Hyperlocal Bio-Hygienic Technologies.

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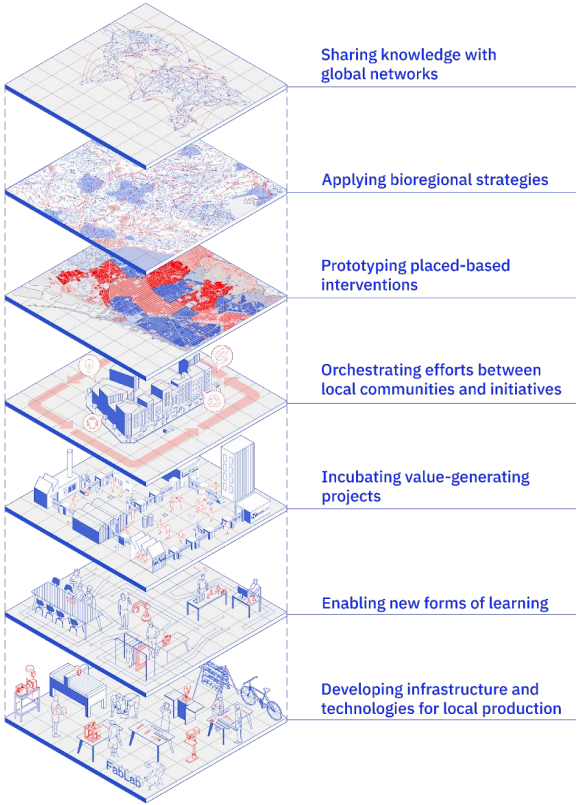
Escuela de Diseño



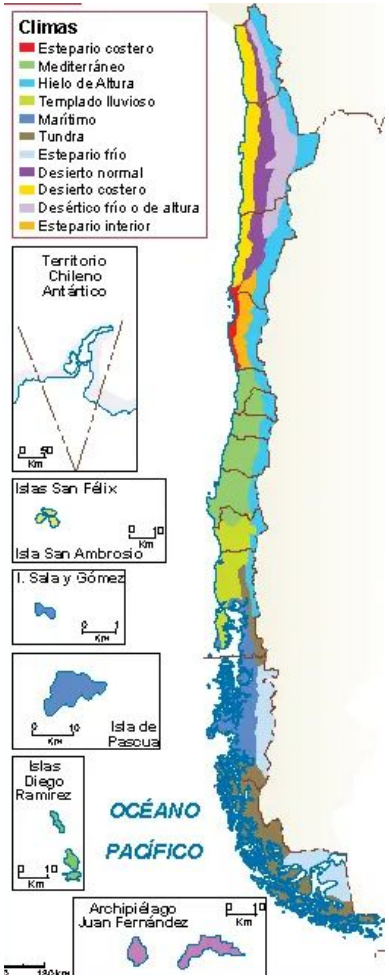
Can we locally produce regenerative hygiene products based on natural resources and ancestral knowledge?

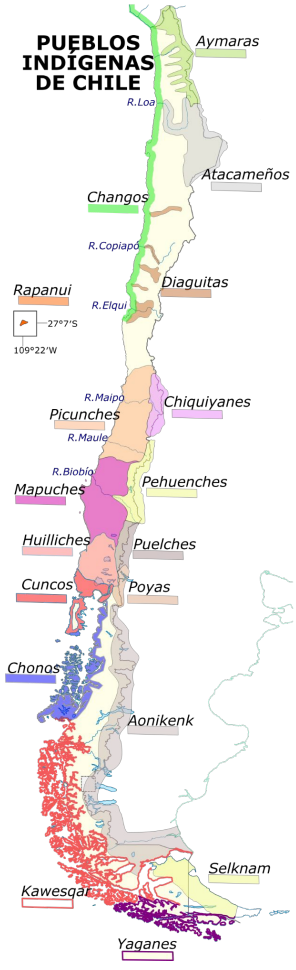
Can design activate a local innovation ecosystems, recognizing communities, industries, start-ups and ancestral cultures?

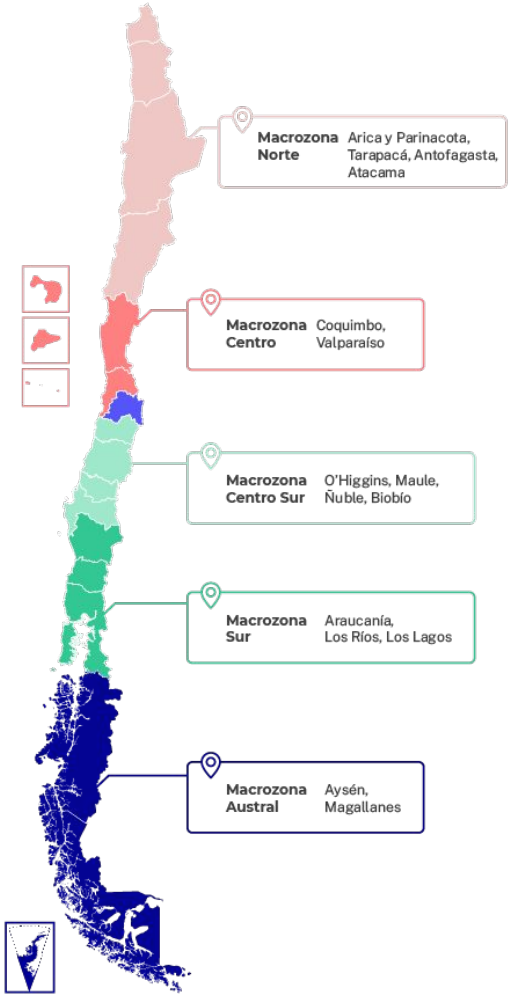
Instead of designing hyper-massive global solutions, can we design hyperlocal solutions that feed local needs and scale globally via open source?

FAB CITY FULL STACK

Fab City Full Stack is a framework that helps cities and regions to interpret the Fab City challenge and also a tool that guides them to implement it in a multiscalar and ecosystemic approach and define their own strategic action plan.


Climas
Estepario costero
Mediterráneo
Hielo de Altura
Templado lluvioso
Marítimo
Tundra
Estepario frío
Desierto normal
Desierto costero
Desértico frío o de altura
Estepario interior
Territorio Chileno Antártico
Islas San Félix
Isla San Ambrosio
I. Sala y Gómez
Isla de Pascua
Islas Diego Ramírez
Archipiélago Juan Fernández
OCÉANO PACÍFICO


PUEBLOS INDÍGENAS DE CHILE
Aymaras
R.Loa
Atacameños
Changos
R.Copiapó
Diaguitas
Rapanui
R.Elqui
27°7'S
109°22'W
R.Maipo
Chiquiyanes
Picunches
R.Maule
R.Biobío
Pehuenches
Mapuches
Huilliches
Puelches
Cuncos
Poyas
Chonos
Aonikenk
Selknam
Kawesqar
Yaganes


Macrozona Norte Arica y Parinacota, Tarapacá, Antofagasta, Atacama
Macrozona Centro Coquimbo, Valparaíso
Macrozona Centro Sur O'Higgins, Maule, Ñuble, Biobío
Macrozona Sur Araucanía, Los Ríos, Los Lagos
Macrozona Austral Aysén, Magallanes

The products

1. Decomposing P&G products

BIOEQUIVALENT RECIPE

Soapbark tree

Molecule: Triterpenic Saponins

Role: Cleansing Agent

Role: Dilute

Water

Olive Oil

Molecule: Oleic Acid

Role: Humectant

Molecule: Hydroxyl Groups

Role: Emulsifier

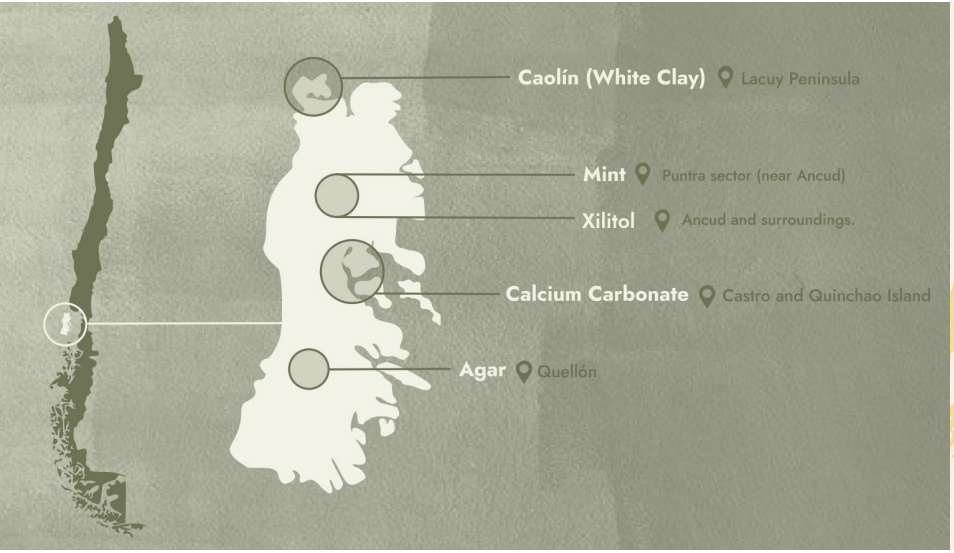
Glycerin

Agar agar

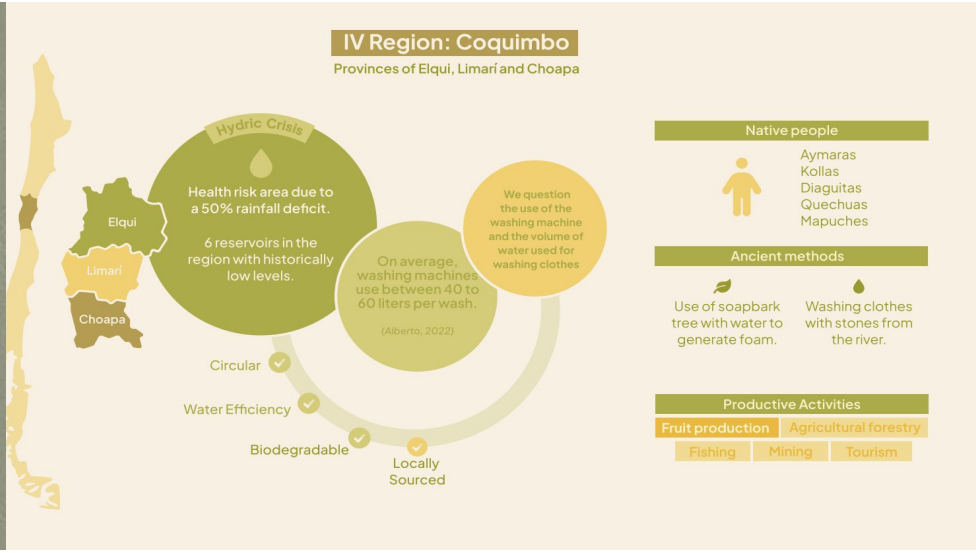
Molecule: Polysaccharide

Role: Gelling Agent

2. Macrozones analysis for biomass abundance



Oral- B



Dawn

LOCATION OF POTENTIAL SOURCES OF INGREDIENTS

Group of local lavender producers

"Arroz Mantul" local company

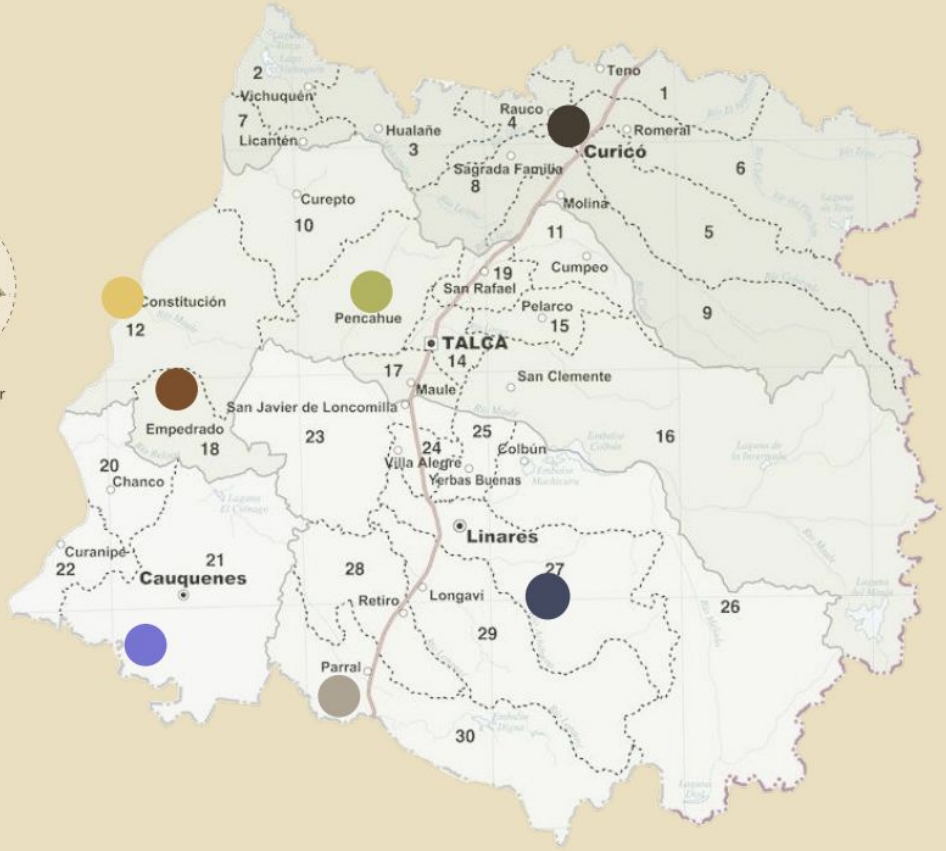
Hugo Rojas, farmer authorized to exploit Soapbark tree

"Anahí" distributor

"Valle Maule" company

Documented informal trade

Available along the entire coast of Chile



SMALL SCALE

Farmer women from PRODEMU

Water Vapor Withdrawal Distillation
(PanoramaWeb UdeC, 2016.)

Hugo Rojas

Support for independent producers

Informal trade

Solid-liquid reflux extraction with a Soxhlet extractor, uses solvents to extract compounds from solid samples.
(Benítez-Villalba et al., 2021)

MAULE REGION
agricultural production

Algae harvesters from creeks

Ancestral techniques

"Anahí" Distributor

Ancestral techniques

"Arroz Mantul" Company

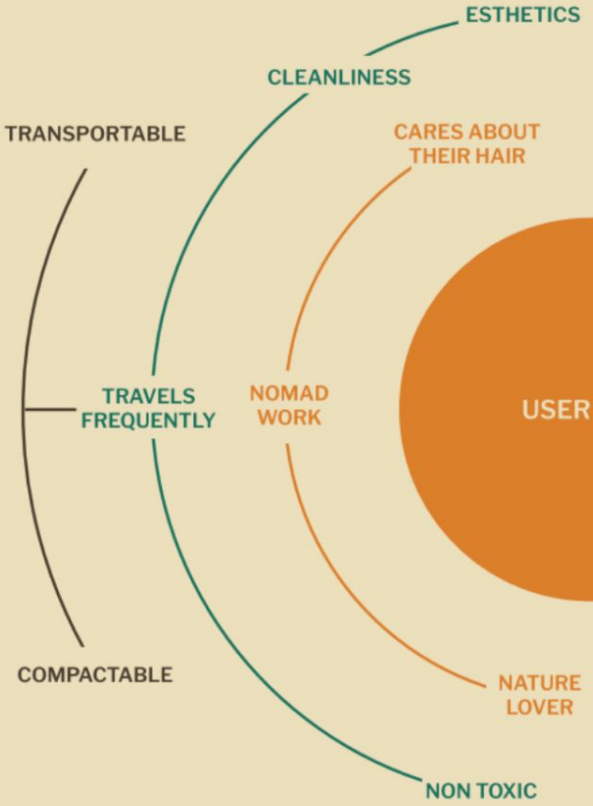
Large amount of waste

"Valle Maule" Company

High Performance Liquid Chromatography (HPLC) and UV detection, isolates components and thus purifies them.
(Kothakota et al., 2017)

MEDIUM & LARGE SCALE

PANTENINA
BY PANTENE



3. Enabling local innovation towards sustainability

Oral- B

Dawn

WHAT WAS IN CONSIDERATION WHEN DESIGNING THIS PRODUCT?

Agriculture in Maule

We can find all the raw materials for our ingredients in this region.

Additionally, in this region, we observe a large number of hectares dedicated to various types of crops, accounting for 17.2% of the country's total area.*

We believe working together with these small scale producers would be beneficial as a way to diversify their current market. On the other hand, we could give a new use to the waste of large scale producers like the blueberry and rice farms.

*(Ministry of Agriculture, 2016)

Workshop for blueberry producers made by the Institute of Agricultural Research (INIA).

"Pelillo", a raw material for the production of Agar Agar, found in a large part of Chile's coastline.

Paula Cardenas, a local producer of lavender from the area of Cauquenes, in the Maule region.

Soapbark tree, a native species used in the production of natural soap for many years by indigenous people.

WHAT WAS IN CONSIDERATION WHEN DESIGNING THIS PRODUCT?

Adventure tourism and water polution

Chile is one of the leading countries in adventure tourism in the world, especially in the south of our country. In this area, thousands of tourists engage with rivers and lakes in various activities such as trekking, rafting, and fishing, to name a few.

In this context, we see a great opportunity to offer an option that allows carrying a biodegradable shampoo in a compact and dosed manner to these areas where the water cannot afford to be contaminated with chemicals usually found in cosmetics due to the health of the water and the ecosystem that depends on it.

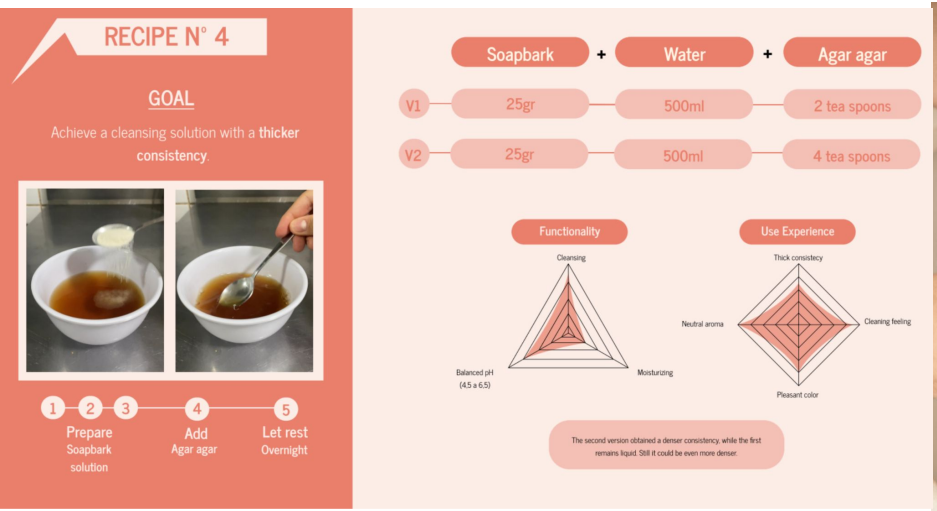
"Petrohué" river, in Los Lagos region, where ratfing and fishing is very popular among locals and tourists.

A river in the patagonia, one of the most special ecosystems in our country.

Dumping chemicals in rivers and lakes is one of the most harmful things for the ecosystem.

Chemicals from cosmetics may sometimes contain plastic polymers derived from petrochemicals wich do not biodegrate easily.

3. Experimenting: ‘the job to be done´



Ivory soap

Dawn

CLEANLINESS RECIPES

EXPERIMENT N°2

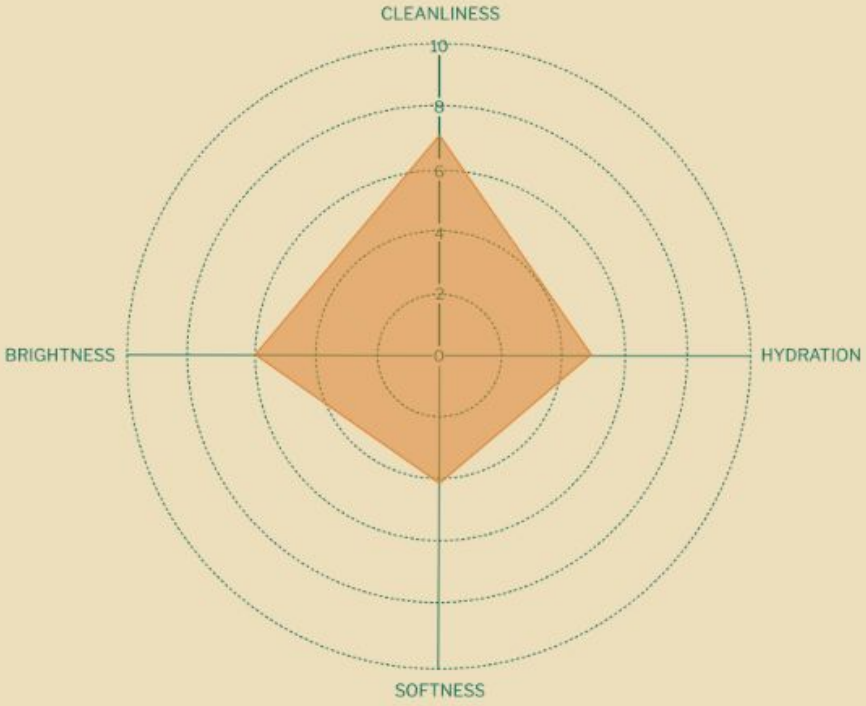

35 ml


1 ml


3 ml


3 ml


6 ml



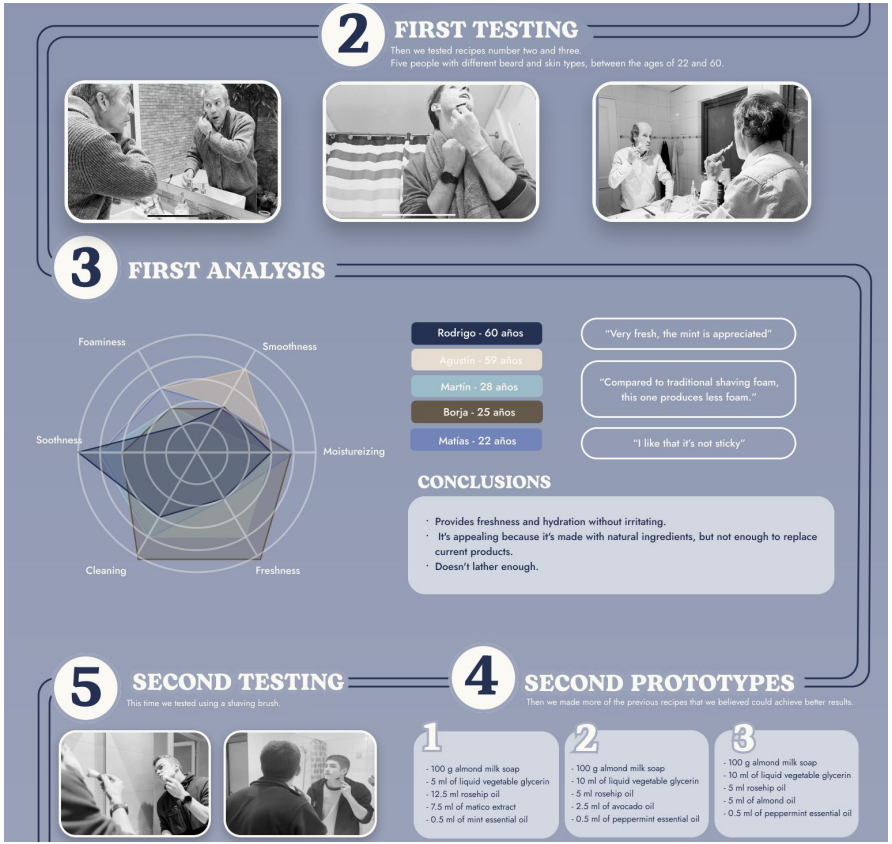

Easty to apply


No foam generation


Cleans Well


Ph N°5.5

4. Validation



FINAL RECIPE


35 ml


3 ml

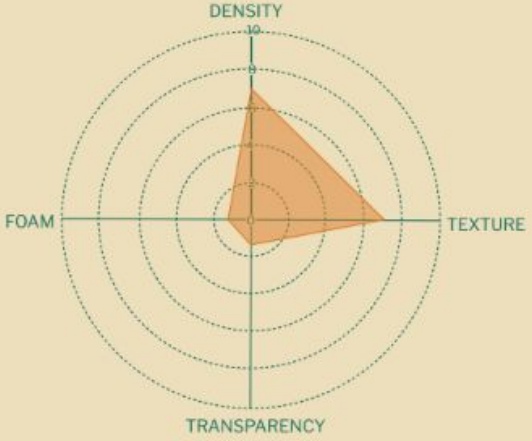

3 ml

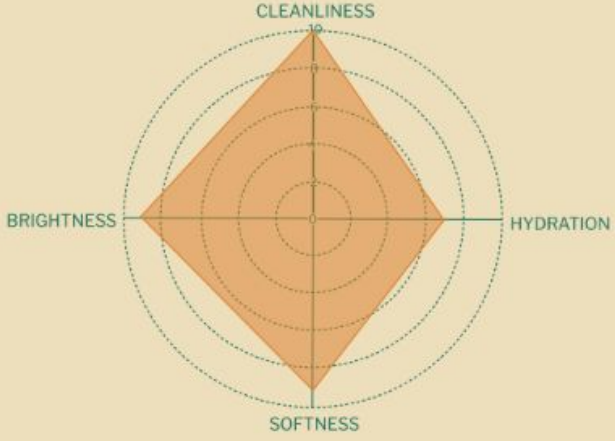

3 ml


6 ml

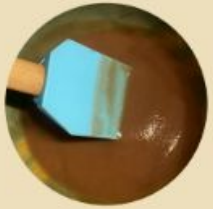

3 gotas


2.5 ml






Heterogeneous mixture


No foam generation


Cleans Well


Ph N°5.5

TESTING


Before
After
Before
After
Before
After
Before
After
Before
After
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Before
After
Before
After
Before
After
Before
After
Before
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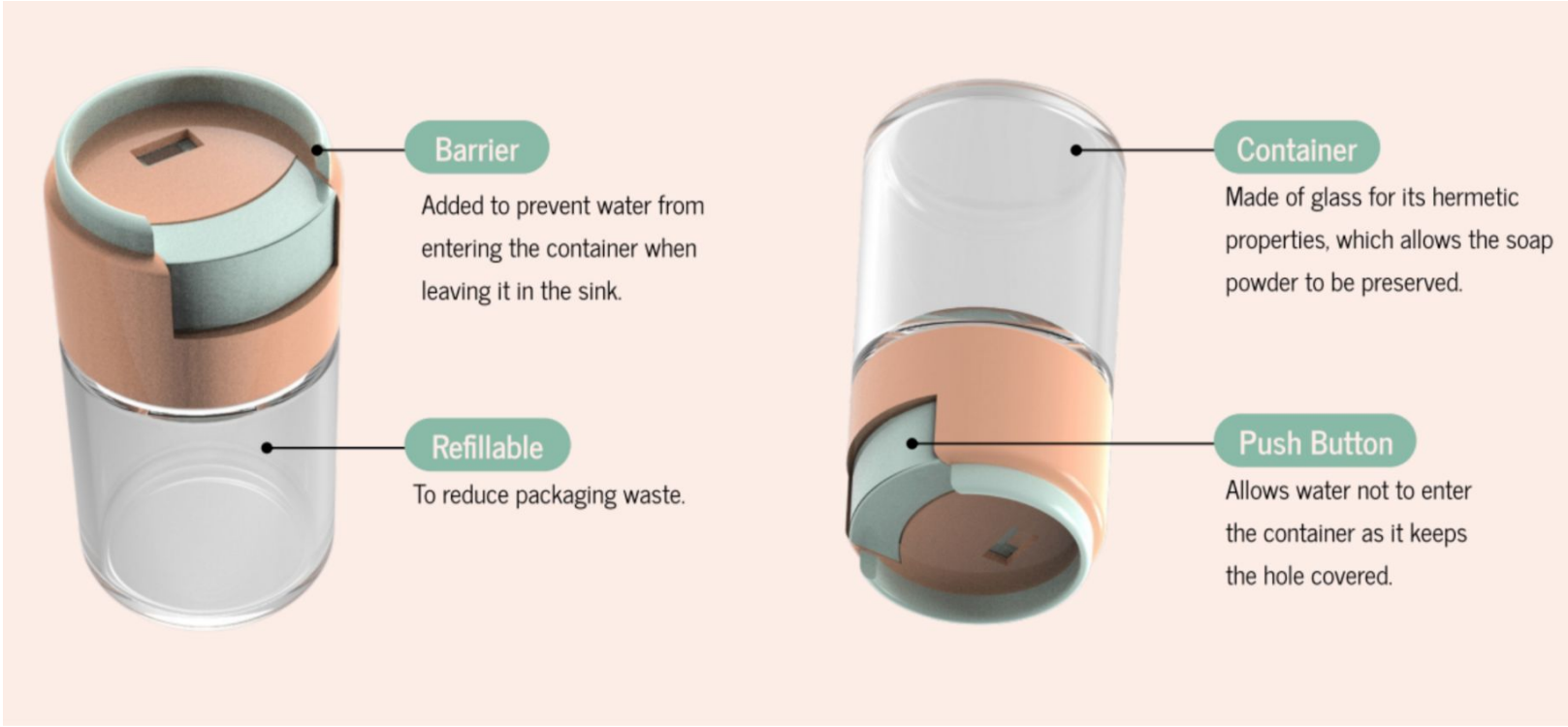
Before
After

5. Product Development




Pantene- Pantenina

INTERACTION

1

2

3

4

Pantene- Pantenina

Oral-B- firkü

Papay uses 50% less water than a conventional liquid detergent

Its comfortable grip allows you to rub stains by hand

JOB TO BE DONE

clean and maintain the freshness of clothes

Ariel- Papay

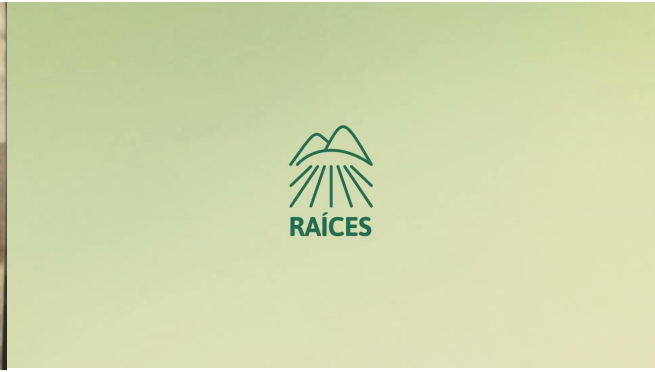
Old Spice- New Spice

Gillette foam- Lacustre

Dawn- Raices

Ivory- Küllayko

7. Sharing knowledge



Thanks

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