



#### Urban Agenda Platform

The global platform for sharing progress, action and knowledge on the implementation of the New Urban Agenda to achieve sustainable urban development.

# Less Fish Loss Supporting Better Nutrition through Innovative Partnership

Region	Asia and the Pacific
Award Scheme	Dubai International Award
Themes	Environmental Resilience
Sustainable Development Goals	Goal 17 - Strengthen the means of implementation and revitalize the global partnership for sustainable development

## Summary

IPLAN, an innovative alliance, founded by GAIN Indonesia, has increased the supply of fish and fish products for Indonesia's population. It facilitates dialogue and collaboration between fish supply chain actors and the government to identify bottlenecks and source sustainable, local innovations to reduce the 25-35% loss of fish prior to market. Members are small and medium-sized enterprises that produce, process and distribute fish/fish product.

## Background and Objective

The Indonesia Postharvest Loss Alliance for Nutrition has contributed to reducing energy use in the fish sector in Indonesia. Most fish supply chain actors use excessive amounts of ice to keep fish fresh, which requires a significant amount of water and electricity but also causes food safety risks when transporting over long distances. In 2018, IPLAN organised a national competition to identify local innovations in cold-chain technology that would be environmentally sustainable, energy-efficient and appropriate for the local context. From 230 proposals, Maslaha Cold Bank, a reusable ice substitute, was selected to receive capacity building, seed funding (USD 22,000), and links with new markets. These reusable icepacks are made from food-grade materials, easily cleaned and refrozen, and offered in three size variations. They help small-scale fishermen save money, reduce energy use, maintain the quality of their catch, and sell it at a good price. Such changes can be transformative, as Indonesian fishermen largely live in poverty. A market assessment conducted by the Ministry of Maritime Affairs and Fisheries confirmed that Maslaha could reduce freezer use by up to 15 hours per day—saving electricity and the fossil fuels used to generate it. It can also reduce the use of plastic bags for holding ice by up to 70 pieces per day per fisherman and save fishermen 83% of their daily expenditure on ice. As a result of IPLAN support, Maslaha sold more than 20,000 cold banks to 400 fishermen and other users such as lactating mothers, street food vendors and health workers transporting vaccines from June to December 2019. Cost-benefit analysis indicates that the benefits of investing in Maslaha are worth 12.6 billion IDR (760,000 USD) over 3 years, assuming a reach of 400 fish traders. An effectiveness study is in process. Further investment has been secured which will allow the business to increase production to be able to reach 3 million Indonesian fishermen.

## Actions and Implementation

IPLAN consists of an Alliance and a Business Innovation Challenge (BIC), both of which develop small businesses and incomes of small-scale fish producers. Through the BIC platform, IPLAN identifies local innovations to reduce post-harvest loss in the fishery sector and improve community nutrition intake. Across two rounds, BIC has inspired over 500 proposals on cold chain technology and fish-based food innovations. Most proposals come from SMEs working as fish processors. IPLAN has mentored 5 innovations to improve products and help the marketing of products to enable the public, especially the vulnerable to access affordable nutritious fish-based food. From January to March 2020, over 28,000 ready-to-eat and ready-to-cook fish-based food products have been sold on the local market. Through the Alliance, IPLAN builds business-to-business (B2B) and -to-government (B2G) engagement to scale up distribution and utilisation of the innovative products supported through the BIC. GAIN matched Maslaha with Koen Irianto, a social entrepreneur, who recruited and trained 25 sales agents, mostly community health workers and small-scale fishermen, in 12 districts of East Java. With a 20-30% margin to the agents—a lucrative amount, by local standards, in two months, Mr Irianto and his agents successfully sold 1,500 items, generating \$1,050 USD in profit (many times the monthly minimum wage in East Java, \$152 USD). Through other channels, including IPLAN-recruited district fishery facilitators, Maslaha sold their product to 400 fishermen. On average, it is estimated that each fisherman saved \$990 USD per year in ice costs—almost three times the national per-capita poverty line of \$365 USD per year. Another supported innovation, Co-Fresh, a cooling box to transport fish, has received orders for national procurement by the government. These examples show how IPLAN is improving productivity and value-added while reducing loss and increasing incomes in Indonesia's fish supply chain.



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## Outcomes and Impacts

Increased consumption of fish in Indonesia is essential. 19.4 million Indonesians are unable to meet the minimum dietary requirements of essential nutrients. Nutritional deficiencies are common including 30% stunting among children under five – partially caused by chronic undernutrition. Stunted children are at higher risk of poor cognitive performance and increased morbidity and mortality. Almost 50% of pregnant women are anaemic, a high proportion due to nutrient deficiency, particularly iron. In Indonesia, fish is an important source of protein, vitamins, minerals, and essential fatty acids. It is cheap and easily found in markets in coastal areas, but, it is easily spoiled before reaching customers living inland; affordability can also be a barrier for poorer households. Stunting is highest in these regions of the country and among the poorest households. IPLAN enables consumers to purchase fish, bolstering the quality of their diets – critical for the prevention of malnutrition. By reducing fish loss and increasing access to affordable, nutritious fish, this platform systematically addresses the root issues that underpin the challenges fish supply chain actors face and creates an enabling environment for greater fish availability and affordability in rural markets. IPLAN's strong working alliance (currently, 400 members in 13 provinces) has engaged business, government, and civil- society actors to identify local innovations on food loss (507 proposals to date) and undertake market testing of fish-based products (over 28,000 fish-based food products and over 20,000 simple cold chain products sold). IPLAN focused on innovations which help increase the shelf-life of fish and make it more available to those communities that need it most. IPLAN also contributed to creating a 2019 Memorandum of Understanding between Indonesia's Ministry of Health and Ministry of Maritime Affairs and Fisheries to reduce malnutrition through increased fish consumption.

## Sustainability and Scalability

Sustainably supporting local entrepreneurship is central to IPLAN's mission. While IPLAN began through a donor-sponsored project, GAIN ensured it could become an independent, self-sustaining national association that would be a resource for entrepreneurs after the project ended. This organisation, the IPLAN Alliance (or JP2GI in Bahasa) now has 400 members, 72% of whom are rural small-scale fishermen, fishmongers, or fish processors. The JP2GI builds capacity for its members through training, business matching, and seed funding for business development. JP2GI also engages fishery polytechnics and research centres in 15 provinces to assess the fish loss. With this information, the local and national governments will be able to formulate stronger policies to support entrepreneurs to reduce food loss, improve community nutrition, and support the livelihoods of local small-scale fish entrepreneurs. In November 2019, the JP2GI submitted a catalogue of IPLAN BIC winners for the MMAF's consideration in procuring mobile fish marketing aid for small fishermen in rural areas. The MMAF selected to procure 42 hygiene fish boxes from Co-fresh (USD 20,000). The catalogue also gained some interest from local government and other private sectors. For example, Keumamah (fish floss tuna) was adopted by AP5I, one of JP2GI's members. The BIC further reduces the gaps in capacity, technology, and financial services faced by small-scale local innovators and entrepreneurs to help them to improve their products and scale-up production and marketing. IPLAN engaged experts from a Singapore university and national food start-up community to assess BIC winners' products and provide specialized training to improve products and business models. The BIC winners have received coaching and seed funding which has been used to meet complex regulatory requirements, including production standardisation and enabled sales of more than 23,000 units of their food products on the local market.

## Gender and Social Inclusivity

GAIN designed IPLAN as a platform to connect experts and supply chain actors in order to make fish and fish-based products more accessible and affordable to vulnerable groups at high risk of malnutrition, such as households with young children. Addressing malnutrition, with its long-term impact on economic and human development, is a government priority. In 2013, the government enacted a national movement to accelerate nutrition improvements through inter-ministerial activities. This included a Fish Eating Movement (from the MMAF) and a Healthy Living Community Movement (from the MOH). IPLAN facilitated tighter and smoother collaboration between the MMAF and MoH, including supporting an MoU between the ministries to collaborate on fish-for-nutrition issues. IPLAN advocates with key stakeholders to increase attention on the availability of nutritious fish and fish-based foods and plans to do the same with other nutritious food commodities in future. The Alliance currently helps increase access to fish by serving as a venue to share knowledge, collaborate, and coordinate activities and initiatives to reduce post-harvest loss. This includes mapping local food loss and matching local businesses with other business and government entities to increase the market availability of nutritious fish. The Alliance uses online platforms ([www.jp2gi.org](http://www.jp2gi.org), WhatsApp, social media) and face-to-face training and meetings. We plan to integrate market information on fish into a mobile application developed by GAIN for urban consumers. IPLAN has also supported SMEs to bring new fish-based food products to market in line with local government food standards. Seed funding has been used to improve the quality of food production and laboratory testing. All BIC-supported products will be available in retail markets and accessed by vulnerable households at an affordable price. Alliance members influence consumers' behaviour to improve fish consumption by engaging in and promoting national campaigns.

## Innovative Initiative



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IPLAN supports businesses that produce innovative fish-based products using local ingredients for local tastes. One good example is a 2019 BIC winner, Tria Asteria. This local SME makes Uni Urchin, a jam based on sea urchin gonads, seaweed, and local herbs. The final product is rich in vitamins and minerals, as IPLAN-facilitated laboratory testing demonstrated. The main ingredient (sea urchin) is widely available in the local area (Lombok island) but was previously considered waste; before Tria Asteria, there was no local urchin processing into food. Urchin aquaculture is low-input and sustainable, as urchins live naturally in abundance in local seas. With mentoring and seed funding from IPLAN, Tria Asteria was able to develop its business, including urchin aquaculture, food processing, marketing, and by-product (waste) processing. The SME also trains local fishermen to collect existing “waste” urchins and sell them to Tria Asteria for use in Uni Urchin jam. Leftover shells are processed into organic fertiliser, animal feed, and decorative items (such as plant pots, lamps, and art). Tria Asteria has also started a small art centre, training and facilitating villagers to create art products using the waste from the jam-making process. This creates a new type of livelihood for small-scale fishermen and villagers in the region, West Nusa Tenggara, where the local economy has suffered since a major earthquake in 2018.

## Resources devoted to delivery

IPLAN is built on a tight focus on the consumption of safe nutritious foods combined with a capacity to engage and connect a wide range of actors in the food system. The Alliance serves to give small scale fishermen and sellers collective visibility and voice to have more weight in discussions with government and regulators. For example, IPLAN has conducted a post-harvest loss assessment in Surabaya and Probolinggo, during which government and fish association representatives, fishermen and fishmongers were engaged in discussion. Following the assessment, government and small scale farmers have had more frequent meetings and discussions. This assessment process is now being conducted in 15 provinces. Through the IPLAN Alliance, small-scale fishermen and fishmongers can increase their capacity to produce quality fish and reduce loss and waste; this is done through technology development, facilitating access to markets, training, and policy advocacy. Through IPLAN-enabled adoption and distribution of appropriate and effective technologies, such as the Maslaha cold bank, small-scale fishermen and fishmongers are able to sell higher-quality fish, reduce their operational costs for ice by 83%, increase their incomes, and provide their communities with more nutritious fish. IPLAN also helps SMEs access retail markets by providing technical advice and facilitating SMEs to qualify for government licences (i.e Certificate of Processing Feasibility/SKP from MMAF and Trade License/MD from national drug agency), matching SMEs with distributors and linking them with retail companies, such as Indomaret. Both of these actions help empower small-scale fishers and fish producers while making market access more equitable.

## Conclusion

Through its members, IPLAN promotes technologies, practices, and behaviours to reduce fish loss and transform waste from production into other products, forwarding zero waste principles. This is done primarily through the BIC, participants who are small and medium-sized entrepreneurs and local researchers. The products they develop are distributed and marketed in local markets, reaching small-scale fishermen and fishmongers and household consumers in rural areas. All of these technologies aim at reducing food loss and waste; for example, the Maslaha Cold Bank ice packs provide appropriate technology, new to rural areas, to reduce fish spoilage through cold storage and transportation; and Co-Fresh provided an attractive and hygienic fish box which enables fishmongers to safely transport fish to inland rural areas while maintaining fish nutrition content. Supported firms create fish-based products using not only the fillet but also all other parts of the fish, and some businesses work on waste processing, such as transforming fishbone into flour and processing unused parts of Uni Urchin as fertilizer and souvenirs.