ECO IN MALAN LAKE

2017/ Service design
#service #interaction #desertification #gamification #community planning

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INTRODUCTION

Eco In

Eco in is a service system designed for Malan Lake, which enables expense settlement for tourists' accommodation, food and other daily activities within Malan Lake Region. It aims to design a sustainable development model of desertification control and to enlighten stakeholders to rethink the relationship between human and nature.

Malan Lake

Malan Lake is situated in Luanjing beach ecological immigrant region where the climate is dry and rainless, windy and dusty. The area is suffering water resource shortages, high degree of mineralization and salinization of soil desertification therefore ecology environment is extremely fragile.
In April of 2011, Hong Kongese entrepreneur Yuen Shu Wah applied for and founded Springfield Ecology Limited and started to promote the Malan Lake reforestation project. As of the end of 2016, the sum of funds put into the Malan Lake Reforestation Project had already reached 11.42 million.

BACKGROUND

Reforestation Plan by Malan Lake Base

The reforestation plan is about planting different plants and using different ways to trapping the sand and preventing dune migration.
Apart from barriers to trap sand, rotational grazing, efficient irrigation systems, plant nursery construction, herbage species introduction and many other ways were conducted for de-desertification and afforestation.

Haloxylon | Poplar | Salix psammophila | Oleaster | Straw checkerboard | Nylon net barriers | Mechanical Burying | Pressurized Water Planting

Compare and Contrast of the Reforestation Effect

May 2012 (Before) May 2016 (After)

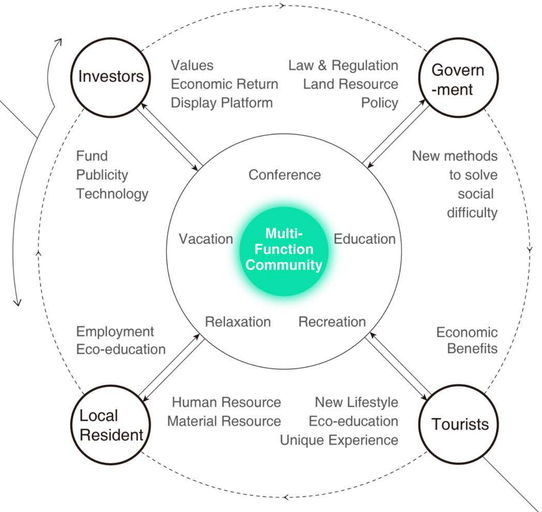
During 2011-2016, 2 million seedlings and 2.25 million cuttings were planted, 2005 kilograms seeds were sowed. The average survival rate of plants is up to 70%. The project by far has planted 20km2 area of trees in the desert.

BRIEF

Objectives of Mid-to-Long Term Plan Research

The ultimate aim of the Malan Lake Project is to design a sustainable development model of desertification control and to enlighten stakeholders to rethink the relationship between human and nature. In order to realize this goal we are planning to build an multifunction integrated open community with vacation, leisure, conference, entertainment and education services.

Mid-to-Long Term Plan



Challenges

01 No short-term return:
Desertification control is a most difficult and inefficient undertaking which demands a surge of investment with no short-term returns.

02 Lack multiple sources of fund:
The sustained investment to protect the desert is hard to secure in the long run because the current funding source is Mr. Yuan Shuhua's personal fortune. Planting is no other mean to restore the ecosystem of the singularity technology and methods.

03 Lack interaction:
The project did not cause social concern and participation for the reason of lacking shared communication, social impact and interaction with the indigenous people.

RESEARCH

After primary&secondary research, demand analysis and competitor analysis, a classical Persona is built.
In the demand analysis we took goverment, local people, reforester, tourism, donator, media, volunteer as stakeholders into account. Based on their demand and priority, we made our primary objectives.

The Alto Atacama (Chile)， Hotel Longtitude 131(Australia)， Organic Modern Estate(USA), and other 8 places. We classified them into 4 catogories and built classical persona.

Catogory	Characteristics	Major activity	Classification	Experience level
Ecotourism Ecotourism visit fragile, pristine, and relatively undisturbed natural areas, intended as a low-impact and often small scale. It means responsible travel to natural areas that conserving the environment and improving the well-being of the local people.	visiting fragile, pristine, and relatively undisturbed natural areas; Small scale	Common	Middle - class Common people	expecting
Adventure Travel Green Tourism calculate the costs by transfer the cost into CO2, and requires tourisms to contribute local ecosystem by planting trees and other work that can make the "ecologically balanced".	CO2 Index Naturalism High Quality	Planting Handcraft	Environmental-ist Naturalist	amazing
Green Tourism Adventure Travelers are highly engaged in involvement with activitiest that include perceived (and possibly actual) risk, and potentially requiring specialized skills and physical exertion.	Quiet Non-distruption Self-helped Rest-cure	Meditation Yoga Independent place	The stressed Sub-healthy The Seclusive	satisfying
Inner Peace Tourism Being "at peace" is considered some kind of state where our mind performs at an optimal level with a positive outcome. Inner peace tourisms requires quiet place that keeps away from crowded urbanism. They require more private space without distractions.	Unique Exciting Challenging Exploration	Adventure Excursion Camping Physical Game	Travel enthusi-ast Extreme sport amateur	expecting

BRAINSTORMING

Malan Lake

Architecture

hotel | conference center | library | planetarium | history museum | botanical museum | zoo | tourist facilities | sand sculpture | desertification researching center | laboratories | outdoor tents | sand memorial facilities | observation deck | underground building | joint office camp | desert stairs | desert themed restaurant | desert theme room

Maintenance / Support

Water electric energy management | waste disposal | solar power | guide system | lighting system | water supply system | traffic | parking lot | gas | clothing |air filtration

Activities / Services

Wedding services | games | catering | music festivals | lighting performances | health services | educational services | meditation | farmhouse picking | GPS directional adventure | public welfare honeymoon

Physical product

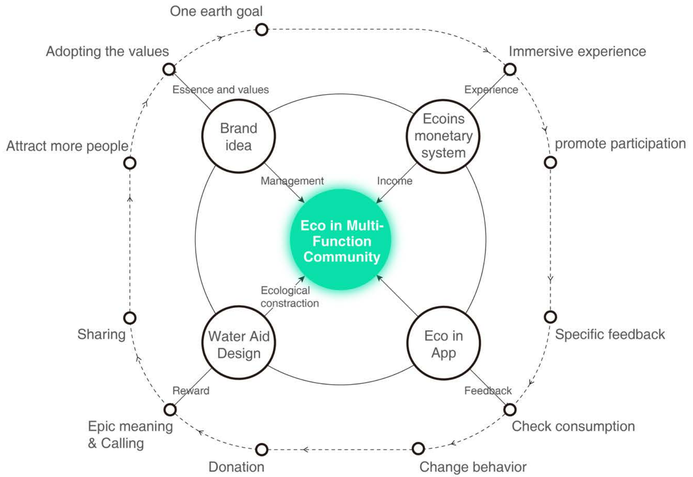
hourglass | sand painting | handmade soap | photos and photo frame | album | souvenirs(seeds, specimen, sand products) | memorial book | printed letters | brochure | poster | educational production made from trash | culture and creative production | office VI

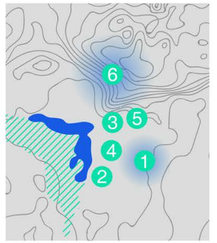
Digital product

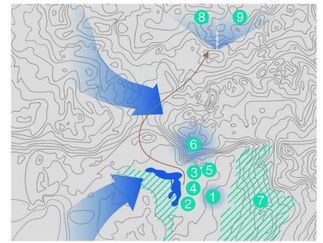
office account | website | APP | video | digital poster

CONCEPT

The concept of the model includes four main parts: brand idea, ecoins monetary system, eco in app, and water aid design. To be specific, users get aware of brand idea and values through brand essence. Ecoins monetary system helps calculate consumption and offer an immersive experience. The App is a window where users receive feedback and make changes in environmental attitude and behaviour. Lastly, the water aid service provides water and recyclable construction material to the region and promotes participation and engagement of the users.





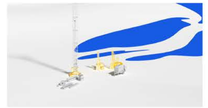


· Constraction plan of Eco in Malan Lake muti-functional community

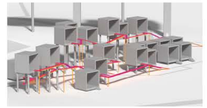
There are four function blocks in the integrated planning which are vacation, conference, leisure and entertainment.
Buildings are divided into main building and ancillary buildings:The main building should have rooms, restaurants, conference centers, exhibitions and other functions; Ancillary buildings are mainly involve staff quarters, power supply, warehouses and other logistics space; The infrastructure should include swimming pools, parking lots and other functions;

1.Main building
2.Shared building
3.Desert Kitchen
4.Bonfire
5.Star gazing
6.Recreation area
7.Planting experience
8.Orienteering
9.Desert safaris

Constraction area

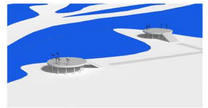


Shared building



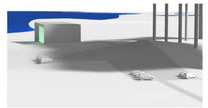
Desert kitchen and restaurant

Star gazing platform



Water factory (not in Malan Lake area)

Arrival and reception



DESCRIPTION

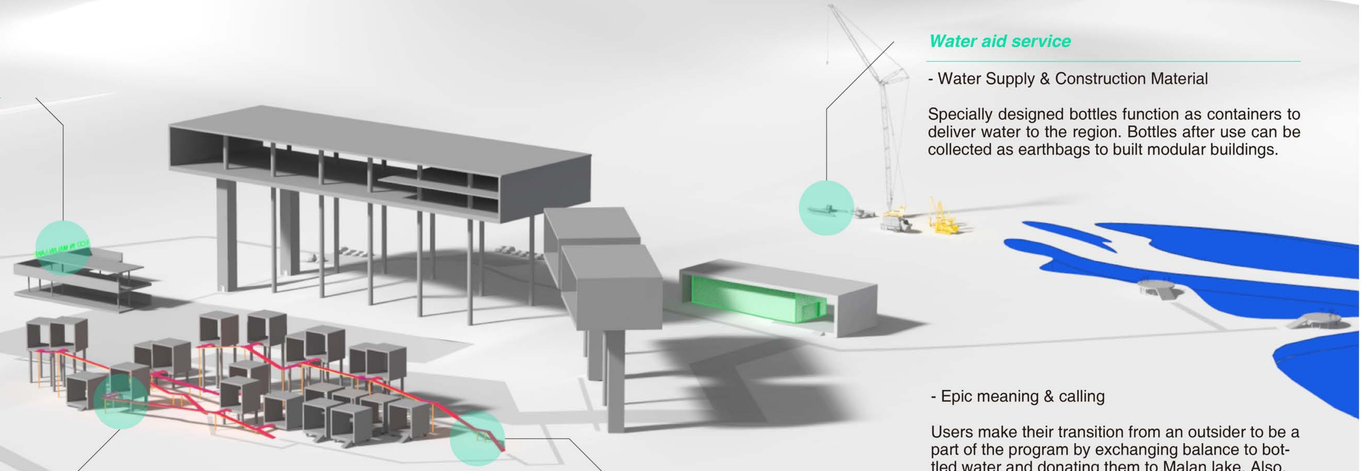
Brand Idea

- What if we make environment cost = economic costs?

The low-price goods that industry offers to people is based on an overdrawn ecological environment. Due to lack of regulation and policies, companies don't need to be responsible for environments. In Malan Lake, the environmental cost is not considered to be external anymore, price of goods is positively correlated with its ecological cost.

- One earth goal

The attached "1.7" of the brand means one earth goal - users live a lifestyle that cost under 1.7 gha, which is to make individual's footprint under per capita biological capacity. So that the ecological resources that the Earth regenerated is enough for our humanity's demand.



Eco in App

- Receive feedback window and self-management tools

This is the most important feature of Eco in App. Eco in App is not only a window for users to receive feedback, but also a tool for self-management by users. Users can use App to check their ecological behaviour and make adjustments after making the comparison.

- Mobile pay & ID

Register, check-in, payments and check-out can be done within the app. It is equivalent to the user's ID card and virtual wallet.

Water aid service

- Water Supply & Construction Material

Specially designed bottles function as containers to deliver water to the region. Bottles after use can be collected as earthbags to built modular buildings.

- Epic meaning & calling

Users make their transition from an outsider to be a part of the program by exchanging balance to bottled water and donating them to Malan lake. Also, the service promotes participation by making users believe that they are doing the right and great thing.

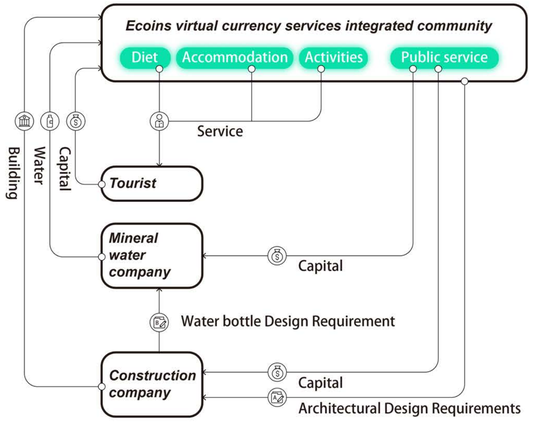
Water aid service makes the desertification control reproducible in other regions.

Ecoins monetary system

- “You can’t manage what you can’t measure. ”

A virtual currency system based on Eco-footprint theory is designed to help users feel the environmental burden caused by their actions in a quantitative way. We designed its circulation mode, rules, quantitative criteria and basic components.

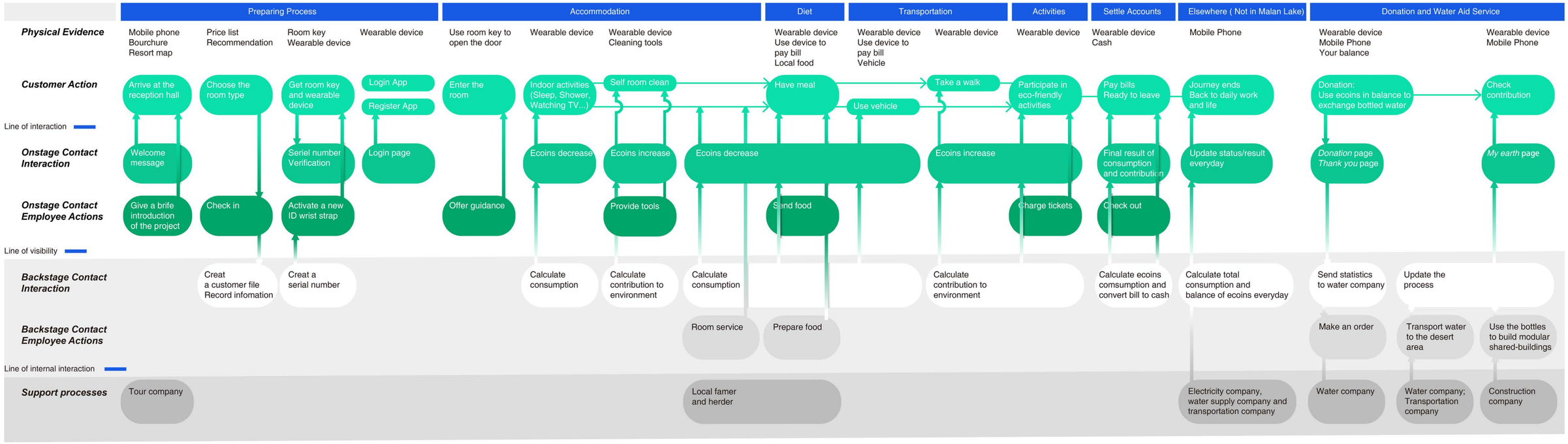
System map



As shown on the system map, there are mainly three subsystems, including Malan Lake Community, water company and construction company.

Malan Lake Community offers service to tourists on food&drink, accommodation, activities and so on. Tourists bring capital to the community. With these funds, the water company can transport water (with specifically designed bottles) to Malan lake. The after-use bottles can be utilized to build shared-buildings with specific architectural design requirements offered by the service department.

SERVICE BLUEPRINT



ECO IN APP

notification-short look 0.0.a

ecoins report 2.0

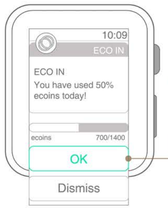
menu 1.0

friends 5.0

ranking - ecoins 5.1

ranking - donation 5.2

friends nearby 5.3



notification-long look 0.0.b

ecoins report 2.1

Change dynamically according to your consumption.

input numbers 3.0

activities 4.0

A piece of puzzle represents an activity. Unlock activities to see the whole map.

activity info 4.1

list 4.2

2.3

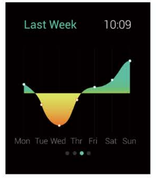
last week 2.2

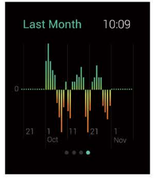
input numbers 3.1

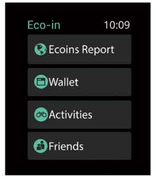
confirm 3.2

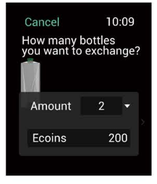
thank you 3.3

Ecoins dynamic change animation:
https://vimeo.com/247208594









Hierarchical

Page-Based

0.0.a

Start

You get a notification on apple watch reminds you that you have used half of the ecoins today. You tap and access to the notification's full content.

3.0 – 3.3

Water donation

Make contribution by donating water bottles, which gives users a feeling of epic meaning and calling. Users make their transition from an outsider to be a part of the program by exchanging balance to bottled water and donating them.

2.0 – 2.3

Ecoins Report

Receive feedback and check the dynamic change of ecoins and history ecoins usage. With the combination of gamification and black hat principle, users are given a sense of "oppression" to inspire people to stoping ecoins from decreasing.

4.0 – 4.2

Activities

The design of puzzles and archievements takes advantage of user's accomplishment and achievement to motivate participation.

5.0 – 5.3

Friends

Check friends nearby and friends' moments. The peer pressure motivated users'competitive mood in collecting ecoins, caring about our earth and going green.

Lightweight interactions

Information is quick and easy to access and dismiss. It is suitable since consumptions and activities frequently happen every day here.

Holistic design

The boundaries between device and software are blurred, and the device is so closely to users, which makes the ecoin app enhance the user's perception that hardware and software are indistinguishable.

BRAND IDEA

The concept of the model includes four main parts: brand idea, ecoins monetary system, eco in app, and water aid design. To be specific, users get aware of brand idea and values through brand essence. Ecoins monetary system helps calculate consumption and offer an immersive experience. The App is a window where users receive feedback and make changes in environmental attitude and behaviour. Lastly, the water aid service provides water and recyclable construction material to the region and promotes participation and engagement of the users.

Brand signature

1 Logo

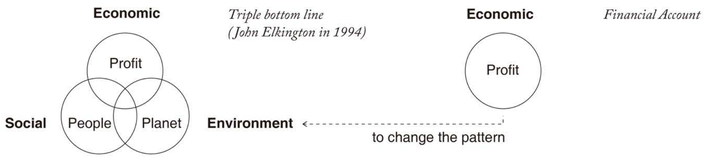
3 Brand name : eco in
ECO means ecology, *IN* means participation or take part in.

2 1.7 means one earth goal.

Adopting the values

"Change what you count and you change what counts".

In Malan Lake, price of goods is positively correlated with its ecological cost. The low-price goods that industry offers to people is based on an overdrawn ecological environment. Because of there is no compulsary regulaions make companies pay for pollution, many of them still regard environmental cost as external cost since no compulsary regulations make them pay for pollution.



One earth goal

How many planets does it to support your lifestyle?
Taking last year as an example, we needed 1.5 earths.

1.5 is the ratio of an individual's Footprint to the per capita biological capacity available on Earth (1.72 global hectares / gha). In 2016, the world average Ecological Footprint of 2.7 gha equals 1.54 Planet Equivalents, which makes the earth overshoot day on August 27.

The attached "1.7" of the brand means one earth goal - through the help of ecoins monetary system, users live a lifestyle that cost under 1.7 gha, which is to make individual's footprint under per capita biological capacity. In this way, the ecological resources and services that the Earth regenerated are enough for our humanity's demand.

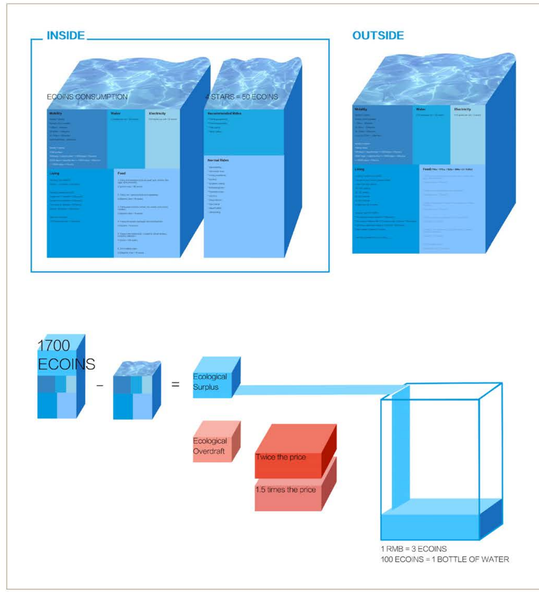
Over the last 50 years, environmentalists advocates have struggled to bring a broader definition of bottom line into public consciousness by introducing full cost accounting.

Left figure shows the contrast of environmental full-cost accounting and traditional accounting. Triple bottom line (TBL) accounting expands the traditional reporting framework to take into account social and environmental performance in addition to financial performance.

ECOINS SYSTEM

"You can't manage what you can't measure."

The system based on Eco-footprint theory has its circulation mode, rules, quantitative criteria and basic components. It can not only record users' expense in the resort, but also help users feel the environmental burden caused by their actions in a quantitative way.



Inside

If the user is within Malan Lake Resort (inside), when the user participates in entertainment activities, he or she can get a certain amount of ecoins as rewards and encouragement for participating in the environmental-friendly activity.

Outside (Not in Malan Lake)

If the user leaves Malan Lake (outside) and still using our system on his/her mobile devices, he is still able to see his daily consumption and his ecological footprint. Since the user does not eat in Malan Lake anymore, which means dining statistics is not available, eco in uses the same average quantitate consumption for everyone as dining statistics.

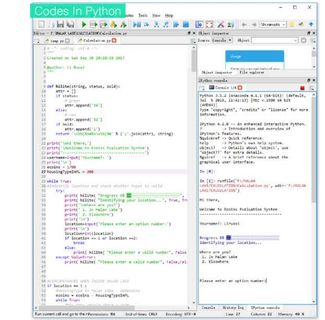
Ladder Payment

If there are ecoins left when a day ends, the left ecoins are called "ecological surplus", the ecological surplus is saved to your balance. The ecoins in balance could be either exchanged for cash when you settle accounts or be donated in the form of bottled water to Malan Lake.

Ladder payment: When user's consumption surpasses 1700 ecoins, it means that he or she have overdrawn "one earth". The overdraft part charges 1.5 times the price. The ladder payment connects the daily goal with user's expenditure, which aims to advocate people to be responsible for the environment and encourage them to engage in realizing the one earth goal.

Calculation simulation

To simulate the calculation, an ecoins evaluation simulation system is made based on five different eco-footprint worksheet and calculators and referring to footprint network resources.



Input name

```
Hi there,

Welcome to Ecoins Evaluation System
------------------------------

Yourname?: L
```

Answer questions

```
Progress 16%
Identifying guests numbers...

Do you share a room with others?
 1.No
 2.Yes,I share room with another one
 3.Yes,I share room with other 2 guests
 4.Others


Please enter an option number:
```

Output: your left ecoins and eco footprint

```
------------------------------------------------------------
Hi LRX,
You used 1760.0 ecoins. You do not have any ecoins left today.
If everyone lived like you, we should need 1.04 earths.
------------------------------------------------------------
```

codes and exe : github https://github.com/hanalrx/malan_lake

WATER AID SERVICE

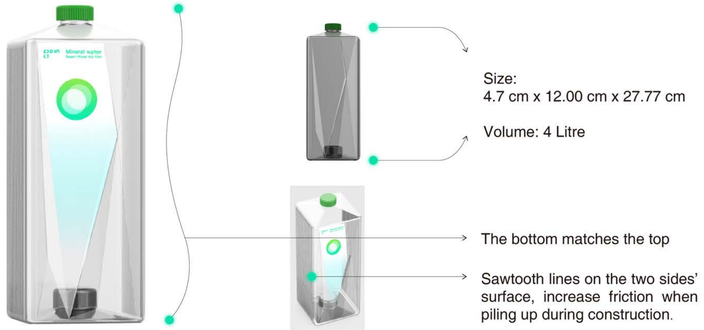
Donation - Epic meaning & Calling

Users donate balance in the form of bottled waters to Malan Lake.Water company provide water in designed bottles and transport them to the water-deficit area. In this process, users make their transition from an outsider to be a part of the program by participating and donating. Also, the service promotes participation by offering epic meaning to users.

Water company

Transport water to desert

Eco in water bottle



Size:
4.7 cm x 12.00 cm x 27.77 cm

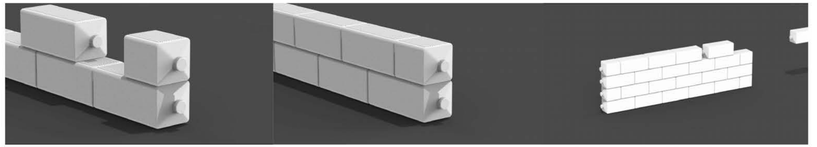
Volume: 4 Litre

The bottom matches the top

Sawtooth lines on the two sides' surface, increase friction when piling up during construction.

Bottles as construction material

The specially designed bottles will be collected after use, filled with local sand and used in building light weighted industrial buildings.
The bottles are solid, low cost and resists water damage, rot, and insects. The size and design of bottles are according to rules for construction module for versatility and interchangeability to realize mass production of industrialized buildings in China.



12 seconds animation: https://vimeo.com/247299266

The bottle bottom matches its top, and the sawtooth lines on the two sides' surface will increase friction, making two bottles interlock together.

Construction way

The construction process is similiar to earthbag construction way: Use inexpensive local sand and bottles to create structures which are both strong and can be quickly built.

Main steps:

Planning | Foundation | Fill the bottles | Lower courses | Add barbed wire | Finishing

FUTURE STEPS

For eco in bottle:

Fabrication, testing and iterations. Including-

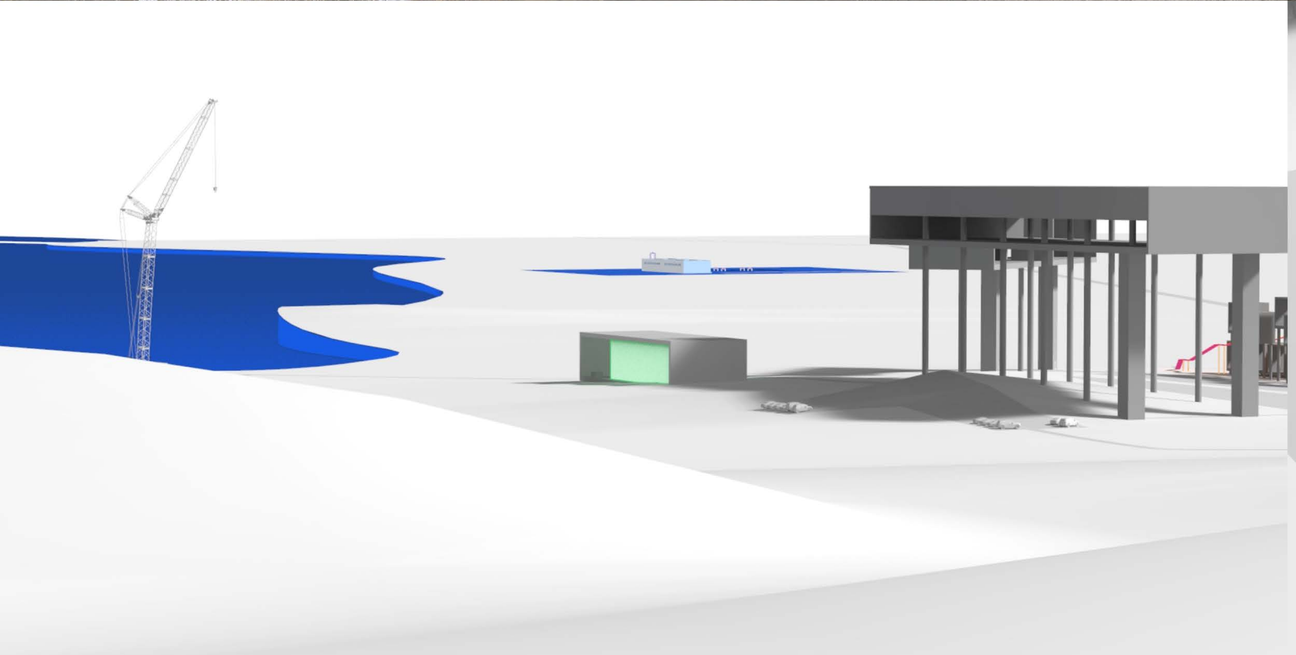
01 Making bottle mould based on our solidworks model.
02 Manufacture 200-1000 bottles to build a wall, to test its stability, load-carrying capability, corrosion resistance and explore its other possibilities like constructing chairs, desks, and other furniture.

For the project:

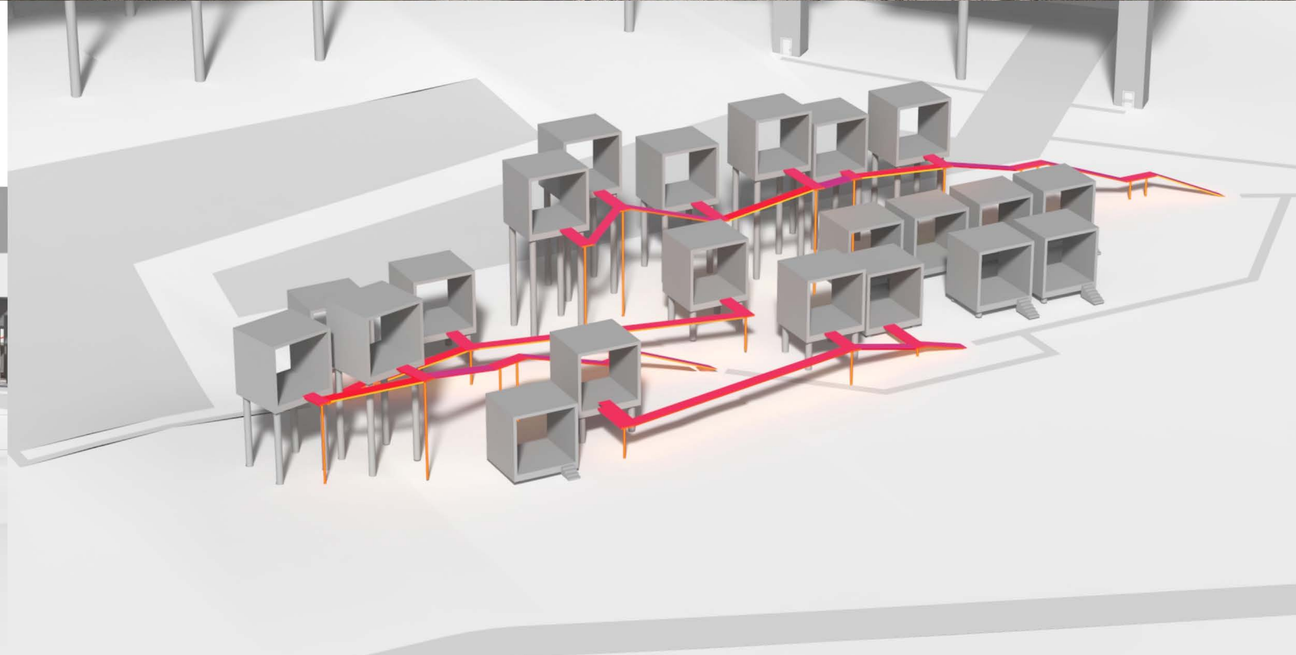
Transition to the form of a social business and establish open cooperative mechanisms. Including-

01 Continue exploring and finalizing design concepts.
02 Design a step by step rollout plan toexecute the designs.
03 Promote and invite individuals and organizations to join the Malan Lake Reforestation Project.
04 Bring local herdsmen into the project, and gradually build up a cooperative relationship with them, while providing commerce operations and jobs related to the afforestation efforts.

* Animals in Malan Lake



* Malan Lake Mid-long term planning



* Shared buildings