

# EMBOO RIVER

BY PAINTED WOLVES LIMITED

## STEPPING UP THE GAME & THIS IS HOW IT IS DONE

AKA VISION REPORT 2022





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# NARRATIVE

**Painted Wolves Limited (PWL)** - the company running Emboo River lodge in the Maasai Mara - is leading the way to carbon neutral businesses, lifestyles and travel through a '**holistic sustainability approach**' that continuously calls people to action in order to make conscious decisions and invites people to reach out for advice, support and lessons learned.

The **idea to launch PWL originated during a dinner** in the Maasai Mara. During this dinner Loïc Amadò, William Partois Ole Santian and Valery Super - the 3 founders of PWL - spoke about their frustrations regarding the outdated status of the safari industry: guests want to see unique wildlife in the Maasai Mara, but at the same time these guests are negatively contributing to the ecosystem through polluting vehicles, emission of CO<sub>2</sub>, creation of solid waste, untreated wastewater leaking into the soil et cetera. This did not make sense.

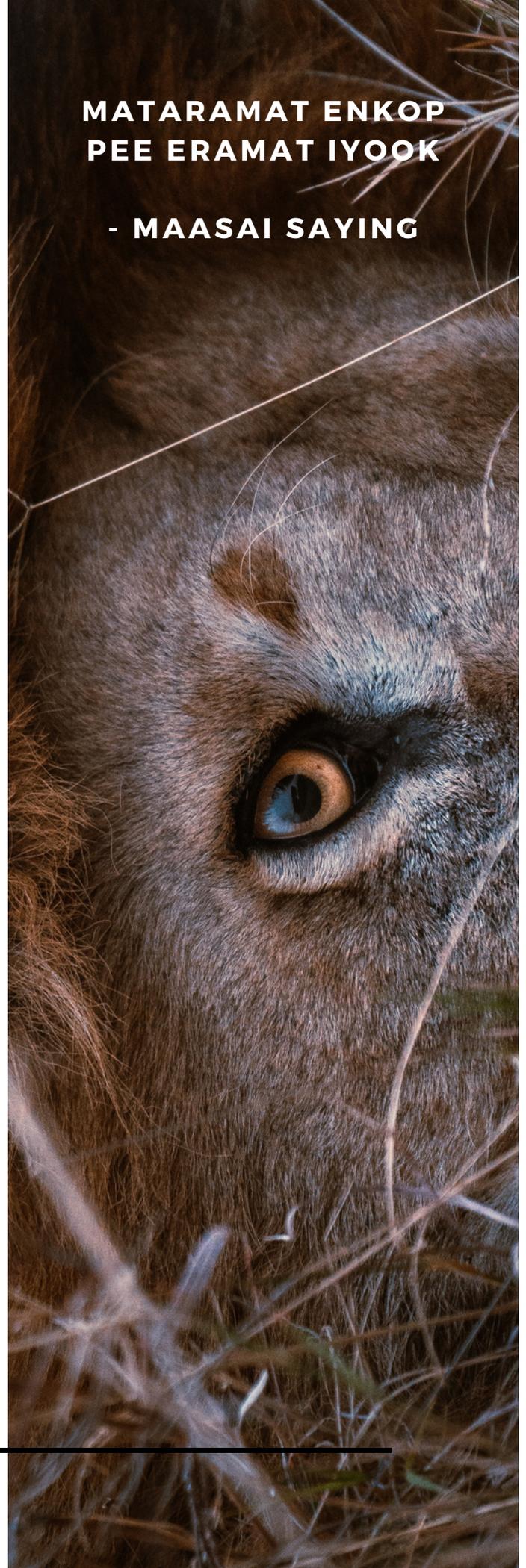
**Something had to be done.**

A few months after this dinner, Loïc, William and Valery opened PWL's first project: Emboo River.

The vision of Emboo River revolves around the Maasai saying "**mataramat enkop pee eramat iyook**" which translates to "if you take care of nature, nature will take care of you."

**MATARAMAT ENKOP  
PEE ERAMAT IYOOK**

**- MAASAI SAYING**

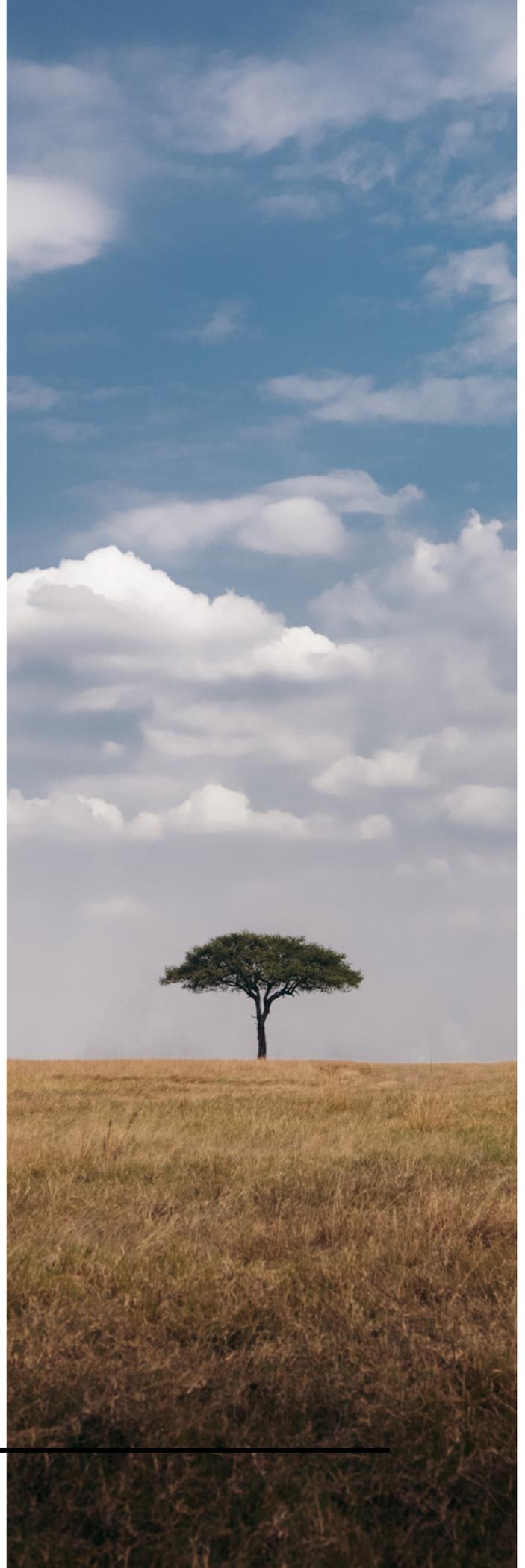


The Emboo River team decided to go **all in on sustainability from the start**. They rethought every aspect of their operations and applied technology and innovation to be the first carbon neutral lodge in the region.

To take sustainability to the next level, PWL extended this **sustainable set up beyond its hospitality project** by running an “**Innovation Hub**” in the Maasai Mara that offers consultancy services, technical expertise and data to community projects, schools, hotels and others. PWL’s safari lodge ‘Emboo River’ serves as a proof of concept, inspiring other actors within the region to make their own operations more sustainable.

PWL is currently expanding its sustainable focus to a **third project focused on Waste Management** in neighbouring Talek town. PWL’s project provides an off grid holistic solution to waste management while at the same time creating job opportunities that are independent of tourism.

**CONTINUE READING TO  
LEARN ABOUT  
EMBOO RIVER'S  
SUSTAINABLE OPERATIONS**



## A. HOLISTIC & CLOSED LOOP APPROACH

When launching Emboo River, the team rethought every aspect of its operations and the guest experience. They questioned the status quo in the tourism industry.

By applying innovation and technology and by partnering with passionate people the Emboo River team redesigned the entire operations.

This led to a holistic and closed loop approach towards sustainability.

As a result, every part of Emboo River is guided by a commitment to do right for the community and environment.

This holistic and closed loop approach towards sustainability can be divided into different topics:

- Water management
- Renewable energy
- Mobility
- Nutrition
- Clean environment
- Community engagement



# 1. WATER MANAGEMENT

Water brings life to the Maasai Mara. It is a precious resource that is shared between the people, fauna and flora, so we use it thoughtfully.

## 1.1. BIOLOGICAL WATER TREATMENT SYSTEM

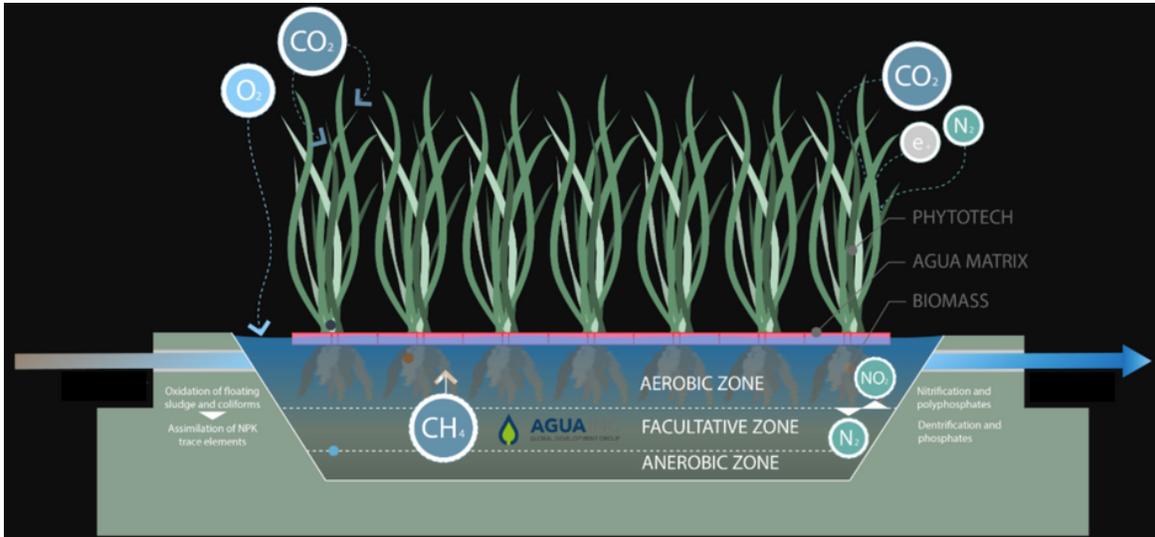
Emboo River's water treatment relies on local wetland plants:

- *Typha* spp *Dominguensis*
- *Cyperus*

The plants were identified by Agua Inc together with the Maasai Community and excel at filtering water.

Agua Inc is an international leader on biological water treatment and offers unique systems that convert wastewater from smelly and expensive burdens into natural spaces that people and nature proudly share.





All Emboo River's grey and black water goes via manholes to a lagoon. Before reaching the lagoon, all wastewater goes through an “unnatural material trap”, that removes plastics for example, and, on top of that, the kitchen’s waste water goes through a double “grease trap”.

Water enters Emboo River's three lagoons by gravity. The plants float on the water in a special matrix patented by Agua Inc. The plants' roots form add oxygen to the water and remove toxins and negative bacteria.

Once the water is cleaned by the lagoons it moves to a “recycled water tank” that is connected to a separate piping system. Recycled water is used for toilets, the workshop and other non potable uses.

Emboo River also has a “freshwater tank” which is topped up from a well via a solar pump. This water goes through a separate piping system and leads to showers, washing basins; the kitchen and laundry area.

#### FUN FACT

THE LOCAL PLANTS IN EMBOO RIVER'S WATER TREATMENT SYSTEM AND NATURAL SWIMMING POOL HAVE CREATED LUSH AREAS THAT ATTRACT INSECTS, BIRDS AND FROGS, INCLUDING THE BUBBLING KASSINA.

## 1.2. NATURAL SWIMMING POOL

A swimming pool without toxins, now that's refreshing!

Emboo River's swimming pool is cleaned without chemicals such as chlorine or salts.

Instead, the swimming pool uses an oxygen and ionic copper system to keep the water naturally clear and safe.

Just like every system in Emboo River, the Ecosmarte is powered by solar energy.

As a result Emboo River's natural swimming pool does not cause harm to people, animals or the landscape.



100 %

WASTE WATER  
NATURALLY  
CLEANED

0 %

WASTE WATER  
RELEASED INTO  
NATURE

100 %

WATER REUSED

90 %

REDUCTION OF  
WATER  
CONSUMPTION

EMBOO RIVER HAS NO EFFLUENT WASTE. FOLLOWING A THOROUGH INSPECTION, KENYA'S NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA) DECIDED THAT EMBOO RIVER DOES NOT NEED AN EFFLUENT WASTE LICENSE.

## 2. RENEWABLE ENERGY

With around 12 hours of daylight in the Maasai Mara, the sun is the only energy source that Emboo River needs.

### 2.1. SOLAR POWER

Emboo River relies 100% on solar power.

Emboo River has 120 square metres of solar panels which provide power to the lodge and charge the Electric Safari Vehicles.

Each solar panels generates 330 watt. With a battery storage of 70 kilo watt hours, that means that after three hours of sun exposure the batteries are fully charged. Also during cloudy days the system generates power.

The consumption of power is constantly monitored. The average consumption is 7,2 kilo watt hours per day, plus the charging of the Electric Safari Vehicles.



### 2.2. SOLAR HEATING

Guests enjoy warm showers in their room thanks to Emboo River's solar heaters. Every heater stores 200 litres of warm water. Therefore, guest can even enjoy warm water during a cloudy day.

## 3. ELECTRIC VEHICLES



Emboo River had its Land Cruisers from the 1990s covered into Electric Vehicles (EVs).

Emboo River's EVs are charged 100% from solar energy. The carbon dioxide emissions during use are zero.

Did you know that the standard Land Cruiser and Defender safari vehicles emit more than 350 grams of carbon dioxide per kilometer.

When going into detail on the sustainability of EVs it is relevant to look at the entire lifespan of the EVs.

In a clean electrical grid, such as in Kenya (80% on renewable energy), the emissions from production and recycling are  $\frac{1}{2}$  to  $\frac{1}{3}$  of the net lifecycle emissions of an internal combustion engine (ICE) vehicle.

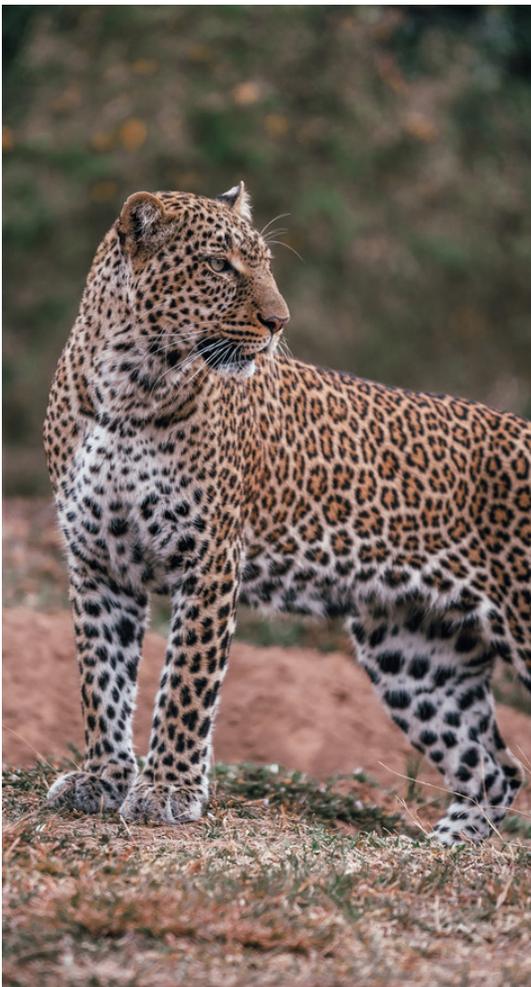
Throughout their entire lifespan, Emboo River's EVs emit only 70 grams of carbon dioxide per kilometer, which is a reduction of 85%.

Turning the conventional safari vehicle into a full EV not only removes CO2 emissions, it also increases the lifespan of the vehicle and reduces maintenance.

The EVs use LiFePo4 batteries with minimum 5000 cycles. The batteries have a lifespan of minimum 13 years. The EVs have a total storage capacity of 34 kilo watt hours.

Emboo River's vehicles are also perfect for the terrain of the Maasai Mara. The electric engine is superior to ICE, because the EVs almost instantaneously reach peak torque and have a continuous powerful acceleration.

### SILENT GAME DRIVES WITHOUT EXHAUST FUMES



DRIVING AROUND THE MAASAI MARA IN ELECTRIC SAFARI VEHICLES IS A MAGICAL EXPERIENCE.

GLIDE THROUGH THE SAVANNA, ENJOYING THE SOUNDS OF NATURE AND THE SCENTS OF THE SAVANNA ... AND NOT DISTURBING ANIMALS.

GUESTS IN EMBOO RIVER'S EVS ARE PART OF NATURE AND DO NOT IMPOSE THEMSELVES ON NATURE.

DID YOU KNOW THAT DURING A RECENT DRIVE, EMBOO RIVER'S GUIDE WITNESSED A LEOPARD HUNTING?

THE SILENT VEHICLE ALLOWED THE GUIDE TO HEAR A LEOPARD IN THE BUSHES. THEY KNEW THE LEOPARD MUST HAVE SPOTTED A GROUP OF ANTELOPES GRAZING. THE GUESTS WAITED PATIENTLY WITHOUT SPOOKING THE ANTELOPES NOR THE LEOPARD ... AND THEY SPOTTED A SUCCESSFUL HUNT.

# 4. FARM TO FORK

## 4.1. ORGANIC GARDENS

Emboo River has two organic gardens, including a hydroponic set up allowing us to grow plants while limiting our use of soil and water. The gardens measure almost 3 acres and are full of vegetables, fruits and herbs. Honey is harvested from Emboo River's traditional beehives.

The produce is organic which means that Emboo River's farmers use natural products as fertilizers and to keep insects away.



## 4.2. FARM TO FORK MENU

Emboo River's Chefs create Farm to Fork meals that include fresh ingredients from their own organic gardens.

The dishes are ingredient driven and therefore depend on what herbs, vegetables and fruits are in season. As the seasons change, so does the menu.

The menu is based on a 'flexitarian diet', meaning that we present dishes that are plant forward and that limit the number of animal-based ingredients. The creation of animal-based products has an enormous negative impact on the planet. Being located in one of the most beautiful and fragile ecosystems in Kenya and witnessing the droughts, famines, fires, disappearing forests,... , it is essential that we are mindful of the impact of our food decisions on the environment.

Through our food we create a healthy and vibrant world by introducing you to clean and nutritious food, where we marry Maasai and international flavours as well as tradition and innovation. We invite our guests to be surprised & dive into this bold food experience.

### FUN FACT

EMBOO RIVER'S HOUSE WINE IS CALLED 'PAINTED WOLF' AND PROCEEDS OF THIS WINE SUPPORT THE CONSERVATION OF THESE BEAUTIFUL ANIMALS.

PAINTED WOLVES ARE HARDLY SEEN AROUND THE MAASAI MARA. THIS IS NOT JUST BECAUSE THEY ARE ELUSIVE ANIMALS THAT TRAVEL LONG DISTANCES EVERY DAY. IT IS ALSO BECAUSE THEY ARE AN ENDANGERED SPECIES.

DID YOU KNOW THAT THE COMPANY RUNNING EMBOO RIVER IS CALLED PAINTED WOLVES IN HONOUR OF THESE BEAUTIFUL ANIMALS?

### 4.3. CONSCIOUS KITCHEN

Emboo River's kitchen set up is also focused on sustainability.

The Chefs do not use single use products such as tin foil, paper napkins or disposable straws. Instead, we have replaced these by durable products like beeswax cloth for wrapping food, clay Bricknics to cook meals in the oven and much more.

The delicious meals are prepared on biogas created by a biodigester. Any organic waste, such as food scraps, are placed into the biodigester which in turn creates biogas and liquid fertilizer. The liquid fertilizer is used in our garden, while the biogas allows Emboo River to cook on a closed loop system.

Moreover, to store our fresh ingredients in the best way, Emboo River has a solar powered cold room. Solar energy is also used to filter Emboo River's drinking water.

The below photo shows a biodigester in the front, with the solar powered water filtration system and a solar powered cold room, behind it.



# 5. CLEAN ENVIRONMENT

## 5.1. REDUCE

Emboo River reduces the creation of solid waste in various ways which include but are not limited to:

- No single use items are allowed;
- Bathroom products come in eco friendly and reusable packaging;
- Cleaning product are provided by Grounded, which develops cleaning products from natural and eco friendly ingredients within Kenya and applies reusable packaging;
- Reusable containers, beeswax cloth and Bricknics are used for food storage and preparation in the kitchen.



## 5.2. REUSE

Emboo River gives new life to solid waste by upcycling it in various ways.

- Paper and sawdust are turned into eco briquettes that replace wood or charcoal fires;
- The kitchens run on biogas which is generated from food waste in Emboo River's biodigesters.
- Tetra packs are used to grow seeds in Emboo River's tree nursery.
- Glass bottles that cannot be returned to the beverage depot are cut to create beautiful drinking glasses, storage jars, candle holders or ornaments.



## 5.3. RECYCLE

The limited solid waste that Emboo River produces is recycled:

- Waste from the guest rooms, kitchen, staff areas et cetera is separated and stored in the recycling area.

### ROOTING FOR OUR FUTURE

JOIN EMBOO RIVER'S TREE PLANTING PROJECT 'ROOTING FOR OUR FUTURE'. EMBOO RIVER'S GUESTS PLANT AROUND 100 TREES PER MONTH.

THE INDIGENOUS TREES PLANTED BY GUESTS HELP REFORESTATION OF THE MAASAI MARA. ADDITIONALLY, TREES REMOVE CARBON DIOXIDE (CO<sub>2</sub>) FROM THE AIR.

TO MAKE GUESTS AWARE OF THE CO<sub>2</sub> EMITTED DURING THEIR ROAD OR AIR TRAVEL BETWEEN NAIROBI AND MAASAI MARA, GUESTS HAVE THE OPPORTUNITY TO PLANT TREES THAT COULD OFFSET THE CO<sub>2</sub> FROM THEIR TRANSPORT.

HOW DO WE DO OUR CALCULATIONS?

A TREE CAN ABSORB AROUND 22 KILOS OF CARBON DIOXIDE PER YEAR AND DURING A MEDIUM LIFETIME OF 10 YEARS A TREE ABSORBS AROUND 220 KILOS.

**AIR:** A RETURN FLIGHT BETWEEN NAIROBI AND MAASAI MARA TAKES TWO HOURS AND COVERS 360 KILOMETERS. THE CO<sub>2</sub> EMISSION FOR A RETURN FLIGHT IN A CESNA 280 AIRCRAFT WITH AN AVERAGE OF 6 PASSENGERS IS 100 KILOS OF CO<sub>2</sub> PER PASSENGER. ON THE DEHAVILLAND TWIN OTTER 300 AIRCRAFT THIS WOULD BE 310 KILOS OF CO<sub>2</sub> PER PASSENGER. 310 KILOS / 220 KILOS = 1,4 TREES.

**ROAD:** A RETURN DRIVE BETWEEN NAIROBI AND MAASAI MARA COVERS 606 KILOMETERS. THE STANDARD 4X4 VEHICLE EMITS 350 GRAMS CO<sub>2</sub> PER KILOMETER. WITH AN AVERAGE OF TWO PASSENGERS PER VEHICLE THAT IS 106 KILOS OF CO<sub>2</sub> EMISSION PER PASSENGER. 106 KILOS / 220 KILOS = 0,5 TREES THAT NEED TO BE PLANTED. EMBOO RIVER ROUNDED THIS UP TO TWO TREES PER GUEST.

EMBOO RIVER'S TEAM NURTURES THE TREES WITH LIQUID FERTILIZER FROM THE BIODIGESTER , TO ENSURE THAT THE TREES GROW.

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## B. COMMUNITY FOCUS

Emboo River is a proud part of the Maasai Community. Engagement with our community is integrated in various aspects of the operations.

### 1. LEADERSHIP AND TEAM

Emboo River's daily operations are led by co-owner and director, William Partois Santian. Growing up in the Maasai Mara, William witnessed the positive and negative impacts that tourism can have on nature and the community.

Over the years William worked as night guard, a guide, a manager... and currently he is an owner of Emboo River and manages a passionate and talented local team.

The sustainability and financial aspects are run by co-owner and director Loïc Amadò. The marketing and sales team is led by co-owner and director Valery Super.



## 2. INDIRECT EMPLOYMENT

Emboo River also offers indirect employment opportunities by partnering with local artisans and businesses. These opportunities include, but are not limited, to the following:

- Furniture is locally made from wood grown at Emboo River's own plantation;
- Maasai women decorated Emboo River's guest rooms and lounge area with Maasai beads;
- The construction of Emboo River's lagoons and natural swimming pool was done by a local team;
- Also for other elements of the construction Emboo River partners with local plumbers, electricians and welders;
- Through a partnership with our neighbouring village, the people living in that village earn an income when hosting Emboo River's guests at their village and when entertaining them with songs and dances.





### 3. COMMUNITY PROJECTS

Being an integral part of the Maasai Community, means that Emboo River is only successful when the community as a whole is successful. Emboo River is committed to work on community projects which empower our community.

In coordination with members of the Maasai Community, the following topics have been identified:

- **Innovation Hub:** Representatives from community projects, schools and local governments visit Emboo River to be inspired, learn about conservation and obtain access to this technology;
- **Waste Management Hub:** After showing how sustainable set ups are done with the tourism industry via Emboo River, PWL's next focus is to show how a sustainable set up is also possible in other industries. PWL and partners are setting up a Waste Management Hub in neighbouring Talek town. This provides an off grid holistic solution to waste management while at the same time creating job opportunities that are independent of tourism.

## C. STEPPING UP THE ECO GAME, TOGETHER

### Consultancy services

When launching Emboo River, the team went all in on sustainability and did not want to take short cuts.

While we were often told that our full eco vision was impossible, too big, too expensive or too slow, we ignored that advise. Instead, we surrounded ourselves with likeminded people who are innovators in their fields.

We assessed every aspect of our operations and implemented conscious solutions that help us to elevate our business, stand out with a unique product that offers added value to our guests, save money and get a return on our investment, empower our community and restore our environment.

Through trial and error, we perfected the Holistic Closed Loop System that makes Emboo River's sustainable operations a success.

This Closed Loop System can help others elevate their own business, project or lifestyle.



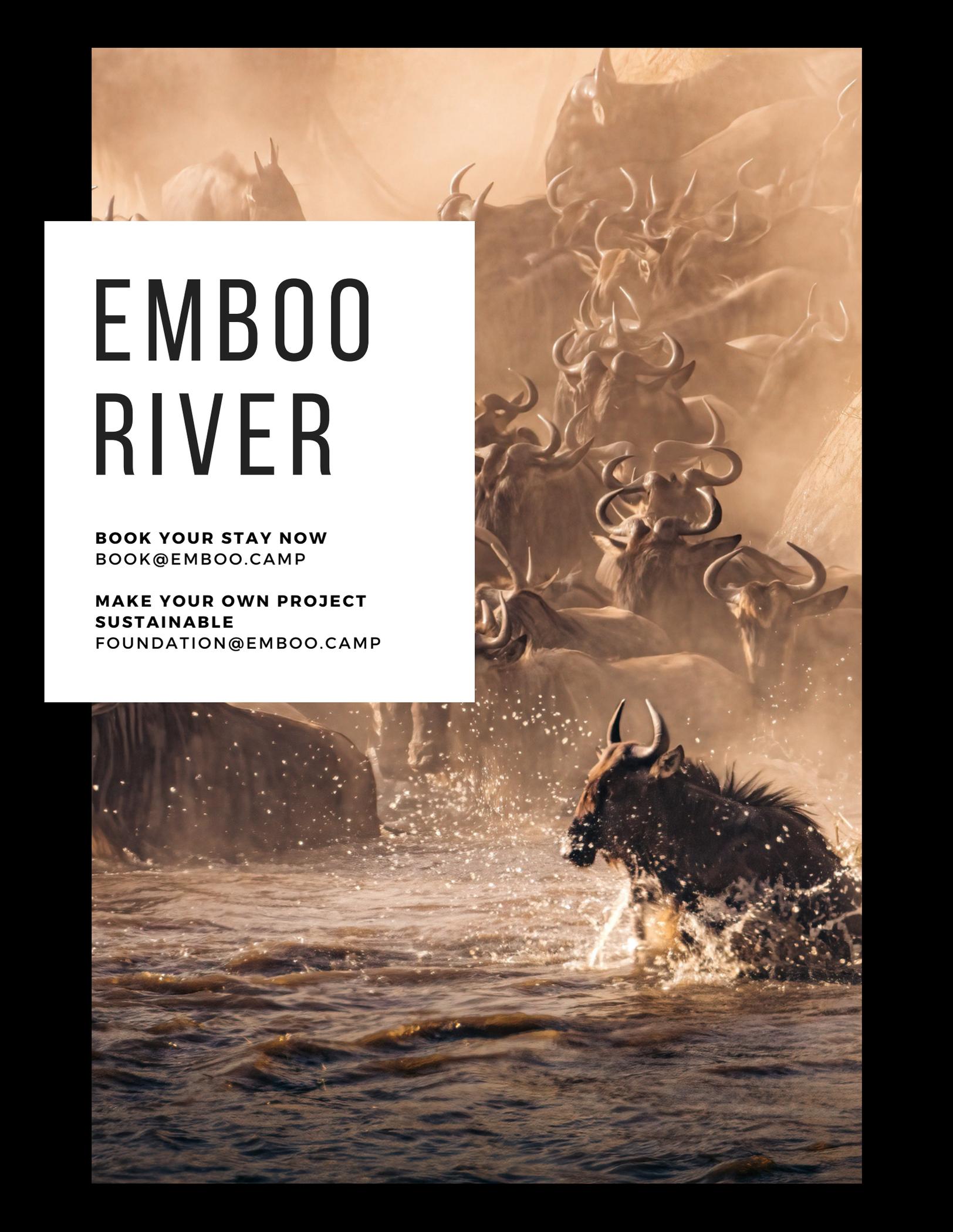
The consultancy offered by PWL is

**Tailor made:** Emboo River's eco vision can be implemented in any setting. Whether you want sustainable operations to be implemented at your school, home, off grid hotel, city based tech hub or elsewhere, Emboo River offers a tailor made solution for you.

**Impact driven:** Emboo River wants your sustainable set up to be a success. In order to measure the positive impact, Emboo River generates data throughout the project to analyse the positive impact on your home, budget, community, environment and other targets.

**From end to finish:** **1)** On the basis of your needs and wishes, Emboo River offers **advice** on how to apply innovation and technology that works for you. **2)** With a team of trained experts and as a distributor for eco solutions, Emboo River offers you hands on and quick help. Emboo River **implements, manages and tracks** your sustainable set up. **3)** Emboo River answers questions, conducts **follow up** visits and helps you to **optimize** your sustainable set up.



A dramatic photograph of a herd of wildebeest crossing a river at sunset. The animals are silhouetted against the bright orange and yellow light of the setting sun, creating a high-contrast scene. The water is dark and turbulent, with splashes of white foam around the animals. The overall mood is one of wild, natural energy.

# EMBOO RIVER

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**MAKE YOUR OWN PROJECT  
SUSTAINABLE**  
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