

ARUNA: IMPROVING LIVELIHOODS AT SEA THROUGH DIGITAL EMPOWERMENT

SCALING IMPACT IN ASIA:
ACHIEVING PURPOSE AND PROFIT



Photo provided by Aruna

INTRODUCTION

This case study was developed in conjunction with the report “Scaling Impact in Asia: Achieving Purpose and Profit”. It is part of a collection of stories that aims to illuminate and provide insights into the impact journey of investors and businesses in Asia.

The report and case studies are jointly developed by the Centre for Impact Investing and Practices (CIIP), Singapore Management University (SMU), and Accenture. In producing this, our aim is to inspire and encourage more to make every dollar invested in Asia deliver positive, measurable impact. Through these in-depth case studies, we hope to extend the scope of existing research in Asia by providing tangible, real life examples from practitioners on the ground.

As part of our efforts to broaden the impact universe, we sought to speak with and showcase to a range of organisations, from traditional impact investors and companies, to those who are not typically recognised as agents of impact. The diverse types of organisations is reflective of the broad commercial landscape within which the private sector operates, and we hope they serve as relatable examples for readers on various parts of the impact journey.

The rich and nuanced story told in the ensuing pages is the product of several deep conversations with leaders of the organisation(s) featured. We dug deep into how decisions are made, probed at dilemmas faced, dissected challenges and setbacks, and identified key actions that maximise impact. Thank you for your time, insights, candid responses, and above all, the willingness to share your journey, so that others may learn and be inspired.

You can find our report “Scaling Impact in Asia: Achieving Purpose and Profit” [here](#).





ARUNA

HEADQUARTERS

Indonesia

GEOGRAPHY FOCUS

Indonesia

SECTORS

Artisanal fisheries, aquaculture

FOUNDING YEAR

2016

TOTAL FUNDING

US\$100M

GROWTH MILESTONES

26,000 fishermen in Indonesia
on the platform

10+ countries exported to

MISSION

To make the sea a better [source of]
livelihood for all by creating a fair and
sustainable fisheries ecosystem



FISHERIES IN INDONESIA: SUSTAINABILITY AND SOCIETAL CHALLENGES

Indonesia's fishing industry produces 7 million tons of catch each year, the second-largest after China. However, 38% of Indonesia's marine capture fisheries are overfished, and a third of the coral reefs in Indonesia have deteriorated and are in poor condition.¹ Overfishing has resulted in a 95% decline in fish populations in Indonesia over the last 60 years, and unsustainable fishing practices (e.g., using explosives) that destroy marine habitats are still practised in Indonesia.²

The challenges faced by Indonesia's fishing industry do not stop with the environment. According to the World Bank, coastal and ocean dependent communities in Indonesia face heightened levels of poverty³: the poverty rate in coastal villages is 1.3 times higher than in non-coastal villages and fishermen's average income is below the national minimum wage.⁴ Fishermen's average monthly income was IDR1.5 million⁵ (~US\$100) in 2020, substantially below the regional minimum wage ranging from ~IDR 1.7 million to IDR 3.5 million⁶ (US\$120 – 250). While fishermen make up 1% of the Indonesian population, they represent 25% of those living under national poverty line.⁷ A key driving factor for this is the lack of negotiating power for fishermen to sell at decent margins to the numerous middlemen along the supply chain.



Photo provided by Aruna

ARUNA: EMPOWERING THE FISHING INDUSTRY AND COMMUNITIES IN INDONESIA

Having grown up in fishing villages themselves, co-founders of Aruna, Utari Octavianty, Indraka Fadhillillah, and Farid Aslam knew first-hand the struggles faced by the fishing community – from the difficult negotiations between fishermen and middlemen in the supply chain, to the challenges in sustaining a constant source of income.

As such, the team founded Aruna with a conscious motivation to create lasting benefits for local fishermen. With a mission to “make the sea a better [source of] livelihood for all”, this fisheries e-commerce business provides a digital auction platform to facilitate a direct, fairer trade between fishermen and buyers. This streamlines the supply chain and increases the profit margins for fishermen, on top of providing them with more stable access to local and international markets, thus improving their livelihoods.

¹The World Bank (2021). [A Sustainable Ocean Economy is Key to Indonesia's Prosperity](#)

²The Borgen Project (2021). [COMBATING ILLEGAL FISHING IN INDONESIA](#)

³World Bank (2021). [Oceans for Prosperity: Reforms for a Blue Economy in Indonesia](#)

⁴Cahyadi and Gurning (2018). [A Review on Indonesian Fishermen Prosperity in the Coastal Area](#)

⁵Seafood Source (2020). [Indonesia considers allocating USD 69 million for fisheries, aquaculture amid COVID-19 pandemic](#)

⁶Asean Briefing (2019). [The Minimum Wage in Indonesia: Increased by 8.5% for 2020](#)

⁷KNTI the Indonesian Traditional Fisherfolks Union (2020). [The Socio-economic Impact of Small-scale Fisher and Aquaculture in the COVID-19 Outbreak](#)



Photo provided by Aruna

Aruna now serves 26,000 fishermen in 20 provinces – with footprints across 60% of the country.⁸ Through Aruna, fishermen have achieved a three to 12-fold increase in income, earning a minimum of Rp. 3 million turnover every month (US\$210), substantially above the poverty line⁹ (~US\$57 per month¹⁰). Since inception, it has created more than 5,000 new jobs around the country. Aruna has always believed in the concept of “Profit, People, and Planet.” They strive to achieve profit, while positively impacting people and the planet. While growing its business, Aruna’s founders realised that only by prioritising the fishermen, their families, and the environment, along with the commodity stock, can there be a sustainable future for all. Aruna also sees one of its critical responsibilities as ensuring that all stakeholders understand the importance of marine sustainability. For example, Aruna engages local residents, especially youths, to manage restored mangrove forests, given its critical ecosystem function to protect and serve as a frontline defense for people and property along the coasts.

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“Since day one of building Aruna, we have always believed that it is about Profit, People, and Planet.”

**UTARI OCTAVIANTY,
CO-FOUNDER AND CHIEF
SUSTAINABILITY OFFICER,
ARUNA**

Aruna is dedicated to promoting the sustainability of the fishing industry by training and advocating for fishermen to adopt more sustainable fishing practices. Aruna’s sustainability framework is aligned to its beliefs on Profit (e.g., financial literacy, job creation), People (e.g., activities and education on environmental protection), and Planet (e.g., responsible fishing and zero waste). For example, Aruna subscribes to internationally recognised standards such as the International Finance Corporation (IFC)’s Environmental and Social Performance Standards, and trains its fishermen on sustainable fishing practices based on the World Wildlife Fund (WWF) standards.¹¹ Furthermore, aware that meat extraction from crab results in a large amount of shell waste, Aruna initiated the Aruna Zero Waste Hub in Bangkalan, where it sells shell waste to manufacturers who can render the waste into fish feed.

⁸ Aruna (2022). [Aruna in Numbers](#)

⁹ Business Wire (2019). [Tech for Good - Aruna Wins Alipay-NUS Enterprise Social Innovation Challenge for Using Digital Technology to Raise Incomes of Fishermen](#)

¹⁰ Asian Development Bank (2022). [Poverty Data: Indonesia](#)

¹¹ Endeavour Indonesia (2021). [DEEP BLUE SEA\(FOOD\): HOW INDONESIAN MARINE FISHERIES STARTUP ARUNA BEING RECOGNIZED AT THE INTERNATIONAL LEVEL](#)

Currently, the local fishing approach is largely driven by short-term financial focus, which does not benefit either the fishermen or the environment. As Octavianty, says, *“most fishermen focus on catching as many fish as they can to maximise incomes, but the reality is that focusing on quality will bring in more income”*. Aruna takes a clear stance to only work with fishermen who can comply to its sustainability standards, such as fishing only in legally approved areas. It also regularly educates its fishermen about sustainable fishing practices (e.g., blue swimming crabs should have a minimum length and weight and female crabs with outer roe should not be fished). Meanwhile, it invests time and effort to instil the concept of sustainability to those who are not immediately ready to achieve Aruna’s high sustainability standards. *“In such cases, we do not do business with them, but we register and train them. We give them some time to understand our model and educate them on the importance of sustainability”*, says Octavianty. Aruna also makes the effort to educate its fishermen on money management to ensure they have a stable financial health even during periods of low fishing haul.

On top of fishermen as its core segment of focus, Aruna takes a holistic approach to consider other stakeholders within its ecosystem. For example, *it recognises that women in fishing villages typically have extensive local and traditional ecological knowledge and can play a crucial role in the value chain*. As such, it empowers them by providing them with job opportunities and education. Aruna employs women in the villages to handle post-fishing activities (e.g., inspecting, grading, and sorting out commodities in Aruna Hub for further processing) that add value to the catch and enable the product to fetch a premium. By working as part of Aruna’s supply chain, these women can individually earn a monthly income of up to Rp. 6 million (US\$420) during high seasons.¹²



“Middlemen usually take as much margins as they can, but at Aruna we do not do that, to ensure that fishermen get a better income.”

**UTARI OCTAVIANTY,
CO-FOUNDER AND CHIEF
SUSTAINABILITY OFFICER,
ARUNA**

Throughout its journey, Aruna makes an effort to ensure that everything it does makes a positive impact on the broader society, including proactively managing the **potential negative impacts of its business**. Therefore, Aruna also strives **to support the middlemen** that its e-commerce platform potentially impacts by disintermediating the supply chain. Aruna actively employs these middlemen, for example as its quality control partners. They also often do business with them, offering better terms, such as market guarantees and definite prices. Additionally, Aruna supports the middlemen in other ways, including capacity building and improving their access to financing, insurance, and even capital. Aruna also engages the middlemen in strategic discussions, to leverage their deep knowledge of the industry and the region to penetrate new areas.

¹² CNBC Indonesia (2020). [The Story of Aruna’s Fishery Start Up Born to a Fisherman’s Child](#)



“We want to ensure that every activity in Aruna will make a positive impact on people and the planet.”

**UTARI OCTAVIANTY,
CO-FOUNDER AND CHIEF
SUSTAINABILITY OFFICER,
ARUNA**

As Aruna continues to scale its business and operations, being aware of and managing negative externalities will become increasingly important, for example, to avoid overfishing of wild catch and protect the biodiversity of the oceans while matching supply with growing demand. To address this, *Aruna is developing and evolving its business beyond wild catch fisheries to include aquaculture.* When practised responsibly (e.g., managing for diseases), sustainable aquaculture growth could be key to easing pressure on wild fish stocks, which are globally under stress as a result of overfishing. With growing global demand for seafood¹³, responsible aquaculture is recognised as a potentially environmentally sustainable means to produce food and protein.¹⁴ By expanding its aquaculture business, Aruna plans to scale its business and provide more fish and protein to people, without relying purely on the fishing of wild catch.

TECHNOLOGY AS A KEY ENABLER

Aruna is creating impact while also achieving robust business growth. Being a digital platform, it has used technology to overcome the geographical barriers faced by coastal communities. They export about 10 tons of products every month, and yet, demand has exceeded the platform's current supply by over 5 times, giving much room for further growth. Despite the uncertainty during the COVID-19 pandemic in 2020, Aruna demonstrated great resilience, and saw seven times year-on-year revenue growth during 2020. Moreover, its fisheries experienced a more sustainable source of income in 2020, fetching up to 20% higher than usual prices, while buyers achieved 15% in savings.

In addition, *Aruna leverages technological capabilities in the Internet of Things (IOT) and big data to optimise its operations and create value-added services for customers, such as traceability.* To enhance traceability and competitiveness of its products, IOT technology is installed in fishing boats to collect data on each catch – from the location of the fishing vessel to the time of catch. Having end-to-end visibility of the supply chain addresses a growing customer demand and preference for traceability in food, giving Aruna's products an edge to charge a premium. Aruna uses technology to trace its seafood products from the point of sale back to its point of origin, providing information on the fisheries and fishermen profile. Data is captured the moment Aruna's fishermen bring their catch to the Aruna Hub and report to their Local Heroes, who are Aruna's partners-on-the-ground. The Local Heroes assist fishermen to collect their data in the app, which records the daily transactions that take place.

¹³ Rumaitha Al Busaidi, republished by World Economic Forum. (2018). [5 ways to net a sustainable future for aquaculture](#)

¹⁴ NOAA Fisheries (2020). [Aquaculture Supports a Sustainable Earth.](#)



By digitising the seafood supply chain, Aruna is enabling the consolidation of real-time data that will contribute to building the digital infrastructure for Indonesia's fishing industry. For example, Aruna uses data and predictive analytics to develop and establish more sustainable fishing practices. Purchases made on Aruna's platform are analysed to predict demand, based on which supply can be calibrated. As the platform can track the movements of its fishermen in real-time, it can predict the number of products that will be deposited into each Aruna Hub. On the fishermen's end, they can get historical information on their catch, which can be used to benchmark and inform future fishing activities. In addition, Aruna's platform can also determine the limits of fish stocks in the sea in the fishing area and allow for adjustment of fishing activity to prevent overfishing. Further, sensors placed in the boats also allow Aruna to track and ensure adherence to maritime regulations such that no fishing is carried out in marine protected areas.

The sensors and IoT technology are issued to Aruna's fishermen and are provided without charge for them as members. Through Aruna's Local Heroes, who are Aruna's frontline workers in coastal villages carefully selected to perform the role of communications with the fishermen, Aruna has educated and convinced many fishermen to go digital. As Aruna operates in more remote and coastal areas, the spread of digital adoption and literacy has had significant impact on livelihoods and sustainability within the fishing community. Aruna has not met any resistance from fishermen in adopting the sensors and IoT so far, as the fishermen are receptive and believe that technology will benefit them by improving their welfare and income. However, it has faced challenges attracting young talent with digital profiles to work in these remote and coastal areas, since after graduating, most educated talent tends to look for jobs in big cities.

Recently, Aruna has also been serving as a trusted data partner to the local public and private sectors. Aruna contributes at a national level by partnering with local governments (e.g., Banyuwangi and Eastern Java) to map out the needs of local coastal communities and identifying capacity building gaps in terms of product processing, packaging, licensing, and certificates. Local governments provide hyper-localised feedback on their current priorities and areas for improvement for local fisheries, so Aruna is able to tailor its services and support. Through these partnerships with local governments, Aruna looks to enable access for coastal communities to educational, infrastructure, and financial facilities – such as capacity building, insurance and finance. In addition, Aruna is collaborating with private companies like Astra International to procure internet connectivity, electricity, as well as fishing gear and boats in some parts of Papua.

Through its use of real-time data, Local Heroes, and partnerships, Aruna is building digital infrastructure and capabilities in remote areas and increasing digital competitiveness in these regions. East Ventures's Digital Competitiveness Index (EV-DCI), developed by one of their investors (East Ventures) is a useful instrument for Aruna to identify priority areas and evaluate how it can create an impact. It helps to map out what Aruna has developed digitally so far and traces what it has done against a national index. The EV-DCI also enables Aruna to see the critical points for improvement in the near term, given that it aims to have strong presence in many parts of the archipelago.



SCALING IMPACT ACROSS THE AGRICULTURE SECTOR IN ASIA

Aruna's story reflects the potential for digital innovations to enable impact at scale across the broader agriculture sector in Asia. About 340 million out of the global 380 million smallholder farmers are based in Asia¹⁵, most of whom face similar challenges to Indonesia's fishing communities that Aruna supports. Digital technology has the potential to democratise these farmers' access to information and markets, as well as improve efficiencies and cut costs in their operations. According to the United Nations Sustainable Development Goals Impact's (UNSDG Impact's) Indonesian Investor Map, digitisation of the agricultural sector is one of the 18 major Investment Opportunity Areas in the country that has considerable potential for positive impact and commercial success, with market size estimated at over US\$1 billion.¹⁶

By leveraging digital innovations, businesses like Aruna are increasing efficiencies in Southeast Asia's trade markets and supply chains, as well as improving the livelihoods of historically underserved communities.¹⁷ Strong investor interest in the broader AgTech space also speaks for the potential of businesses that are harnessing the power of digital tools and innovations – AgTech is expected to add US\$65 billion to the Association of Southeast Asian Nations (ASEAN) economy by 2025.¹⁸ In all, Aruna's growth journey, alongside the strong emerging interest in AgTech in the region, reflects the sizeable opportunity in Southeast Asia for digitally-based businesses to scale impact in a commercially viable way across the agriculture sector.

However, there are still issues to be addressed, especially at the infrastructure level. Beyond digital infrastructure, it is important to ensure the entire value chain is supported by strong infrastructure. For example, the cold chain in Indonesia needs to be redesigned to keep the products fresh. To this end, Aruna is collaborating with several partners to improve the infrastructure for transport and logistics in the more remote areas and in the eastern part of Indonesia. It is also building Aruna Hubs in more areas across almost all parts of the country, which can improve quality control across its supply chain. While Aruna recognises that the journey ahead is long and will take time, they are taking dedicated steps to transform the fishing industry towards sustainability, leveraging a strong digital foundation to scale impact.



¹⁵ Our World in Data (2021). (Note: Asia scope covers China, India, Indonesia, Iran, Japan, Laos, Myanmar, Nepal, Pakistan, Philippines, South Korea, Thailand, and Vietnam only. According to [Our World in Data](#), "smallholder farms are those that are less than two hectares".)

¹⁶ UNDP (2022). [Indonesia SDG Investor Map Handbook](#); UNDP (2022). [UNDP SDG Investment Opportunity Areas](#)

¹⁷ UNDP (2022). [UNDP SDG Investment Opportunity Areas](#)

¹⁸ The Australian Business Review (n.d.) [Asia eyes a \\$65bn agtech transformation](#)

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**ABOUT THE CENTRE FOR IMPACT INVESTING AND PRACTICES (CIIP)**

The Centre for Impact Investing and Practices (“CIIP”) fosters the growth of impact investing and practices in Asia and beyond by building and sharing knowledge, bringing together stakeholders in the community, and bringing about positive action that accelerates the adoption of impact investing. Based in Singapore, CIIP was established in 2022 as a non-profit centre by Temasek Trust, a steward of philanthropic endowments and gifts. Temasek and ABC Impact are our strategic partners.

To achieve a sustainable future for all mankind, the world needs companies that can drive positive changes at scale through products and services. Impact investing can spur the growth of such companies and help advance solutions to address the challenges that the world faces today. We believe that sustainable companies are those who pursue social and environmental impact as avidly as they pursue profits and shareholder value. By striving to generate positive and measurable social and environmental returns alongside a financial return, both impact investors and companies can achieve returns with purpose.

We are SDG Impact’s anchor partner for Asia. SDG Impact is the United Nations Development Programme initiative tasked to develop resources that accelerate investments towards achieving the United Nations Sustainable Development Goals by 2030.

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