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Archipelagic & Island States Forum



ENDING PLASTIC POLLUTION INNOVATION CHALLENGE

Ending Plastic Pollution Innovation Challenge 2021

# Top 17 Finalists

📍 Mandalika Lombok Island, Indonesia

📍 Island Garden City of Samal, Philippines



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# Sampangan

Converting waste into resources with the Magic Box



## Team



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CEO & Founder



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**Dr. Ishenny M Noor**  
Chief Scientist & Founder



**M Sulthan Harald**  
COO & Founder

## Plastic Pollution Challenge

Indonesia is suffocating under a mountain of waste. 70 million tons of waste is produced every year, of which 50-70% is leaked into rivers, seas, and burned openly. This creates direct hazards to people, animals, and nature, while also accelerating climate change through carbon dioxide and methane gas emissions. Additionally, landfills remain at overcapacity due to limited waste processing infrastructure. Currently, most of Indonesia's landfills are almost full, as the waste has not been properly and efficiently processed over the years. Aside from leaking into the environment, tons of "useless" plastic waste end up in landfills, and there has not been any efficient solution to combat this non-biodegradable pollution.

The Magic Box is a patented carbonized technology, which is an oxygen free, thermo-chemical reaction process that converts waste into sustainable materials based on its boiling, melting vapor, and flash points. Carbonization is the combination of pyrolysis and gasification at one reactor, and uses heat radiation at 100-400 degrees Celsius.

The outputs from the process are:

1. Solid activated carbon, used in agriculture to reduce or eliminate irrigated water and increase farming productivity, and in construction as a concrete replacement that has tensile strength and more thermal insulation.
2. Liquid carbon, used in agriculture as a bio-fertilizer.
3. Liquid smoke, used as a bio-disinfectant for public sanitation and as a cleaning agent.
4. Separated and cleaned intact metal.



## Impact Statement

Sampangan is on a mission to solve the world's waste crisis while powering the circular economy.

## Solution

Sampangan created **"The Magic Box"**: an innovative waste processing machine with zero pollution that can process all kinds of waste without the need to be sorted, and convert them into new high value materials. It is also able to process 100% plastic waste. The Magic Box is a modular system that has the capacity to process up to 10 tons of waste per day. It requires low cost of operation in terms of manpower, maintenance, and electricity.

## Innovation

## Business Model

Sampangan operates on two business models:

1. Providing a waste processing service for B2B and B2G. Waste processed by our technology is converted into products.
2. Circular economy, using the output of waste processing into businesses in agriculture, cleaning & sanitation, and construction.

## Impact



Sampangan uses the UN Sustainable Development Goals impact metrics, and below are some measured impacts that Sampangan has achieved so far:

### Environmental:

- 250,000 tons of waste processed.
- 25,000 tons of carbon dioxide captured.
- 528 tons of activated carbon buried in soil as compost for agriculture.
- 280,977 cubic meter of water saved from irrigation.
- 17 hectares of agricultural land turned organic and sustainable.

### Social:

- 42 jobs created for non-professional men and women as there is no special skills needed for Sampangan waste processing operations.
- 450,000 liters of organic disinfectant created from plastic waste, benefiting 102,000 households.
- Partnerships with 22 farmers for organic agriculture.
- 40% women in agriculture partnerships.

### Economic:

- 40% income increase for farmers.
- 837 tons organic produce generated in agriculture.
- 52% lower cost of waste processing compared to incinerators.

## Outlook

Our short term goals for the next 3 years is to convert 4000 tons of waste per day into sustainable materials, and expand our operations internationally to Brazil, Australia, and Japan.

Our long term goal is to build the largest global circular economy ecosystem.

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## Traction & Key Metrics

Sampangan has deployed 18 Magic Boxes across 7 provinces in Indonesia, and has grown 20 fold in revenue since being incorporated in 2019. The Magic Box and its outputs have been lab tested, certified and audited by Indonesia's Ministry of Environment and Forestry (KLHK), SUCCFINDO, Bogor Agriculture Institute, and Pusat Penelitian Kelapa Sawit (Palm Oil Research Center).

Below are some awards and recognitions that Sampangan has obtained:

- Accelerate2030
- Habitat for Humanity Sheltertech Grant
- SEED Low Carbon Awards
- JICA Grant
- Gold medals in the following global innovation expos: MTE & ITEX Malaysia, Japan Intellectual Property Association, IENA Germany, INPEX USA, The British Invention Show, Soul International Invention Fair Korea.

Sampangan has grown a global network and partnerships.



## Investment

We are currently fundraising our first round of financing for USD 500k - 1 million.

Funding allocation breakdown:

- Ramp up technology & product development.
- Ramp up hiring on sales, product, communications, and business development.
- Build in digital and data capabilities in our ecosystem.
- Deploy more pilots that will unlock new markets.

## Contact



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# Alterpacks

Using food waste to replace plastic packaging



## Team



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Founder & CEO



**Herbin Chia**  
CFO



**Julie Lee**  
Project Manager



**Nur Aina Farhana**  
Research Engineer



**Dr Henry Leung**  
Research Director, NYP

## Plastic Pollution Challenge



Combating a global problem of plastic pollution through local solutions. 60% of global ocean plastics originate from Indonesia, China, the Philippines, Vietnam and Thailand. These same countries, are also home to 25% of the world's

brewers' spent grains, a by-product in food manufacturing. Alterpacks is able to take this raw material that is currently being used as animal feed, fertilizer or discarded in landfills, to replace one-third of the household plastic packaging needs in these same countries.

## Impact Statement

Alterpacks aims to combat plastic pollution by creating circular solutions where nothing goes to waste.

## Solution

Using by-products from food manufacturing and agricultural waste to create a new material that replaces plastic packaging.

## Innovation

Valorisation of food and agricultural waste to create bio-resins that can be used in standard plastic manufacturing machines to replace petroleum based resins and create food



containers. The current raw material is brewers' spent grains - malt and cereals thrown out in beer brewing, milo and cereal production. This raw material may be replaced with agricultural waste such as coconut husks. Alterpacks have developed an energy saving method that requires low heat and existing machines to create the pellets at scale. The material is biodegradable and home compostable. This is important as plastic waste is often dumped in open ground, landfills or ends up as ocean plastic.



## Business Model

1. Work with the local community to find pickers to collect plastics, educate them on the plastics that are suitable, pay pickers fair wages for work.
2. Work with local community to find coconut shell pickers and processors of the coconut.
3. Build an Alterpacks eco-innovation factory in the Science Technology & Industrial Park (SITB) Banyumelek, Mataram City.
4. Innovation factory will be built using recycled plastics and building materials.
5. Innovation factory will house an education centre for STEM learning on recycling and use of waste in production.
6. Innovation factory will create bioresins made from coconut waste to replace fossil-based resins for sale and export.

## Impact

1. Processing 5 tonnes of coconut waste per month
2. Replacing 125,000 plastic food containers per month
3. End goal of making Mandalika a plastic free zone
4. Reducing the amount of food and plastic waste going to open dumps, incineration and landfills
5. Substituting the demand for fossil-based resins and reducing CO2 emissions by more than 42 million tonnes
6. Providing STEM learning
7. Providing employment opportunities & equal opportunities
8. Impact UN SDG 1, 4, 5, 8, 9, 10, 11, 12, 15, 17

## Outlook

1. Start with coconut and agricultural waste in the region. Continue to innovate and work with variations of this waste.
2. Switching out plastic use of food containers and expanding to other products
3. Mandalika products and bioresins exported globally

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## Traction & Key Metrics



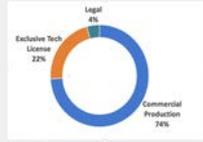
Alterpacks is pre-revenue. Traction and Metrics for the project will be:

1. Feasibility study on area for development and construction
2. Begin collaboration with community and start-ups for plastic pickers and coconut waste pickers
3. Contracts to set up for coconut waste and processing
4. Pellet refinement from coconut waste to create bioresins
5. Test run of pellets
6. Obtain international certification for food contact

## Investment

Funding to Date: US\$450,000

- Temasek Foundation
- SMU IIE
- Bootstrap



To raise: US\$600,000

- Pilot development with new coconut waste
- Commercial run for pilot clients
- Certification
- Legal and contracts
- Payment for pickers & waste collection

Alterpacks is supported by Singapore's Temasek Foundation, Singapore Management University's Institute of Innovation & Entrepreneurship (SMU IIE) and boot-strapped by the founding team. The team aims to raise US\$600,000 to fund the development of the coconut waste specific to Mandalika.

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# Bintang Sejahtera NTB

## Providing comprehensive and sustainable waste management solution



### Team



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CEO



**Febriarti Khairunnisa**  
Director



**Lalu Irfan Hadimi**  
Project Manager

### Plastic Pollution Challenge



Mandalika as one of the national super priority areas in Indonesia is set to attract more than 3 million tourists every year. With existing inhabitants of 105,525 people, it has the potential to produce 26,592 tonnes of plastic waste a year, where 27.3% is recyclable waste. Meanwhile, the landfill provided by the government only has a lifetime of just five years.

Unfortunately, the Mandalika waste management system still remains unclear and uncoordinated. More than 70% of local people throw away their garbage into canals and rivers, this contributes to waste leaking into the ocean.

### Impact Statement

By implementing a comprehensive circular economy concept, starting from the stages of research, education and community empowerment, collection units establishment to the waste recycling process for industry, we have assisted more than **300 communities, villages, sub-districts and schools** to form collection units or drop points. Through this concept, we received high engagement and an enthusiastic response from the community who wanted to be involved in the system we developed. Our business model has driven the operation of more than **300 Collection Units** which function as education centers and waste collection from both the community and the surrounding area. More than **1,808 tons of waste** were successfully returned to the production chain of which **65.58% was plastic waste**. At the same time, this effort has succeeded in **reducing greenhouse gas emissions by 1,497 tons of CO2-eq.**

### Solution

An integrated waste management system which combines public awareness campaigns, research and development, community-based waste collection system and recycling.



### Outlook

- With our existing operation, our annual revenue outlook is targeted at USD 1 million by 2023
- Scale up our factory in Lombok and expand our operation in other island in Eastern Indonesia (Sumbawa, Labuhan Bajo, etc.) within 10 years
- The first leading waste management start-up in East Indonesia

### Business Model

Our business model is connecting households, as the main source of waste, with our recycling facilities and processing. Starting with a massive public awareness campaign to involve everyone in collecting and segregating their own waste, then establishing community-based collection unit close to the households, developing collection center in every region and transporting the waste to our recycling center where there is profit margin in each step which can be gained as revenue to generate wider economic, social and environmental impacts.



### Innovation

Adopting the Circular Economy concept, we developed a comprehensive Circular Economy System for a sustainable environment. Starting with building public awareness as the largest source of waste, upstream-downstream waste processing infrastructure based on available and applicable local wisdom, to building a sustainable market network.



Any recycled waste is raw material that can be absorbed by the domestic recycling industry. Thus, we can contribute to reducing plastic waste pollution burden on the environment while reducing dependence on imported raw materials for the recycling industry. For example, in 2019, Indonesia was recorded to have imported more than 12 million tons of raw materials. To improve service outcomes and capacity, we are currently conducting development research to identify and map problems, challenges and potential for waste management in the community, as well as recording existing best practices for Knowledge Management where this has not been widely practiced in Indonesia. In terms of technology, we developed "SAMPLUN", a waste service application to target more people and the tourism industry.

### Impact

We create social impacts aligned with SDG 12 - Responsible Consumption and Production : increasing the recycling rate (12.5), facilitating consumers' and manufacturers' responsibility for their consumption and production, educating consumers on waste segregation and recycling (12.6), supporting manufacturers to adopt EPR (Extended Producer Responsibility) by collecting non-recyclables measures (12.6). Bintang Sejahtera also supports: SDG 14 - Life Below Water: Prevent waste leakage to oceans SDG 13 - Climate Action Prevent / reduce / collect plastic waste from the environment, in general and in Mandalika in particular. SDG 8 - Decent Work and Economic Growth: Create livelihood opportunities to get fairer and more stable income as well as improve working and safety standards.

### Traction & Key Metrics



In 11 years of our operation, we have created income up to 7.5 Billion Rupiahs (USD 535,000) for more than 12,550 local customers, where 70% of our beneficiaries are housewives. Each local family can earn additional income up to 1.5 million rupiah. Apart from that, our collection units have also grown significantly to more than 300 covering all NTB areas and creating job for 550 people.

### Investment

- Our target is to raise total funding for USD 10 million by 2025 to build an integrated recycling, learning and development center with large machinery and big capacities for waste processing as well as an intensive knowledge management and research programs. We plan to scale up our annual production capacity to 30,600 tons in 2025.
- Our total revenue is projected at USD 32.5 millions in 10 years, with 701,189 tonnes of waste in total being processed (2035).

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### Contact

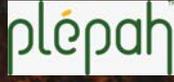


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Bintang Sejahtera NTB



# Plépah

Carbon neutral & biodegradable packaging to develop a resilient local economy



## Team



**Almira Zulfikar**  
Co-founder & COO



**Bintang Heru**  
CFO

## Plastic Pollution Challenge

The issue we prioritise in tackling the waste crisis is the staggering usage of single-use packaging especially plastic packaging. The pandemic has shifted Indonesia's lifestyle from offline to online purchases to accommodate basic and subsidiary needs. With deliveries becoming more common, it is expected that excessive plastic packaging (44.8% increase) will push waste issues to an even more critical point, thus branding Indonesia as the second largest contributor of plastic waste.

In the villages most locals rely on farming as their primary source of income. In some instances, this practice is still precarious, labour intensive and gender specific. Here, most of their income is still below the regional's minimum wage threshold. Accordingly, we work closely with smallholder farmers and other communities at risk, to generate an alternative means of revenue, increase their economic resilience and increase their capacity. Both environmental and socio-economic issues are detrimental for us to tackle for a more sustainable and circular future as they all go hand in hand.

## Impact Statement

Plépah enables the valorisation of under-utilised agricultural waste by manufacturing biodegradable food packaging from local materials and implementing a decentralised micro-manufacturing approach to alleviate plastic waste in the environment and strengthen the socio-economic resilience of the community and farmers.

## Solution

Plépah creates biodegradable packaging as a solution to the post-consumer waste problem. In developing alternative solutions we prioritise locally-sourced material as well as existing skills and tools. Plépah sustainable products is an NTFP solution aiming to provide alternatives or replace demand for single-use materials and alleviate further environmental burden through excessive non-perishable waste.

## Innovation

Plépah provides bio-degradable and carbon neutral packaging. Our first packaging products are 100% natural made from Areca Palm leaf sheath. They biodegrade within 60 days and are compostable. They are food grade, water resistant, can be put in the microwave, oven and freezer.

We provided the community with affordable technology to process the material into quality products. We custom design the technology in accordance to the needs, scale and material. We adopted a decentralised 'Micro-Manufacturing' concept which uses modular and compact technology. These design systems simplify and speed up the maintenance process with parts that are readily available and allows the community to assemble and easily maintain the machinery. This appropriated-scale design allows the system to be more flexible, adaptive and in accordance with the capacities of the local communities.

We focus on community empowerment and use various research methods to produce insights and solutions for a greater impact. By strengthening the community capacity our solution generates economic security within the village for a resilient economy and promotes a sustainable business scheme.

## Business Model

We build a strong business ecosystem by partnering with businesses and stakeholders that not only care about the environment and the social impact, but who are also actively taking action. In the downstream we present a sustainable business model for BUMDes or Village Cooperatives whose impact will reverberate on people's livelihoods through innovations generated from local commodities. In the upstream, Plépah boosts the products into the market by partnering with ESG businesses, restaurants/cafes and other distribution channel.



## Impact

We look towards the SDGs as our blueprint; Decent Work & Economic Growth, Industry & Innovation & Infrastructure, Responsible Consumption & Production.

- We implemented job creation, through recruiting farmers and/or unskilled labour workers in local area, which in turn increases local farmers and workers' alternative income from the scheme. We empower women by providing a workplace with flexible working hours and involve youth from local areas who are interested in innovative design and learning opportunities.
- We currently have impacted 50 farming households in material collection, 10 workers in the production area of Mendis Village, South Sumatra, 7 of whom are youths or women.
- We support domestic technology development, research and innovation through implementing **Micro-manufacturing systems**.
- We worked together with an independent sustainability consultant company to calculate the Life Cycle Analysis of our product; cradle to gate. Our estimated **emission saving is 0.130 kg CO<sub>2</sub>e per product** based on estimated emission of plastic packaging of similar volume size.

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## Traction & Key Metrics

Our key metrics are job creation for unskilled & unemployed workers, specifically for women and youths. We hope to increase income to the minimum regional level for all community and farmers involved in the scheme. We currently have impacted 50 farming households in material collection, 10 workers in the production area of Mendis Village, South Sumatra, 7 of them are women and youths who through this job creation, have increased their income by up to USD 105.

Our products are also available in several online marketplace, such as Sustainability, Tokopedia, Shopee and Bukalapak, attracting more and more customers across Indonesia.

We hope to continuously manufacture from other of other underused agricultural waste and ultimately continuously track our carbon emission, produce carbon neutral products and have net zero emission by 2050. The pandemic has exacerbated businesses, governments and society at large to rethink their strategies in moving forward. Therefore, we think this is the perfect time to research and implement innovative solutions for the regenerative future.

## Investment

To date, we have raised capital in the form of grants and research grants.

We are looking for impact investors to finance our growth. We are also always on a lookout for research grants for material research and product development. The finance would help towards increasing the production capacity as well as towards market growth to establish ourselves as pioneers in the industry and reach a large market for maximum impact.

## Outlook

Our long term vision for this project is to explore and utilise more under-used agricultural waste that has the potential to be developed into other valuable biodegradable products. With our ongoing material research on bio-composite materials; we are able to not only create food packaging, we are able to diversify into other products packaging, such as secondary packaging for FMCG products and collaborate with fashion & beauty brands.

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# Rekosistem

Waste Management Startup



## Team



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CEO & Co-Founder



**Rahajeng Hasna Safira**  
Operations Team



**Anissa Lubiana**  
Marketing Associate

## Solution

Rekosistem provide platform for waste management in Mandalika. Our 4 main features to support the circular economy are: waste collection feature, drop points feature, features to empower waste worker, and dashboard feature for waste reporting.



**Redrop**  
Drop Points



**Repickup**  
Responsible Pickup Services



**Rekolab**  
Digital Platform



**Rekodash**  
Waste Reporting

## Innovation

### Drop Points

Rekosistem will provide an effective and efficient pickup and drop point platform in terms of scheduling, routing, manpower distribution, and waste collection to the off-taker. Waste drop points will be built in villages around the Mandalika area. Drop points are built by empowering the land owned by residents who are willing to be used as a place for waste management in the surrounding area. Rekosistem will help provide education to each village so that its residents can sort their inorganic waste and deposit it at the nearest drop point. We will provide competitive incentives for workers in the local village waste management sector. We will work with the existing Waste Bank and Recycling Center to serve as a bulk collection point for inorganic waste that has been collected from each village drop point.



## Plastic Pollution Challenge

- In Indonesia, only around 10% of the plastic waste is recycled and the rest is polluting the environment
- In Mandalika, the total waste generation is 215.7 tons/year and the existing waste management system still need a lot of improvement because most of the waste are still ended up in the ocean and burned
- The main factor is the lack of integration in waste management system

## Impact Statement

By empowering the local communities and resources we are aiming to improve a more integrated waste management system and accelerate the rate of waste managed in Mandalika.

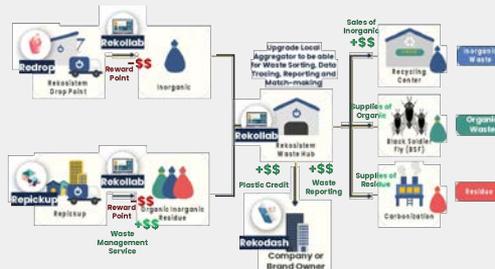
## Repickup

Rekosistem will provide responsible waste pickup services to Hotels, Resorts, and Events in Mandalika. It ensures waste that are produced by Businesses Activities will be managed responsibly, prevent the leakage to the environment, and minimize dumping to Landfills. This service will empower local waste workers to work with us, generate a productive income, and work more efficient. We enlighten the worker with standardized waste pickup, segregation, and management modules.



## Business Model

We develop sustainable, innovative business models and private / public partnerships that allow us to process waste that would normally go unrecycled or end up in landfills.



## Impact

- SDG 8: Decent Work and Economic Growth  
We are providing a proper procedure and schedule for waste workers and enabling them to get a stable income unlike when they work sporadically.
- SDG 9: Industry, Innovation and Infrastructure  
In its business process, Rekosistem cooperates with several medium and large scale industries as partners, customers, and off-takers of the collected waste.
- SDG 11: Sustainable Cities and Communities  
We integrate homes and public places with waste workers and recycling partners.
- SDG 12: Responsible Consumption and Production  
In an effort to increase awareness of climate change, Rekosistem provides a monthly waste management report that is carried out to every customer who uses Rekosistem services.
- SDG 13: Climate Action  
Before starting the pick-up process, we always give clients an introduction to waste management (basic waste sorting) as part of our educational campaigns for clients.

## Outlook

The outlook section is about plans for the future. Especially for long-term impact, our target for within 5 (five years) are:

- 80% of Hotels, resorts and hotels in Mandalika already implement responsible waste management.
- 80% of villages in Mandalika already have Drop Points for Recycle-able Waste.
- 80% of Plastic Waste from Mandalika are recycled or reused for valuable byproducts.
- 90% of Plastic Waste are prevented from leakage to the ocean.
- At Least 35% waste reduction to the Landfills from Mandalika.

## Traction & Key Metrics

Currently we grow exponentially, in 2021 we maintain our growth at minimum 30% month-over-month. The details are as follows:



## Investment

For Mandalika Project we are raising for USD 250,000 to implement responsible waste management model in Mandalika. The spending bucket of the investment will be used for:



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# Siklus

Delivering refills of consumer products to door



## Business Model



Our business model relies on partnering with FMCGs to create a more efficient supply chain with circular bulk packaging. It is composed of three phases: direct sales of products, analytics and advertising as well as white label and merchant model development.

Our core business model is a B2C business model, where our revenue is generated from the sales of products. Our margin is derived from the savings created from cutting packaging costs and we already have very healthy gross margins. We also use a third party logistics provider for warehousing and last mile delivery for more scalability. Secondary revenue streams are data insights and advertising, and later we want to build our own D2C brand.

## Impact

Our intended impact is to scale up and be able to reach over a million Indonesian customers by 2023, saving over 62 million sachets from polluting the ocean and saving our customers over USD \$18 million. The primary outcomes we intend to track are plastic saved from the ocean and savings to our customers from switching to our products. Even if we grow at 20%, which is less than half of our current growth numbers, we would reach around 1.8 million customers by 2025. Our customers, as our direct beneficiaries, would save a combined USD \$3 million. According to the same growth rates, we would save 77.5 million plastic sachets by 2025. Hence, the impact of affordable refillable solutions is huge, having the potential to change the game of retail and sustainability globally.

Nevertheless, Siklus also has unintended outcomes that include health benefits since much of Indonesia's pollution comes from the burning of plastic waste and there are not many feasible options to get rid of plastic pollution. Only 45% of waste in Indonesia gets collected, thus anything to reduce pollution levels will have a significant impact on public health.

## Outlook

Siklus is in the scaling stage. As of now, we operate in the Greater Jakarta Area but plan to launch in Bandung and Greater Jakarta by late 2021. In 2022 we want to launch in Bali, Yogyakarta, Surabaya and more cities. Within the next 1-2 years, we want to test various scaling strategies. Additionally, as we are aiming to reach more areas and increase customer density, we will continue to partner with more successful third party logistics to help us improve scalability. Consequently, these expansions will help us achieve \$10 million ARR by June 2022.

In the next 2 - 3 years, Siklus also plans on delivering products to rural customers, partnering with family-owned stores for distribution, and building group buying and bulk buying features. Our longer term plan involves expanding to other Southeast Asian countries, partnering with supermarkets, creating Siklus brand products, and adding additional refillable products to our line.

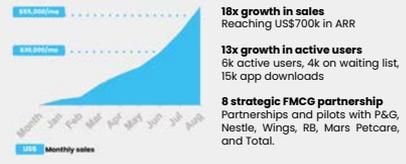
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## Traction & Key Metrics



We currently serve more than 6,000 families across the Greater Jakarta Area and due to rapid growth, we have had to create a waiting list for our product in other parts of Indonesia which has gathered over 4,000 responses.

## Investment

To date, we have raised investment from prominent angel investors such as Gojek's C-Level executives, Teja Ventures, and partners from renowned VCs such as Jungle Ventures and Investidea, as well as grant funding. For current seed investment round, we need the total of :

**US\$ 2 Million**  
to improve technology and scale our business

Regarding the upcoming pilot in Mataram, we will allocate :

**US\$ 20,000**

- This amount will be used for the following activities :
- Conduct pilot in Mataram that fits into local conditions - where door to door sales of household products is already commonplace
  - Establish educational behavior change activities
  - Carry out offline marketing strategies
  - Improve hardware system that is suitable for the area

Apart from funding, we are seeking for support to deepen relationships with :

- Local governments
- Local key influencers for local community empowerment
- Local distributors and Ngampas (deliveryman of household products)

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## Team



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Head of Marketing & BD



**Didi Dwianto**  
Head of Engineering



**Laksamana Sakti**  
Head of Operations



## Plastic Pollution Challenge



Indonesia is the second-largest ocean plastic polluter. One of the most common items found on beaches are the small single-use/serving plastic packets or sachets. At Mandolika's beaches, 25% of plastic found is mixed or layered plastic (the same plastic type as these sachets and pouches). Given that plastic sachets and pouches are hard to recycle, we need to reduce plastic waste at the source. This will result in less strain on the waste management system, less plastic being burned, and less plastic polluting the environment as well as entering the oceans.

Furthermore, 70% of Indonesians buy their household goods in single serving 'sachets' (i.e. liquid soap, shampoo, detergent and coffee). As 15% of the sachet cost comes from packaging, low-income populations often pay extra for their everyday needs in small portions, a so-called 'poverty tax'.

## Solution



**Siklus deliver refills of everyday consumer products to your door - without plastic packaging.** Customers can simply order on our mobile app or WhatsApp and schedule a refill. A bike - retrofitted with a refill station - comes to their doorstep where they can use their own containers to refill everyday necessities like soap, shampoo, detergent, cooking oil and more at a lower cost.

We are on average 20% cheaper and our product allows customers to save on everyday necessities while drastically reducing plastic waste, all in a convenient, to-door solution. As such, we create a more efficient and sustainable distribution network for refillable Fast-Moving Consumer Goods (FMCGs) products.

## Impact Statement

Siklus' refill solution could become the most effective way to help reduce plastic waste at the source. Delivering in refills also increases the purchasing power of low-income customers as it meets low-income and middle-income household needs who previously had to rely on sachets and other small quantities of product in plastic packaging to save money. We offer a 10%-20% saving to our customers compared to sachets, which is very significant, given that these households on average earn between \$70-350 monthly.



# Ocean Purpose Project



## Team

 MATHILDA D'SILVA Founder & CEO	 MARGARET D'CRUZ Advisor & IR Lead	 RICHARD HO Head of Engineering
 Prof. Shuang Emeritus Professor Nanyang Technological University (NTU)	 Dr. Giuseppe Ianni Director, Research and Innovation Centre (RISC)	 Dr. Anand Velankar Senior Research Fellow, NTU NEWRI
 BERNESA TIO Marine Research & Feasibility	 ISARAC LAI Regulatory & Community Partnership for Marine Environment	 REBECCA KOH Conversion Marketing, Content & Publicity
 ROBIN JOSEPH PTF Research Associate	 ADRIAN LAI PTF Research Associate	 JP WINGLOD Director of PTF Conversion & the Solution, Indonesia Partner of Ocean Purpose Project

## Plastic Pollution Challenge

Ocean plastics have become a global crisis which the world is now facing. Current recycling processes are extremely inefficient as most contaminated ocean plastics are just not suitable for mechanical recycling plants. The world needs to be looking to hydrogen as a fuel of the future, but this has been expensive and difficult to manufacture...until now!



Chemical recycling is a new field, seldom explored, which can turn plastics that are not fit for mechanical recycling into high value raw materials. Our OPP Plastic to Fuel (PTF) solutions ensure **100% emission capture** unlike current plastic to fuel solutions on the market.

OPP will tackle the plastic pollution crisis with the OPP Plastic to Fuel (PTF) unit. This unit will convert collected ocean plastics, into 3 key resources: Low-sulphur fuel, Carbon Nanotubes (CNT) and most valuable Hydrogen gas. It will be a game-changer as it is the final step towards closing the loop in all plastic recycling.

## Problem Statement

Research places Indonesia as the 2nd marine plastic debris producer globally. The solution to this issue requires innovative infrastructure that treats waste as a resource to be monetised and benefit the entire community. An efficient and innovative solution is necessary to rid the country and the oceans of plastic waste pollution by implementing an effective solution that benefits both the environment and the economy. Mechanical recycling can only go so far- let's turn ocean plastics into a high profit resources - carbon nanotubes and hydrogen!

## Solution

Ocean Purpose Project proposes the PTF (Plastic to Fuel) which converts ocean plastics using a combination of technology from top universities, designed for waste collected from coastlines to create high profit products such as Hydrogen which can power e-vehicles for a future Mandalaika E-GP and Carbon Nanotubes which can be used to make smartphones and expensive materials. We can integrate with existing Plastic to Fuel factories in Lombok or deploy our signature OPP PTF unit in a 40-foot container, over land or sea to any community facing ocean plastic pollution.

## Innovation

OPP's plastic collection in Pasir Ris is sent to our research partners in West Singapore, NTU NEWRI (Nanyang Environment & Water Research Institute) and several partners have been successfully developed to turn ocean plastics into low sulphur fuel following IMO2020 regulations, high value carbon nanotubes, and Hydrogen-enriched gas.



Ocean Purpose Project recently held the Race for Oceans event, participating among 50 countries for UN SDG 14: Life Below Water to kayak and collect plastic waste. The ocean plastics were sent to the PTF machines in November 2021 and the results were as follows: From 1 kg of plastics, around 120g of Carbon nanotubes are produced with a hydrogen mass of 18 g. At larger scale the numbers get even higher, imagine the positive impact our solution could have in polluted coastlines and landfills by turning waste into highly valuable products.

## Business Model

The OPP PTF unit operates in two main business models- B2B sales of our products (Hydrogen, CNT etc), the infomediary, testing industry best in class PTF solutions in curated partnerships for CSR reasons and packaging the data for the industry. We have had enquiries for lease and sale of the machine which is only possible after extensive safety and regulatory checks in Singapore. OPP PTF Unit's CNTs and pure hydrogen gas are game changers in the PTF industry, with demand ever increasing. OPP PTF units have great potential to generate plastic offset credits in environmental, social and corporate governance (ESG) Finance.

- Sponsors  
The OPP PTF unit promotes government objectives in the following categories:
  - Plastic Offsets and Carbon Offsets
  - Integrate into existing municipal waste systems
- Petrochemical Companies  
Petrochemical companies, eg. Shell can offset OPP products, under a stringent certification process. OPP shares our research base especially around low sulphur fuels' performance in marine environments and engages due to OPP's robust environmental testing and standards certifications.

## Impact

- Technical & economic impacts (1 tonne facility)
- Reduce plastic pollution in the ocean and thereby protecting the marine ecosystem
  - 700kg of low sulphur fuel per day, valued at - SGD 400 which is produced with minimum electricity
  - Produce 10 - 100 kg of CNTs/day. CNTs are marketable at a competitive price of SGD 100/kg
  - Produce 11 - 14 kg of hydrogen gas/day. Hydrogen gas is marketable at a competitive price of SGD 2/kg
  - Produce 50kg of carbon black/day. Carbon black is marketable at SGD 0.6/kg
  - The byproducts of plastic pyrolysis (syngas) produced are not released into the atmosphere but are converted into high-value CNTs and hydrogen gas
  - Development of the new business market for a PTF research base, training, and fuel yield optimization/carbon nanotube conversion
  - Optimization of hydrogen gas from the PTF unit to maximise potential and to increase the profit in the millions of dollars

- Social impact
- NGOs like us survive on donations. The OPP PTF unit can create a high profit product that allows us to self-fund community education, job creation and waste infrastructure.
  - A smaller and simpler version of the PTF unit has been piloted in 2019 with the locals of Medang, Indonesia. This island used to receive 2-3 meters of plastic washed up on their shores every day. After the introduction of the machine, jobs were created to handle the machine, fishermen's livelihoods were restored and people of all ages were actively contributing to this movement. The machine was producing 3 litres of fuel per day from 300kg of plastic waste. They turned their plastic pollution into almost free energy. This brought about job creation and reduced fuel costs.

## Outlook

Ocean Purpose Project's PTF solution was selected and mentored among thousands to make the Top 5 startups in the Shell StartUp Engine Programme 2020 with Energy Market Singapore to pivot South East Asian countries towards chemical recycling that promotes a truly circular solution for ocean plastics, especially those with mixed mediums of paper and foils. Developing a best in class plastic to hydrogen solution that minimises air pollution, health and environmental risks while effectively turning polluted communities into 'fuel stations' and fishermen into fishers of plastics who educate PHDs about sustainable energy production is the long term vision of OPP. We are accredited sustainability trainers under Climate KIC in Europe and ACP/L SkillsFuture in Singapore.

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## Traction & Key Metrics



If the full OPP PTF unit solution is deployed, this will result in a very high initial cash injection through returns in the 3rd year alone will break even and cause profits to jump. It is also possible not to take on the full integrated solution but just "plug and play" the hydrogen component to an existing PTF plant.

The cost of this 2-year project is approximately SGD 8.39 million. This cost includes the creation of jobs for local engineers to develop a new business market for PTF yield optimization, syngas to CNT conversion and PTF trainers.

Once the machine is available for sale and/or lease, the products will be sold in the market and our PTF education and research base will have been established. Yearly revenue streams are expected to reach SGD 6.02 million. This would allow us to break even in the third year of the project, and build PTF training capability and drive an industry-wide research base while creating jobs post COVID19.

## Investment

There are 2 possibilities of investment: the full 8.9M SGD for the OPP PTF unit or a smaller scale test of existing plastic to fuel factories with a hydrogen conversion integration. Education of PTF is also important to mobilise this new workforce at Mandalaika.



Although this solution needs considerable investment, it creates a mobile PTF to Hydrogen factory that can go anywhere, handle many kinds of plastics and make high value products. Investment is needed in our equipment and research capabilities to see this through to a fully fledged solution that can survive all the 10 New Balis in Indonesia, the first PTF to Hydrogen mass deployment in the world. Additional benefits include: Development of new business market for PTF research base, training and fuel yield optimisation/carbon nanotube conversion. Widespread behavioural change through OPP's Plastic to Fuel education through music, sports, learning journeys and community cleanups. Byproducts from plastic pyrolysis are not released into atmosphere but converted into high-value products such as CNTs, carbon black, oil and hydrogen gas with multiple uses.

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# EQUO International

Small Solutions • Big Impact



## Team



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Founder & CEO



**Tony Nguyen**  
Finance & Operations Lead



**Siri Tran**  
Data & Growth Lead

## Plastic Pollution Challenge

"IT'S ONLY ONE STRAW"  
SAID 8 BILLION PEOPLE



By 2050 The oceans will contain more plastic than fish! By simply reducing our use of single-use plastics, we could save entire species from extinction, millions of human lives, and reduce CO2 emissions. Big brands are taking action and consumers have been supporting sustainable consumption across the globe.

Worldwide governments have banned single-use plastics across 80 countries. The governments of the United States, Canada, Australia, Japan and more have imposed penalties on single-use plastics items to force the food service & food retail industries to shift from plastics to eco-friendly products. The US account for 80% of global drinking straw consumption (500 mil straws/day), Canada with 9% and Germany with 4%. During the pandemic, 30% more waste was produced than previous years. This issue has become even more serious!

## Impact Statement

Approximately 50% of all the plastic produced on the planet is used only once - if the world starts to replace these single-use plastics with sustainable alternatives, these small changes will have a big impact. Our aim is to make plastic alternatives widely available firstly with drinking straws and utensils, in order to force production of single-use plastics to slow down and eventually be eliminated altogether.

## Solution

EQUO helps address UN SDG#12 - ensure sustainable consumption and production patterns. Our goal is to drive educational awareness about the plastic pollution problem globally and to give people a reason to care about a generally overlooked category by building a bright, attention-grabbing brand. EQUO is a sustainable brand with the mission to provide a variety of truly eco-friendly solutions for everyday items through providing products that are 100% natural, plastic-free, chemical-free, biodegradable & compostable.

## Innovation

EQUO: derived from the words ECO, meaning not harmful to the environment, and STATUS QUO, meaning an existing state or condition. EQUO stands for the ideal of creating products with minimal impact on the environment. Our 1st product is drinking straws made from grass, rice, sugarcane, coffee, and coconut. Our other products are utensils, dishware, and stationery.



Our packages include retail and wholesale designs that fit B2C & B2B demands. Our brand is disruptive that helps increase brand awareness on both online and offline sales channels. We also offer various corporate gift sets to promote the green living style across the companies and attract attention at several points of display such as hotels, restaurants, cafeterias etc. Our stationery with beautiful artworks related to earth protection and pencils that can be planted to grow a tree offer use have appealed to a lot of consumers, especially moms and kids for its meaningful message.

## Business Model

Our B2B drives huge volume through global sales agents while B2C is more for brand awareness. We sell both online & offline. B2B Distribution is distributors, resellers, retailers. B2B Consumption is purchase by businesses for their customers' use such as hotels, restaurants, cafeterias, airlines etc. Our customers are C&V, GS25, Samsung, Prada US, Faire Price, Tokashimaya, WeWork, WWF, Raising Earth, Change Vietnam, Spin Master and many more. We have our presence & registered trademark across several countries: the US, Canada, Australia, Vietnam, Singapore & Japan. We will enter the EU & UK, and expand across Asia & Oceania with DKSH's support from a sustainable perspective.

## Impact

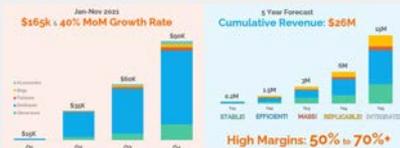
- COMMUNITY SUPPORT: our materials are sourced from regions that support local farming initiatives. We strive to support the community as much as we can.
- ZERO-NET IMPACT: we deliver products that are directly from the raw power of mother nature. We believe that truly eco-friendly solutions will leave the Earth as naturally as they came in. Our products are 100% biodegradable and compostable.
- TO HAVE FUN: while we believe that preserving the environment is serious business, we also believe in having fun. We don't focus on the negatives and take ourselves too seriously.
- SMALL ACTIONS: we believe every action, no matter how small, is a step forwards in helping preserve the Earth. Rome wasn't built in a day, and restoring the environment to the way it once was won't happen overnight.
- BRIGHTER FUTURE: with the inspiration of trying to bridge the gap between Vietnam and the rest of the world, building a sustainable future for the next generations, working to support local economic growth and job creation across Vietnam and Southeast Asia, and the desire to raise Vietnam's profile as a global leader in sustainability and innovation.
- STARTUP ECOSYSTEM: we really want to accelerate the world startup ecosystem with high social impact, aiming for sustainability and global scale. We hope with the strong support from the governments, NGOs, local communities together we can help others to develop faster within the country and go global to contribute to GDP growth and help our Earth be greener every day with small solutions which have a big impact.

## Outlook

We provide a convenient and easy way to be more eco-friendly without compromising our consumers lifestyle or behavior, or extra effort from our consumers.

More than 50% of consumers are open to another type of straw. Consumers who are aware of their environmental impact are 2 times more willing to pay for an eco-friendly straw. Consumers are willing to pay extra for a brand that they recognize and trust. We believe the pandemic has created an irreversible trend of single-use behavior. Reusable is not an option in an open and scaled environment, at-home use is fine. Business clients will need to opt for single-use products versus the previous trend of reusable products.

## Traction & Key Metrics



Within 11 months this year, despite Covid, we have achieved USD 165k and a 40% month-on-month growth rate. This year, our target is USD 200k and we are getting closer. Next year, the target is USD 1.5M, which we aim to double year on year, up to USD 3M-6M-15M. We aim for USD 26M within 5 years. High margins from 50% (2021) to 70%+ (2023). Our hero products are sugarcane, coffee, and coconut drinking straws. The most promising lines are the sugarcane & coffee utensils and the sugarcane dishware. Currently, we export 80% of our products and aim to increase up to 95% in coming years. This year, we focus on sales & operations set up, get things stable. Next year, we aim for efficiency and then go mass in 2023 to be ready for the replicable model in 2024 and integrated in 2025.

## Investment

We have raised thus far USD 220k including USD 120k on a SAFE and USD 100k on a convertible note. We aim to raise USD 500k in Seed round at USD 3M pre-money valuation cap on a SAFE (20% discount).

We will spend the investment capital: 55% on Growth, 25% on Assets, and 20% on Inventory. This will help enable us to build a strong foundation and grow quickly.

55% on GROWTH: Personnel, distribution, sales, advertising, and marketing to drive our product availability and awareness for purchases. 25% on ASSETS: Investing in certifications, additional protective trademarks, production, manufacturing, and R&D assets. 20% on INVENTORY: Securing inventory for sales and ample stock for key markets we are in, to mitigate long lead production timelines.

2022: Continue to grow the business and invest in key operational areas to drive profitability and maximize the value chain. 2023: Get to a steady growth rate with a focus on driving product availability both in retail and B2B.

2024: Efficiency with business growth, strong expanded line of products, and high margins (70%+) for a replicable business model for future innovations. 2025: Look at integration/ expansion opportunities of team and structure to maximise internal efficiency.

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# Gringgo

Tech for Sustainability



## Team



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Grants and Partnership  
Manager, Gringgo



**Kadek Septiari**  
Product Researcher, Gringgo

## Plastic Pollution Challenge



Plastic pollution is a widespread problem affecting the environment. No single government, institution, or organization can solve this problem alone when the biggest contributor is something that everyone produces and uses every day. As such, we need to maximize and optimize the resources that we already have.

Being promoted and developed as one of the main tourist destinations in Indonesia, the growth of tourism activity is predicted to bring about a domino effect in terms of waste generation in Mandalika. With the current condition that shows no presence of a mature and efficient waste management system, amplified by the amount of marine debris brought into the area, plastic pollution might become an intermediate threat for both the economic and environmental sustainability of the Special Economic Zone.

At Gringgo, we do this by leveraging technology through our platform, to help improve the effectiveness and efficiency of community-based waste collecting and processing activities for better environmental conditions.

## Impact Statement

We believe in the strength of data to empower decision making and impact the community. Currently, we are focusing on waste management decision making for all, as a crucial aspect in maintaining livelihoods. We are collecting, processing and delivering reliable data through the tools that we built for different day-to-day activities. With the integration of machine learning & AI capability within our tools, we are continuously sharpening our platforms to better facilitate our users' data-related decision-making needs, every day.

## Solutions

We focus on building and improving the waste management system through digitalization and database generation, as well as empowering the local community through collaboration. Our digital products are acting as catalyst, tailored to meet the needs of the local stakeholders in creating a stronger waste ecosystem to have a greater impact in tackling the plastic pollution problem in Mandalika. We understand that every area has its own specific needs. Thus, our unique selling point lies in the customizability of the platforms. We aim to provide not a "one-size-fits-all" solution, but more of an "extensive-sizes-available" solution.

## Innovation



Waste management is not the responsibility of one individual or the government. Waste management is the responsibility of everyone. However, at times, waste management can be challenging when the parties involved do not have the necessary tools needed to execute it. Through our product, we aim to empower all parties in the ecosystem through an application that digitises the waste management system.

Our range of products, interconnected and integrated, create a holistic platform that is transparent, real-time, and accessible to provide better waste operations and monitoring.

- **Gringgo Collect**, your data collection method made easy, on-the-cloud
- **Gringgo Envi**, a digital platform for waste collection service providers to improve the way they operate
- **Gringgo AI**, artificial intelligence-based technology using image recognition to assist waste separation

## Business Model

In the earlier stage of the initiative, we plan on financing the business through profit-sharing schemes, which will be gained by selling the collected recyclables from the waste collection process. The waste collection service providers will be able to use our digital tools for free until a mature system is built. Afterwards, we would like to introduce the freemium service, meaning that users will be able to use some of the features that our product has for free, but have to pay a subscription fee to access the more advanced features. This way, we hope that the subscription fees gathered can be used to further develop and sustain our product and company.

## Impact

At the moment, we are operating in several locations in Bali as well as Makassar & Gowa in South Sulawesi. Through previous use cases, we saw not only an increase in waste collecting (by 199%) and waste recycling (by 33%) rate, but also an increase of income for the waste collectors (around USD 256 per month). For Mandalika, we would like to focus on:

- **Improving the community engagement and participation in creating a sustainable waste system**  
Creating a sustainable waste system requires all hands-in-deck situation, and the local communities play a big role in it. We believe by improving the awareness, perception, and participation of the people, we can create a bigger impact in reducing the amount of waste dumped into the landfill. In Bali, through our scheme, we have improved the waste separation education & collection at a household level in nearly 1500 households.
- **Implementing segregated waste collection system, easier to process**  
Separation is crucial in the context of waste processing. By improving the community participation, separated waste collection systems can be more easily implemented, thus making the processing and distribution of recyclables easier.
- **Increasing the rate of waste collection and treatment by creating an efficient waste collection operation**  
By collecting and monitoring the waste collection data, we can improve the operations by finding the best route to collect the waste, avoiding double counting and double inputting, as well as making sure that the collection process are meeting the standard procedures.
- **Providing new job opportunities for the locals**  
As the waste collection system that we built together mature and become ready to be replicated, it would open new job opportunities for the local community in the waste sector.

## Traction & Key Metrics

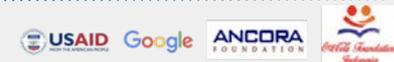
No.	Traction			Key Metrics		
	Subject	Number	Unit	Objective	Target Number	Timeline
1	Depositor	3	villages	Expansion Area	1 area	quarterly
2	Makassar	1	waste service provider	Waste collected	75% increased	monthly
3	Waste collected	347	kans/months	Waste recycled	80% increased	monthly
4	Waste recycled	133	kans/months	Number of users	30%	monthly
5	Wages Collected	495,000	average	User retention	80%	quarterly

With the amount of traction we have gained and our extensive experience in digitizing waste management, we are confident that we will achieve our key metrics and targets. With sufficiently mature data from several pilot projects that we have successfully carried out, we are ready to replicate and expand to several areas. Equipped with the ecosystem that we have built, we are also able to explore sectors outside of waste management, such as water & sanitation, carbon trading, organic waste processing, and others.

## Outlook

Our company aims to provide easily reachable technology for sustainable development, with the final aim of supporting the 10th UN SDG, "Reduced inequalities". As not a lot of Indonesian citizens understand and adopt the positive waste management behavior, many waste-conscious movements such as recycling, cannot be easily implemented, as a lot of supplies (in the form of recyclable waste) are needed for them to push through. Therefore, we are working to empower the people with the knowledge and tools to adopt green habits, through our accessible products. This way, we hope to reduce the negative effects of waste on our environment as our products and users grow.

## Investment



Gringgo does not yet have an investment record because we focused on grants and projects in recent years. We received grants from Google for Google AI Impact Challenge on the development and utilization of our Artificial Intelligence, USAID on Tech for Ocean Plastic Prevention and Expanded Recycling (TOPPER) Secondary City Project to create local solutions using GIS (Geographic Information System) to help improve the waste management problem in Denpasar City and several other projects such as Plastic Reborn 2.0 from The Coca Cola Foundation. We use the funding to measure use cases and targeted environmental, social and economic impacts.

In addition to raising funds through grants and revenue, Gringgo plans to raise up to USD 1 million investment for product development and operational expansion to other areas.

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# Evo & Co.

**A world without plastic pollution**



## Team



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Founder of Evo&Co



**Veren Angelia**  
General Manager of Evo&Co



**Amanda Restu Hamirani**  
Campaign Manager of Evo&Co

## Plastic Pollution Challenge



Single-use plastic products may epitomize convenience, but with the damage that they cause through production, distribution, and litter, they are a major threat to the environment and human health. Currently, 40% of plastic produced is packaging, used just once, and then discarded.

This issue was also faced in Mandalika. Data collected by the EPPIC team, indicates that PP constitutes 69.57% of the plastic waste, including plastic utensils and straws. On the other hand, Mandalika is also a melting pot of tourists from all over the world and if not managed properly, this tourism could lead to a bigger plastic waste issue. As a step to tackle the plastic pollution issue, the government has made regulations regarding single-use plastics in various regions. Unfortunately, the solution is more to accommodate the middle to upper classes, even though marginalized groups contribute a great amount of waste due to lack of waste facilities and proper knowledge about the issue.

## Impact Statement

Our vision is to create a world without plastic pollution by providing and innovating solutions for single-use plastics. We also make sure our business has a positive impact on society, and all partners with whom we work. Inclusivity, collaboration and fairness are our fundamental values for our partnerships.

## Solution

Looking at the problem of plastic pollution, Indonesia is the 2nd largest plastic producer in the world. Much residual plastic packaging trash has filled our natural environments which will take hundreds of years to dissolve. From that, Evo&Co are looking for a solution to provide eco-friendly products. All of Evo&Co products biodegrade in nature within one year. They are all environmentally safe. Besides that, Evo&Co realizes that we need to work together to create a world without plastic pollution. As a solution, Evo&Co will initiate a campaign that collaborates with many stakeholders from the government, companies, and many more.

## Innovation

With the circular economy as our core value, our products come from nature and go back to nature in the most efficient way. Elio Jelco, our first innovation are edible cups that replace the disposable plastic cup. They are made from seaweed and other plant-based materials, not just safe for the environment but also great for the body as they are rich in fiber, vitamins, and minerals.

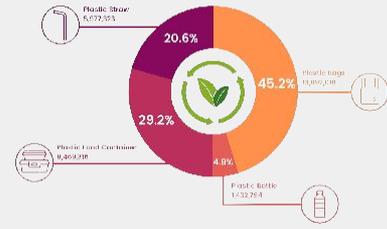


The next innovation is a disposable and edible sheet made from seaweed to replace disposable plastic sachets. This product was created by Noriyawati Mulyono and marketed by Evo&Co. However, as we realize that we need to create a bigger impact, we have begun to provide other alternative products to replace the single-use plastic product.

## Business Model

Evo & Co. aims to create a world without plastic waste by providing and innovating solutions for single-use plastics, and creating a collaborative plastic awareness movement. Evo & Co. heads multiple brands, which are Ewovare, Ewovorld and the Rethink Campaign. Ewovare's mission is to provides more biodegradable alternatives to single-use plastic products using seaweed and increase the livelihoods of seaweed farmers in Indonesia. Ewovorld provides a wide range of alternatives to single-use plastic items, from biodegradable and compostable, to edible. As we realize that we can not achieve our mission alone, we have developed a collaborative movement of individuals, communities, governments, brands, and companies, called Rethink Campaign.

## Impact



As we see on the chart, Evo&Co has reduced 13,092,018 pcs plastic bags over the past 3 years. The second plastic item that Evo&Co has reduced 8,469,315 pcs of plastic food containers. Throughout the years, to achieve this impact, we've been working with businesses, NGOs, governments, and even individuals to reduce plastic pollution. For the last three years, we've avoided approximately 191 tons of plastics before polluting the ocean and landfills. We do beach clean-ups, plant trees, and much more. Following the circular economic model, we want to make our products from nature and ensure they get back to nature. We don't just reduce plastic consumption, we also spread plastic awareness by creating various social campaigns to engage with people with disabilities and other marginalized communities.

## Outlook

In 2022, Evo&Co aims to reduce plastic packaging by 21 million pcs. Our step to achieve that is to build wholesale distribution in 18 Provinces across Indonesia, approaching development countries such as the USA, Europe, Canada, Japan, and India, and do more research to initiate more innovative products.

From the campaign side, Evo&Co aims to conduct 20 Rethink Campaign programmes and open collaboration for 200,000 people joining from many different backgrounds but especially companies, governments, universities, and communities.

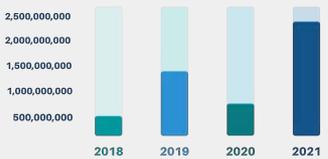


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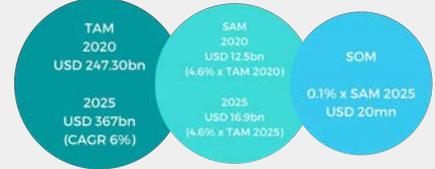
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## Traction & Key Metrics



From our traction, we have achieved significant sales from 2020 to 2021 due to the government regulations banning plastic pollution. Our customer are divided into three groups: companies, consumers, and international distributors. We exported about two 40 feet containers to Australia in 2021. Our most high-demand product is Cassava Bags which make up about 60% of our sales. Straws make up 25% and Seaweed Based Packaging makes up 4%. From the customer side, we have local sales make up 71% of our market and international sales make up 29%. We have reached about 22 countries to distribute our products including Japan, Europe and many more. Besides that, we have the Rethink Program which has launched around 17 program activities over the past 4 years.

## Investment



The Target Addressable Market in Global Green Packaging in 2020 is USD 247.30bn. In five years, it is expected to increase and become USD 367bn. The Serviceable Available Market, compared to Global Green Packaging Company is about 4.6% from TAM, so it will become USD 12.6bn in 2020 and USD 18.9 bn in 2025. Evo&Co's target in five years is the Serviceable Obtainable Market, which is 0.1% from SAM amounted to 20mn in Global Green Packaging Industry.

To achieve that target, Evo&Co has built a strong downstream social business for the past five years. Evo&Co has won awards from Forbes, the Ellen MacArthur Foundation, BBC, CNN, World Economic Forum and more. For now, Evo&Co investors are angel investors with seed funding, with a total investment of USD 150,000 and looking at fundraising for USD 300,000 - USD 400,000.

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# DYESABEL Inc.

"Thriving Oceans for Thriving Communities"



## Team



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Asst. Project Lead



**Marvelous Camilo**  
Phase 2 Lead



**Mikee Lapidez**  
Secretary



**Amiel Lopez**  
Phase 3 Lead



**Yrik Tolentino**  
Logistics

## Plastic Pollution Challenge



The United Nation has declared 2021-2030 as a critical decade for Ecosystem Restoration. More so, despite the pandemic, plastic pollution did not stop and it continues to persist and impact vulnerable communities and species. In Davao Gulf alone, hundreds of cetacean species were found dead for

the year 2018-2021 because of plastic ingestion. In addition, the Ecological Solid Waste Management is a challenge in its implementation because of the surge of plastics that each local government unit can't accommodate at all. Thus, the plastic pollution challenge of this project is Prevent the production and consumption of plastic, reduce single-use plastics and offer models for reuse, educate and empower people to change their behavior.

## Impact Statement

With the realities at hand, we hope to respond to it by having our innovation **"SAMAL: Sustainable Advocacy in Making Samal A Plastic-free Island"** which aims to engage the civil society, businesses, and government to highlight our collective action towards ending plastic pollution. With this hybrid approach, we empower each sector to commit to a sustainable and zero-waste society.

Our impact is simple: to make Samal, a plastic-free island, through a holistic and collaborative end-to-end approach. Together, let's end plastic pollution.

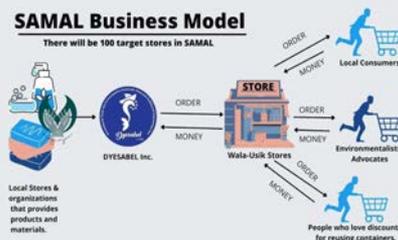
## Solution

The goal of our innovation is to engage with civil society, businesses, and government to highlight our collective action towards combating plastic pollution. With this hybrid approach, we highlight three main strategies: (1) Network Building (In Businesses), (2) Policymaking (In the Local Government), and (3) Community Prototyping (with the Civil Society). In this way, we empower each sector to commit towards a sustainable and zero-waste society. With this scalable, tangible, and replicable innovation, we hope to contribute to ending plastic pollution.

## Business Model

### SAMAL Business Model

There will be 100 target stores in SAMAL



From the partner local stores and organization, DYESABEL inc. will buy materials/products in bulk. A 10%-20% Markup price will be applied during distribution to Wala-Usik Store will retail the products and give discounts to customers who will bring their own reusable container when buying.

## Innovation

### Network Building

a. Involve businesses in Samal Island (e.g., beach resorts, restaurants, and other establishments) to shift to sustainable alternatives by evaluating them through our *developed toolkit* and to creating a *geo-mapping* to promote their enterprises.

b. At least a minimum of 100 businesses in each three Barangays will be part of this network and those that are part of this network will form and continue the network.

### Community Prototyping

a. Involve local communities in Samal Island to co-create a "Wala Usik" or Zero-Waste stores that would produce sustainable alternatives to plastics.

b. Easier for our partners to come on board since this station is non-obtrusive and does not require much effort on their end (and the local ordinance to ban single-use plastics will take effect to them, allowing them to participate by providing sustainable alternatives on a grassroots level).

c. Serves as an incubation opportunity for partner innovators at DOST Project to improve the product over time and introduce other iterations.

### Policymaking

a. Involve the Local Government Unit to implement legislations towards banning Single-Use Plastics to systematically address plastic pollution and promote sustainable alternatives supported by the Business Network and Communities.

b. Create a multi-stakeholder representation on the creation of the local ordinance (e.g. Basureros/Waste Collectors, Junkhops operators, businesses, vendor and wet market associations, local communities, etc.) especially those that may be impacted by the said ordinance.

## Outlook

### Phase 1 (Connect): Sustainable Business Network



a. 100 businesses per Barangay to pilot the evaluation (if aligned to RA 9003, UN SDGs, and eco-tourism) to at least 50% of the businesses resorts, Sari-sari stores, coffee shops, etc.

b. Certification and Geo-mapping to promote their enterprises.

c. Eco-tourism and education campaigns (to sustain, partner with government agencies; to hire environmental guide).

### Phase 2 (Create): Community Prototyping

- DYESABEL will establish three sari-sari stores per barangay.
- DYESABEL will partner with local businesses and organizations that can provide bulk materials or products for the sari-sari stores
- Incentive System/Discounts will be given to consumers that will re-use and bring their own container when buying products
- Organize Educational Campaigns in Schools and Barangays

### Phase 3 (Collaborate): Policy-Making Advocacy

- DYESABEL will lobby the banning of single-use plastic in Samal
- To promote the DYESABEL's "Wala-Usik" stores, we will also lobby the recognition of eco-friendly stores like ours
- Normalize re-using of container when buying from a local store through the influence of the said legal rules

## Impact

Overall, the main goal of this innovation is to make sure that **everyone is included and has a part in this innovation**: the local ordinance to ban single-use plastics will be supported by both the Business Network and our partnered Communities with their prototypes, highlighting the importance of a **hybrid-end-to-end holistic and collaborative action towards ending plastic pollution**.

## Traction & Key Metrics

	15 Stores	30 Stores	60 Stores	120 Stores
Month 4	75,000	75,000	75,000	75,000
Month 3		75,000	75,000	75,000
Month 2			75,000	75,000
Month 1				75,000
Total	75,000	150,000	225,000	300,000

DYESABEL Inc. will purchase materials and products in bulk from local partner stores at a lower price and then distribute it to designated stores per barangay with an increase in the price by 10%-20%, which we will collect as profit.

The table illustrates that DYESABEL will partner/open 15 stores per month and will double every month. Assuming that there will be a P5,000.00 conservative profit from one store per month, it will be equal to P75,000. The number of stores is directly proportional to the profit that we will gain. Thus, we are expecting that on the fourth month, we will have around 120 stores that could generate P300,000.00 profit. It will be used to roll-out community prototyping on other nearby coastal communities.

## Investment



DYESABEL intends to invest in its community partners as they play a vital role in the implementation of our zero-waste initiative in Samal.

We will invest Pphp 500,000 bulk purchases of refinery materials and capacity trainings of our community partners as they transition to zero-waste store owners.

Part of the investment will be towards the materials to be used in the stores as well as capital for the products to be purchased in bulk.



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# Ecoloop

ecolooP

## Team



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**Dianne Louise Ramos**  
Sales Manager, ecoloop

## Plastic Pollution Challenge

Based on the WACS conducted by WWF (2021) in ICAGOS, the LGU generates around 13,000 kg of solid wastes daily and 46% of that are plastics. With the limited land area of samal island, the accumulation of solid wastes pose a serious threat to the environment and surrounding communities.

## Impact Statement

With an efficient system to divert residual plastic wastes away from the landfill and waterways, the LGU will be able to:

- Hit diversion targets
- Provide income opportunity to waste sorters
- Save on landfilling costs; and
- Involve the community in advocating circular economy.

## Solution

Instead of accumulating in landfills, qualified plastic wastes can be collected by ecoloop for co-processing.

Co-processing is the recovery of thermal (heat) and mineral properties of qualified waste materials while manufacturing cement.

## Innovation

Currently, there is no technology that is able to use end-of-life plastics for large-scale recycling or upcycling. With its advocacy on circularity economy, ecoloop provides innovation on waste management through co-processing, where end-of-life plastics that have no value are used as alternative fuels or raw materials in cement manufacturing process.

## Business Model

Municipal wastes are collected, segregated, shredded, and baled by the LGU. These are then collected and delivered to Republic Cement plants for co-processing.



## Impact

### Environmental Impact

- Reduction of end-of-life plastics accumulating in landfills
- Increase of plastic waste diversion to a more sustainable co-processing method

### Economic Impact

- Income opportunity to waste sorters
- Savings to the LGU related to the development of another landfill

### Social and Health Impact

- Involvement of informal sector in waste management
- Improvement of community mindset to look at waste as a valuable resource
- Improvement of overall community health and well-being because of reduction in solid waste pollution in land and waterways

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## Outlook

- Republic Cement has partnered with LGUs (45) and private companies, and has diverted at least 10 million plastic equivalents sachets everyday in 2021.
- Republic Cement has the potential to divert 320K kg, equivalent to 64 dump trucks, of wastes annually in ICAGOS.

## Traction & Key Metrics

- total volume of wastes diverted away from the landfill
- LGU savings on landfilling costs

## Investment

Funds will be used to purchase industrial shredder and baler and to incentivize waste sorters and provide them income opportunities.

	PhP	USD
Plastic Shredder	500,000	10,000
Plastic Baler	200,000	4,000
Incentives to Waste Sorters	100,000	2,000
Other expenses, Shredder Fuel	50,000	1,000

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# The Eco Shift

## Coin Operated Refillery System

The Eco Shift®  
Plastic Free Essentials

### Team



**Irene M. Villaespin**  
Founder, CEO  
Three Women OPC, The Eco Shift®



**Aiza Joana Gascon**  
Lead, Operations



**Carl John Labiana**  
Lead, Creatives

### Plastic Pollution Challenge

The average Filipino uses 591 pieces of sachets yearly, 212 pieces of these are from body care and cleaning products. Single use sachets makes up to 52% of the residual waste stream that ends in our landfills or oceans. The Island Garden City of Samal also reflects the same buying behavior with the rest of the country.

### Impact Statement

By providing an accessible and affordable option thru the The Eco Shift® **Coin Operated Refillery System (CORS)**, in lieu of single use sachets for body care and cleaning products, there can be a significant reduction of single use sachets in the Philippines within the next five years

### Solution

Studies have shown that the D and E households are more than 60% most likely to buy products in sachets. The Eco Shift® Coin Operated Refillery System or CORS will help people from the D and E communities transition into a sachet free lifestyle in their body care and cleaning needs, taking into account their need for products that are affordable and accessible.

### Innovation

The Coin Operated Refillery System machines **works as your traditional vending machine** but with products dispensed for body and home care products made by The Eco Shift®. The current refill stations available are inaccessible to the D & E market segments who has the highest propensity to use single use sachets.

### Business Model

The Eco Shift® Coin Operated Refillery System is a business to consumer model which generates income based on the number of refills sold from the vending machine. Money made from the machines is used to purchase additional inventory, cover maintenance costs and expand the business. After all those expenses are covered, the remaining funds are profits for the CORS machine owner.

### Impact

**100% Sachet Free**, eliminates plastic at the source, fewer sachets in landfill and our oceans

**Affordability:** The Eco Shift® Products are cheaper resulting in increase purchasing power of the consumers

**Accessibility & Scalability:** Machines can be made in compact form so it can be placed in Sari Sari, supermarkets and groceries nationwide

**Convenient** to use, only takes one coin to dispense

**Profitability** at least 80% gross profit margins for store owners versus 10% margins from branded sachets

**Employment:** Since we are a local manufacturer, we can set up a community based soap making facility to mitigate logistics costs and challenges, providing jobs in the local community

### Traction & Key Metrics



The Eco Shift® has four physical stores in Metro Manila with thousands of user generated product reviews making it the brand of choice for those seeking plastic free options in their personal care needs.

The Eco Shift®'s CORS solution will help provide an option for low income consumers who prefers buying in tingi or portions without the single use sachets.

### Vision & Outlook

We envision a world wherein plastic use becomes an exception rather than the norm.

Our goal is to have a The Eco Shift® CORS machine in at least 500 Barangays in the next 5 years.

### Investment

For the initial roll out of the Coin Operated Refillery System in the Island Garden City of Samal, we are seeking an initial seed funding of **18000 USD**.

Marketing	35%
Machines	40%
Inventory	15%
Set Up	10%

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# PMO Ocean Sweeper



## Team



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*Ph.D Dean, AdDU SEA*



**Monica Ayala**  
*Convenor, Cycle of Life*



**Wenifredo Gorrez**  
*Consultant to Hon. Coun. Braga*

## Plastic Pollution Challenge



It had been established that the major source of plastic waste was first, the plastic refuse expelled by multiple river systems situated along the Davao coastline that drift towards the Island Garden City of Samal and litter its shoreline.

The second source of imported plastic waste are those transported to, and randomly disposed on the island by, tourists visiting the island.

## Impact Statement

Empirical data validates the fact that the City of Davao generates an alarming volume of plastic waste that find their way into the ocean; those that remain afloat eventually litters the shoreline of the Island Garden City of Samal.

## Solution

Ideally, a greater part of the solution to IGACOS' shoreline plastic refuse problem would be stringent proper waste disposal imposed on the Davao City side of the channel. The more attainable practical solution is to install sock nets on the city's sewage network to prevent plastic from being carried to the ocean by the river systems.

These measures take time to implement, so the solution with immediate impact is to contain floating garbage as they exit river systems during heavy rains. Among innovators, floating trash collectors mounted on catamaran platforms is a standard design. The PMO Ocean Sweeper is a "poor man's version" of its sophisticated cousins but will accomplish the same task through indigenous, creative innovations.

## Innovation

The Pinoy Marine Outboard is an indigenous marine propulsion system and coupled with the inverted U catamaran hull form an efficient, stable and durable workboat. The team's pooled innovations vary from home-grown concentrated solar power devices to vertical turbine generators.



## Business Model

The team leader is a student of Practical Solutions. In line with this, he designed a convertible boat mold which can cast hulls in two sizes. The 24-foot model can be deployed as efficient passenger transports, tour boats and given its shallow draft, a viable watercraft for beach resorts without docking facilities. The 13-foot model will be ideal yacht tenders, utility, dive, or rescue boats.

As an independent unit, the PMO, having superior maneuverability than commercial outboard motors, is expected to be well received well by both weekend and commercial fishermen. At less than half the cost of its branded cousins, the PMO accepts prime movers from 3 to 20 horsepower.

## Impact

When operational, the PMO Ocean Sweeper is predicted to accomplish the following:

1. Control and capture floating plastic debris at its source. As the cyclic logo suggests, plastic retrieved from the ocean will be melted and sculpted into fish habitats.
2. As an independent marine engine, the Pinoy Marine Outboard will empower local fishermen with an engine that replicates, and surpasses, the capabilities of traditional marine outboards. The versatile engine is envisioned to boost fish production.
3. Reduced plastic waste results in less coral, seagrass and mangrove decay and ultimately revives marine life.
4. Mitigating the imported plastic shoreline trash problem results in eliciting positive impressions from visitors and ultimately results in a more vibrant tourism industry for the Island Garden City of Samal.

## Outlook

It is projected that the launching of the PMO Ocean Sweeper will escalate in its deployment at the mouths of other major rivers that expel plastic waste into the ocean within the archipelago. The 24-foot version is ideal for cargo and/or passenger transport. There already have been inquiries about the use of the 13-footers as possible passenger transport plying the expansive Agusan Marsh in Northern Mindanao

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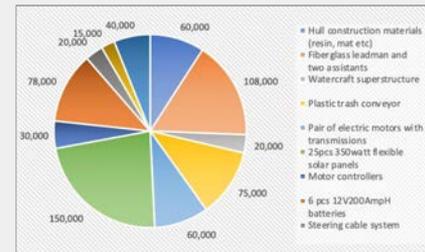
## Traction & Key Metrics

The business environment is about "show and tell". Upon completion and sea trials, the PMO Ocean Sweeper should elicit positive response. Local government units that have plastic trash expelling river systems will need one. The 13-foot catamaran will make an excellent and viable replacement for the failed water taxi operations servicing Samal island. Likewise, the PMO is a far safer, more versatile and affordable option to other innovations such as the longtail boats of Thailand.

## Investment

If declared a winner of the UNDP-EPPIC contest, the expected grant will be just adequate to construct a fully operational solar Ocean Sweeper. Using internal combustion marine engines saves about 300 thousand pesos. However, the contest is about sustainability so solar power seems to be the mandated way to go.

It must be noted that a completed convertible boat mold will be accomplished along with the project entry itself. The team forecasts a demand for the 13-foot catamaran and accumulated deposits will help finance a viable business operation.



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# Pure Oceans

Developing a circular micro-economy for Samal Island



PURE OCEANS

## Team



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Founder, CEO



**Xilca Alvarez Protacio**  
Head of Sustainable Partnerships



**Wella Dawn Balaja**  
Project Manager

## Plastic Pollution Challenge



Washed-up plastics on a white sand beach on Tingloy Island

Samal Island is unique & laudable in its having a proactive City Environmental Office, segregating residents & a sanitary landfill. But

1) external sources of single-use plastic waste like Tourists are putting pressure on their limited waste management system, Waste washed up on their shores are unaccounted for and unmanaged;

While 2) the sectors - government, business & households - are passing off responsibility to each other rather than approaching the solving of this shared problem collaboratively.

## Impact Statement

If Pure Oceans is able to facilitate value exchange among the on-island communities & sectors through a network of community-based waste management enterprises, then Samal Island can prevent further damage from plastic pollution on its Marine Protected Areas, tourist attractions & marine systems.

## Solution

The Linis Islas programme - Pure Oceans' training, prototyping, & mentorship programme developed specifically for island & coastal communities. Through Linis Islas, communities are guided in designing waste management enterprises appropriate to their locale, resources & culture - while generating value from the waste they are forced to live with. Linis Islas is currently running on Tingloy Island, Batangas; and with WWF Philippines' communities in Donsol and Davao City. For Samal Island, the training will be cross-sectoral, to encourage more collaboration and value exchange between businesses, governments, CSOs and households.

## Innovation

Linis Islas empowers communities to design waste management solutions for themselves, necessary knowledge for them to live more dignified lives. The programme combines training as needed for each community, close mentorship for the new circular enterprises, circularity-enabling technology when needed, plus product & market development, which are necessary for sustainability.



A Mom has her baby try the upcycled plastic chair their community helped produce

## Business Model

**OUR BUSINESS MODEL.** Pure Oceans' business is the generation of more circular businesses that provide livelihood to the communities, unique value to those communities' customers, and diverts plastic waste from the reefs & seas sustainably.

Pure Ocean's revenue model can take a straightforward learning provider service contract, or the same in combination with a seed investment valuation+profit share agreement with the community enterprises.

**THE COMMUNITIES' BUSINESS MODELS.** The community enterprises we have prototyped so far have favored two circular design strategies: Upcycling, and Providing Zero-waste alternatives.

**PARTICULAR TO SAMAL ISLAND.** From our visit, we already saw an immediate opportunity for a single-use plastic upcycling enterprise.

**IMMEDIATE APPLICABILITY** > Given 1) the high number of resorts and construction work on the island, 2) the need for diversion of single-use plastics and used cooking oil, plus 3) a good population of skilled workers, **UPCYCLING PLASTIC INTO GARDEN TILES** is an enterprise that can be quickly piloted, then expanded into other garden landscaping & resort industry products once stable.

With the provision of a shredder & the Dept of Science & Technology-approved plastic densifier machine, a CSO can plug into the existing segregation schemes for the households, collect the residual plastics and used cooking oil, melt and mold the plastic and cooking oil into a special garden paver shape unique to the Island Garden City of Samal.

Currently, contractors & landscapers have to import pavers & tiles from outside Samal, so from our initial discussion, there was high interest in pavers and bricks as a product.

**MEDIUM TERM** > Apart from the garden pavers, there were other opportunities we already spotted from our visit that could address specific pain points identified by the barangays, communities or businesses.



Garden tile upcycled from single-use plastic & used cooking oil

Just one example, Brgy. Miranda wanted more frequent waste collection but cannot afford their own dump truck, if instead they hired an organized group of tricycle drivers, they could reach the same collection targets with less cost.

## Impact & Key Metrics

With the GARDEN TILES enterprise as the basis for these forecasts, we can estimate the following performance on key metrics:

**Diversion of Single-Use Plastics:** 3 Tons of residual plastic per month  
**Sources of plastic addressed:** Generated household residual waste + tourism industry generated plastic waste + shore plastics (the enterprise capacity can accommodate more than just household single-use plastics)  
**Revenue to Community:** USD 2,000 per month (gross)  
**Green jobs created & sustained:** At least 6, max of 12 people  
**Population served by diversion service:** 5,000  
**Diversion of Used cooking oil:** 2,000 liters of per month

## Outlook

With the garden tiles as proof of concept, the hope is that other barangays and CSOs will ask to be part of the Linis Islas programme. **If we assume one enterprise per barangay of similar capacity with the Garden Tile business, that's almost 135 Tons of residual plastic diverted per month.**

**With only 20Tons of residual plastic/month sent to landfill by households, this leaves capacity to address Tourism & Shore Plastic waste**

\*Based on Plastic residuals for disposal: 654kg/day as reported in IGACos WACS x 30

## Investment

To implement Linis Islas programme with the Garden Paver enterprise as a first prototype & proof of concept, an investment of USD 18,000 would be needed.

USD 12,500 for equipment  
USD 5,500 for Linis Islas training for 3 barangays & mentorship until 3 months of enterprise operations with the pilot CSO

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# TrashCash

We value your trash



## Team



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Head of Business Development



**Vanessa Gabrielle Del Rosario**  
PR & Community Impact Director

## Plastic Pollution Challenge



Socio-cultural, political and economic factors as well as the available resources are the main issues that affect the solid waste management in **Island Garden City of Samal**. We have observed that **improper bin collection practices** have great effect on the characteristics of the solid wastes.

Although they separate biodegradable and non-biodegradable, we noticed that people on Samal Island are **unaware of the different categories of plastic** and its value and therefore do not implement proper plastic segregation in every household. Plastic waste such as PET, LDPE, HDPE, PP, PS, and sachets are **piled together in one trash bin**. Tourists prior to the pandemic are also one of the **active contributors** to plastic waste on the island. Based on our interview with the household sector, they will recycle if there is some incentive. Unfortunately, recycling facilities near the island that would supposedly pay for the waste to provide incentives to the community are not enough to accommodate the amount of plastic that **leads to the proliferation of plastic waste in landfills**. Local government units do not have access to track data about the amount of plastic waste generated in their area that would have supported their decision for waste management plans. Waste Analysis and Characterization Study reports take time to produce and are not 100% accurate.

## Impact Statement

If **TrashCash** can **educate people** about the proper way of segregating plastic waste, **provide an innovative platform for the community** to incentivize, convert plastic waste to new product and **make recycling more encouraging and engaging**. Then, we can **improve the plastic recovery rates** that would eventually divert plastic waste away from landfills and waterways.

## Solution

We provide a holistic and end-to-end solution that orient, educate, and incentivizes people to ensure plastic waste is properly sorted at the source, track and measure waste data and turn plastic waste into valuable product such as bins, crate, table and and chairs.

## Innovation

We provide a **user-centered design kiosk and mobile application** for the local and tourists where people can deposit their plastic waste in exchange for rewards.

The mobile application and kiosks **uses machine learning technology** that educates people to ensure plastic waste is intelligently identified and properly sorted at the source.

We digitize and **generate a traceable and trackable** waste analysis and characterization report through a crowdsourcing tool for local government units and a system to **monitor the real-time data and insights** regarding the amount of plastic collected per area for better decision-making and efficient waste management plans.

The collected plastic materials will be shredded into flakes to make plastic bottles and sachets valuable before transporting them to our upcycling center. With our current systems, plastic waste will be segregated and given new life that support true circular economy.



1. Collect



2. Shred



3. Upcycle

## Business Model

Our revenue streams are B2G – business to government recurring or monthly subscription, transaction-based, and brand partnership and come from these three primary markets:

- (1) LGU partnership which includes Software as a Service(SaaS), Kiosks and shredders.
- (2) Agency fee for merchant partner – We can agree on a partnership package to carry brands and products plus allow the material to be used for these brands' marketing campaigns.
- and (3) We take 50% from the sale of plastic materials while the other 50% will go to LGU to fund the reward.

## Impact

- **SDG 9 – Industry, Innovation, and Infrastructure.** – We developed a crowdsourcing **AI-based and data-driven** waste segregation platform that enable the government to trace and track the volume of waste from each community in real-time which will be useful for better decision-making and effective waste management programs.
- **SDG 11 – Sustainable Cities & Communities** – Using our technology and systems, cities, barangays, local businesses, and individuals can be rewarded for recycling. Local eco-entrepreneurs can also benefit by offering their products and services as part of the reward program.
- **SDG 13 – Climate Action** – Since our system can intelligently identify plastic with value, segregation at source will become easy that will help reduce greenhouse emissions from landfills. Plastic waste, especially sachets can be upcycled to chairs and tables for schools.
- **SDG – Life below Water** – We prevent plastics from reaching the oceans by collecting and promoting proper segregation through awareness campaigns and educating people through our Kiosks and mobile application.
- **SDG 15 – Life on land** – We can create different environmental campaigns within our platform. We will plant a tree for every 10 KG of plastic submitted by user.
- **SDG 17 – Partnership for the Goals** – We partner with the local government unit, NGOs, schools, and local businesses to make recycling more accessible and engaging by providing collection points and completing innovative end-to-end solutions for managing waste.

## Outlook

With the involvement of local community, tourist, business sector, and local government, we see the opportunity to increase the recycling rate and improve waste management in the community to ensure that waste materials like plastic are properly segregated, collected, and given new life.

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## Traction & Key Metrics

TrashCash has more than **fifteen thousand registered users** with five drop-off locations partnering with **local government, NGOs, and schools** in just eight months since its launching and has already diverted 400 KG of plastic away from the landfills and oceans.

- TrashCash has won **first-place at the Impact Hackathon** – an attempt for the **Guinness World Record for the largest hackathon** in the world and finalist at the UN-Habitat Plastic 3R Hack.
- We have already facilitated seven webinars which were participated by a total of 150 people from different cities.
- Incubated and supported by **ImpactHub Manila**.
- One of the top 18 finalists out of 154 contestants in the UNDP Ending Plastic Pollution Innovation Challenge 2021.
- TrashCash also granted an **Amazon Startup Activate program** – a free program specifically designed for startups and early-stage entrepreneurs.
- Partnered with six eco-merchant partners.
- Interested private companies have reached out already for a possible partnership.

TrashCash has gained attention and seen on **national television** and several media outlets.



## Investment

For 2022 we are seeking funding total of \$USD 100,000 The fund will be allocated on the following:-

Item	%
Product development and enhancement.	40%
Devices and equipment.	20%
Marketing campaigns and communications.	30%
Operations & logistics.	10%

With the funding, TrashCash can provide end-to-end solution from collection to upcycling for all 46 barangays in the City Garden Island of Samal. TrashCash can also provide TrashBins for the city government from the plastic collected from Samal island made out of plastic sachets.

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# Plastic Free Starts with Me



## Team



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Team Member



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Team Member

## Plastic Pollution Challenge

The Philippines is the third largest contributor of marine plastic pollution with an estimated 0.75 million metric tons of mismanaged plastic entering the ocean every year. Inefficiencies in collection, transportation, and disposal systems lead to marine litter and plastic pollution.

The Island Garden City of Samal (IGCoS) is a coastal city situated at the heart of Davao Gulf. Like many growing towns in the Philippines, Samal Island continues to grapple with large volumes of plastic waste generated on the island and washed up on its shores.

Only a portion of the waste generated ends up being recycled. In the first quarter of 2021, the local government of IGCoS noted that only 24.8 tons of garbage collected was classified as recyclable compared to the 1,860 tons of residual wastes. Significant volumes go into a 7,500 sqm landfill that opened in 2021 after the previous 2,500 sqm was filled. At this rate, the new landfill will reach capacity in just 10 years.

While there is a keen interest among stakeholders (including businesses and resorts in the local government sector) to adopt a circular economic model in IGCoS, without a viable system in place, IGCoS will continue to grapple with marine plastic pollution threatening its biodiversity and its desirability as a tourist destination.

## Impact Statement

If we bring together the different stakeholders in Samal Island to establish an integrated collection and upcycling value chain for plastic waste, then the local community can reduce plastic waste leakage into the environment; reduce the amount going into landfills; and benefit from innovative upcycled products as a source of income.

## Solution

The proposed project promotes a ground-up model integrating IGCoS residents and businesses as active players in a circular model of plastic upcycling. PTC together with the Regional Director for Tourism in Davao, the mayor's office, and Envirotech Waste Recycling, Inc. will set-up a comprehensive and transformational system to plug the gaps in plastic waste management. Plastic waste that is collected, segregated and processed locally will be upcycled into souvenirs, furniture, and useful in-demand items to promote a profitable and sustainable value chain.

## Innovation

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**Systems innovation:** This is a multistakeholder solution that creates an inclusive systems involving Samal Island communities and businesses, local government authorities, the Department of Tourism, and upcyclers.

**Focused on the island's strength:** By upcycling plastic wastes to become useful items in the tourism industry, the solution will provide opportunities for communities to make a livelihood that will also advance the tourism in the island.

**Locally-owned:** The solution is grounded in local realities and seeks to localize the upcycling process and keep the value-add in the local economy. It seeks to provide livelihood opportunities to local individuals.

## Business Model

**Systems innovation:** This is a multistakeholder solution that creates an inclusive systems involving Samal Island communities and businesses, local government authorities, the Department of Tourism, and upcyclers. Focused on the island's strength: By upcycling plastic wastes to become useful items in the tourism industry, the solution will provide opportunities for communities to make a livelihood that will also advance the tourism in the island. **Locally-owned:** The solution is grounded in local realities and seeks to localize the upcycling process and keep the value-add in the local economy. It seeks to provide livelihood opportunities to local individuals.

## Impact

**Awareness and engagement:** Used plastics are seen as a resource by communities and businesses discouraging plastic litter and appreciating their role in maintaining a plastic free Samal Island. This will push stakeholders to appreciate the potential of upcycled plastic products and promote entrepreneurship and further product development.

**Efficient value chain:** Plastic waste is processed efficiently whereby:

- The integrity of segregation (and thus recyclability) is maintained;
- IGCoS will house local pelletizers and machinery for the localization of basic processing opening up opportunities for informal waste collectors and other local stakeholders to be involved;
- Transportation to Envirotech and the costs associated is predictable and viable to keep costs predictable;
- Articulation between producers and the market will see that the upcycled plastic products produced are in line with the demands of people.

**Broader capture of plastic waste:** To reduce plastic leakage, the initiative will expand the range of plastics recycled. Most types of plastic waste will be included in the circular model and these types will no longer be brought to the landfill.

**Transforming tourism in Samal Island:** The tourism industry of IGCoS will benefit from the system with cleaner environments and useful products made from upcycled plastics.

## Outlook

PTC's Plastic Free Starts with Me will set up a locally-driven system of upcycling plastics in IGCoS. Within the first year of implementation, we hope to see: the amount of plastics litter found in the environment is reduced by 50% and the amount of plastic waste brought to the Samal Island landfill is reduced by 25%. Our partners in the local government and the tourism industry also hope to formalize a sustainable tourism plan.

For scale-up and replication, PTC and its partners will look to boost capacities in plastic waste processing and explore new and exciting products and materials that can be produced from upcycled plastics. For example, PTC is looking at upcycled plastic building materials to build disaster-resilient housing and boats for fisherfolk.

We also hope that the solution will serve as a model for transforming policy into practice whereby a circular economic model is achieved within the local economy, minimizing costs and maximizing local capacities and resources. IGCoS can serve as a model for other town and cities in the Philippines and beyond. PTC's Plastic Free Starts with Me is eyeing sites across the country including in Metro Manila and Batangas to replicate this model.

## Business Model

The project will seek to achieve the following targets and key metrics:

- Reduction of plastic waste found in the environment (ie. coastal areas) by 50%.
- Reduction of volume of plastic waste being sent to the IGCoS landfill by 25%.
- Participation of at least 10 resorts or tourism establishments in the plastic upcycling scheme.
- The participation of members of the local women's council and the opening of a souvenir shop run by the organization.
- Establishment of a local collection, sorting and processing site on IGCoS.
- At least 1 training session of local government solid waste management staff to sensitize them on upcycling, segregation best practices and improved safety and handling of waste.
- At least 1 market study to inform what products Envirotech should make in response to the demand of resorts and residents of IGCoS.

## Investment

With seed funding from UNDP's EPPIC Challenge, PTC along with its partners, Envirotech and the Department of Tourism will put in place the infrastructure and systems needed to create a circular economic model for IGCoS. This will be complemented by capacity building for waste collectors and members of the women council who will run the collection and processing sites. The funding from UNDP will be used to establish a local granulation site on Samal Island keeping value-added processes within the locality and increasing efficiency in transportation by barge across to Davao where Envirotech will complete the upcycling process.

The funds will also catalyze a stronger articulation between business to adopt the use of upcycled plastic product and with policymakers to finally establish a comprehensive sustainable tourism plan that curbs the use of plastics and tackles head-on the plastic pollution that threatens Samal Island's status as a garden city.

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