuel engines, refrigeration, and the introduction of support vessels, permitted vessels to fish in any part of the ocean for longer periods of time.¹² Continued technological advancements ultimately led many countries' distant water fleets to double the distance to fishing grounds: between 1950 and 2014, Taiwan — along with South Korea, Spain, and China —¹³ increased its mean distance to fishing grounds from 2,000 to 4,000 kilometers. During this time period, the global fishing fleet also doubled from 1.7 to 3.7 million vessels,¹⁴ and the total fished area expanded from 60% to more than 90% of the world's oceans.¹⁵

Technological advancements are continuing to develop and proliferate in the distant water fishing industry. According to a 2019 study, technological advances, such as the introduction of the Global Positioning System (GPS), fishfinders, echo-sounders, and acoustic cameras, are allowing commercial fishing fleets to increase their fishing power by 2% every year, which translates to doubling their fishing power every 35 years — a phenomenon known as

technological creep.”¹⁶ New technologies to improve fishing power continue to emerge, such as smart buoys, which use sonar and satellite technology to help fishers locate fish and provide information such as the species and approximate number of fish.¹⁷

Besides investing in technology for commercial purposes, the distant water fishing industry has also chosen to invest in technological advancements for safety and monitoring purposes, although still not for fishers’ communications at sea. Various technologies have also proliferated or are beginning to emerge to help curb illegal, unreported, and unregulated (IUU) fishing. Below are some examples:

- **Vessel Monitoring System (VMS)** is a vessel tracking system that primarily uses satellite technology¹⁸ to allow coastal states and Regional Fisheries Management Organizations (RFMOs) to track the location of fishing vessels and monitor the amount of fishing.¹⁹ While VMS is implemented nearly worldwide, 80% of fishing vessels are still not equipped with VMS.²⁰ The European Union (EU) legally requires VMS for all vessels greater than 12 meters;²¹ and in the United States, VMS requirements vary by region.²²
- **Automatic Identification System (AIS)** is a vessel tracking system that uses radio frequency technology.²³ The technology was originally developed to promote maritime safety and prevent vessel collision by Vessel Traffic Services (VTS).²⁴ Using a very high-frequency (VHF) transmitter, AIS transponders send and receive signals to broadcast messages about a vessel’s identity and course to receiver devices on other ships or to land-based systems. AIS has been increasingly mandated under both international law and U.S. law.²⁵ However, it has weaknesses. Unlike VMS, AIS is a self-reporting system that is vulnerable to erroneous or falsified reports; in addition, vessels may turn off AIS transponders while committing illegal activities.²⁶
- **Satellite imagery** is a technology that has been used in conjunction with VMS and AIS. Optical and radar satellites help with vessel detection by providing images of vessels in near-real time, regardless of weather or daylight conditions.²⁷ Satellite imagery is expected to improve as satellite coverage and computing power increase.²⁸

- The **Electronic Reporting System (ERS)** is another technological advancement in the fishing industry. A replacement for paper logbooks,²⁹ E-Logbooks help keep track of the origin and volume of catches and the gear used by allowing fishers to enter data into apps on computers, tablets, or smartphones, which can then be shared with other parties.³⁰ E-Logbooks use GPS, which is a satellite-based radio navigation system, to automatically record vessel locations and then transmit data to shore either using cellular telephone networks or through satellite-based VMS.³¹ The data can be recorded without an internet or cell phone signal, although it will not be sent to the secure online database until connected to the internet.³²
- **Electronic Monitoring (EM)**, which was first piloted in the 1990s, has slowly been introduced on fishing vessels.³³ EM involves the use of on-board cameras to capture fishing activity.³⁴ The camera system is integrated with a sensor system that detects fishing gear motion, while GPS units provide time and location data.³⁵ Both the recording and viewing are “closed systems” where the camera and sensor systems do not allow external inputs or manipulation of data.³⁶ The GPS data and video footage have typically been stored on hard drives, to be later reviewed by onshore analysts once the vessels reach shore.³⁷ The technology is being further improved, however, with the development of artificial intelligence (AI) and use of wireless transmission, which permits automatic identification of recorded footage by AI software and the immediate transmission of the information through wireless transmission.³⁸

Besides these technologies, some other new technologies being used to support distant water fishing monitoring include Big Data, block chain, the smart weighing system, radio-frequency identification (RFID), and drones.³⁹

However, while investing in these various advanced technologies for commercial, safety, and monitoring purposes, the distant water fishing industry has not yet made the choice to prioritize investing in communication technologies to support fishers’ wellbeing and respect their fundamental labor rights under international law.



2 Is it really possible to have Wi-Fi on vessels traveling in distant waters?

Yes. Many companies, such as Inmarsat, Intelsat, and Iridium, offer satellite Wi-Fi for the maritime industry globally, including for fishing vessels, merchant ships, cruises, yachts, and offshore rigs.⁴⁰ These companies offer satellite Wi-Fi services that can be used at sea — e.g. Inmarsat Xpress and FleetBroadband, Intelsat FlexMaritime, and Iridium Certus.

In the maritime industry globally, satellite Wi-Fi is already widely installed for use on commercial vessels like container ships, carriers, and tankers. According to a study by Inmarsat, data usage on commercial maritime vessels more than tripled between 2019 and 2022.⁴¹ A study by ship inspection company Idwal revealed that between half and two-thirds of container ships, bulk carriers, and tankers have Wi-Fi available for crew.⁴² Meanwhile, Wi-Fi is common on cruise ships, with cruise companies equipping their fleets with the latest satellite Wi-Fi technology.⁴³ In addition, several pilot projects have provided Wi-Fi for seafarers at ports.⁴⁴

Many distant water fishing vessels are already equipped with satellite Wi-Fi, demonstrating that it is possible to provide Wi-Fi access on vessels. In Taiwan, increasingly, more vessel owners have been voluntarily installing Wi-Fi on their vessels.⁴⁵ An example is Tseng I-ting, the owner of the *Chien Yuan Ming No. 88*, the first C188-compliant distant water longliner that provides satellite Wi-Fi for all crew members on board.⁴⁶

3 If Wi-Fi is already available, don't fishers working in Taiwan's distant water fishing fleet already have access to it?

No. As discussed in the Wi-Fi NOW for Fishers Rights at Sea campaign's first briefing paper, Wi-Fi is generally not available to fishers on Taiwanese distant water fishing vessels.⁴⁷ While commercial fishing vessels in Taiwan widely allow everyone on board to use Wi-Fi, typically, only captains or officers may access Wi-Fi for navigation and communication purposes, whereas the regular migrant crew do not have access. For example, the Taiwan Squid and Saury Fisheries Association confirmed that all of their members — including 107 fishing companies, with 104 fishing vessels — are equipped with satellite Wi-Fi, but at the moment, only a select few grant Wi-Fi access to the migrant crew.⁴⁸

4 How much does it cost to install Wi-Fi on distant water vessels?

Recent technological advancements have increased the availability of affordable satellite Wi-Fi services. There are many agents in Taiwan and around the world marketing satellite Wi-Fi services for vessels. Among the top five major satellite providers in the market, Iridium, Intelsat, and Inmarsat are available in Taiwan. Below are examples of quotes provided by one provider, among several, for installing and operating Wi-Fi on Taiwanese distant water fishing vessels.⁴⁹



- **Inmarsat Ltd.**⁵⁰ offers older Wi-Fi technology through Inmarsat FleetBroadband for an initial installation cost of \$8,500–\$9,000 USD and monthly fees of \$199–\$550 USD for 5–25 MB of data and 128 KBps.⁵¹ This amounts to a total cost of \$10,888–\$15,600 USD for the first year. Inmarsat is a British satellite telecommunications company that originates from the International Maritime Satellite Organization (INMARSAT), a non-profit intergovernmental organization established in 1979 at the behest of the International Maritime Organization (IMO).⁵²
- **Intelsat**⁵³ offers Wi-Fi for distant water fishing vessels with Intelsat FlexMaritime,⁵⁴ which provides unlimited data to users for a one-time installation cost of \$15,000 USD, a monthly fee of \$2,000 USD, and bandwidths of 2 MBps for downloads and 512 KBps for uploads.⁵⁵ This amounts to a total cost of \$39,000 USD for the first year. Intelsat is the largest satellite capacity provider to the U.S. government and the leading provider of satellite bandwidth for the maritime industry, with headquarters in both Luxembourg and the United States.
- **Iridium Communications Inc.**⁵⁶ offers Wi-Fi for distant water fishing vessels with Iridium Certus⁵⁷ for a one-time installation cost of \$8,000 USD and monthly fee of \$580 USD, with bandwidth up to 704 KBps.⁵⁸ This amounts to a total cost of \$14,960 USD for the first year. Iridium is a U.S. company that operates the Iridium NEXT satellite constellation, a system of 66 active low Earth orbit (LEO) satellites and nine in-orbit spares that was completed in 2019 and is used for worldwide voice and data communication.⁵⁹ Iridium NEXT is currently the only LEO satellite system that covers the entire earth and is resilient to weather, unlike geostationary orbit (GEO) networks.⁶⁰



5

Would installing Wi-Fi be too expensive for the Taiwanese distant water fishing industry?

No. The costs of installing Wi-Fi and the monthly fees offered by these three satellite providers are within an affordable range for the Taiwanese distant water fishing industry. The construction fee for a small tuna longline fishing vessel⁶¹ is around \$500,000 USD, while larger vessels cost millions of dollars. The one-off installation fee of satellite Wi-Fi on board these vessels, which ranges between \$8,000–\$15,000 USD, would be a marginal additional cost for the industry.⁶² The monthly fee also proves to be affordable, ranging between \$580–\$2,000 USD, which is about the same as the salary of a junior crew member to that of a captain or chief engineer.⁶³ Therefore, monthly Wi-Fi fees are a mere fraction of a vessel’s current labor costs.

Not only is satellite Wi-Fi technology already readily available to be installed on fishing vessels at an affordable price tag, but the technology is only becoming increasingly more advanced and affordable. The rapid advancement in active LEO satellites, like those offered by Iridium, will continue to enable better and more affordable internet services at sea.

For example, Starlink has been expanding its coverage for maritime service and is currently testing a “Global Roaming” service that aims to enable connectivity across the globe. The one-off fee for purchasing this package is only \$599 USD, with an additional monthly fee of \$200 USD.⁶⁴ In addition, OneWeb, a UK-based satellite communication company is also offering low-latency and high-speed internet services to fishing vessels.⁶⁵

Both Starlink and OneWeb have contacted the Taiwanese National Communications Commission (NCC) in response to their call for applications in June 2022 for satellite service operators to start providing services in Taiwan.⁶⁶ Therefore, it is expected that in the near future, vessel operators in Taiwan will be offered a wider range of less expensive options to provide Wi-Fi to all crew onboard.



6 Would installing Wi-Fi be too expensive for the Taiwanese government?

No. If the Taiwanese government wanted to cover the costs of Wi-Fi, it would only cost a fraction of the subsidies they currently use to subsidize the distant water fishing industry as a whole, which contributes to the global distant water fishing industry engaging in overfishing. In 2018, Taiwan spent \$700 million USD on subsidies for distant water fishing.⁶⁷ Covering the initial cost of installing Wi-Fi equipment on 1,100 distant water fishing vessels in Taiwan's fleet, for example, would cost roughly \$8.8–\$16.5 million USD — or only 1.3–2.4% of Taiwan's total subsidies.⁶⁸

Moreover, the Taiwanese government has shown to have made significant financial investments in technological advancements on vessels in the past in order to preserve its lucrative commercial fishing industry. After the European Commission issued a yellow card against Taiwan in 2015 for its IUU fishing practices, the Taiwanese government sought to have the yellow card lifted by investing in technology that could help detect IUU fishing.⁶⁹ In 2019, the Council of Agriculture reported equipping Taiwan's distant water fishing vessels with E-Logbooks, which, together with the cost of establishing a Fisheries Monitoring Center (FMC) and a system to dispatch observers, cost the government between NT\$300–NT\$500 billion, or roughly \$9.3–\$15.5 billion USD, annually.⁷⁰

7 Is Taiwan's subsidy program already ensuring fishers have access to Wi-Fi?

No. Voluntary and limited in scope, the Taiwanese government's new subsidy program is insufficient in ensuring that fishers have access to Wi-Fi on board distant water fishing vessels.

In the 2019 draft of its Action Plan for Fisheries and Human Rights, Taiwan's Fisheries Agency set clear intentions to "install Wi-Fi or establish an internet-sharing mechanism for foreign crew members on board 110 vessels" within the next two years.

Providing foreign crew members easy access to information on their rights and benefits.	1. Encouraging vessel operations to install Wi-Fi or establish an internet-sharing mechanism for foreign crew members onboard 110 vessels (which accounts for 10% of the total number of distant water fishing vessels)	COA	2022-2025
	2. The Fisheries Agency, under the COA establishing a website publishing and updating relevant information on foreign crew members' rights and benefits in 2022.		2022-2025

The Action Plan was launched in May 2022, with one of the government's seven main strategies being to "Improve living conditions and social protections," which includes, "Reward ships that share or install onboard Wi-Fi for workers."⁷¹ The Fisheries Agency also created a website to promote information about the rights and benefits of foreign crew members and encouraged the installation and usage of Wi-Fi on distant water fishing vessels by granting additional fishing quota to these vessels.⁷²

In December 2022, the Fisheries Agency officially announced a subsidy scheme for distant water fishing vessel owners to provide Wi-Fi to migrant crew.⁷³ According to the regulation, the Wi-Fi equipment installed on fishing vessels must “have satellite network and communication functions for the use of mobile phones, tablets, and laptops,” and the satellite used for such equipment must “be in accordance with domestic telecommunications.”

SUBSIDIES		INFORMATION
Installation fee	NT\$300,000 (\$9,886 USD) per vessel	No more than 60 vessels to be subsidized between 2023 and 2025
Monthly communication fee	NT\$8,000 (\$286 USD) per vessel	No more than 110 vessels to be subsidized for up to 12 months
Subsidy condition	Vessels applying for these subsidies must enable migrant fishers on board to use Wi-Fi	Migrant fishers must have access to Wi-Fi for at least five minutes once a week for six months

While a step in the right direction, this policy has significant shortcomings. The policy only requires fishers to have access to Wi-Fi for at least five minutes once per week for a minimum of six months — barely enough time to conduct an internet search, have a conversation, or file a complaint about a labor violation. As a result, under this policy, fishers will be unable to meaningfully communicate with family and friends, nor to effectively report labor abuses to their union representatives, government agencies, or other advocates. Accordingly, this policy does not fulfill the requirement of “reasonable access to communication” under C188.



Could satellite phones be a cheaper alternative to Wi-Fi for fishers?

No. First, a satellite phone cannot replace satellite Wi-Fi because it does not fulfill the communication requirement on board distant water fishing vessels under international law. Second, even if satellite phones could meet this communication requirement under international law, satellite Wi-Fi would still likely be the cheaper option.

Only satellite Wi-Fi — and not satellite phones — fulfills the communications requirement under international law.

At least one satellite phone is usually on board every distant water fishing vessel, in fulfillment of C188, which requires all fishing vessels to be equipped for radio or satellite communication with persons or services ashore that can provide medical advice.⁷⁴ However, only satellite Wi-Fi meets C188's requirement for "all fishers on board" to "be given reasonable access to communication facilities."⁷⁵ As will be discussed in greater detail in *Briefing Paper No. 3: Wi-Fi for Fishers' Fundamental Labor Rights*, fishers' access to Wi-Fi on board vessels has become the reasonable standard under C188 in light of the significant technological advancements since the drafting of C188 two decades ago. Furthermore, satellite Wi-Fi is critical for the full exercise of the fundamental labor right to freedom of association and collective bargaining for workers living and working in geographically remote workplaces.

The limited functions of satellite phones pose barriers for fishers to fully exercise their right to freedom of association and collective bargaining. Satellite phones are limited to audio calls and Short Message Service (SMS).⁷⁶ In contrast, satellite Wi-Fi permits fishers to make both audio and video calls; send instant messages, photos, and videos; and access the internet, which entails access to email, the World Wide Web including the news and social media platforms, and mobile applications — all critical functions to be able to acquire information and communicate with the outside world in the present day. Without the ability to access Wi-Fi on board vessels, fishers will be unable to perform any of the following activities, among others, which are essential to their ability to contact unions and exercise their rights to freedom of association and collective bargaining:

- Conduct an internet search to find educational sources about their rights (e.g. articles, videos);
- Locate the contact information of a union, NGO, or government agency for assistance;
- File a complaint through an online grievance mechanism that is offered by a union, NGO, or government agency;
- Stay up-to-date on union activities by having access to the union's email newsletter, the union website, or an instant messaging group chat (e.g. on WhatsApp, Line, or Signal);
- Send and receive direct emails or instant messages to and from their union representatives or other advocates;
- Send photographs and videos that may serve as critical evidence in building a case;
- Stay informed on current events, including key political or social developments (e.g. news articles and announcements from the Ministry of Agriculture, the Fisheries Agency, the National Immigration Agency, or other relevant authorities); and
- Express their views on social media platforms as part of advocacy efforts.

These variegated functions are also critical for the purpose of communicating with family members and friends, which was a key motivator for governments in developing C188's communication facilities requirement.⁷⁷ Without access to Wi-Fi and only access to a satellite phone, fishers would not be able to meaningfully connect with their families while at sea for months – up to 10 months under Taiwanese law, but sometimes even longer in practice. For example, fishers would not be able to do any of the following activities, among others:

- Speak over an audio call or send instant messages back-and-forth with family members and friends at no additional cost, using instant messaging apps like WhatsApp, Line, or Signal;
- See the faces of family members and friends over a video call;
- Send and receive photographs and videos with family members and friends;
- Keep in touch with family members and friends over email and social media platforms, such as Facebook.

These basic activities are those that people who live and work on land tend to take for granted. However, they are essential for keeping in touch with families when in-person communication is impossible, as illustrated by the COVID-19 pandemic when people around the world could only maintain their personal relationships through digital communication.



Satellite phones also raise issues of accessibility and privacy. At present, vessels are typically equipped with only one satellite phone that is placed in the captain's deck and solely designated for the captain and supervisors.⁷⁸ However, a single, shared device controlled exclusively by the captain is not a real means for workers to be able to communicate with their families, unions, or other advocates. Even if a captain made the satellite phone available to fishers, the entire crew would need to share the satellite phone and would be unable to privately make phone calls or send and receive text messages, which would make contacting their union representatives or other advocates extremely challenging. Fishers need access to communication facilities that are available to all crew and that can be used without surveillance from the captain in order to report labor abuses to people onshore, including their union representatives. Hence, to be accessible, a satellite phone would need to be provided to each crew member; having one or a few shared satellite phones would be inadequate.

In contrast, satellite Wi-Fi much more easily permits fishers to communicate with their unions and other advocates, in addition to their families and friends, in privacy. With access to Wi-Fi, fishers may use their personal mobile devices to directly and discreetly communicate with their unions and other advocates, as well as their families and friends. Therefore, satellite Wi-Fi is necessary for communication at sea, and satellite phones are an inadequate substitute to fulfill the communication requirement under C188.

Even if satellite phone could meet the communication requirement on board distant water fishing vessels under international law, satellite Wi-Fi is likely cheaper.

As explained above, for satellite phones to be accessible, each fisher would need to be provided a satellite phone. The standard cost of satellite phones range between \$800–\$2,000 USD. In Taiwan, the cost is commonly \$1,100–\$1,500 USD, depending on the model.⁷⁹ Assuming that there are 15 crew on a vessel like the tuna longliner *Chien Yuan Ming No. 88*, the cost of the satellite phone devices alone would cost between \$16,500–\$22,500.⁸⁰

In addition to the cost of the satellite phones, the vessel owners would need to pay for the satellite phone Subscriber Identity Module (SIM) card registration fee, the monthly operation fee, and the additional usage costs. For example, Chunghwa Telecom Company, the largest integrated telecom service provider in Taiwan that provides all satellite phone services in Taiwan, offers a satellite phone service package available at sea called the Thuraya MarineStar, in which vessel owners can purchase SIM cards for their crew members by paying a one-off SIM card registration fee of \$32.50 USD and a refundable deposit of \$167 USD per person, plus a monthly operation fee is \$40 USD per person.⁸¹ In addition, the communication fees range from \$0.83–\$11 USD per minute for audio calls, depending on the locations of the callers and receivers.⁸²

Based on this quote, the cost of providing a satellite phone for every fisher on board the vessel for the first year (which includes the cost of the satellite phone, the one-time SIM card registration fee, the monthly operation fee, and the additional usage cost) could fall anywhere between \$92,351.25–\$933,562.50 USD, assuming there are 15 fishers on board and each fisher speaks on the phone for 15 minutes per day.⁸³ After the first year, the annual cost would reduce to \$75,363.75–\$910,575 USD per year.⁸⁴

The bottom line is that remarkably, even the lowest end of the estimated range of the cost of providing satellite phones (\$92,351.25 USD) is much higher than the cost of satellite Wi-Fi, which ranges between \$10,888–\$39,000 USD for the first year and drops down to \$2,388–\$24,000 USD starting from the second year. This is because with Wi-Fi, fishers can simply use their own personal mobile devices and make calls at no additional cost by using instant messaging applications like WhatsApp or Messenger. Moreover, satellite Wi-Fi is a preferable option due to its predictable flat fee, unlike satellite phone, which charges a different rate depending on the locations of the callers and receivers. These calculations illustrate that satellite phone technology is, by and large, significantly more expensive than satellite Wi-Fi.

Core Campaign Partners

Forum Silaturahmi Pelaut Indonesia (FOSPI), or the Indonesian Seafarers Gathering Forum



FOSPI is a hometown association of Indonesian fishermen based in Donggang, Taiwan. With more than 2,000 members, they have worked tirelessly to support the well-being of migrant fishers since their establishment in 2006, promoting migrant fishers rights and uniting the migrant fisher communities in Taiwan.

Global Labor Justice – International Labor Rights Forum (GLJ-ILRF)



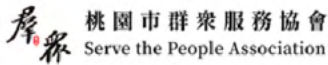
GLJ-ILRF is a human rights organization bringing strategic capacity to cross-sectoral work on global value chains and labor migration corridors. GLJ-ILRF holds global corporations accountable for labor rights violations in their supply chains; advances policies and laws that protect decent work and just migration; and strengthens freedom of association, new forms of bargaining, and worker organizations.

Humanity Research Consultancy (HRC)



HRC is an award-winning social enterprise providing expert supply chain investigation, training, and consultancy services to governments, NGOs, and corporations. HRC's local evidence-based insights empower policymakers to end forced labor, modern slavery, and human trafficking globally. Connecting clients to experts from more than 50 countries, HRC specializes in providing local culturally sensitive insights, nuanced field investigation, and research.

Serve the People Association (SPA)



SPA is an independent non-governmental organization founded in 2008 and committed to improving the working environment for Filipino, Indonesian, Vietnamese and other migrant workers in Taiwan. SPA's work involves rescuing migrant workers from situations of human trafficking and other abuse, and providing safe temporary housing in two shelters as well as legal consultation, medical assistance, emergency resettlement, assistance in obtaining legal wages and compensation, and other services.

Stella Maris Kaohsiung



Stella Maris Kaohsiung is a non-profit organization that has a center in the Port of Kaohsiung, Taiwan that cares for migrants, seafarers and refugees. They provide shelter for migrants who are experiencing labor disputes, victims of human trafficking and those involved in court cases. They also carry out regular visits to fishing vessels and push for legislative change to better protect migrant fishers rights.

Taiwan Association for Human Rights (TAHR)



TAHR is the oldest human rights association in Taiwan and is devoted to strengthening human rights standards and protection mechanisms, addressing domestic and global issues through collaboration with international human rights organizations. The organization focuses on a range of human rights issues, one such being the rights of migrant workers and refugees.

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Estimated cost of providing a satellite phone for each fisher for the first year = Cost of satellite phone in Taiwan + One-off SIM card registration fee + Monthly operation fee + Communication fee (excludes the refundable deposit of \$167 USD per person)

- Lower-end calculation: 15 fishers [$\$1,100 + \$32.50 + (\$40 \times 12 \text{ months}) + (365 \text{ days} \times 15 \text{ minutes} \times \$0.83)$] = $15(1,100 + 32.50 + 480 + 4,544.25) = 15(6,156.75) = \$92,351.25 \text{ USD}$
- Upper-end calculation: 15 fishers [$\$1,500 + \$32.50 + (\$40 \times 12 \text{ months}) + (365 \text{ days} \times 15 \text{ minutes} \times \$11)$] = $15(1,500 + 32.50 + 480 + 60,225) = \$933,562.50 \text{ USD}$

84. Annual cost after the first year is comprised of the monthly operation fee and the communication fee.