

# DEMOCRAPHICS

Peru's 2017 National Censuses of Population and Housing provide demographic data on Lobitos, but not Piedritas. The demographic data on Piedritas comes from a local survey in which 40 households responded. Despite the small sample size, the survey data provides an important reference point for Piedritas. In this section, only gender and age demographic data is listed for Piedritas.

## GENDER

In Lobitos and Piedritas, the men are mostly dedicated to working and providing an income for the household, while the women care for the children and manage the domestic responsibilities. These gender norms, however, are not the same for every woman in the two localities. In Lobitos, a larger percentage of women work in municipal jobs, cleaning or cooking or running their own home shop or business. In Piedritas, the women actively participate in community activities, particularly the community greening projects and environmental education workshops. The women typically bring their children with them to the workshops. Women also attend meetings and activities at the Santa Elena primary school.

## EMPLOYMENT

In Lobitos, the majority of the population is of working age (72.1%), which is more than 15 years of age. Almost half of the population works for payment or goods.

Below, are rough estimates of the percentage of the working population employed in various industries and commercial activities:

- 50% artisanal fishing industry
- 20% small shops/businesses/restaurants
- 10% hotel industry
- 5% municipality workers
- 5% farming / raising livestock
- 5% trade jobs (carpenter, plumber, construction worker, etc)
- 5% private security guard for a company or other operational job

Slightly more than half of the population does not work for money or goods, which includes many women who work in the home.

## AGE

In general, the population in Lobitos is young (see Figure 1), however, in recent years, there has been a decline in the number of young people from ages 10-19 years and 20-29 years. In Piedritas, the majority of the population surveyed was over 30 years old.

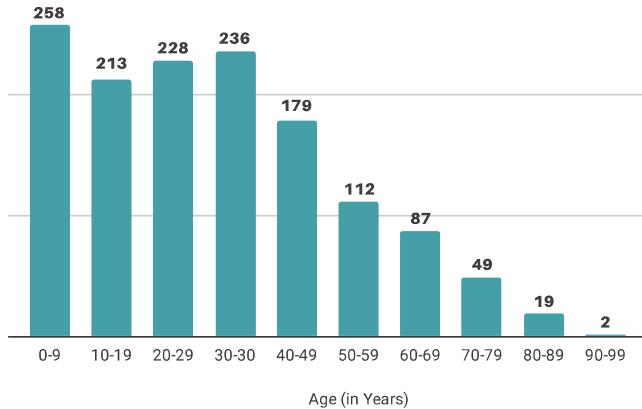


Figure 1: Age of population in Lobitos

## LANGUAGE

In Lobitos and Piedritas, the majority of the population speaks Spanish. In Lobitos, a small percentage of the population speaks Portuguese due to Brazilian tourists who opened businesses during the tourism boom. In addition, a small segment of the population speaks Quechua, the language of the Inca Empire and the most spoken indigenous language in the Americas.

## RELIGION

In Lobitos, the majority of the population is Catholic (see Figure 2). Others identify as Evangelical and Christian. There is a segment of the population that does not profess any religion.

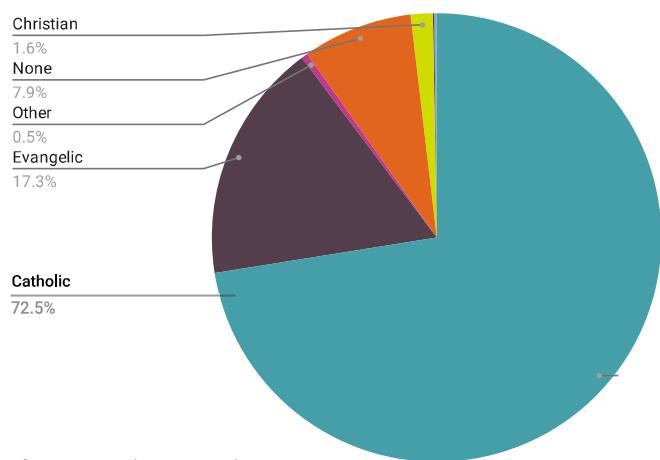
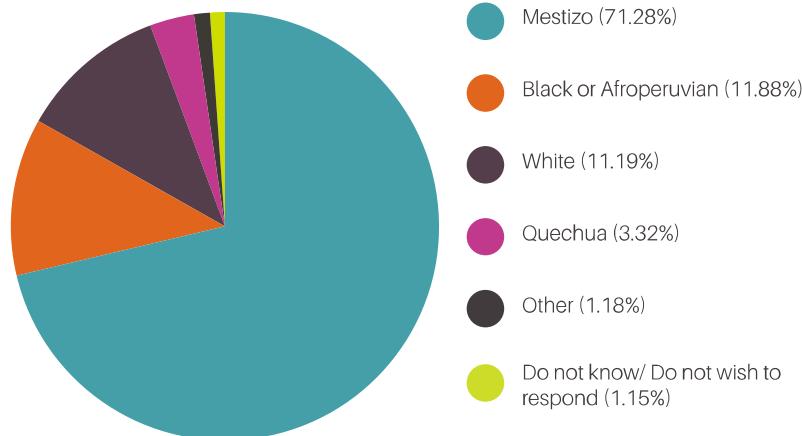


Figure 2: Religion in Lobitos

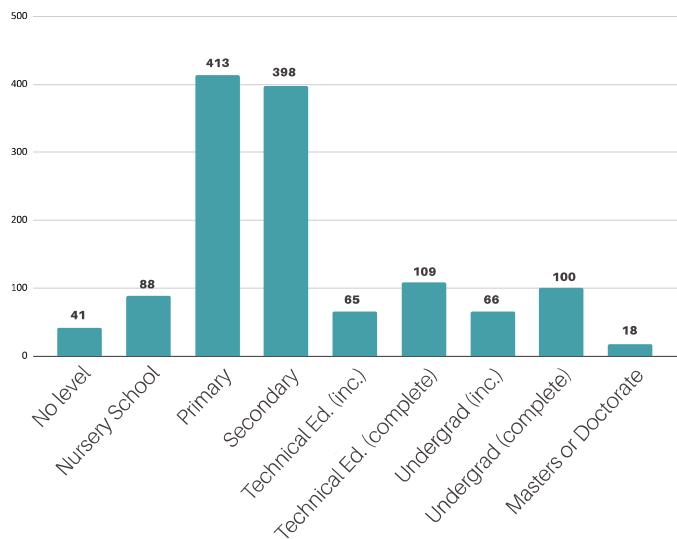
## RACE & ETHNICITY

In Lobitos, the majority of the population identifies as mestizo. The term mestizo means mixed in Spanish, and is generally used throughout Latin America to describe people of mixed ancestry with a white European and an indigenous background. 12% of the population identifies as Black or Afroperuvian. Afroperuvians are citizens of Peru with African heritage who were enslaved and brought to Peru during colonial times. The Afroperuvian population currently suffers from marginalisation and racial discrimination, which negatively impacts their social mobility and access to basic services. Three percent of the population is Quechua, indigenous people originally from the Andean region of Peru. Indigenous groups and those of indigenous descent also face marginalisation and racial discrimination in Peruvian society.



**Figure 3:** Race & Ethnicity in Lobitos

**Figure 4:** Education in Lobitos



## EDUCATIONAL ATTAINMENT

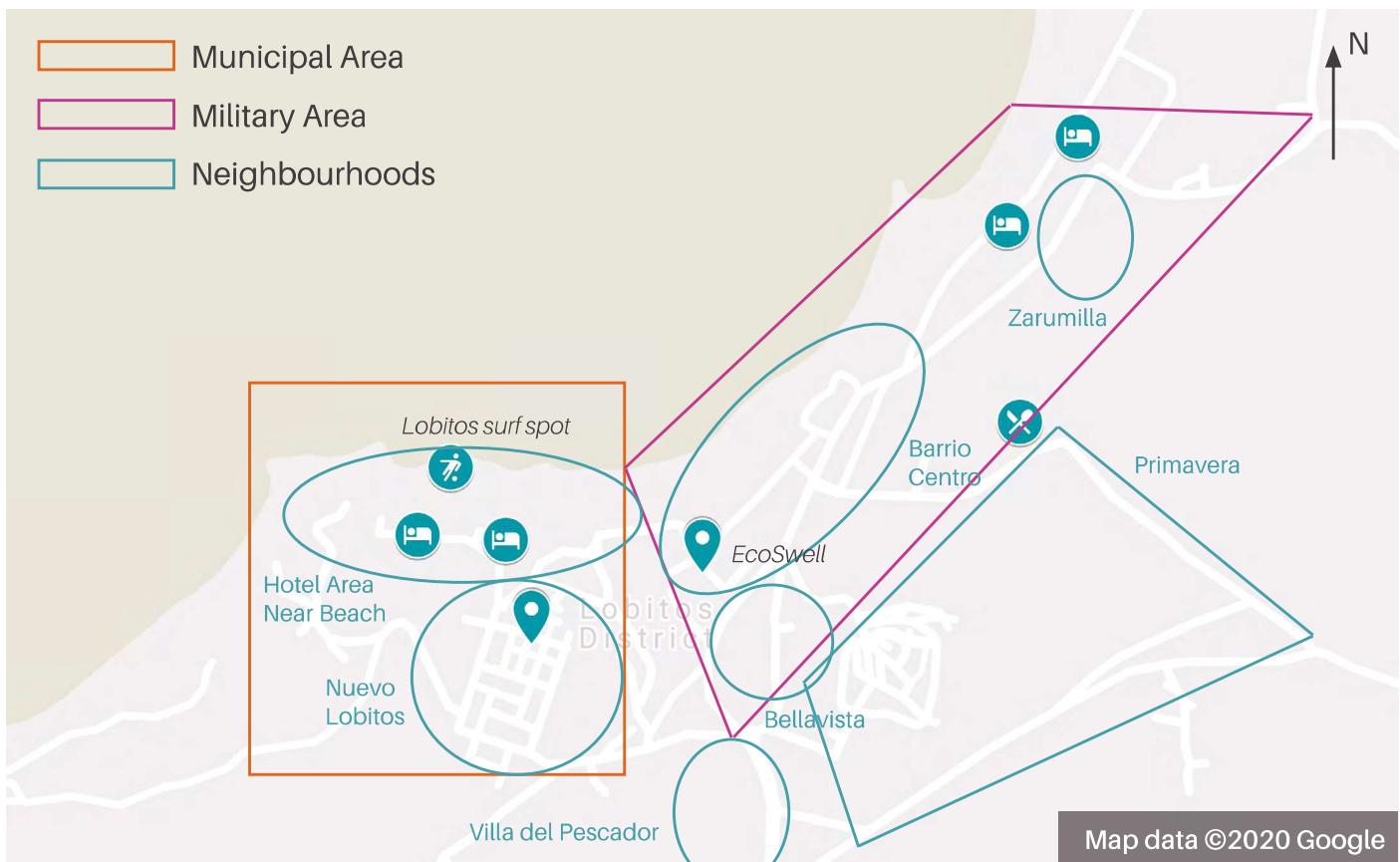
The level of educational attainment varies in Lobitos (see Figure 4), with a larger portion of the population having completed either primary school or secondary school.

## PREVALENCE OF DISABILITY

7.32% of the people in Lobitos live with some form of disability. In Lobitos, 3.73% of the population experiences partial blindness or loss of vision. 1.67% of the population experiences difficulty walking or limited mobility.



# LOBITOS MAP



- Lobitos is composed of six main neighbourhoods, which are under the jurisdiction of different entities, including the Fisherman's Guild, military, and Lobitos District Municipality. These neighbourhoods vary in size, demographics, and socioeconomic status.
- The fishing community mainly resides in Primavera, with a population of approximately 800 people. Most of the families in this neighbourhood have lived in Lobitos for generations and work in the artisanal fishing industry. Primavera is an underserved neighbourhood where some of the poorest people of Lobitos live.
- The Zarumilla, Castilla, Barrio Centro, and Bellavista neighbourhoods are located within the military zone. All of the land in this area is under the control of the military, which rents out old houses and buildings to residents. Approximately 150 people live in Zarumilla. In 2016, there were 5-10 families living in Castilla, but due to the growing demand to live in this area, that number has doubled.
- In Barrio Centro, the military rents out the houses to existing families of Lobitos and newer residents. Bellavista is a small neighbourhood located on a hill behind Barrio Centro.
- A dry gully or ravine separates Nuevo Lobitos, which is under the jurisdiction of the Lobitos District Municipality, from the military zone. Approximately 500 people live in this neighbourhood. Many fishing families live in the poorer areas of Nuevo Lobitos. The coastal area of Nuevo Lobitos is a popular tourist destination that caters to surfers and foreigners.

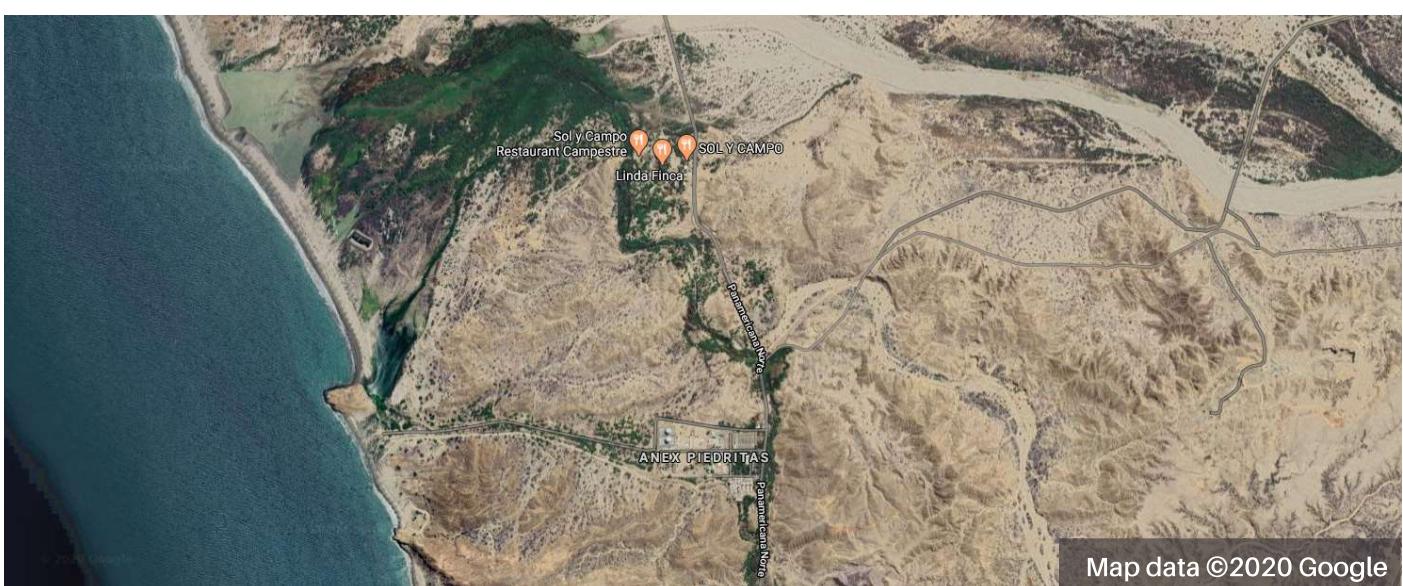


# PIEDRITAS MAP



- The housing in Piedritas is organised into five sections, according to which houses are connected to the electrical grid.
- The houses in sections one and two are located right next to the Santa Elena primary school and the road that passes through Piedritas (west of Panamericana Norte). The longer-standing families who live in this area have achieved a higher socioeconomic status, and some own small businesses located near the community's ecotourism route.

- The more vulnerable and impoverished families live on the other side of the road (east of Panamericana Norte) in basic housing with no water or electricity. Approximately half of these families dedicate their lives to the logging of carob trees and the production of charcoal. The other families in this area raise and sell livestock, including goats, horses, chickens and pigs.



# INDUSTRIES & EMPLOYMENT

The residents of Piedritas engage in a variety of commercial activities, while roughly half of the population in Lobitos works in the fishing industry.

Some residents engage in small-scale subsistence agriculture and raise goats, pigs, or chickens and sell the meat and dairy products. The people of Lobitos and Piedritas are heavily reliant on the nearest city, Talara, for buying food and goods and accessing essential services such as banks and hospitals as they are not available locally.

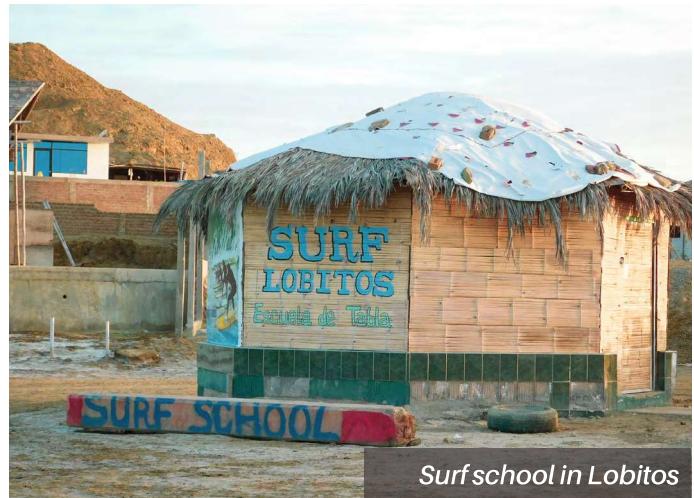
Artisanal and commercial fishing are practiced along the coast. The Talara Provincial Municipality and Lobitos District Municipality provide some employment opportunities, including street cleaning, garbage collection, security, trades, and when available, local construction projects. Previous administrations used to hire over 50% of the population on a rotating basis throughout the year, however, the current mayor of Lobitos stopped this practice because it was financially unsustainable and fostered corruption and misuse of public funds. Opportunities for advancing individual or household economic prospects through municipal employment are limited.

Although the oil industry is one of the largest industries in Lobitos, the only residents employed work predominantly as security guards. Over the last decade, oil prices have declined severely, which has reduced the amount of oil royalties the central government can provide to the Lobitos District Municipality.

The oil companies built several oil platforms on top of reefs that provide an important habitat for marine life. These platforms have disrupted the local fishing industry because the oil companies prohibit fishing near the platforms. Oil spills happen frequently and often go unnoticed due to a lack of government patrols and regulation.

## LA COSTANERA

The central government is planning to build a new highway called La Costanera, which will run along the entire coast of Peru, parallel to the Pan-American Highway. By providing a direct and accessible route along the coast, La Costanera could significantly increase the influx of tourists to Lobitos.



Surf school in Lobitos

## TOURISM & ECO-TOURISM

Surf tourism plays a critical role in Lobitos' economy, bringing an estimated 8,400 people to Lobitos each year and contributing a total of US \$3,555,612 to the local economy. EcoSwell led a multi-stakeholder National Wave Break Protection Campaign in Lobitos, which now protects by law five of the local world class wave breaks (Piscina, Muelles, Lobitos, El Hueco, Baterías) against any potential development threats.

Because of the changing surfing conditions in Lobitos, the tourism industry is keen to diversify its offerings to include fishing, diving, kite surfing, kayaking, and mountain biking to attract new visitors. The municipality of Talara is interested in Piedritas' growing ecotourism industry, which could help boost overall tourism in the area.

Deforestation and environmental degradation are two of the main challenges Piedritas faces in its efforts to build a sustainable ecotourism industry. In the early 1990s, newly built highways offered easier access to Talara, prompting an influx of domestic and international imports into the area. Residents struggled to sell their produce in the local markets due to the competitive prices of imported goods. Unable to sell their produce, many of the residents turned to logging the carob tree and selling charcoal to generate an income, which caused significant damage to the dry forest. To address these issues, EcoSwell has implemented, with support from energy company Enel, the "Green Piedritas" Environmental Education and Community Ecotourism Project, educating the community on the harmful impacts of producing charcoal and implementing initiatives to preserve the local ecosystem.

Recently, the community started to receive its first groups of tourists and visitors. Integrating ecotourism into the beach and sun tourism of Talara would diversify the tourist experience and help Piedritas capture the flow of tourists traveling through the community to reach the coast.

# BUILT ENVIRONMENT

In Lobitos and Piedritas, plans to expand community facilities and enhance conservation efforts of the dry forest are renewing the built environment.

What ideas can you come up with to improve the existing homes, buildings and public spaces to meet the future needs of the whole community, whilst restoring the local environment? It will also be important to consider the imminent growth of tourism in the area to ensure the development of inclusive solutions that meet the needs of the whole community.



## OVERVIEW

The built environment of Lobitos and Piedritas shapes residents' and visitors' experience of the place. As with any setting, the built environment influences aspirations, sense of self-worth, safety and security. Both towns have evolved over time to feature both public buildings and residential homes.

The built environment in Lobitos has gone through significant periods of change over time. Lobitos has about 58 hotels and hostels, a few restaurants, and other tourist-related businesses, including surfboard shops and yoga studios.

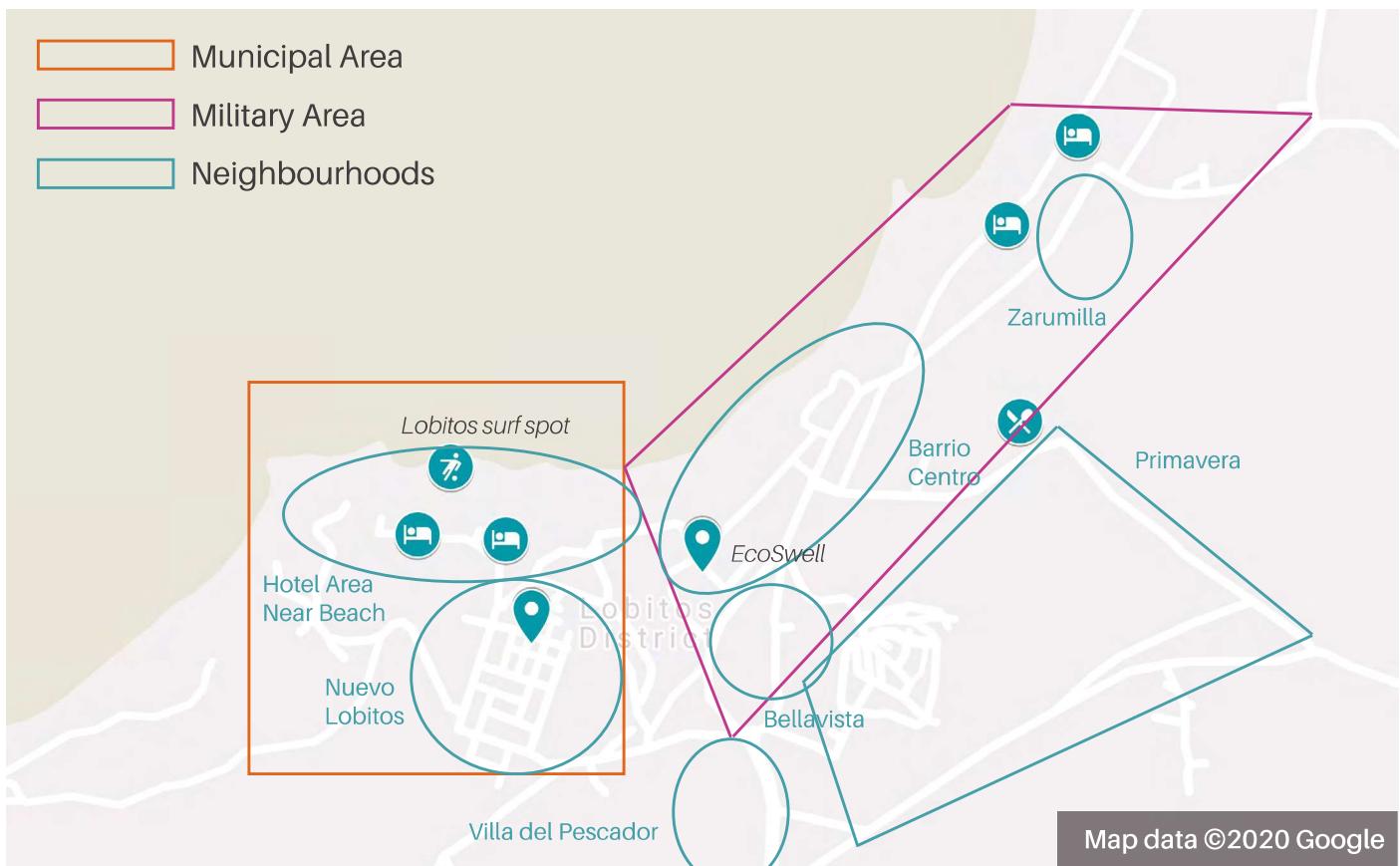
In Lobitos, the oldest homes are around 100 years old, while others were built during the 1970s. Living conditions range within the key areas of Lobitos. In general, many buildings are poorly adapted to the desert environment. New developments in Nuevo Lobitos and Primavera have no sewer connection or septic tank and are not connected to the grid. People use friends' toilets or defecate outside. Approximately 5% of the people in Primavera do not have toilets. Across all the non-military areas there are fenced off plots of land 'owned' (no formal land titles) mainly by people that have migrated to Lobitos, but also some local residents.

In Piedritas, there are two main tourist businesses that receive visitors from Talara. Piedritas is traditionally an animal farming/logging community and has only recently opened to tourism.

Both communities are located within a largely desertified dry forest. The conservation requirements to preserve the dry forest are impacted by the built environment. The increase in precipitation brought by El Niño brings opportunities for vegetation restoration in Piedritas.

There are local examples of the impacts of poorly managed tourism, which is of concern to the people of Lobitos and Piedritas. The nearby tourist hotspot of Mancora is known for the environmental and social damage caused by the tourism industry. Unmanaged waste and sanitation presents health risks, environmental pollution and affects the location's aesthetics. Buildings that have been located too close to the shore affect the movement of the sand and have significantly changed the quality of the waves. Many of the people financially benefiting from tourism in Mancora are not from Mancora, and the local people have seen their quality of life go down rather than up, resulting in increases in civil unrest, crime and inequality.

There are, however, other local examples where the communities have dealt with the issues in a more effective manner. For example, Los Órganos is considered to have better managed the waste and sanitation issues and preserved the natural environment rather than destroy it.



## MAP

Military Zone (Zarumilla, Castilla, Barrio Centro and Bellavista):

There are a few hostels in the military zone, but no new houses or hotels are being built in this area.

The area mostly includes restored old wooden houses previously used by those who worked in the oil companies and some newer (1970s) brick houses. Most have yard space and are detached. Some parts of this area are still collapsed and there are still many empty buildings and houses that have yet to be restored.

The military zone also has more trees and vegetation than the surrounding areas.

Zarumilla has many concrete houses built during the military regime to house military personnel, which are now rented out to newer residents of Lobitos.

In Castilla, many of the concrete houses were in complete disrepair with cracked and crumbling walls and no roofs or windows. Because of the growing demand to live in this area, the military started to rent out houses at very low contract prices to people from Talara and other areas. These new residents have restored many of the collapsed houses and moved in.

In Barrio Centro, the houses are mostly made of wood and were built by the British during the booming oil years. In Bellavista, there are also wooden houses built by the British, some of which are close to 100 years old.

In Primavera, the fishing community has a land title for their whole neighbourhood.

The houses and buildings are mostly made of concrete, but some are made of plywood and corrugated iron or tin roofs.

In recent years, the neighbourhood has been growing because the Fisherman's Guild has been giving out small plots of land to the family members of the fishers.

Most homes have limited yard space and are in close proximity, often sharing walls with neighbours.

Recently, the neighbourhood of Nuevo Lobitos has experienced population growth because the previous mayor created a new residential area with 60-80 plots of land.

Most of the houses built on these plots are simple structures made of brick or plywood.

Nuevo Lobitos also includes a strip of hotels, shops, and restaurants along the beach, which is a popular tourist destination that caters to surfers and tourists.

# DIGITAL

In recent years, internet access in Lobitos and Piedritas has improved, but it is still limited and expensive. The communities rarely deploy digital technologies, but there are many areas for growth and innovation. What digital solutions can you come up with to improve the quality of life in Lobitos and Piedritas?

## OVERVIEW

Internet accessibility has increased for people in Lobitos and Piedritas. The use of digital tools varies widely between residents and tourists. TV is the dominant entertainment medium, while some also use radio. Government administration processes remain largely paper based. Many people in Lobitos and Piedritas do not have email accounts.

Past efforts to use technology to benefit the people of Lobitos and Piedritas have proven valuable when carefully considered. The Willipipe project, for example, is a weekly tide and swell bulletin posted in key areas to increase the productivity and planning capabilities of local fishers. This project involves translating the information into accessible language that the fishers can easily understand. The Willipipe is available online [1] and printed out on posters, which has proved to be very valuable to the fishers.

Other administrative processes like monitoring fishing activity to determine fish stocks are recorded manually.

Entel, a mobile data company, used to offer a 100GB package, costing S/80 and providing speeds of between 8-10MB/second, but this package failed due to network congestion. The company only promoted and offered the package for a very short time (one to two months) and then discontinued it due to bandwidth constraints. The lower-end mobile plans include multi-day options, and internet access remains costly and limited in use.

[1] [The Wilipipe Bulletin - Tide and Wave Charts](#)

# CURRENT SITUATION

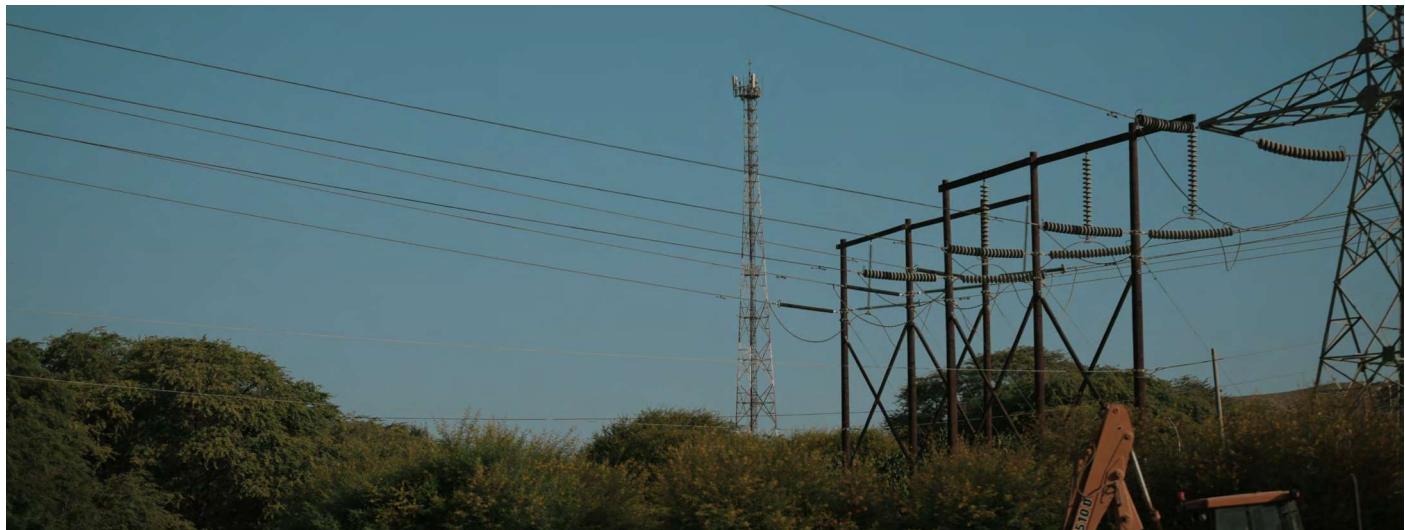
Lobitos and Piedritas are small communities that rely heavily on word-of-mouth communication and have less dependence on digital infrastructure. There are opportunities to use digital systems to help address some of the challenges within other areas of this design brief. At the moment, the use of digital systems is limited within Lobitos and Piedritas but this is ever changing and the younger population is growing up, meaning soon most people will have smartphones.

There are opportunities, especially considering the current need for social distancing, to consider ways in which people can continue doing their day to day activities or even enhance their day to day activities. Some note that the tourism industry could be better served by use of digital technologies. There are currently no interactive maps, or a digitised directory of all local businesses or ways to source local fish, vegetables or meat.

## COMMUNICATIONS AND INTERNET ACCESS:

- While digital and electronic technologies like mobile phones and internet usage is growing in Lobitos and Piedritas, it is still very limited. One of the reasons for this is the lack of internet connectivity.
- There are limited bandwidth capabilities, so companies do not openly sell internet routers/plans. The only companies offering this service (Entel and Bitel) usually run credit checks before taking in new clients and many people do not meet the requirements.
- Entel and Claro are two companies offering internet connection. There are no landline (fibre/copper) internet options in Lobitos and Piedritas, and the internet is accessed exclusively through mobile telecom providers (3G and 4G networks).
- Bitel provides unlimited GB costing S/9 for three days. These mobile packages restrict hotspotting, however, and have severely limited speeds.

- Word-of-mouth remains a key way to communicate.
- The fishing community typically uses feature phones (not smartphones), and they rely on these mostly for making calls and sometimes for SMS communication. A very high percentage of tourists use smartphones. These tend to be lower to middle range Android type phones, by manufacturers like Huawei. Popular apps used on these phones include Facebook and Whatsapp. Only thirty to forty percent of the fishing community (usually the under 35 year olds) have smartphones, but those that do make use of Whatsapp and Facebook.
- Facebook is also used by the local municipality to communicate selected information with residents. Older systems of digital communication are still used, although less frequently than before.
- Two megaphone systems exist in Lobitos and Piedritas, which broadcast messages over loudspeakers. Residents pay a small amount (S/1) to have their messages read out to the community.
- Occasionally, residents are required to print out forms or type out letters. To address this, a few "internet cafes" exist, which usually consist of a single computer and printer in someone's home. Computers are few and far between in Piedritas, but are a little more widely used in Lobitos.
- Most households in Lobitos and Piedritas have TVs, which residents use to watch government TV channels as well as channels available via satellite dishes through a monthly subscription, which many houses have now installed.
- Hotels have successfully used Airbnb and Booking.com platforms to encourage tourists to come to Lobitos and Piedritas.



# RELEVANT CASE STUDIES

Take a look at the following case studies for more information and ideas:

- **Manuel**, Director of the Santa Elena de Piedritas School, describes the challenges with using digital platforms to support the education of primary school students during the coronavirus (COVID-19) pandemic.
- **Marlyne**, Secretary and Treasurer of the Piedritas Tourism Committee, shares her insights on the need to attract the interest of younger generations in the reforestation efforts.
- **Nicolás**, co-founder of Coast2Coast and Lobitos Cinema Project, discusses the general digital challenges in Lobitos and the need for accessible digital spaces to support his community storytelling projects.
- **Tullio**, Artisanal Fisher and Local Guide for Lobitos Ocean Adventure, discusses his use of the Internet and social media to promote his guided fishing boats tours.

## SUGGESTED STARTING POINTS

To help get you started, we've outlined some initial starting points. These are only suggestions, and you can come up with your own if you have identified another issue from the design brief or your own research.

Digital tools could assist administrative processes within the fishing community. Can you think of ways to introduce digital tools in a thoughtful manner to the fishing community, taking into account their comfort levels with smartphones?

Independent renewable energy generation is limited in Lobitos and Piedritas. There is no digital pay as you go renewable energy scheme/programme for residents. Can you think of ways of structuring this to be cost effective and encourage growth in renewable energy initiatives?

How to use digital systems to promote a local economy and not be overdependent on Talara, knowing businesses in Talara have been impacted heavily by the large numbers of COVID-19 cases in the city?

The Willipipe project indicates that there is a need to deliver important information available on the internet to the people of Lobitos and Piedritas. Can you think of what other types of information might be valuable to them, and how might it be delivered?

Do you think there are ways to assist telecom companies to reduce data costs while increasing the quality of the access available to residents?

Facebook and Whatsapp are growing in popularity in Lobitos and Piedritas, even being used by the municipality. However, these platforms come with their own downsides. Can you think of how these downsides could affect these communities and how they might avoid them?

### REMEMBER:

Consider the overall context of the social, environmental and economic factors in Lobitos and Piedritas. This is part of our marking criteria and is key to the success of any engineering intervention you come up with. We recommend you read all the other Challenge Area pages and our guidance pages on getting started. You will need to conduct your own research beyond the information available here to show your depth of understanding. Additional information can be found in the pages about Lobitos and Piedritas and online at [www.engineering-for-people.org](http://www.engineering-for-people.org).

# MANUEL VÁSQUEZ

## DIRECTOR, SANTA ELENA PIEDRITAS SCHOOL

Manuel Vásquez is a primary education teacher with a master's degree in Education Management. He started teaching at the Santa Elena primary school in 2004 and is now the first Director. The school provides primary education for over 100 children, often from poorer communities in Piedritas, Sicchez, Lobitos and Talara.

### ABOUT

The Santa Elena primary school is the first and only primary school in the locality and serves as an important gathering space for community meetings, activities, and events. The school is available for the community to use and plays a critical role in supporting Piedritas' growth and development.

Manuel's vision is to have a school that provides high quality public education and produces professional, competitive students. Although the school is located in a rural area, it provides the same standard of education as urban schools and has also won local competitions.

In 2006, part of the school was built out of wood. The engineer involved wanted to maintain the character and traditions of the area. In 2010, Enel Generación Piura won a Community Impact Competition, and Architecture for Humanity, an international non-governmental organisation (NGO), constructed five new classrooms. Manuel would like to build a psychomotricity room, which is a space where children can develop their motor skills with equipment like balance beams, yoga balls, jump ropes and swings.



Usually, students eat breakfast at school, have their lessons and go home at 1:00pm. However, due to the coronavirus (COVID-19) pandemic, courses and activities are now done virtually via TV channels, radio, online platforms like Zoom and WhatsApp. It is challenging because not all of the parents have cell phones, laptops, Internet access and the technology to support virtual learning.

### ISSUES AND IDEAS

- The Santa Elena primary school has not benefited from the Talara Municipality's support like other schools. Hence, the school still has parts of the playground, courtyard and platform that do not have a roof to provide shade and protect the children from the sun. Can you propose ideas to improve the school's infrastructure so children can learn and play safely outside?
- The school needs good sanitary facilities with sinks and liquid soap dispensers, especially during the current health crisis. Do you have any ideas to improve the school's sanitary facilities?

Find out more from Manuel in his interview, available at [www.engineering-for-people.org](http://www.engineering-for-people.org).

**"I hope you see the necessity to make beautiful designs [...] that improve the quality of life and education."**  
— Manuel Vásquez

# MARLYNE GUERRERO

## SECRETARY AND TREASURER, PIEDRITAS TOURISM COMMITTEE

As a resident and part of the Piedritas Tourism Committee, Marlyne Guerrero is driven to enable Piedritas to become a key tourist destination. In her role, she runs projects and organises meetings to assess the community's progress towards this aspiration. She also assists tourists by providing information on hiking routes and connecting them with local guides. In the mid-20th century, Marlyne's parents were amongst the first inhabitants to arrive in Piedritas, where she and her nine siblings were born and raised.

### ABOUT

In recent years, many more tourists have come to see the Peruvian Plantcutter and explore the wetlands, thanks to the community's ongoing partnerships with EcoSwell and Enel Generación Piura, facilitated through the Tourism Committee.

Although logging has diminished in recent years, decades of tree cutting have significantly reduced the size of the native dry forest. For Marlyne, having more green areas and a healthy dry forest is crucial for tourism to grow. She would also like to see younger generations invested in this project.

She believes it is important to give the hiking routes a better appearance and clear signposts. Currently, there are rocks painted in white along the trail to mark the route, but they are not very visible. Marlyne also sees the possibility of building more infrastructure along the routes, such as lookout points like the one currently at the top of the hill, to allow people to rest and take photographs.



### ISSUES AND IDEAS

- Reforestation efforts will play an important role in the development of Piedritas' ecotourism industry. Can you think of a reforestation project that involves the youth as well?
- Hiking and birdwatching are important components of Piedritas' ecotourism plan. Can you think of a way to improve the hiking trails and make them easily accessible to all?
- Piedritas' ecotourism activities have largely stopped because of the coronavirus (COVID-19) pandemic. Can you think of a way the community can still move forward with its ecotourism plan and continue to protect and preserve the local environment?

Find out more from Marlyne in her interview, available at [www.engineering-for-people.org](http://www.engineering-for-people.org).

**"I would love for us to have many green areas and for tourism to continue to grow. I don't just want one or two people to visit us, I prefer to think big and dream of a lot of people coming to Piedritas to enjoy our forest. I hope to always think this way and dream big. I hope that in 10 or 15 years the younger generations keep improving our project, the project EcoSwell started."**

— Marlyne Guerrero

# NICOLÁS LANDA

## CO-FOUNDER, COAST2COAST AND LOBITOS CINEMA PROJECT

Nicolás Landa started the Lobitos Cinema Project, and later co-founded Coast2Coast, to tell the stories of and give a voice to marginalised groups of people. The two organisations communicate these stories, with particular interest in the history and traditions of the fishing community in Lobitos.

### ABOUT

Through his work with the Lobitos Cinema Project and Coast2Coast, Nicolás shares the stories of community members by conducting workshops for primary and secondary students. Together with the school and the community, they have created audiovisual storytelling with documentaries, murals, stop-motion productions, and photo essays. One student they worked with has gone on to win awards at an international film festival.

Nicolás believes that the history, traditions, and stories of the fishing community represent a culture in danger of extinction. However, the lack of a dedicated physical space, for example, hinders the ability of the community to collaborate, experiment and grow their reach and storytelling.

In addition, Nicolás identifies the patriarchal and "macho" cultural norms in the community that prevent women and girls from attending sporting activities (e.g. surfing lessons) and sharing their stories. Nicolás' project 'Women and Water' aims to address gender inequality. The initiative has on-going practical challenges like equipment shortages and intermittent electricity supply, and everyday poverty within the community impacts the ability of people to engage in this initiative.



During the coronavirus (COVID-19) pandemic, the two organisations have focused on Virtual Marine Coastal Voice Map, a project which uses maps to tell the evolving stories of the fishing community over the last six years. Being virtual, the project is not subject to the same constraints as their other initiatives.

### ISSUES AND IDEAS

- Can you think of ideas to improve Coast2Coast and Lobitos Cinema Project's access to a physical space that they can use to collaborate and grow their community initiatives?
- Given current coronavirus (COVID-19) pandemic restrictions and general digital challenges in Lobitos, how might these organisations leverage their past work to continue telling the stories of the community virtually?

Find out more from Nicolás in his interview, available at [www.engineering-for-people.org](http://www.engineering-for-people.org).

**"Go [and] live for a month, two months in a place where water is a problem, where transport is a problem, where the internet is a problem, where the wind is a problem, so that you can truly feel the problems and not only think about them. Because I think these are the things that make the difference."**

— Nicolás Landa

# TULLIO CHAPILLIQUÉN

## ARTISANAL FISHER AND LOCAL GUIDE, LOBITOS OCEAN ADVENTURE

As a fisher, Tullio Chapilliquén has devoted himself to mastering artisanal fishing methods and now shares his passion through Lobitos Ocean Adventure, a business he founded offering guided fishing boat tours.

### ABOUT

Lobitos Ocean Adventure was founded after tourists simply asked if they could fish with Tullio. He enjoys providing a service for tourists to catch fish, view the oil platforms and learn about the local history. Currently, the tours are advertised at some hotels and not online. This business provides him with 20% of his income.

As an artisanal fisher, he cares deeply about conserving fish stocks, after seeing numbers diminish over his lifetime. As former President of the Fisherman's Guild, he supported the locality and fellow artisanal fishers with a business model focused on selling fish, finding markets and protecting their fishing areas. He would like to see Lobitos' coast be protected with a designated conservation status that provides sustainable income for fishers and attracts tourists.

### ISSUES AND IDEAS

- Although Tullio has experimented with using Facebook to advertise his guided fishing boat tours, he finds that word of mouth is the best way to attract new customers. Can you think of ways to increase Lobitos Ocean Adventure's internet and social media presence?
- The pier is currently being fixed, but Tullio's vision for it includes aquaculture farms for raising shells, octopuses, lobster and fish that the fishers could live from. He also envisions wind turbines and solar panels integrated in the solution. Can you incorporate Tullio's ideas into a plan to develop and enhance the pier?

Find out more from Tullio in his interview, available at [www.engineering-for-people.org](http://www.engineering-for-people.org).



*"Since I was little, I loved the sea, nature, and fishing [...] So I have spent most of my life and my career in artisanal fishing."*

— Tullio Chapilliquén