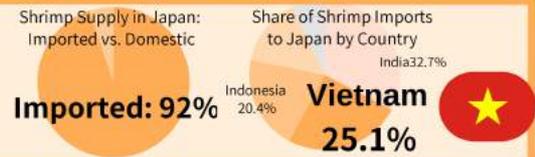


Discarded Shrimp Shells Reborn For the Environment and Our Health

Shizuoka Prefectural Mishimakita High School Team: Mai

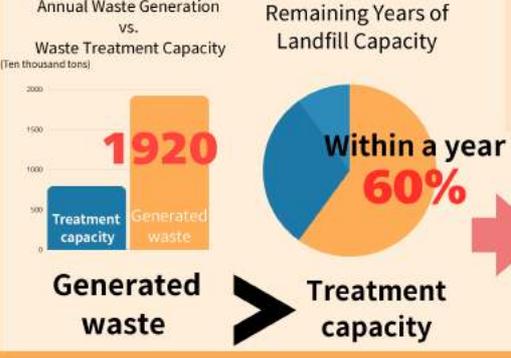


We cannot do without frozen shrimps.
Frozen shrimps are so useful and Japanese people love them. Actually, most of them are imported from Vietnam, where mangrove forests are well suited for shrimp farming.



Problems

Vietnam's Waste Issues

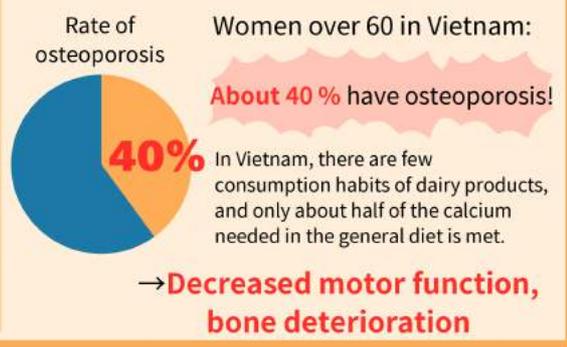


▲ Litter scattered on the streets of Ho Chi Minh City (photographed during the study trip)

Polluted farmlands and Environmental destruction &

The process of producing peeled shrimp generates a large amount of discarded shells, which contributes to an increase in waste generation.

Calcium deficiency



Solution

We aimed to develop products made from shrimp shells as a solution to the problem of large-scale shell waste, focusing especially on processing them into food products.

- Shrimp-shell chips

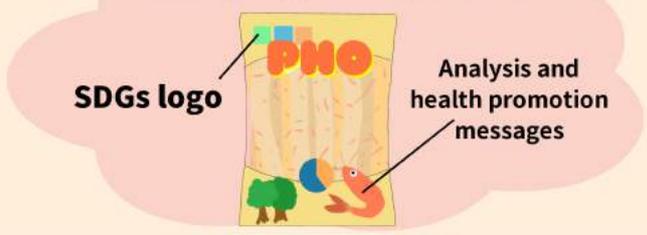
- Pho noodles made with shrimp-shell powder

- Easing the Waste Issue**
Putting shrimp shells to use gives discarded materials a new purpose and helps cut down the amount thrown away.
- Promotion of the health**
In addition to reducing osteoporosis by taking calcium, the effects of obesity prevention and intestinal conditioning effects such as chitin lead to the improvement of lifestyle diseases in Vietnam, where obesity and diabetes are increasing.
- Promotion of the SDGs actions**
By printing the SDGs logo and our analysis on the package so that many people can know and buy them, SDGs activities can become familiar and promoted.

Reduce CO₂



Packaging design idea



Prototype development

Marusen Fisheries Corporation and Toyo Refrigeration Corporation kindly gave us shrimp shells that were scheduled to be discarded. We made two prototype food products.

Good Points

- Shrimp flavor
- Easy to intake lot of calcium

Bad Points

- Hard shrimp texture
- Cooking oil is not good for health...?



▲ Pho with shrimp shell powder

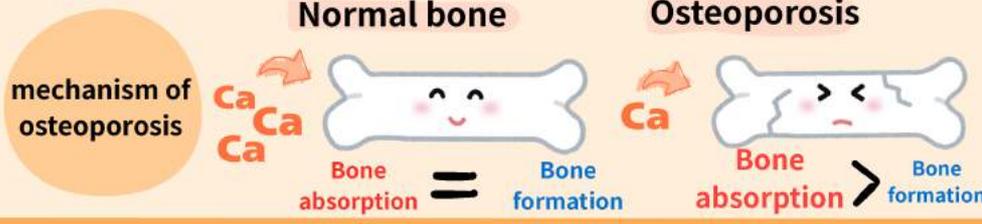


▲ Shrimp shell chips

Estimated Calcium Content

- Pho **3420mg** in 114g
 - Shrimp shell chips **300mg** in 10g
- ※ Assuming that there is no change in the amount of calcium due to the cooking process.
- **Even 10g of shrimp chips alone can supplement about half of the target amount of calcium (600-800mg) taken per adult per day.**

Expected effect



Bones always use calcium for bone absorption and bone formation. The imbalance due to calcium deficiency can cause osteoporosis, and the bones are easy to break. Our products, which contain a lot of calcium, are very helpful in preventing osteoporosis.

References

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