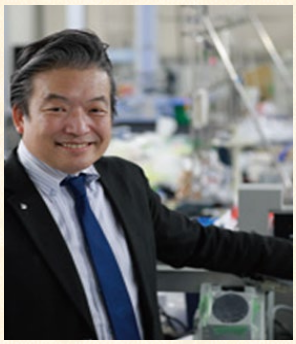

Reducing Food Loss with
“Unused Foodstuffs” × “Cold Energy of LNG”

We challenge in new reduction systems of food loss by combining unused foodstuffs with the cryogenic energy of liquefied natural gas (LNG). Through our co-creative-type research and development, we will multiply these two "*mottainai* (what a waste)" to popularize the delicious processing methods of hydrogel powders, encourage consumers to choose eco-friendly and ethical consumption, and create new value. We will build a future society where innovative long-term food preservation becomes common and healthy, sustainable lifestyles are realized.

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Professor, Graduate School of Science and Engineering, Yamagata University

Development of innovative long-term food preservation technology using cryogenically frozen and crushed hydrogel powder

Keywords: unused foodstuffs, food loss reduction, cryogenic energy of LNG, hydrogel powder, long-term storage foodstuffs, ethical consumption

Background

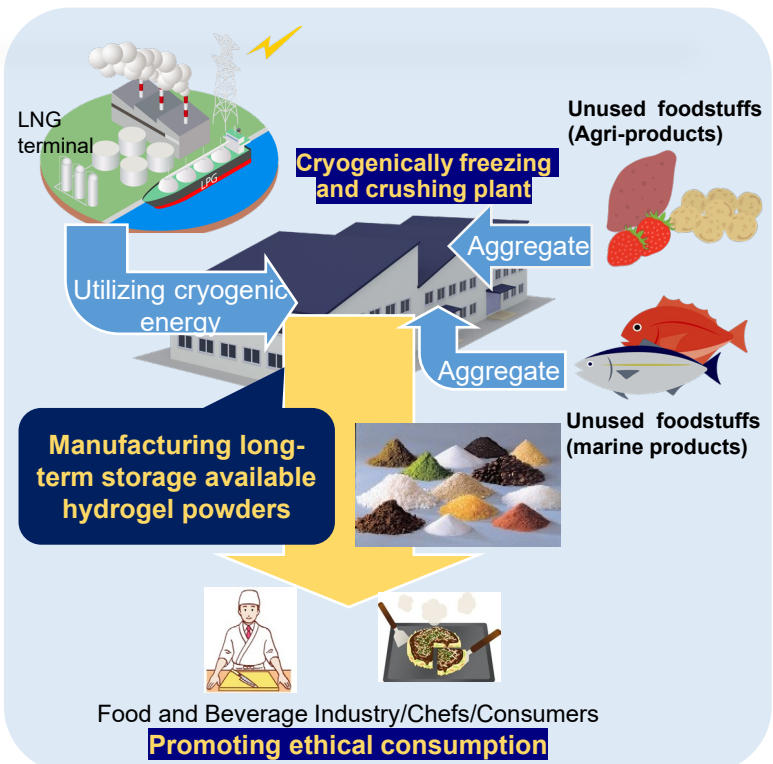
Utilizing unused foodstuffs is necessary to solve food shortages

Food loss occurs at various stages from production to distribution and consumption.
To reduce food loss, it is necessary to establish a social system to utilize unused food materials.

Research Contents

Establishment of long-term food preservation technology using cryogenically frozen and crushed hydrogel powder

We believe that if delicious and affordable seasonal food could be preserved for a long period of time, disposal of underutilized foodstuffs becomes disappear. Therefore, in this project, to reduce food loss, we will manufacture hydrogel powder using unused foodstuffs and LNG cryogenic energy (cold energy generated when liquid natural gas vaporizes), establish long-term storage technology in ultra-low temperature warehouses to create added value for unused foodstuffs, and aim to build a social system that promotes ethical consumption.



<Research and development issues>

- Design of an aggregation system for unused foodstuffs
- Production method of hydrogel powders
- Study of evaluation method to standardize hydrogel powders
- Design of long-term storage method for hydrogel powders
- Design of “delicious” food using hydrogel powders
- Consideration of promoting ethical consumption of new foodstuffs

Targets by 2030

By 2030, we will establish a research plant to demonstrate the effects of low-temperature frozen grinding and long-term ultra-low temperature frozen storage and begin manufacturing and long-term storage of hydrogel powder derived from unused foodstuffs. In addition, we will realize a series of processes such as acquiring unused foodstuffs, manufacturing and methods for cooking hydrogel powder, developing food menus, and providing products to consumers on a profitable basis.

Cooperating Research Institutes

Yamagata University/ Miyagi University/ Ichimasa Kamaboko Co., Ltd./ Watami Farm Co., Ltd. / Japan Petroleum Exploration Co., Ltd.