

Part 3: Systemic Design – Contents

Zhang Qinyuan in charge

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Background

Research

Linear System

Systemic Design

Part 3: Systemic Design – Main content introduction

Zhang Qinyuan in charge

1

Methodology
and tools



2

Experiences,
Case Studies,
and Considerations



3

Systemic
design



4

Service
design



5

Summary
and Outlook

● Systemic Design

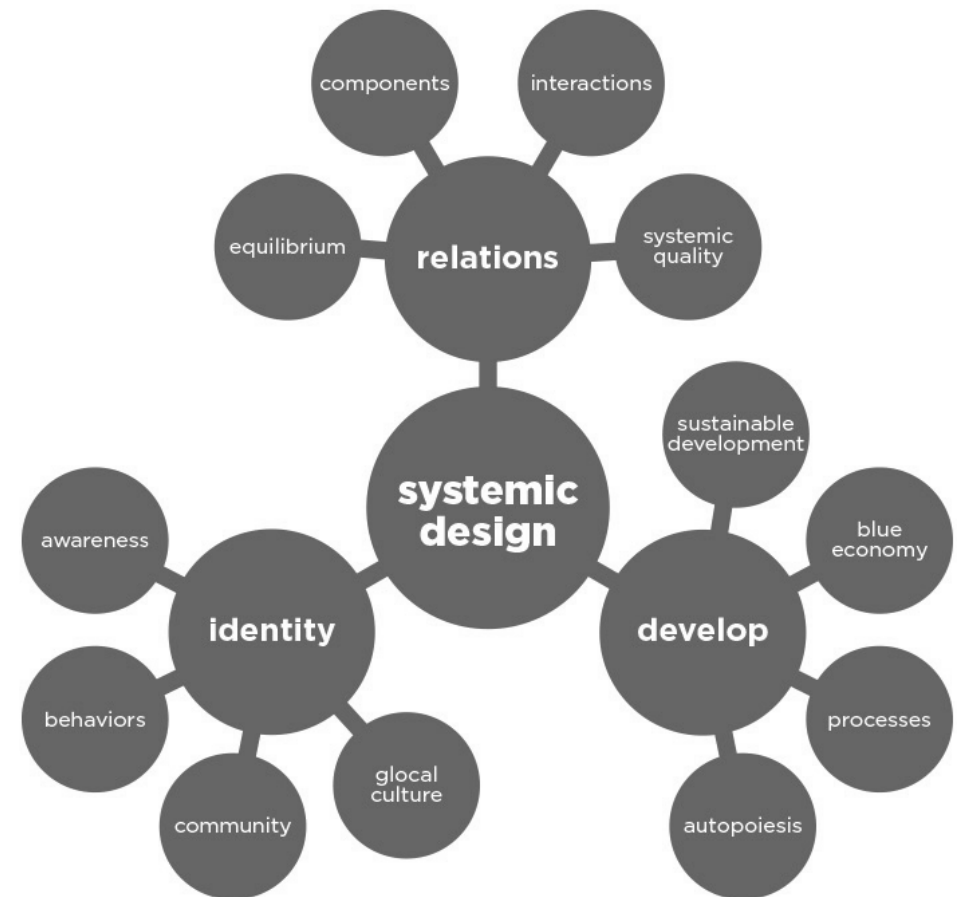
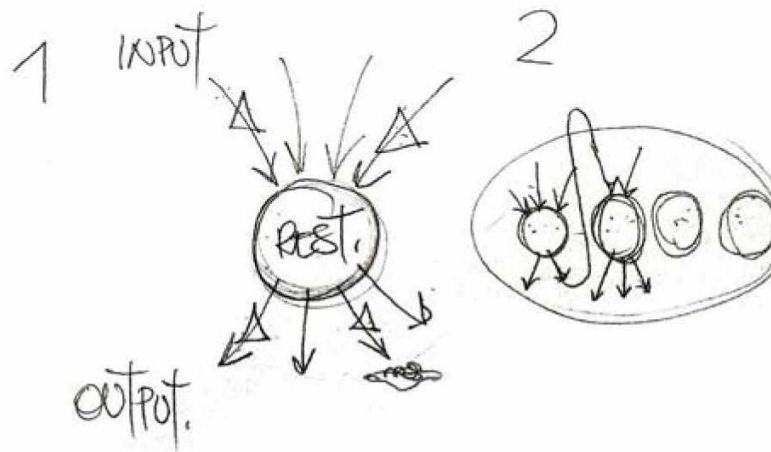
1. Methodology and tools

– Systemic Design

What's systemic design?

Significance and value

Methodology



● Systemic Design

1. Methodology and tools

– Service Design

Tools and methodology

SERVICE DESIGN TOOLS

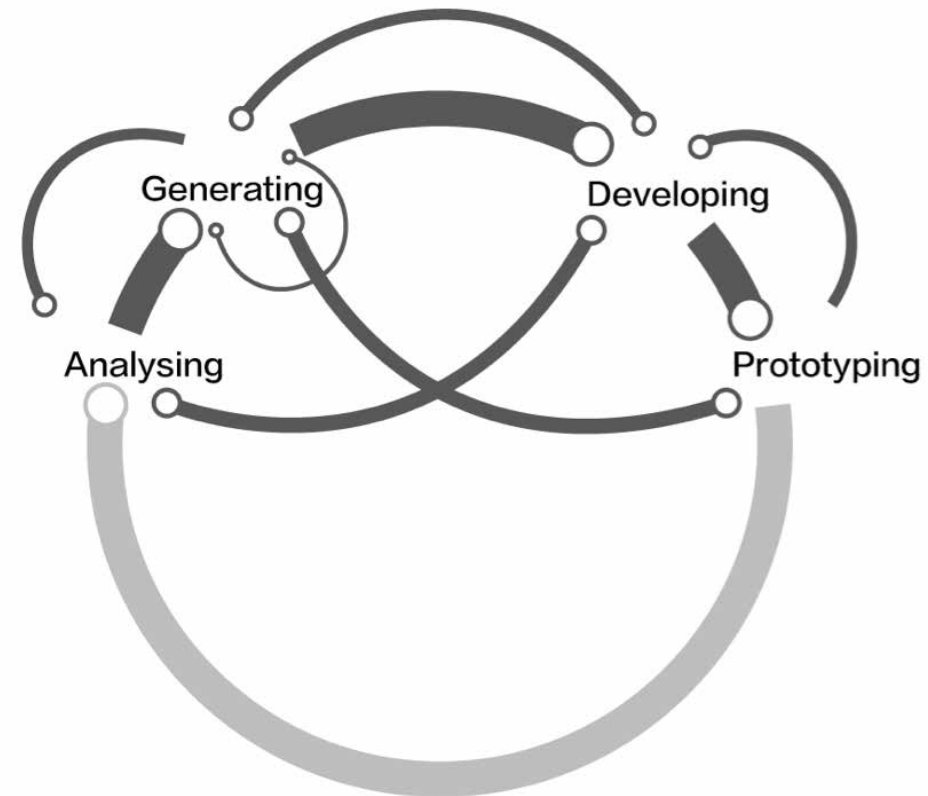
COMMUNICATION METHODS SUPPORTING DESIGN PROCESSES

An open collection of communication tools used in design processes that deal with complex systems.

The tools are displayed according to the ^{WHEN} design activity ^{HOW} they are used for, the kind of representation they produce, the ^{WHO} recipients they are addressed to and the ^{WHAT} contents of the project they can convey.



| DESIGN ACTIVITIES | REPRESENTATIONS | RECIPIENTS | CONTENTS |
|-----------------------|-----------------|---------------|-------------|
| CO-DESIGNING | TEXTS | STAKEHOLDERS | CONTEXT |
| ENVISIONING | GRAPHS | PROFESSIONALS | SYSTEM |
| TESTING & PROTOTYPING | NARRATIVES | SERVICE STAFF | OFFERING |
| IMPLEMENTING | GAMES | USERS | INTERACTION |
| | MODELS | | |

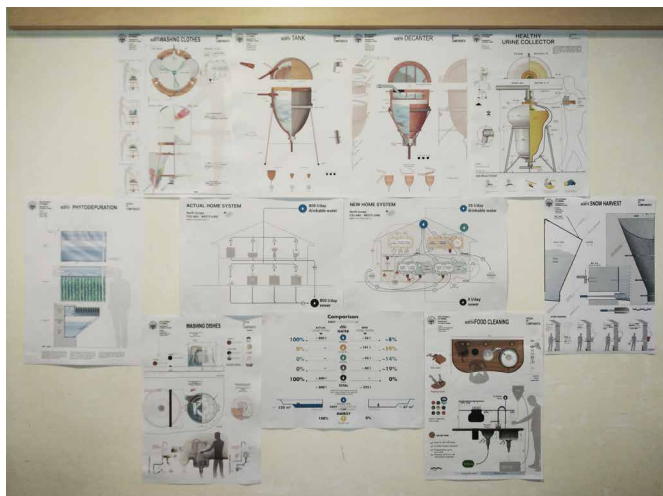
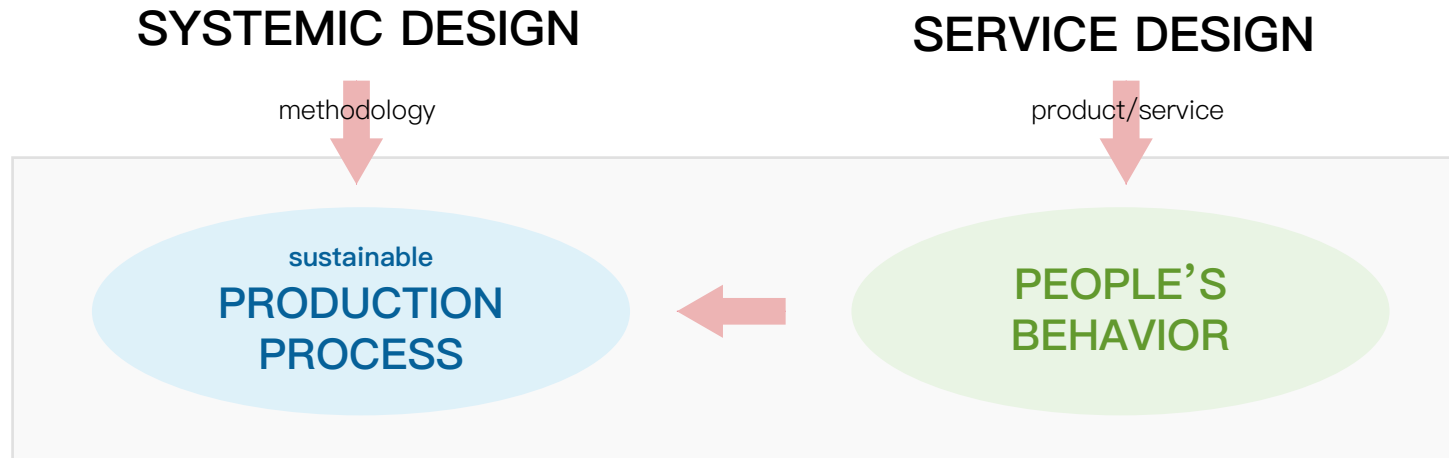


The process of service design is divided into Analysing, Generating, Developing and Prototyping (A. Maroni, D Sangiorgi, 2011)

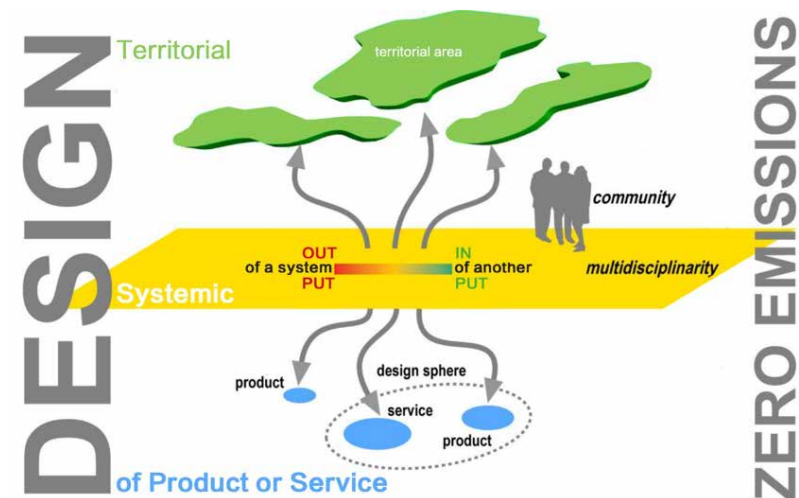
● Systemic Design

1. Methodology and tools

- Systemic Design with Service Design



product design from systemic view



systemic design with service design

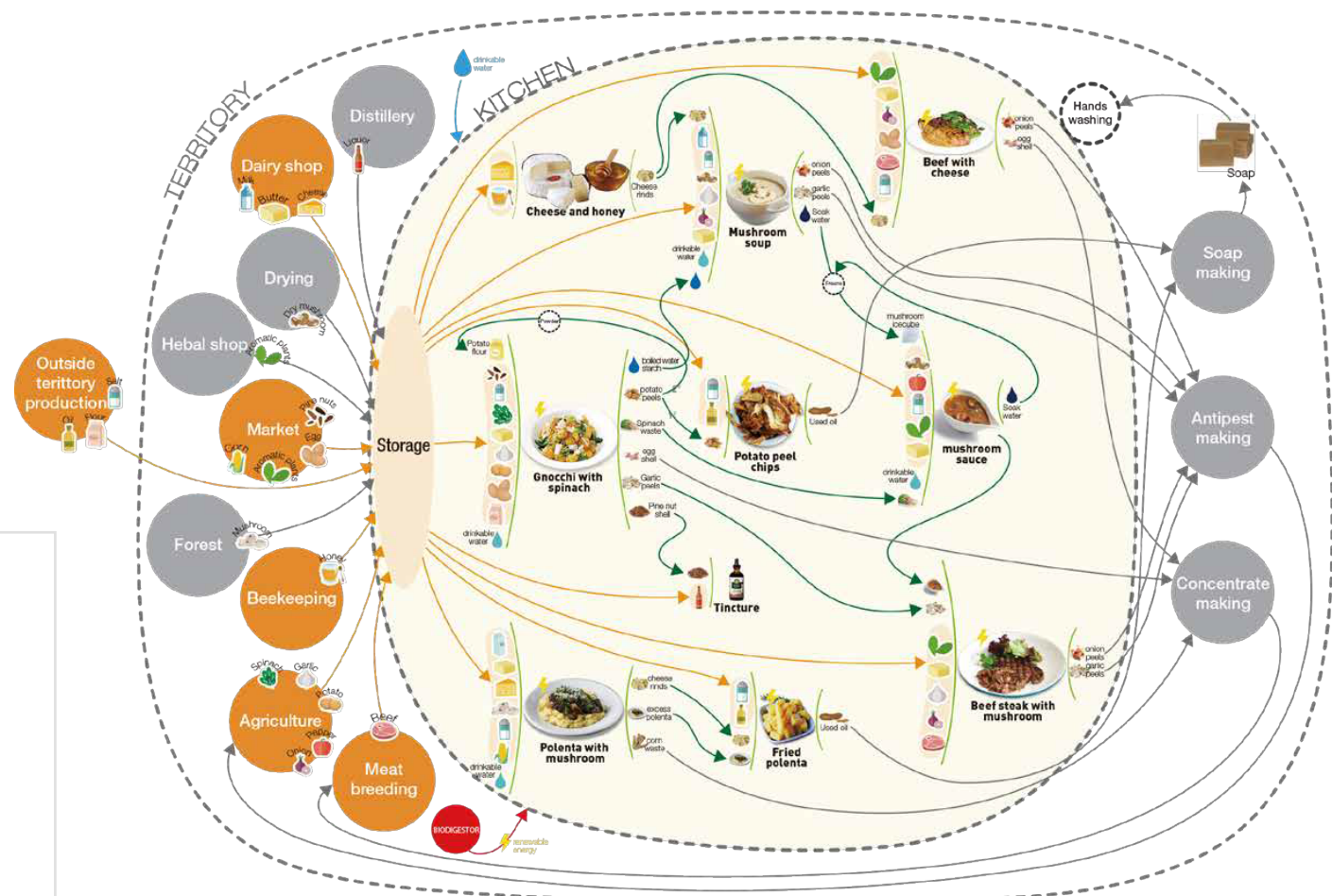
● Systemic Design

2. Experiences, Case Studies and Considerations

– Experiences:

Macugnaga restaurant (Systemic design)

Create a sustainable restaurant which is **reuse resources** as much as possible and close to **zero waste**. In the end, every group will connect with each other and co-create a **community** which is **strongly connect** people with their own **territory**.



MACUGNAGA PROJECT

processes&methods



LOHAS
SYSTEMIC DESIGN

● Systemic Design

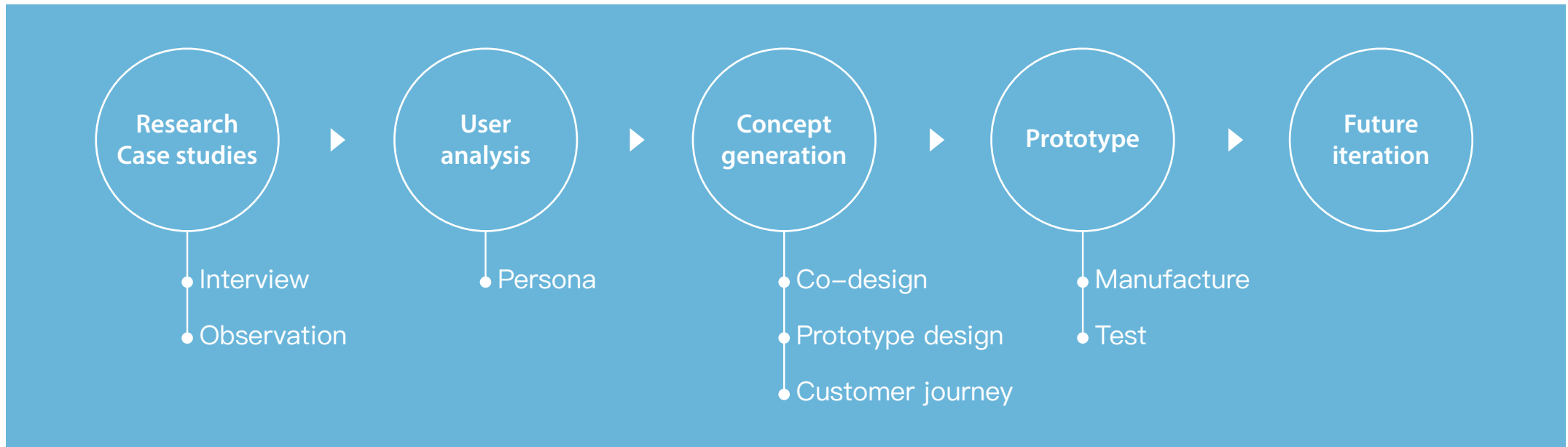
2. Experiences, Case Studies and Considerations

– Experiences:

Quaker breakfast on the go (Service design)

This is a project I participated in when I was studying service design course at Tongji University. In this project, a whole set of service design methods and processes were practiced.

Service design processes:



● Systemic Design

2. Experiences, Case Studies and Considerations

– Experiences:

Quaker breakfast on the go (Service design)

Research:



There are variety of street breakfast stalls around university. They open early everyday to sell food.



Students always line up to buy street breakfast, taking them away.



Most foods sold in the morning are fried foods, full of oil and calories.

Co-design:



Prototype:



QUAKER PROJECT

service design tools
perspective of process
touch point analysis
iterative idea

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SYSTEMIC DESIGN

● Systemic Design

2. Experiences, Case Studies and Considerations

– Case Studies:

Spoonful Of Sugar (Eco-restaurant)

Many of the furniture is made from waste materials.



Sale is based on weight and encourages guests to bring their own containers for purchase.



Rooftop garden circulatory system.



Compost bin.



● Systemic Design

2. Experiences, Case Studies and Considerations

– Case Studies:

Hutong Kitchen No.44 (Eco-restaurant)

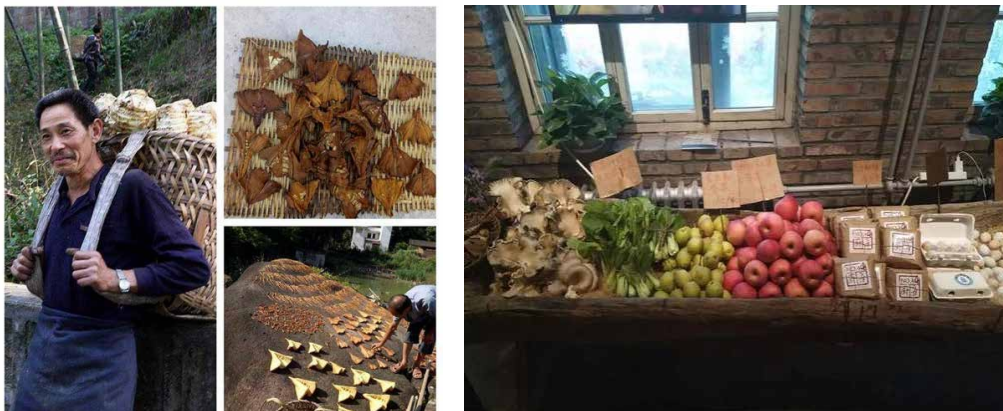
Rainwater collection system.



Water is purified by sand and gravel to the tank for centralized secondary use.



Sustainability of culture: using ancient cooking method.



a small farmer's market in restaurant.

● Systemic Design

2. Experiences, Case Studies and Considerations

– Case Studies:

Design insights: 



Cons:

Not been fully planned from a systemic point of view

● Systemic Design

2. Experiences, Case Studies and Considerations

– Global Best Practice

GRA (The Green Restaurant Association)



Green Restaurant Association

[Home](#) | [Certification Standards](#) | [Find Restaurants](#) | [Find Products](#) | [Green My Restaurant](#) | [Media](#) | [Education](#) | [Legislation](#)

Find Certified Green Restaurants®




For Manufacturers



For Restaurants



For Distributors

| GREEN RESTAURANT® POINTS | |
|---|--------------|
|  | |
| Kitchen Sync | |
| 4 Star SustainaBuild™ Certified Green Restaurant® | |
| Environmental Category | Points |
| Energy | 215.46 |
| Food | 34 |
| Water | 33.25 |
| Waste | 64.75 |
| Disposables | 18.22 |
| Chemical & Pollution | 32.9 |
| Furnishing & Building | 38.72 |
| POINT TOTAL | 437.3 |

Green restaurant certification **standards** and evaluates **the stars and scores** for the restaurant.

● Systemic Design

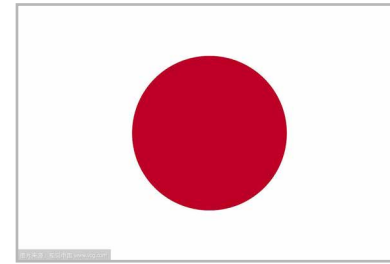
2. Experiences, Case Studies and Considerations

– Global Best Practice

Legislation:



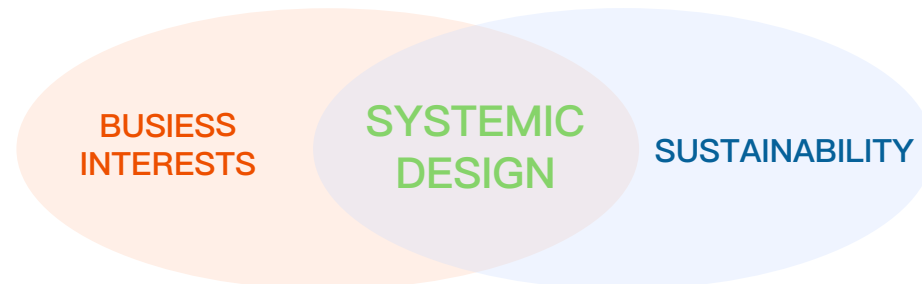
Since the 1950s, Germany started exploring **the use of kitchen waste** to produce organic fertilizers,



Japan's Food Recycling Law

Insights:

- Foreign countries have already established more mature rules and practices in sustainable restaurants.
- Chinese restaurant operators generally focus on commercial profits.

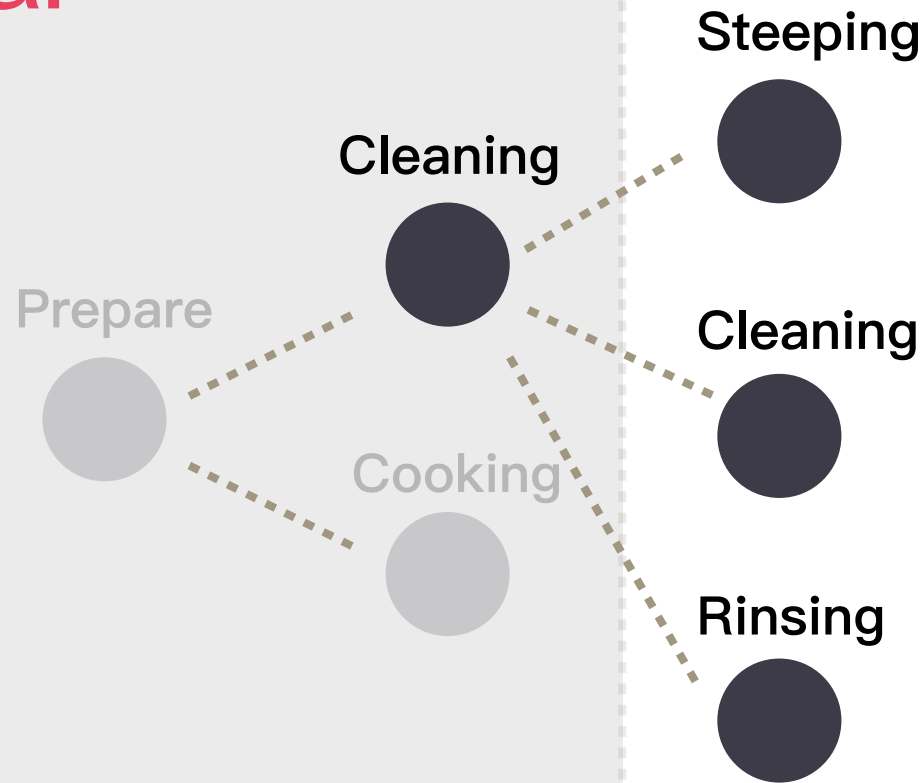


● Systemic Design

3. Systemic Design

– Water System:

linear

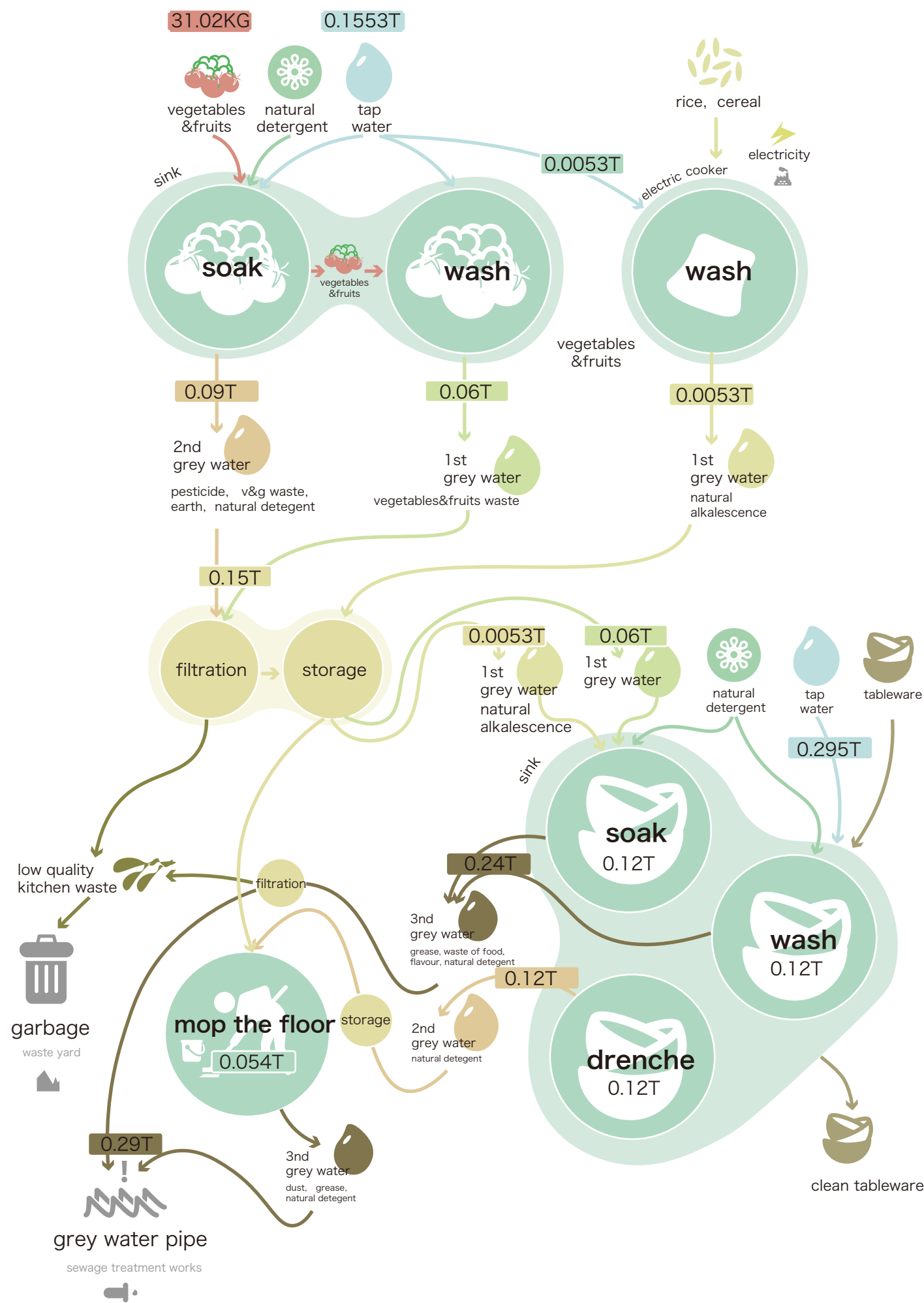


Systemic

Recycling according to the quality and quantity of water

3. Systemic Design

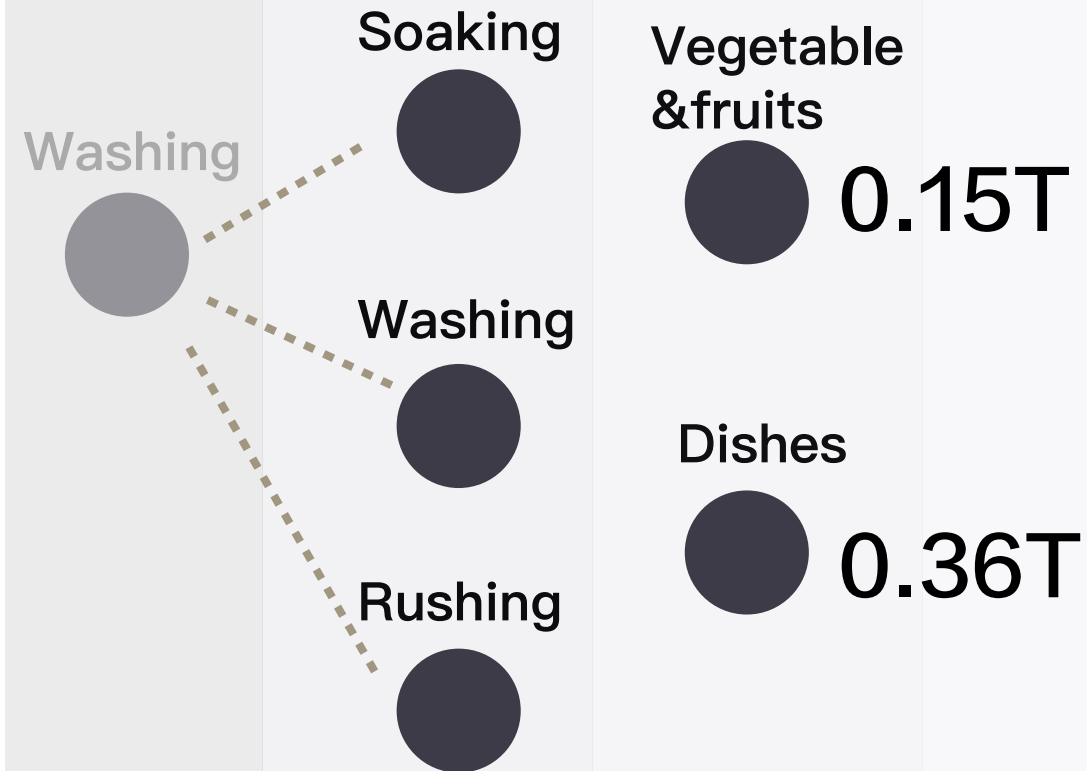
– Water System:



- Systemic Design

3. Systemic Design

- Water quantity and economic analysis:



Systemic

Compare to linear system
we save:

3.753T water/month

Save 517.9yuan/month

Using a separate sink to clean vegetables over 400kg can save 48% of water

● Systemic Design

3. Systemic Design

- Water quantity and economic analysis:

Double sink
¥200 ~ 500

Filter unit
¥30

Recycled water
storage tank
¥120

1st recycled water

Wash fruits and vegetables /
water of washing rice

2nd recycled water

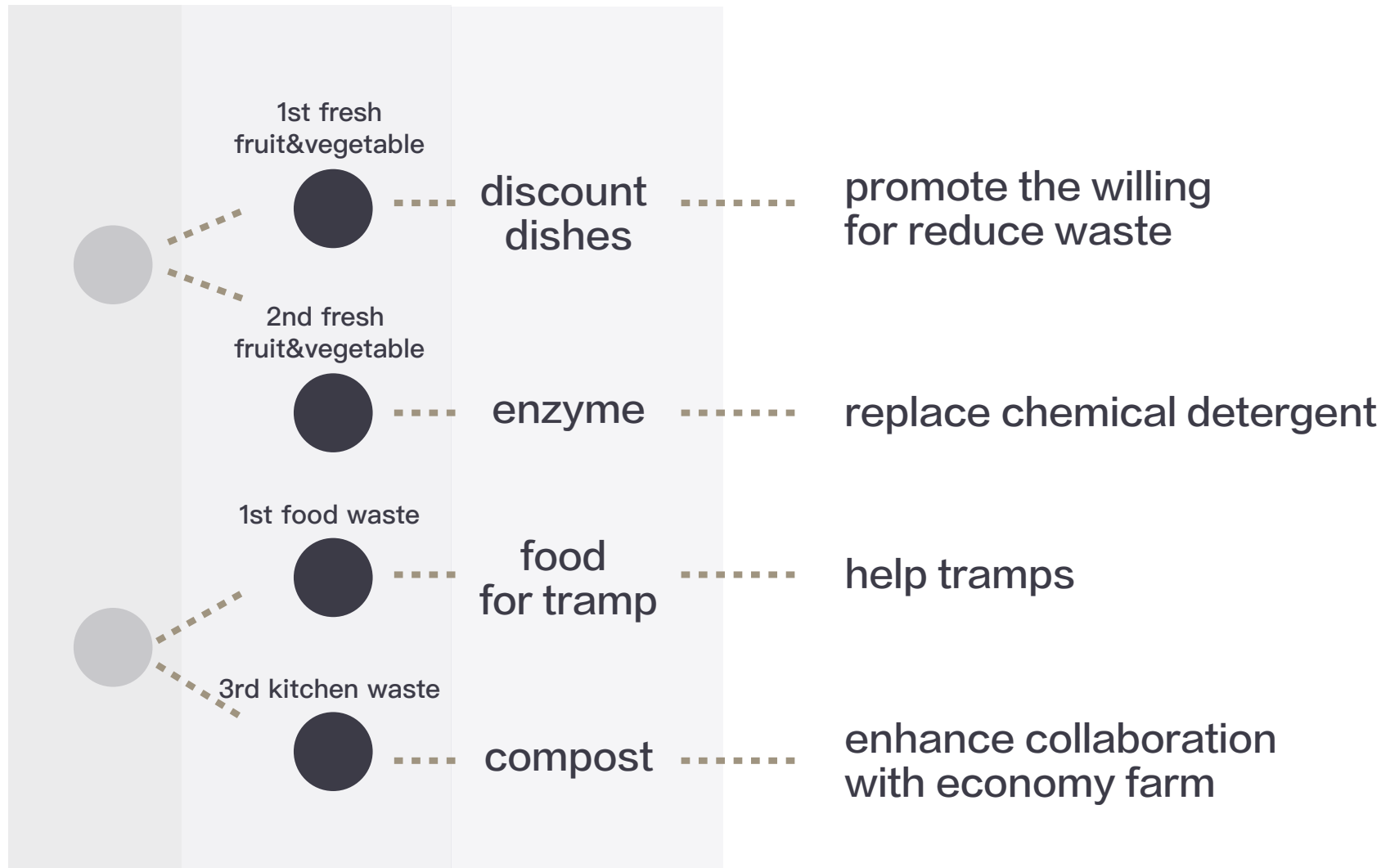
Soak fruits and vegetables

Total ¥350 ~ 600

● Systemic Design

3. Systemic Design

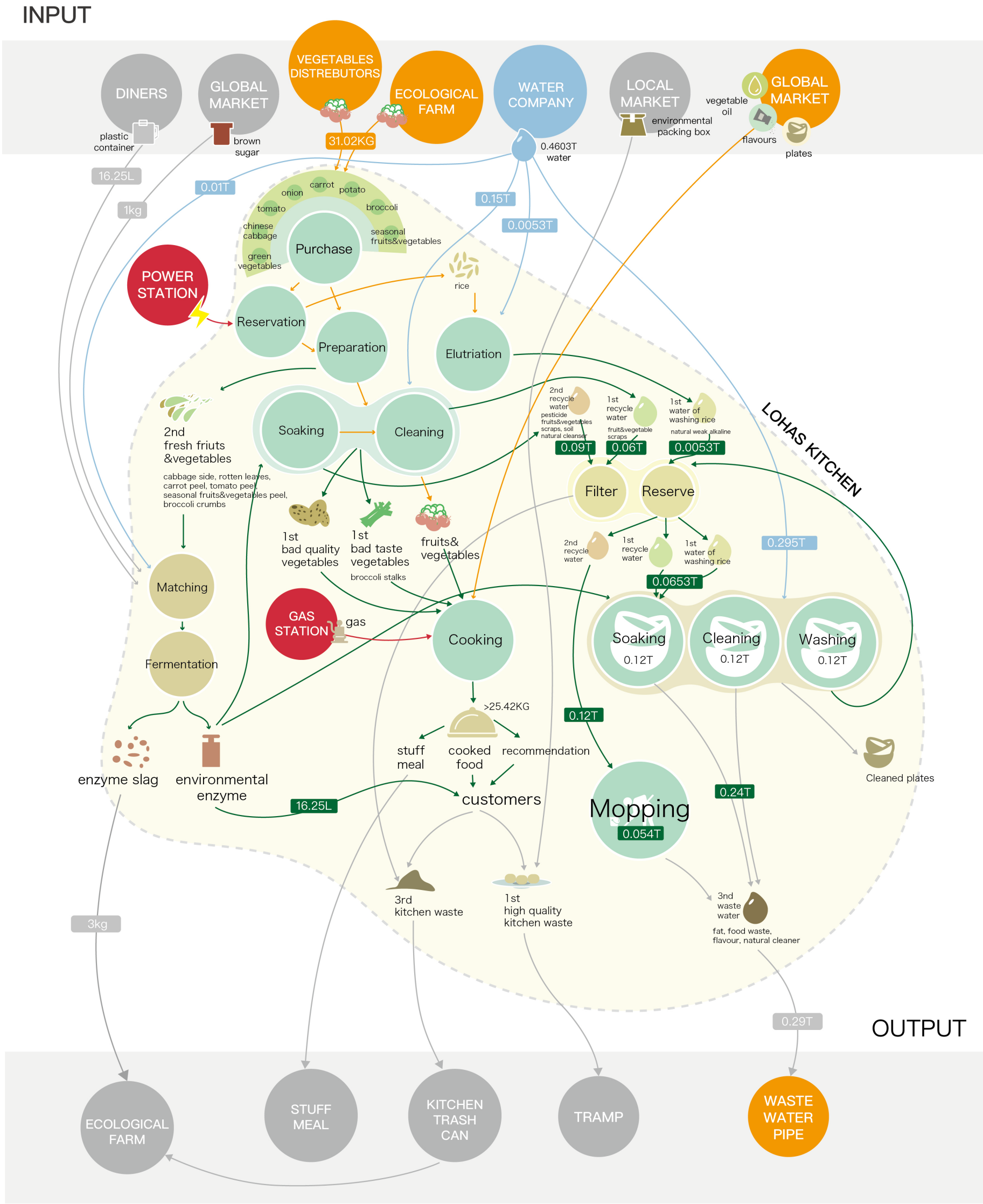
– Vegetarian waste system:



3. Systemic Design

– Vegetarian Waste System:

Systemic design of Vegetarian waste



3. Systemic Design

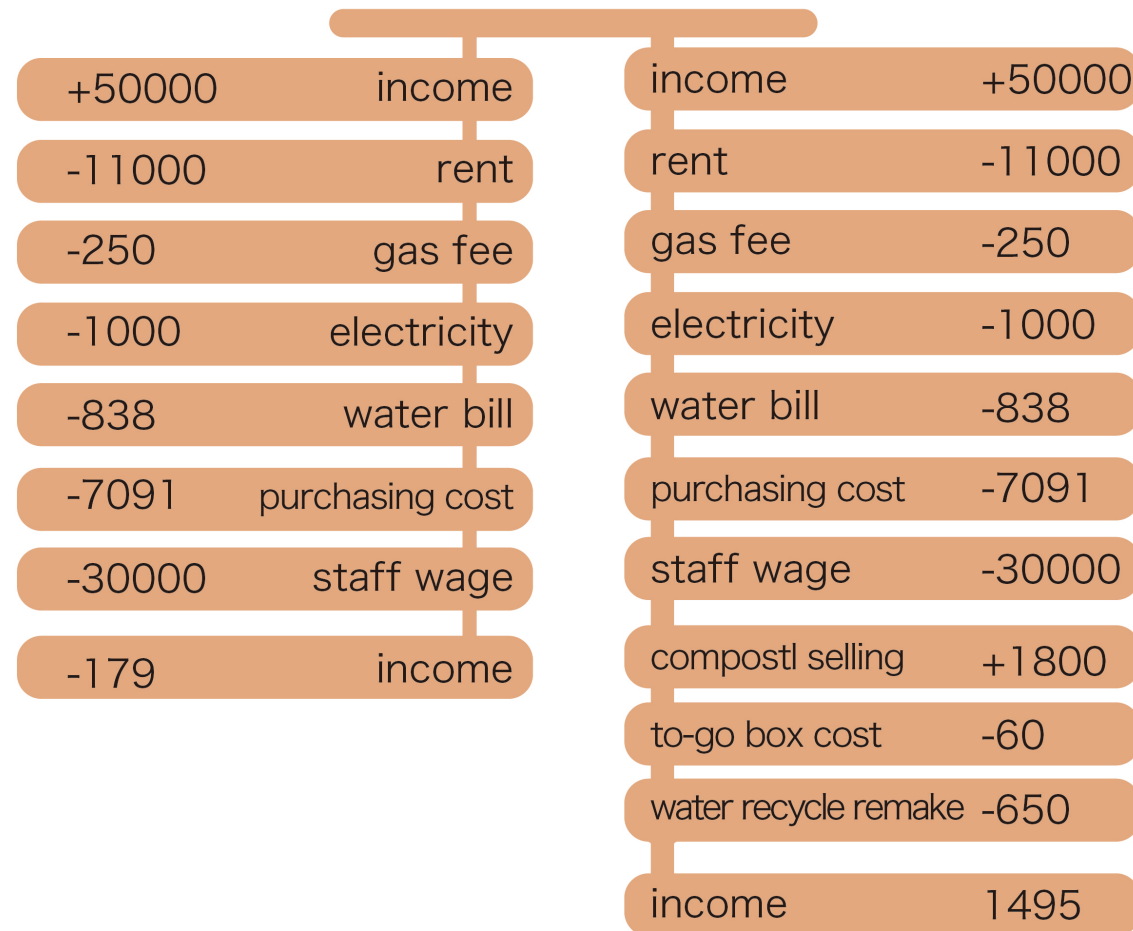
– Kitchen Waste economic analysis:

| | | | |
|---------------------------|-----------------|---|-----------------------------------|
| 1st fresh fruit&vegetable | | | |
| | discount dishes | | |
| 2nd fresh fruit&vegetable | | | |
| | enzyme | make enzyme sale enzyme sale enzyme residue | –960/mon +1350/mon +450/mon |
| 1st food waste | | | |
| | food for tramp | cost for package | –60/mon |
| 3rd kitchen waste | | | |
| | compost | sale resources for compost | +1800/mon |

3. Systemic Design

– LOHAS economic assessment:

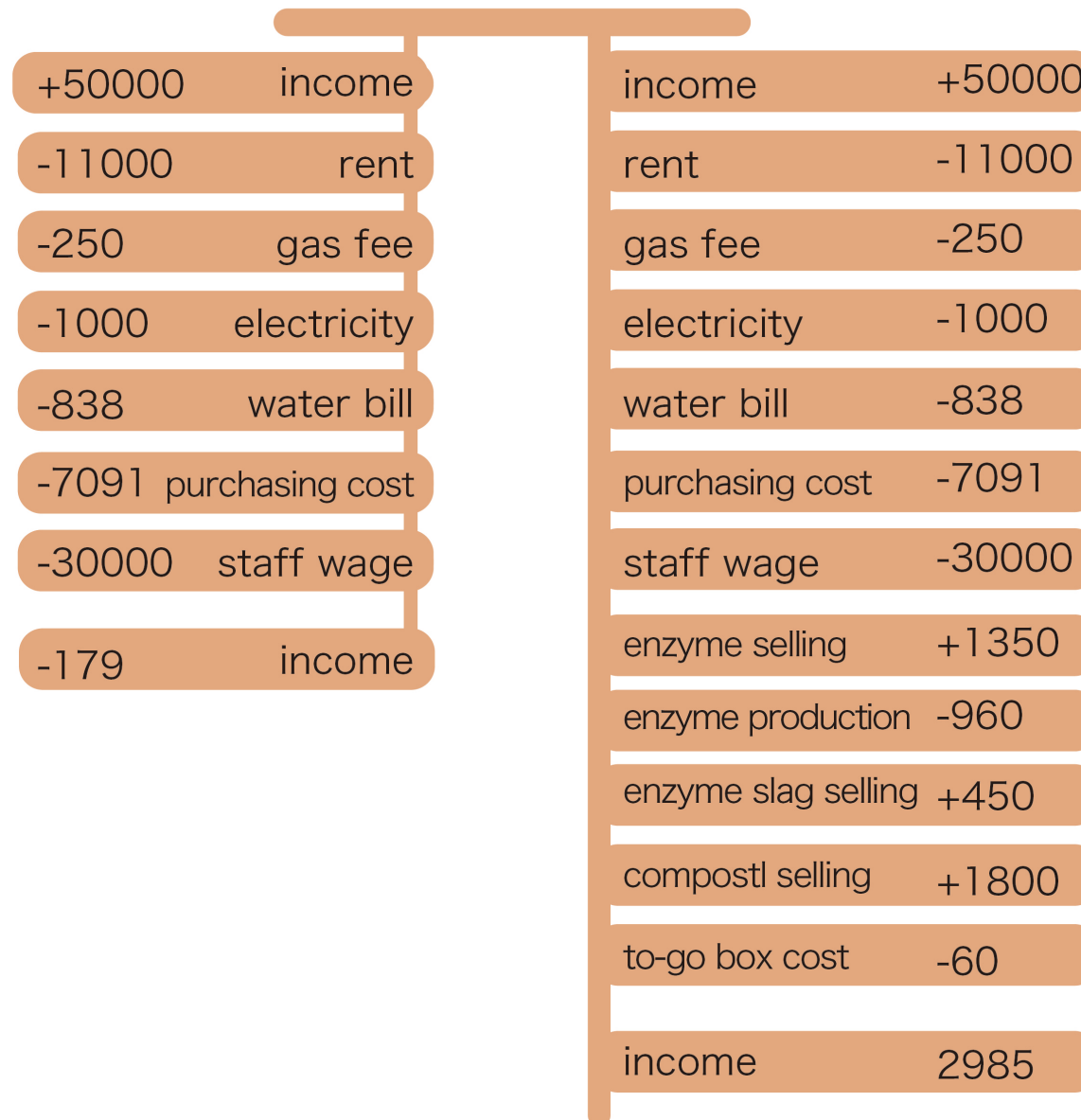
1 month



3. Systemic Design

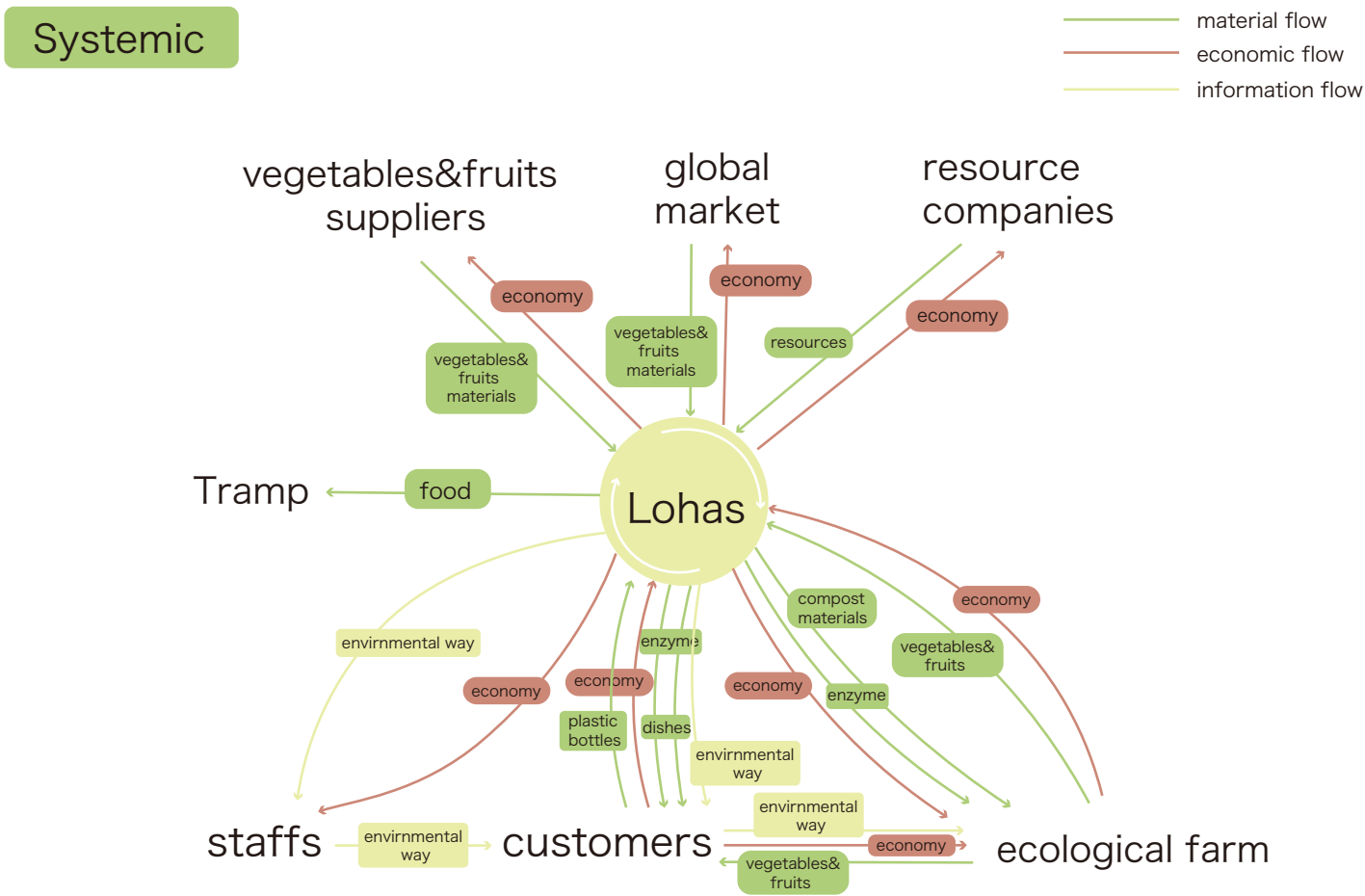
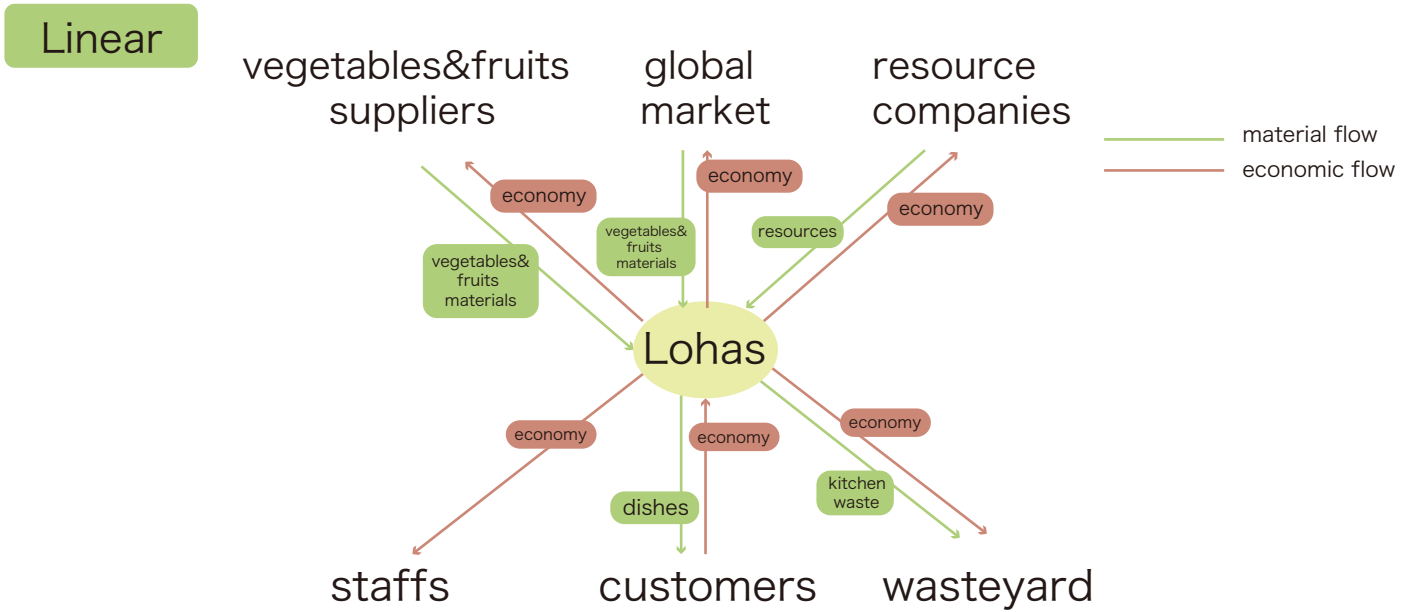
– LOHAS economic assessment:

>3 months



4. Service Design

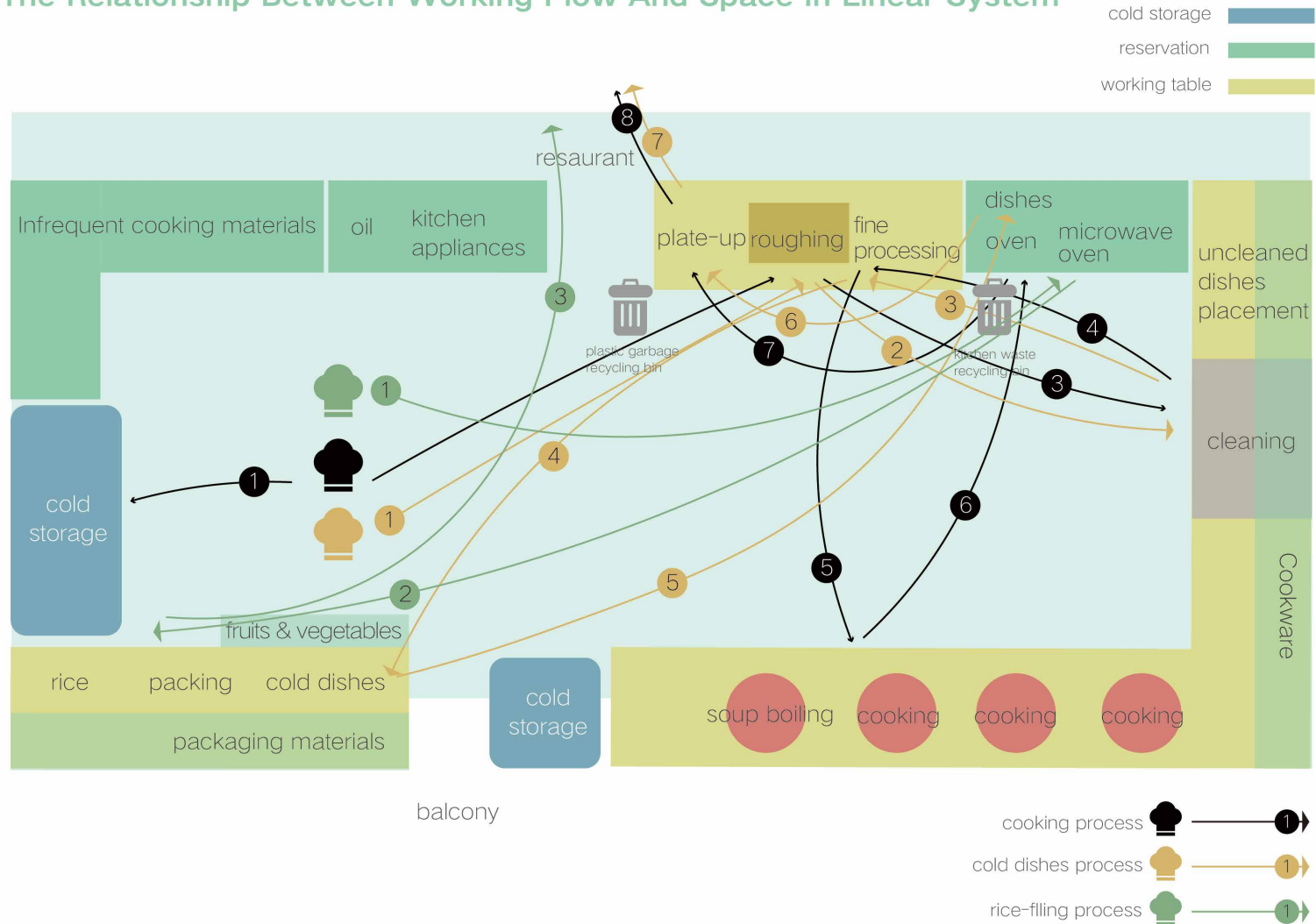
– System map:



4. Service Design

- Linear working flow:

The Relationship Between Working Flow And Space In Linear System

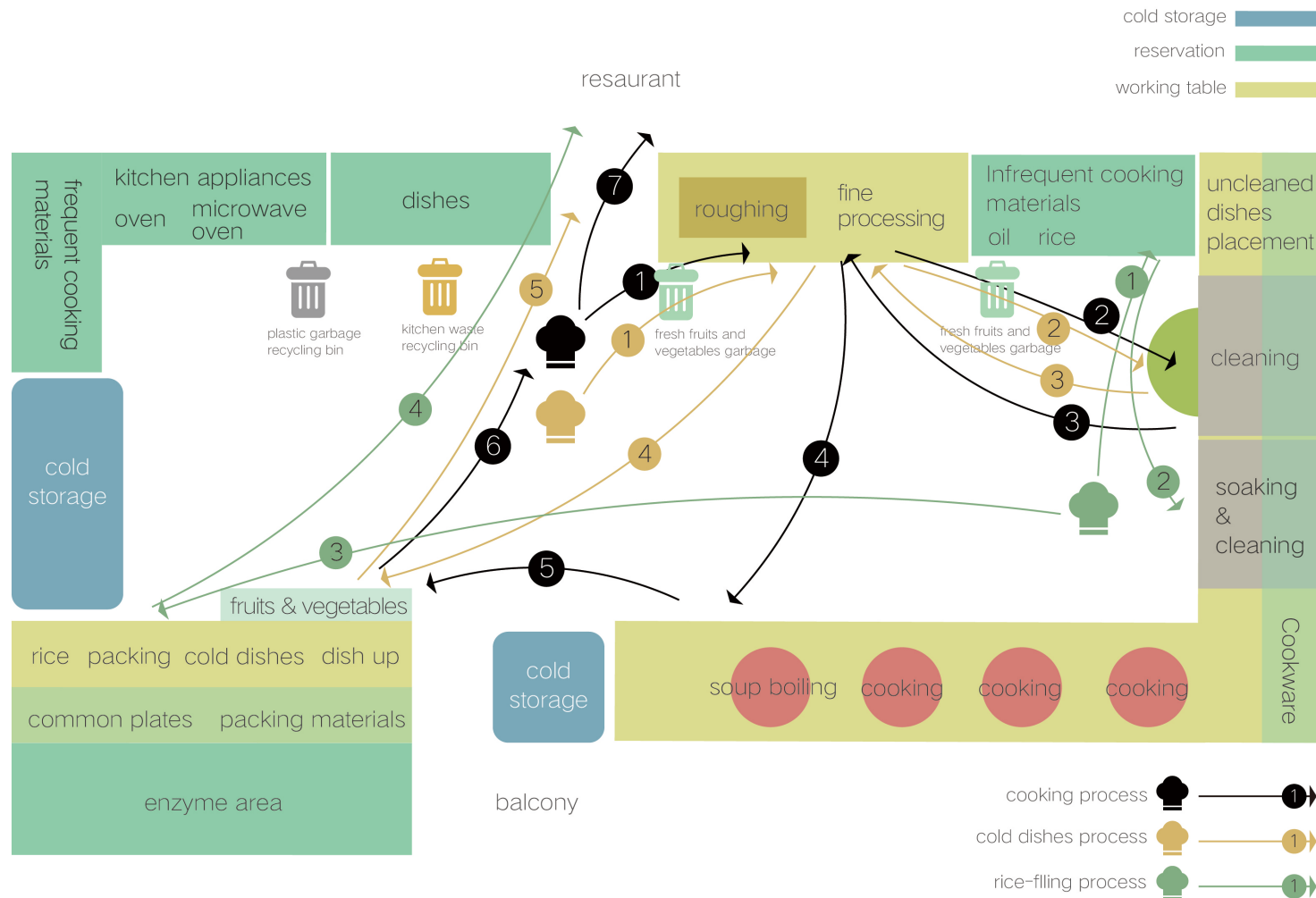


● Systemic Design

4. Service Design

– Systemic working flow:

The Relationship Between Working Flow And Space In Systemic System



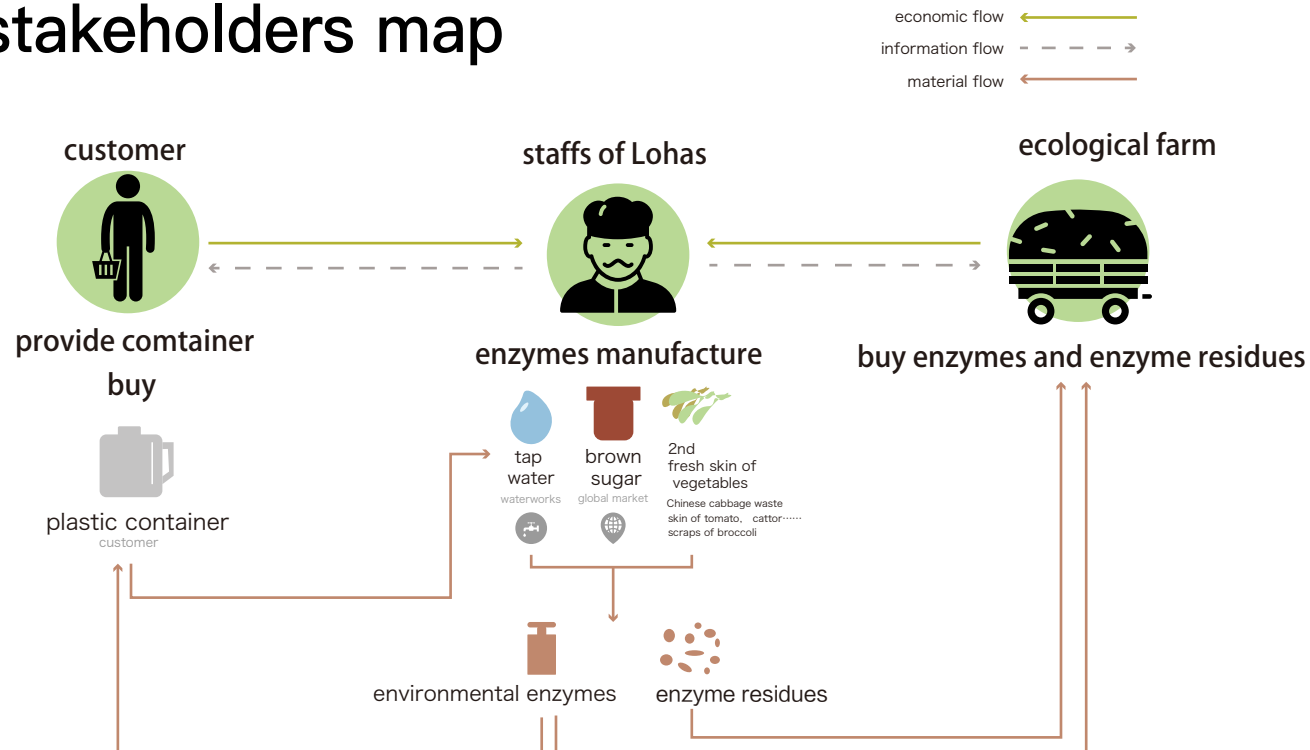
● Systemic Design

4. Service Design

– Enzyme related product design thinking:

For helping kitchen stuffs to making enzyme easily, we de- signed some tools to helping them checking enzyme states and rewards system to encourage customers involve in our system.

stakeholders map

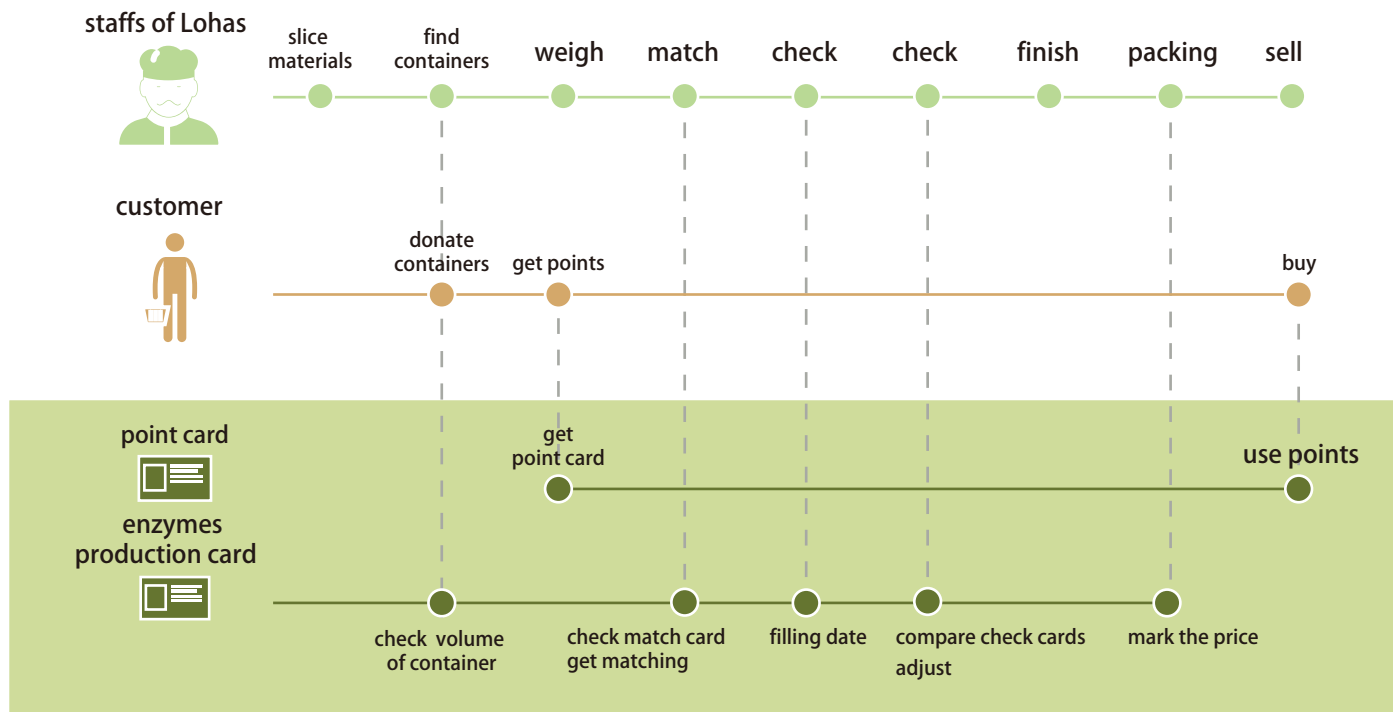


4. Service Design

– Enzyme related product design thinking:

The enzyme production cards to help staffs quickly learn enzyme production and examination of it. Point cards will record consumer donation and deduct a portion of consumption.

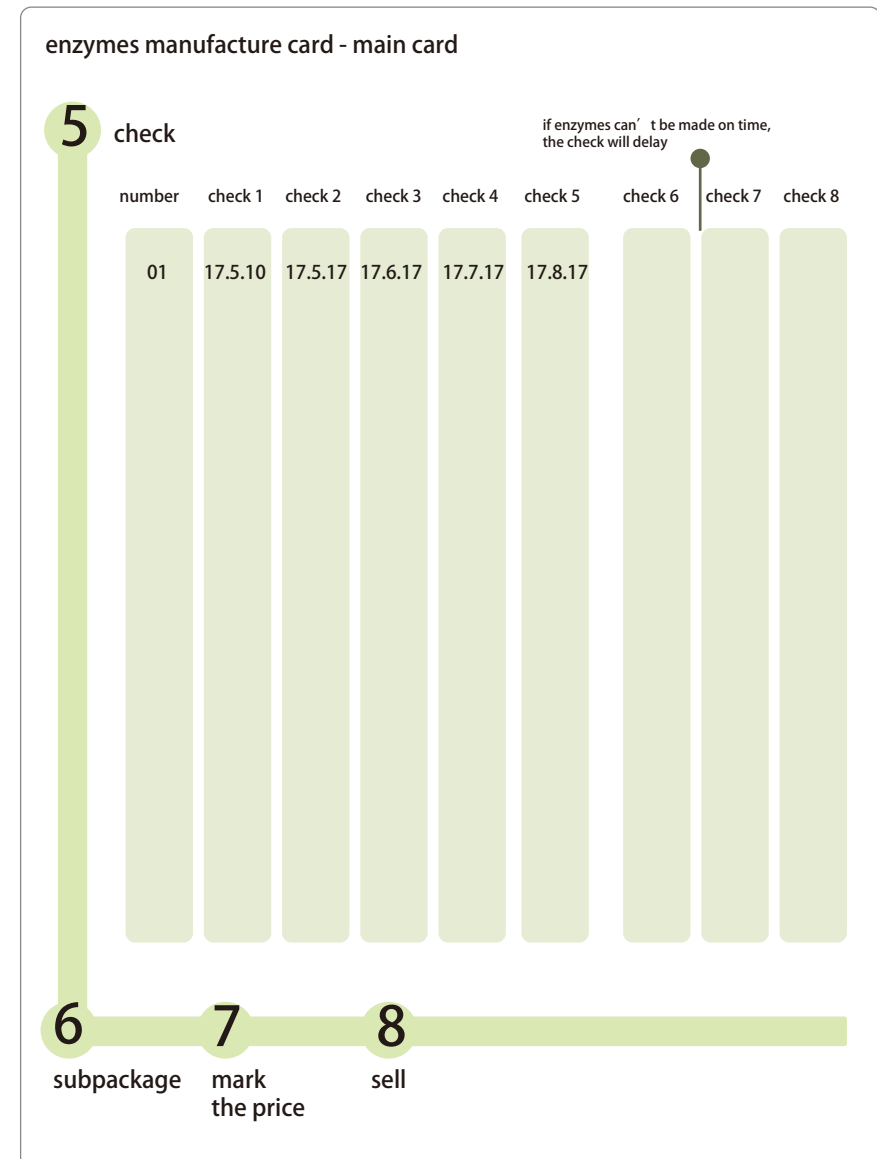
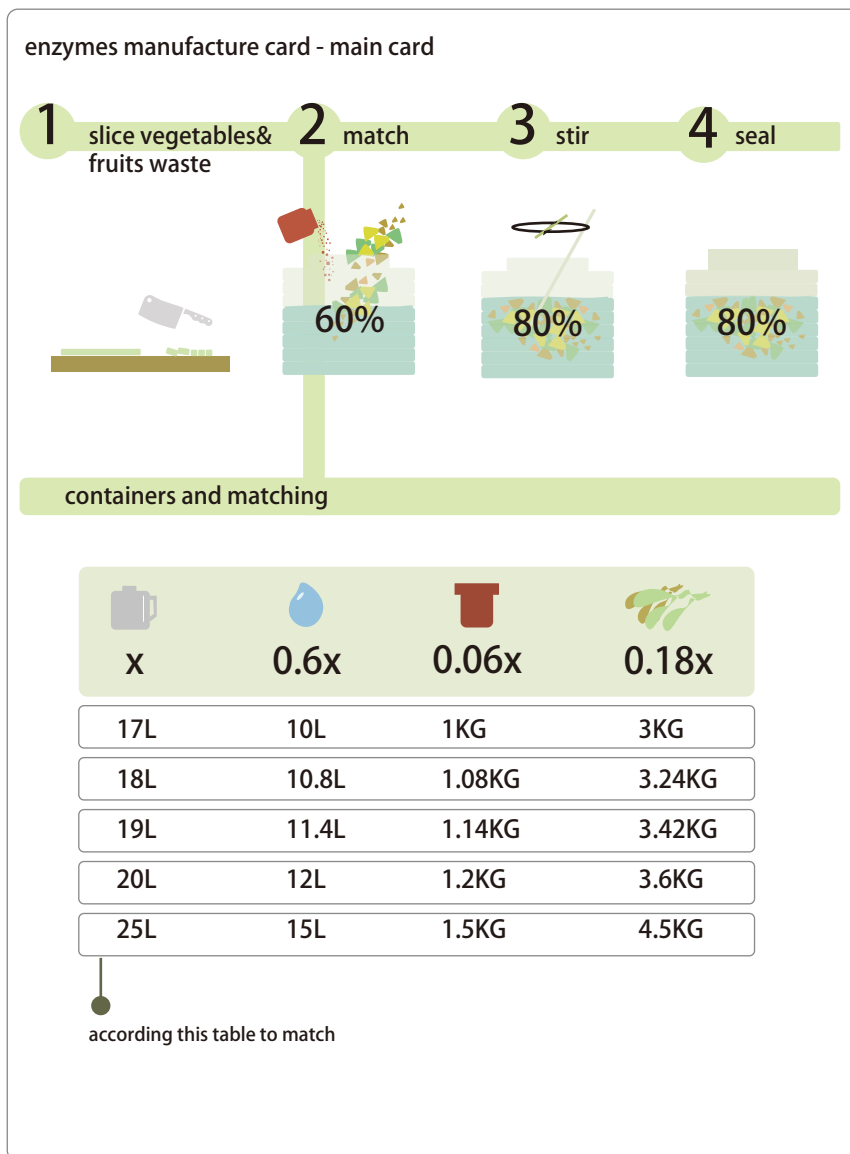
blue print



4. Service Design

– Enzyme related product design — the main card:

The main card for the enzyme production process guide and record the date. The relationship between the container and the ratio and the common ratio help the staff to complete the ratio.



4. Service Design

– Enzyme related product design — the additional card:

The additional card is used to compare and record 5 results of the check. They are connected to the straps and can be tied to the enzyme container bottle for easy inspection. When the first check card is used when complete the enzyme ratio, then the staff needs to fill in the details of the matching date, number, and ratio, and at the same time remind the staff to check the bottle body and enzyme status; The 2–5th cards are used to record the inspection results of different periods. The color cards on the 3–5th cards show the state of the enzymes by comparing with the color of the liquid in the bottles, reminding the staff to adjust them in time.

| | | | |
|------------|-----------|---------------------------|----------------------------|
| check card | | name | |
| date: - - | | number | |
| 1st check | | | |
| volum | match | water : | brown sugar : waste of v&f |
| seal | 20% space | v&f under the sugar water | |

●
filling the check card

| | |
|------------------------|--|
| 1 week after 1st check | |
| date: - - | |
| 2nd check | |

swell and air escape
v&f under the sugar water

●
check enzymes and mark

| | | | | | |
|-------------------------|--------|-----------------|---------------|----------------------|---------------------------|
| 1 month after 1st check | | | | | |
| date: - - | | | | | |
| 3rd check | | | | | |
| check color | normal | add brown sugar | add v&g waste | swell and air escape | v&f under the sugar water |

●
transparent,
show enzymes color,
compare with color right side

| | | | | | |
|-------------------------|--------|-----------------|---------------|----------------------|---------------------------|
| 2 month after 1st check | | | | | |
| date: - - | | | | | |
| 4th check | | | | | |
| check color | normal | add brown sugar | add v&g waste | swell and air escape | v&f under the sugar water |

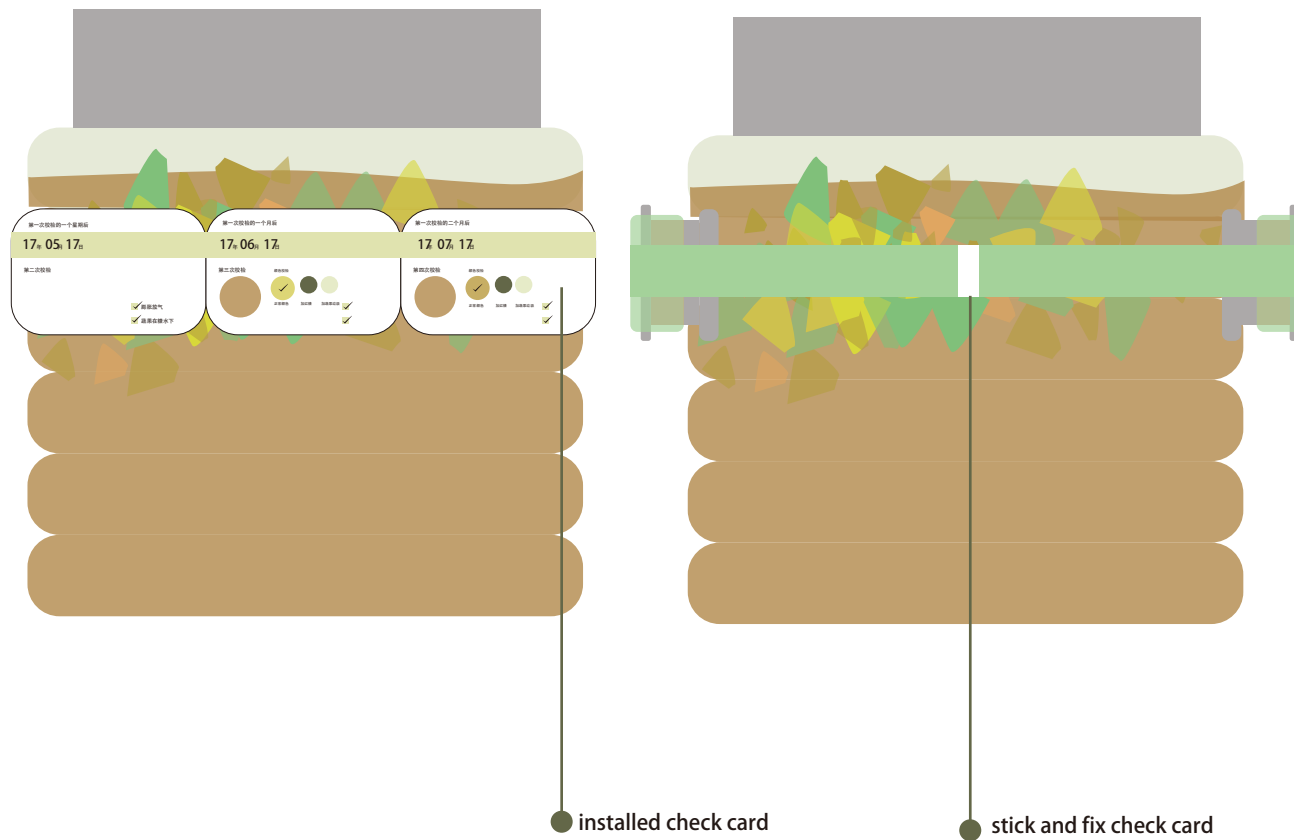
| | | | | | |
|-------------------------|--------|-----------------------------|---------------------------|----------------------|---------------------------|
| 3 month after 1st check | | | | | |
| date: - - | | | | | |
| 5th check | | | | | |
| check color | finish | add brown sugar change card | add v&g waste change card | swell and air escape | v&f under the sugar water |

● Systemic Design

4. Service Design

– Enzyme related product design —— install check card:

The straps of the cards are glued on the back and can be fixed on the enzyme bottle, which is convenient for timely inspection and recording.

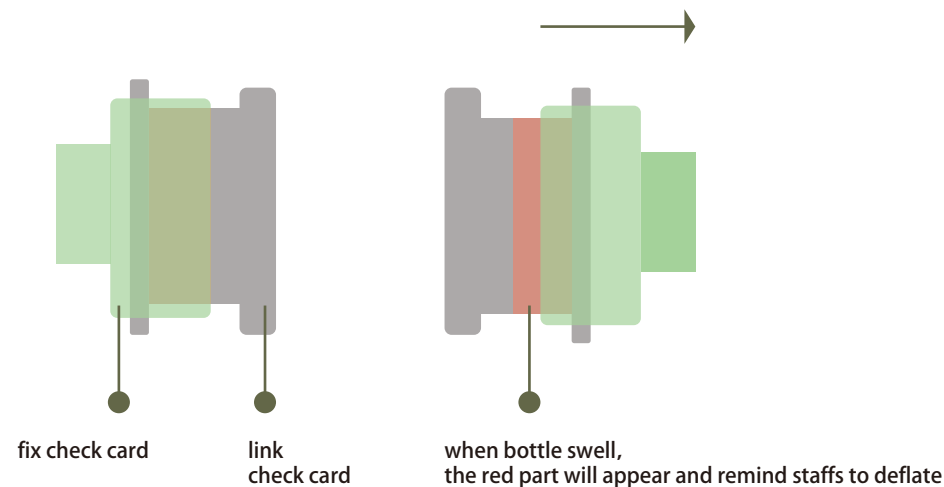


● Systemic Design

4. Service Design

– Enzyme related product design — swell reminder:

There are expansion warning structures on both sides of the straps. The expansion structure is composed of two paper snap structures. When the bottle body is in a normal state, the two structures are close together, and the middle red structure will not be exposed. If the bottle swells, it pulls one end of the strap to expose the red part of the clip. The longer the red part is exposed, the more inflated the bottle is, and the staff is reminded to release air in time to prevent accidents.












































4. Service Design

4. Service Design

– Enzyme related product design — points card:

LOHAS uses points card to encourage consumers to participate in the circulatory system. According to the size of the bottle donated by the consumer, the score is integrated and marked. When the points reach 8, the consumer will enjoy a discount for any consumption in the store.

| <5L | 5L-10L | 10L-15L | 15L-20L | >20L |
|---|---|---|---|---|
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |



5. Summary and Outlook

– Summary

Proposes a complete vegetarian restaurant kitchen system model through systemic design methods.

Explores how the system actually works with service design methods and tools.

Based on the characteristics of the region of Shanghai, China. , It is a novel attempt to apply the systemic design.

The re-planning and application of kitchen waste of different quality not only changed the single profit model of the enterprise, but also changed the role of the consumer.

5. Summary and Outlook

– Outlook

Although the design is based on reality, there is no condition for the system model to be tested in practice. The optimization of the system requires dynamic tracking and constant adjustment

limited to our time and energy, we only chose the kitchen process and a related product in the system to do more in-depth design.

This study takes the winter kitchen system as the research object, and cannot fully examine and study the differences and problems that the system shows in the four seasons.