

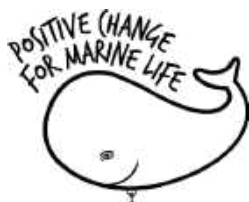


UBUNTU FOUNDATION

2020

PARTNERSHIP

PROJECT UPDATE



FOREMOST

THANK YOU

FOR YOUR SUPPORT!

Positive Change for Marine Life is an Australian based not-for-profit-organisation who work with people around the world to create solutions to marine conservation issues. Through our core values of understanding, education and respect, we empower communities to take action for our ocean, developing long-term initiatives which benefit the sea, as well as those who rely upon it for survival.

We bring a variety of stakeholders together to discuss, research, connect and implement economic strategies and on-ground practical projects which address a myriad of social, environmental and economic issues.

Thanks to Ubuntu Foundation's support for our *Waste to Wealth* project in India, we've able to set up waste management programs for 120 households, as well as a range of local businesses and schools within one of the country's poorest fishing communities. We've also run a range of education, training and empowerment initiatives; lobbied for a single-use plastic ban across the state of Kerala and won; as well as prevented tens of thousands of pieces of plastic from making their way to the ocean every month! We were also selected as one of the world's *Top 20 Waste to Wealth* Projects by the United Nations in late 2019 (from 230 international projects)!

We couldn't have achieved any of this without Ubuntu Foundation's support and we're excited to keep you updated as the project continues to progress and reach key milestones. On behalf of all of us at PCFML, thank you!



Karl Goodsell
Founder & CEO

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INTRODUCTION

Our project in India targets two communities who both rely on a healthy marine ecosystem for economic survival. Kovalam, a popular beach tourism destination, and Vizhinjam, a densely populated fishing village. Vizhinjam and Kottapuram are located about 8 miles from Thiruvananthapuram city. They share a very narrow beach with a fishing area bounded by two rocky promontories, Mathilppuram on the western side and Kottappuram on the eastern side. These physical characteristics create a naturally protected harbour, making it an ideal location for fishing (Nair, 1958)¹.

For hundreds of years, Vizhinjam has been the central hub for the region's fishing activities and is now one of the last remaining traditional fishing harbours in Kerala. In more recent times, major pelagic resource landings have reflected a drastic decline (George et al., 2019)². Two of the leading causes of this decline were cited as: 1) poorly managed and over-harvested

¹ Nair, S. C. (1958). A preliminary account of the fisheries of Vizhinjam. *Indian Journal of Fisheries*, Vol. 5 (1), pp. 32-55. Downloaded from <http://eprints.cmfri.org.in/1782/>.

² George, R. M., Jasmine, S., Anil, M. K., Santosh, B., Saleela, K. N., Omana, T. A., Thomas, K. T., Raju, B., Sugi, V. V. (2019). *Marine fishery at Vizhinjam - A decadal analysis*. Retrieved from: <http://eprints.cmfri.org.in/13928/>.

fisheries and, 2) increasingly severe marine pollution.

Another study conducted along the Keralan coast (namely in the regions of Thanur, Malipuram, Vizhinjam, Kappad, Kuzhippily and Cheriazheekal) indicated that plastic was the major constituent of beach litter (Daniel, et al., 2019)³ and, with an estimated 700 species known to have been impacted by marine debris (Gall & Thomson, 2015)⁴, it poses a severe threat to local livelihoods, the tourism industry and, of course, ecological health.

There were a number of reasons why we chose southern Kerala as our project location:

1) The region sits within one of the world's 10 Marine Biodiversity Hotspots (Roberts, et al., 2002)⁵, with an incredibly diverse array of marine species utilising the warm coastal waters and rocky reefs of the Arabian Sea.

2) There was an extreme level of poverty in the region, with the majority of people in Vizhinjam and Kottapuram living below the poverty line.

3) The presence of an existing socially-focused non-profit operating in the area (*Sebastian Indian Social Projects*) who had a proven track-record, alleviating the need to spend a decade or more building local relationships.

4) The seas near Mumbai, Kerala and the Andaman and Nicobar Islands known as some of the worst polluted in the world, according to a study mapping global marine pollution (Litterbase, 2017)⁶.

Managing this issue is essential to the livelihood of our target region. Since

³ Daniel, D. B., Thomas, S. N., Thomson, K. T. (2019). Assessment of fishing-related plastic debris along the beaches in the Kerala Coast, India. *Marine Pollution Bulletin*, Vol. 150, pp 1-9. Retrieved from: <https://doi.org/10.1016/j.marpolbul.2019.110696>

⁴ Gall, S. C., Thomson, R. C. (2015). The impact of debris on marine life. *Marine Pollution Bulletin*, Vol 92 (1-2), pp. 170-179. Retrieved from: <https://doi.org/10.1016/j.marpol.2014.12.041>.

⁵ Roberts, C. M., McLean, C. J., Veron, J. E. N., Hawkins, J. P., Allen, G. R., McAllister, D. E., Miitermeier, C. G., Schueler, F. W., Spalding, M., Wells, F., Vynne, C., Werner, T. B. (2002). Marine Biodiversity Hotspots and Conservation Priorities for Tropical Reefs. *Science*, Vol. 295, pp. 1280-1284. Retrieved from: <https://doi.org/10.1126/science.1067728>.

⁶ Alfred-Wegener-Institut (2017). *Litterbase*. Helmholtz-Zentrum für Polar und Meeresforschung. Retrieved from: www.litterbase.awi.de

INTRODUCTION

commencing our on-ground projects, we've experienced a sense of hopelessness within the community. As people see no solution to the downward spiral of poverty caused by dwindling resources and increasing pollution, it's been empowering to witness this hopelessness turn to hope in the local households, schools and businesses that we are working with. Through a core emphasis on local community involvement - including working with fishermen, local vendors and (especially) women to shape and develop our projects, we have seen a turnaround in the way that the community engage with the ocean; the way they perceive local environmental and social issues; as well as their attitudes towards alternative industries that may differ from their traditional way of doing things.



Our project aims to serve as a model for other regions throughout India and around the world. We believe that we can play a part in reversing the incredible damage that coastal communities are having on marine ecosystems, whilst lifting people out of poverty and creating a new generation of ocean stewards. We thank you for believing in us, supporting us and allowing us to pursue our vision for healthier oceans and healthier communities.



OUR PROJECTS

TURNING WASTE INTO WEALTH

Our projects aim to demonstrate how everyday household and business waste can be repurposed to create social, environmental and economic benefits for communities. By combining for-profit activities into a social enterprise model, our goal is to create much needed waste management services driven by communities, for communities and funded through the projects themselves.

The main component of the waste element of our work is to collect household waste and use it to build small-scale, urban composting and aquaponic (CAP) systems. Plastic is repurposed through our plastic shredding and extrusion machines, turning discarded plastic into upcycled beams. The beams are then utilised in the production of the CAP systems - with the composting element of the systems converting organic waste into fish food, which is then fed back into the system to feed freshwater fish. The fish excrement, in turn, acts as a fertiliser for the vegetables grown above, making each unit a circular waste management and food production system.



Although still in the trial stages, our method will reduce the capital investment and operational costs of traditional aquaponic and composting systems, allowing low-income households to gain access to economic and food security opportunities. These circular systems will also allow pressure to be taken off wild-caught fish stocks, as well as reducing the amount of pollution making its way into the ocean - the two factors that pose the greatest threat to marine life off the Keralan coast (and within many other coastal communities around the world).

We see enormous potential for replication in other coastal environments where communities are also suffering from the burden of plastic waste and diminishing livelihoods due to a reduction in available fish stocks, as well as the multiple forms of land, air and water pollution caused by plastic waste. Off the back of our success in India, we were recently awarded New Zealand Government funding to

to replicate the project in the Solomon Islands (launching in early 2021).

The waste management sector in India has been brought into prominence in the last few years and there have been rapid changes at both state and federal levels. These policy changes have required us to adapt our projects to suit the current regulatory standards, as well as the goals of the local government. We are very excited by the successes that we have had so far, as well as the enormous potential to scale, which wouldn't have been made possible without the generous support of the Ubuntu Foundation.

TIMELINE

OBJECTIVE	UPDATE	STATUS
PLASTIC COLLECTED: Goal: recycle/upcycle 800kg of plastic into our CAP systems.	- So far, we have collected >300kg of plastic from the community and have commenced shredding and extruding into beams for our CAP systems;	In Progress 
COMMUNITY ENGAGEMENT: Goal: 400 households participating in Waste Collection Service and build 20 CAP systems.	- There are 120 households, 3 schools and 2 businesses currently participating. First CAP system is due to be completed and released in early 2021.	In Progress 

**INCOME
GENERATED:
Goal: Grow 8,000
fish, each worth
120 rupees (total =
960,000 rupees).**

- In progress. This will commence once COVID-19 restrictions ease and CAP systems can be implemented within the community.

In Progress



**Methodology Guide
Goal: Measured by
the efficacy of the
guide to persuade
other communities
to adopt our model.**

- Our program guides have commenced development and will be Open Source for coastal communities around the world.

Initiated and ongoing



We have had interest from groups across India, as well as in Tanzania, Mexico and Indigenous Australian communities. With the start of our Solomon Islands projects in 2021, we are excited to see this project develop around the world.



PROJECT DIRECTION

WASTE MANAGEMENT

As we started working towards the achievement of our project goals, we came to realise that a household waste collection model was more effective and impactful than our initial goal of establishing a plastic collection station and employing only two local community members for monitoring the program.



We now employ four women from the community on a weekly rotational basis for waste segregation. This provides an opportunity for all members of the community to participate and allows us to reach a wider audience, highlighting both the educational and economic benefits of the program. This rotational employment mechanism also helps participating households in a more equitable way, whilst building greater trust of our staff and projects throughout the community. To date, we have employed over forty local women in the program who are paid wages through a Waste Bank, which is the sum of money obtained through the sale of community-wide collected recyclable waste. Our project also plans on providing grants and loans for environmentally-focused economic initiatives (e.g. our composting and aquaponics kits), which all participating members can apply for. These grants will be managed by local boards, made up of local women from the community who are voted in by other community members.

All of our programs have been developed to add value to existing resources (such as plastic and organic waste) and use them to create economic opportunities within the community. Composting of organic waste into fish feed also creates

additional economic value from waste streams and further supports the funding of our expanding waste management service. Additional benefits of the program include the level of engagement of the local women, who are marginalised within the community, yet carry the burden of waste management at the household level. Through involving them as core stakeholders, we are empowering them to take a leadership role in the family unit and broader community, developing their independence, improving their economic situation and shifting stereotypes.

OUR ACHIEVEMENTS

EDUCATIONAL WORKSHOPS

We commenced educational workshops in July 2019 and since then classes on plastic segregation and demonstrations are held on a regular basis. A total of twenty-four educational classes on waste have been conducted and waste bags supplied to each household attending the classes. A requirement of the provision of these bags is that each household commits to cleaning, segregating and storing waste until the weekly collections take place. Bags are made locally from recycled rice sacks and the stitching and design was undertaken in collaboration with the community to best suit their needs. Each bag is washable and purpose-built hooks on the outside of each household keeps the waste away from rodents



OUR ACHIEVEMENTS

and safe from the elements.

Every bag contains four segregated sections that store paper/cardboard, metal (including aluminium wrappers), as well as soft and hard plastics. Each house requires two bags, one being used during the week and the other (washed and empty) being swapped over on collection day. A total of 120 households, 2 businesses and 3 schools (~780 people) have participated in the educational classes and are now part of our weekly waste collection service.

WASTE MANAGEMENT

Our door to door waste collection service was expanding collections by around 20-30 households per month prior to the COVID-19 outbreak. Members of the community are trained on how to segregate the waste and then given the opportunity to be employed to manage the weekly collection. To date, we have employed 40 local women on a rotational basis with a wage of 500 rupees for half a day of work (in context the average local wage is ~700 rupees for a full day).

Funds for wages are procured from our Waste Bank accounts, providing a further incentive for households to wash, sort and segregate waste every week. Our waste collection service has been taking place every Friday since July 26, 2019 with a total of 234.84kg of waste collected to late March, when COVID-19 restrictions led to us temporarily close down the service.

We have set-up four bins (one for soft plastics, one for hard plastics, one for paper/cardboard, and one for metals and aluminium wrappers). These bins have been



trialled in key areas across both Vizhinjam and Kovalam to deal with the problem of waste in the harbour, in estuaries, as well as on the beach. All waste is collected, washed and sorted from the bins and data is shared with the local fishing authority, church and council. Results are then shared with the community with suggestions for improvements relayed through these community organisations.



WASTE STATISTICS

Of the collected waste within the community, the majority is recyclable with hard plastic accounting for the highest percentage (dry weight) at 29%. Soft plastic constituted about 26%, equaling a total of 55% of waste collected being made up of plastic. Metals (including aluminium wrappers), paper and cardboard made up the other 45% of collected waste, of which approximately 30% is recyclable, taking the total amount of recyclable waste collected to 59%.

At present we rely on local scrap dealers to buy the recyclable materials, however their purchasing price is well below that of the national prices (40-50% less) for

recycling. As our waste collection service expands we will have higher volumes of recyclable materials allowing us to sell on the national market and increase the money flowing back into the community. Our goal here is not to put other scrap dealers out of business (as they are limited in their economic options), instead we will work with them to raise their profits while increasing our influence in the waste management sector within the region.

COMPOSTING AND AQUAPONIC (CAP) SYSTEMS

Over the past few months we have assembled the first shredding and extrusion machines for our Composting and Aquaponics (CAP) systems. The development of these machines is coming along well and, although our operations have been affected due to COVID-19, our lead on the project (Krishna) has been refining the technical aspects of our designs. He has been working again for the past 3 months in our Marine Conservation Centre to complete the machine builds. We estimate that the machines will be completed by early February 2021, with our first trial machine tested and ready for distribution by mid-March.



THE YEAR AHEAD

As we continue to expand our operations and extend our services across the community, we are aiming to reach a number of key milestones in 2021, especially as COVID infection rates reduce and we are once again able to have full access to our target regions:

- We will ramp-up our waste collection service to over 500 households and 100 businesses and assist other areas to adopt our collection services, as well as providing a formalised waste market through the regions first Recycling Centre, creating meaningful employment for women living below the poverty line. This service will exponentially reduce the amount of plastic and other waste entering the ocean, as well as having a tremendously positive impact on the community's health, financial situation and wellbeing;
- Our shredding and extrusion machines will be up and running in our workshop - producing plastic beams from waste to make the CAP systems. These systems will be trialled with a number of businesses and households throughout our target communities, with an aim to have 25 systems operational by July, 2021.

We aim to establish a value for the economic benefits each system produces per year and create a training program that teaches community members how to operate and maintain the systems. With this information we can approach the community and demonstrate how they can earn a consistent income from the CAP systems, as well as through Waste Bank accounts managed by democratically elected and localised community boards. The Waste Banks will be utilised to provide local wages, as well as to secure loans and environmental grants;

- Our *Plastic Free for the Sea initiative* - supporting vendors on Kovalam beach to make a complete transition to sustainable packaging - will continue and expand - encompassing hotels, restaurants and other businesses throughout the region. We will continue to work with the Kerala Tourism Department and other stakeholders to improve waste infrastructure and collection.

The overarching aim of the waste component of our Global Programs in India is to move the region towards zero waste, whilst also creating local economies of scale based on conservation over exploitation. This will not only improve the lives of the local people and improve the marine environment, it will also create a model for Kerala (“God’s Own Country”) and other developing coastal communities around the world. Our work reflects that decentralised, community-driven approaches can significantly boost local economies and opportunities through a conservation-focused approach.

We greatly thank the *Ubuntu Foundation* for your support. Your contribution has allowed us to create positive change for diverse ecosystems facing multiple anthropogenic threats, as well as the struggling communities who rely on them for survival.





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Thank you so much for your support in helping us to address some of the big issues facing our ocean.

Our business and corporate sponsors have helped turn the dream of a small group of university students into a reality, with multiple projects and stakeholders now engaged in our work internationally.

Together, we CAN make a difference for the ocean and the communities who rely upon it for survival.

