

The image shows three rectangular bars of soap arranged on a light-colored, textured surface. The soap has a marbled appearance with swirls of purple and white. A faint rose pattern is embossed on the surface of each bar. The central bar is in sharp focus, while the two bars on either side are slightly blurred.

ECO SOAP

Okinawa Prefectural Naha Kokusai High School

Research background



petroleum-derived

raw materials



a heavy burden

on the environment

An example of water pollution damage



Blue tide
**Place: The coast of
Tokyo Bay**



Red tide
Place: Biwa lake

Water discharged in Japan

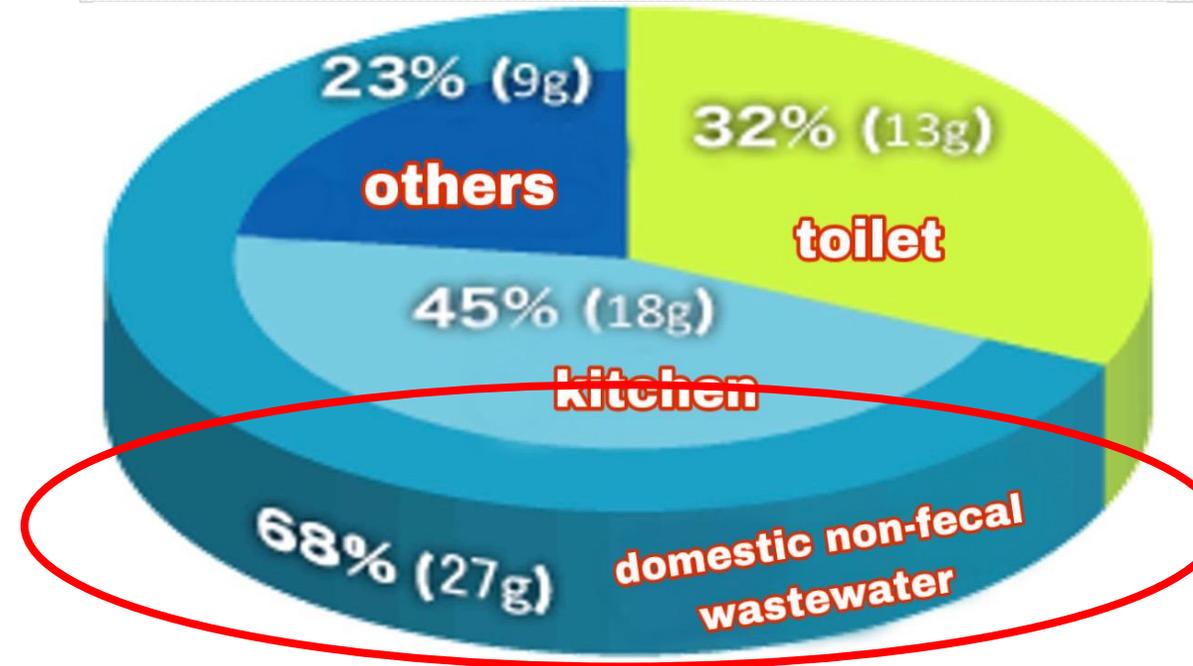
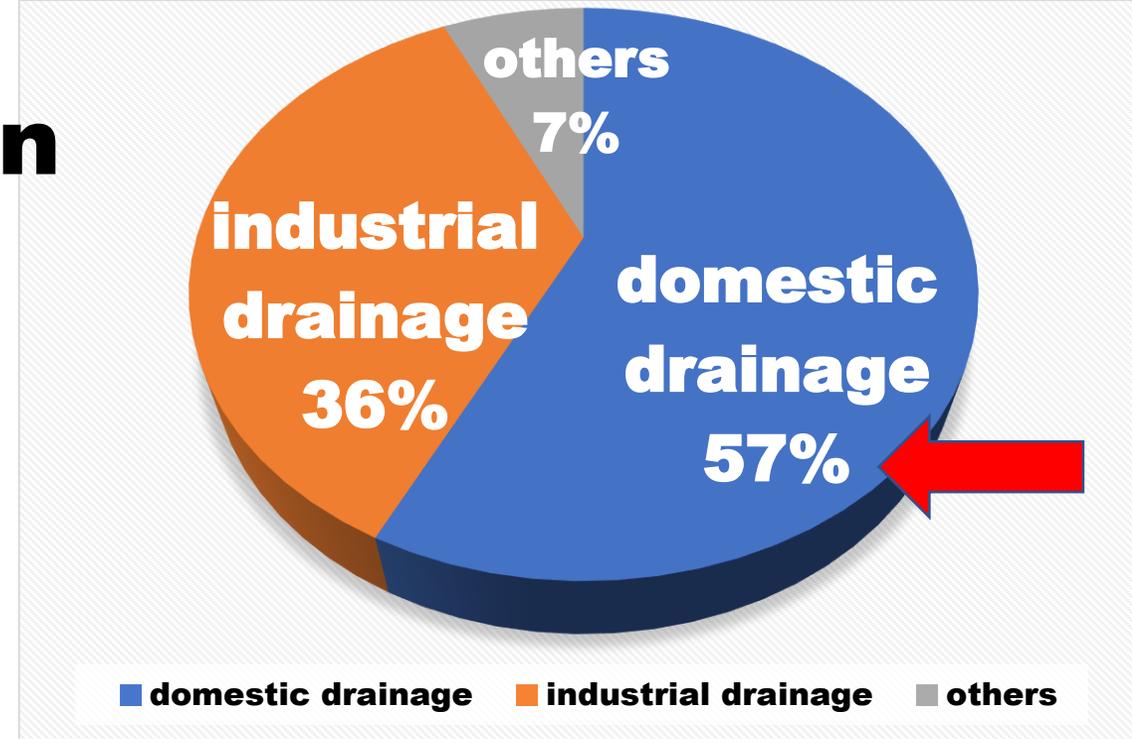
60%

domestic drainage

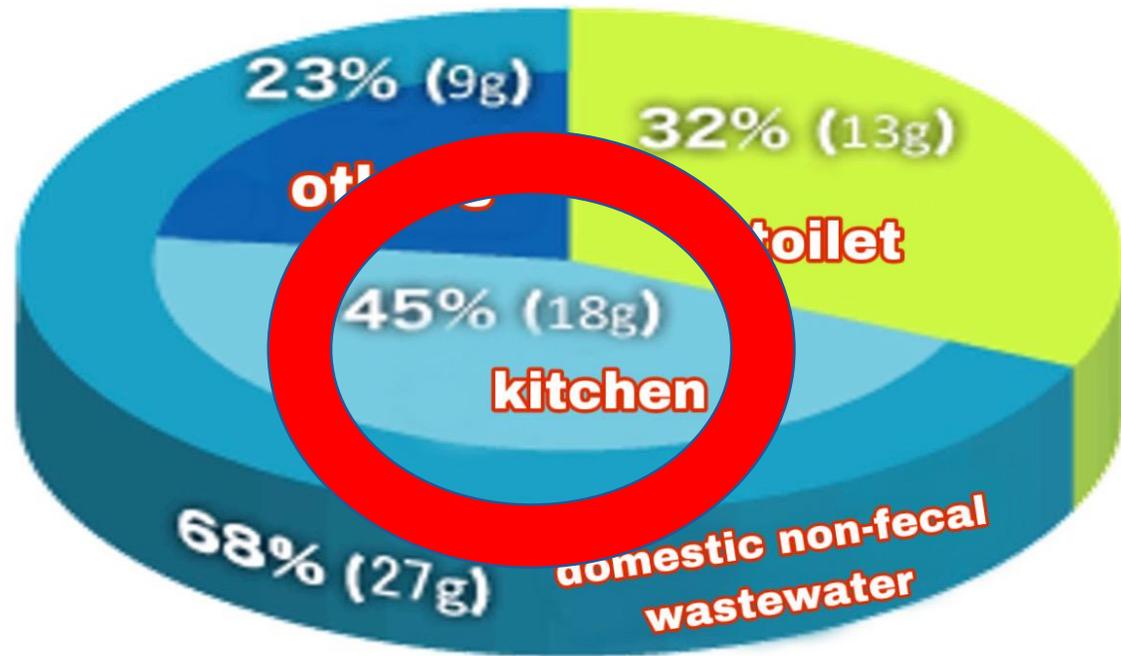
Domestic water

70%

domestic non-fecal
drainage



domestic non-fecal drainage



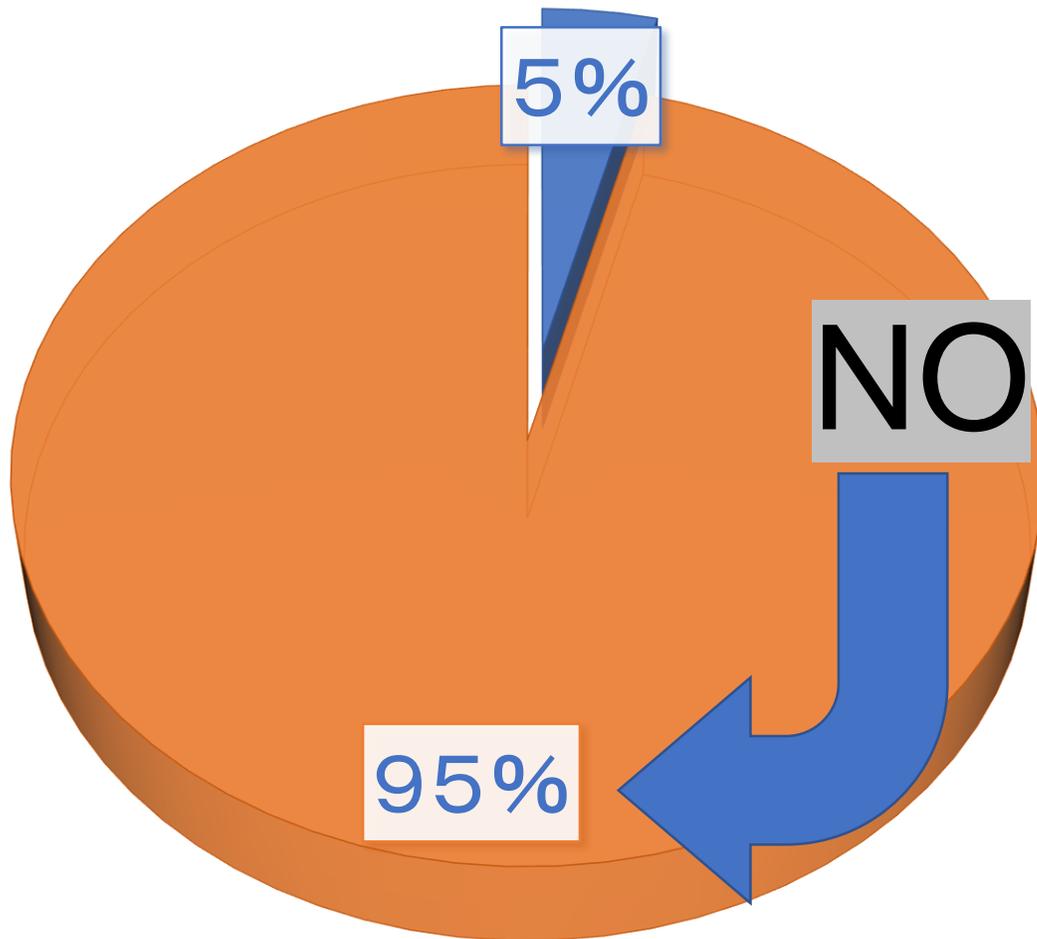
Major stains from the kitchen (BOD)

Amount of dirt per liter (g)			
Used oil	1,500	Simmered soup	50
Mayonnaise	1,333	Sauce	133
Milk	80	Shampoo	222
Beer	83	Kitchen detergent	222

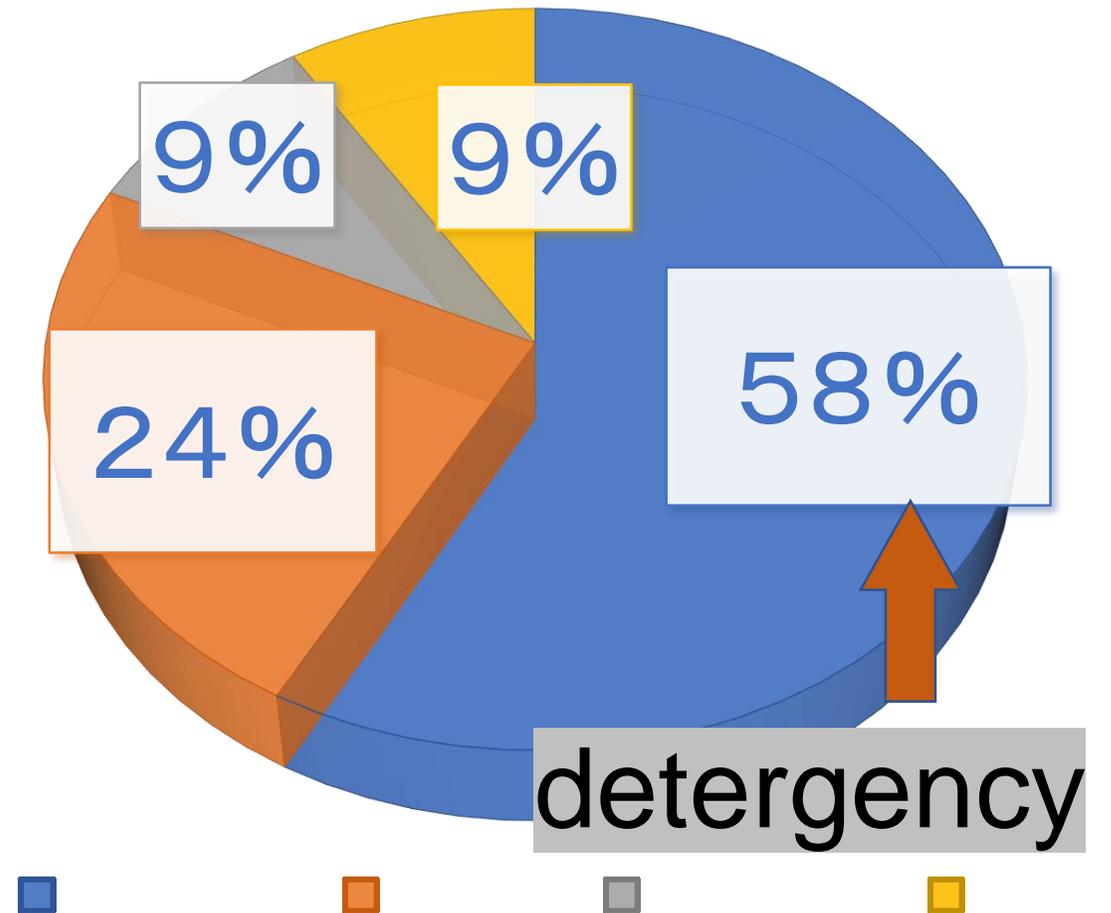
*BOD Biochemical Oxygen Demand

Questionnaire Results

1, ORGANIC SOAP USERS?



2. WHAT'S IMPORTANT WHEN BUYING SOAP?



Types of organic soap

Marseille soap



Castile soap



Waste oil soap



Soap we made!!

Castile soap
(Contains honey)



Castile soap



Waste oil soap



Experiment

① How it works on **oil-based paint**

- 1, Spread 2g oil paint on a plate**
- 2, wash the plate with each soap**

② Hand wash

Impressions of each soap used for washing hands

Experiment 1

Results

Waste oil soap

Castile soap

**Castile soap
(Contains honey)**

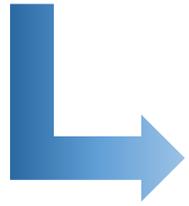
Market Soaps



Experiment2

Soap recommended for hand washing

- **Castile soap (Contains honey)**



**Compared to other soaps, it was
skin-friendly and moisturizing**

*** There are individual difference of impression**

Future Outlook

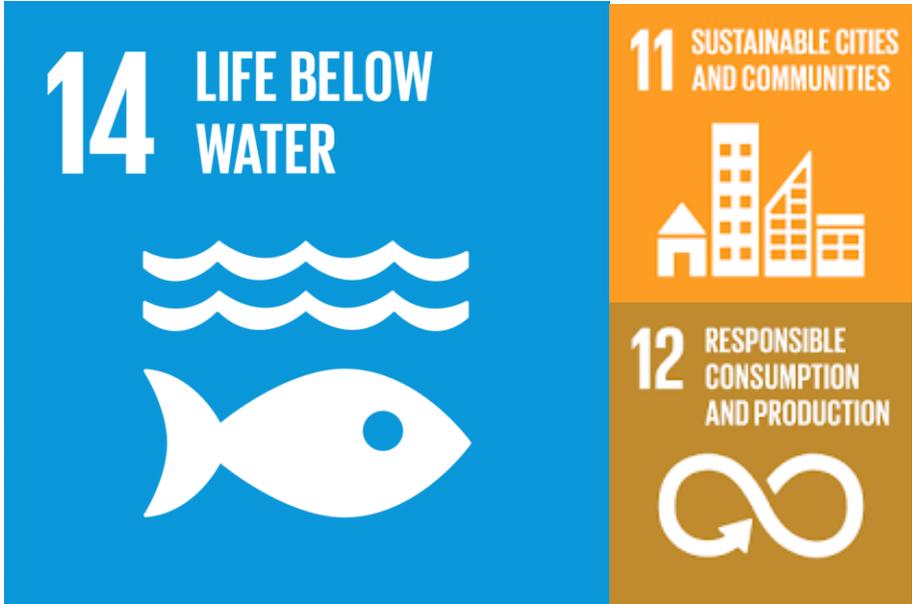
It would be possible
to make a
hard, foaming soap
without reducing its
cleaning power

- **The cleaning power of the soap we produced was no different from that of commercial soaps.**
- **In terms of strength, it became softer than commercial soap.**



- **Adding animal fat to soap ingredients to reduce water content during the production process.**

We proceeded with this theme of SDGs No.14 “Life below water”



References

- **Castile soap** <https://youtu.be/Xd2ZOxBxWFY>
- **Waste oil soap** <https://youtu.be/XGcKktsISkU>
- **Explanation of Red tide**
http://www.isewan-db.go.jp/gakushu/t01/s1_1.html
- **Wakayama Water Quality Conservation Center**
<https://wakayama-suiho.or.jp/septictank/drain.html>
- **Blue tide in Tokyo**
<https://www.sankei.com/photo/story/news/170619/sty1706190019-n1.html>
- **Red tide in Biwa Lake**
<http://waterwoes.org/environment-issues/influence-on-water-service/>