Modal Shift from Truck to Cargo Ship with Freshness Preservation Reefer Container

Business introduction

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Nihon Crant Co., Ltd.

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Project introduction

＜**Project title**＞

Modal Shift from Truck to Cargo Ship with Freshness Preservation Reefer Container

＜**Representative company**＞

・Nihon Crant Co., Ltd.

＜**Partner company**＞

・Hoan Chau - ASIA
Wholesale company for seafood, vegetables and fruits.

Representative company introduction

Nihon Crant Co., Ltd.

Main Businesses：
Environmental improvement business (manufacture and sale of water purification equipment, biomass generator sales), container business, Plastic coating, metal coating, screen, pad printing, laser marking, General surface treatment, various inspections, ASSY, etc.

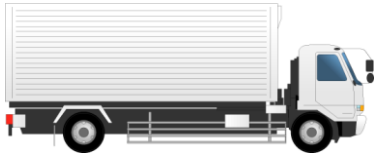
Until now, we have installed equipment to purify factory wastewater at the headquarters factory, reused paint wastewater, purified air discharged from the booth to prevent chemical emissions and remove odors, etc.
We have commercialized and sold factory wastewater purification equipment installed in our company, and have begun to introduce it into developing countries as an environmental improvement project.

In recent years, we have also been working on biomass power generation, which has also started a project to introduce it to developing countries. In particular, we want to expand to Vietnam, Thailand and Indonesia.

Project background

◆ Issues in cold chain logistics in Japan

- Lack of truck drivers
- Measures for environmental issues



Modal shift

Marine transport

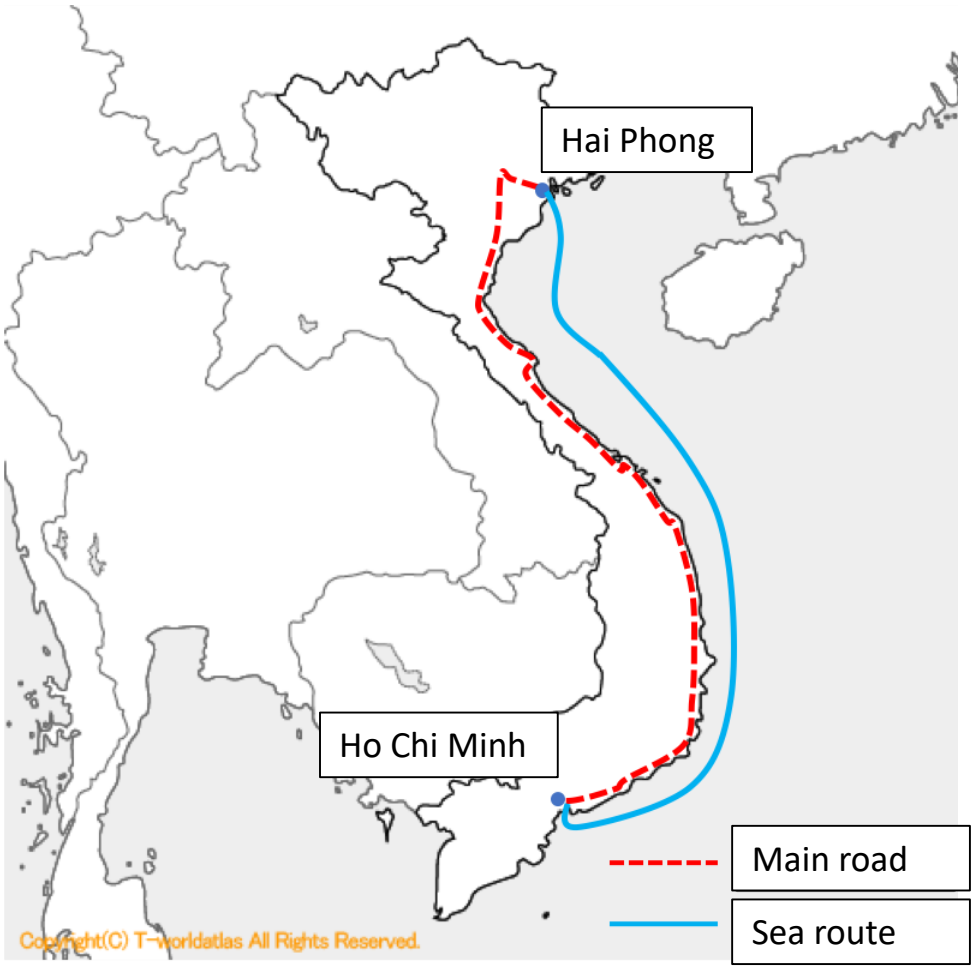
Rail transport

◆ Logistics issues in Vietnam

- In Vietnam, land transportation by truck is the mainstream for transporting fresh food due to low cooling technology.
- Due to the shortage of reefer trucks compared to the transport volume, truck transport is expected to increase in the future.
- The mechanism that keeps freshness is attracting a great deal of attention because the load may be damaged or rotten during transportation, and half of the load may be discarded.

- The modal shift of domestic transportation in Vietnam from land to sea will solve truck shortages and environmental problems.
- Because it can be transported while maintaining freshness, food loss can be reduced.

Overview of this project



The goal is to reduce CO2 emissions by modal shifting from truck transport to sea transport for logistics connecting Hai Phong and Ho Chi Minh.

However, at present, sea transportation takes a lot of time and cannot maintain freshness. Therefore, all foods such as vegetables are transported by truck.

Therefore, in this project, by introducing a reefer container equipped with a freshness-keeping function, it will be possible to maintain freshness even during long-time sea transport and realize a modal shift.

Background of application for JCM

- Last year, a reefer container for railroads equipped with a freshness keeping function called “HYOKAN SO-KO” was developed in a CO2 reduction project in Japan.

Modal shift

Rail transport

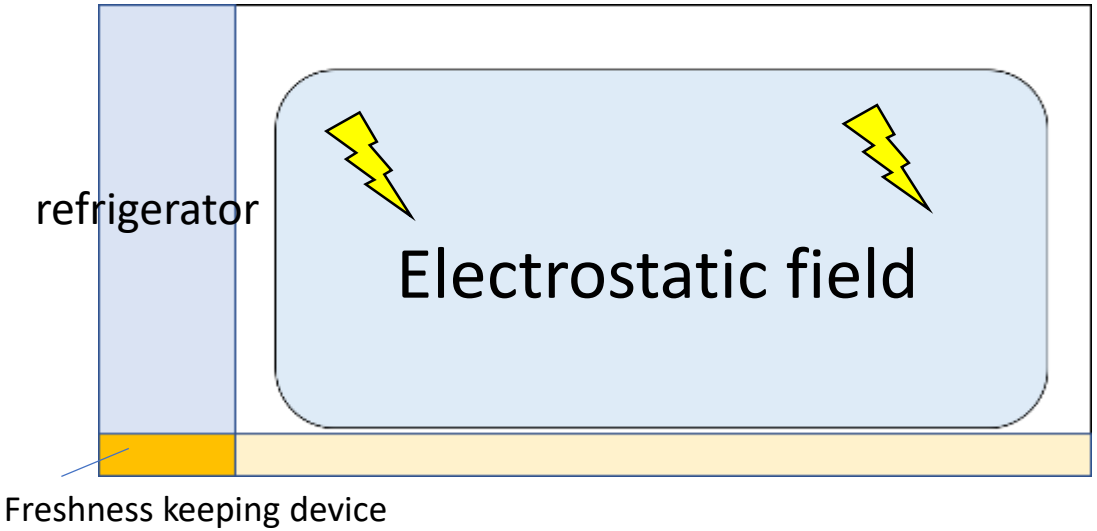
- The CO2 reduction due to the same modal shift was considered to be applicable to Vietnam, and the amount of CO2 reduction was calculated. As a result, it was found that the cost-effectiveness of CO2 achieved the JCM indicators significantly.
- Under this plan, the annual reduction amount will be 10,103tCO2, and the cost reduction effect is expected to be "2,756 yen / tCO2."

Explanation of freshness keeping system

- The freshness preservation system installed in this container maintains the freshness of foods, etc. by forming a high-voltage, low-current electrostatic field inside the reefer container. This mechanism enables long-term transportation while maintaining freshness.

- Demonstrates a high freshness keeping effect for all foods. In addition, rice and meat have been tested to improve umami due to aging effects.

Mechanism of the freshness keeping function



High voltage （3,500V～5,000V）
Low current （6mA～12mA）

Create a special electrostatic field space with high voltage and low current, If you put food in it, For effects such as suppression of occurrence. Therefore, the freshness is preserved.

Transport results in Japan（all successful）

- Hokkaido (Sapporo) → Kagawa (Takamatsu) 3days Seafood, salmon
- Hokkaido (Sapporo) → Saga (Tosu) 5days Saury
- Tokyo → Hokkaido (Sapporo) 3days Flower buds, plants

Results of preservation demonstration in Vietnam

Comparison of time periods that can be stored in a fresh state.

	Normal refrigerator		Freshness keeping system
・Lychee	1weeks	→	4weeks
・persimmon	2weeks	→	4weeks
・Avocado	1weeks	→	2weeks
・pineapple	1weeks	→	2weeks
・mango	2weeks	→	4weeks

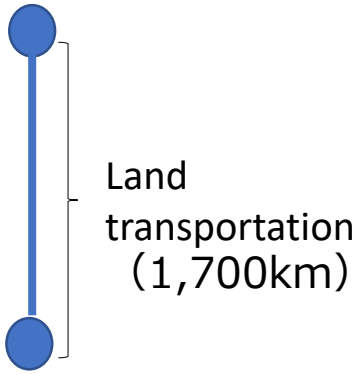

Normal refrigerator


Freshness keeping system

Concept of CO2 reduction

reference

Hai Phong logistics base



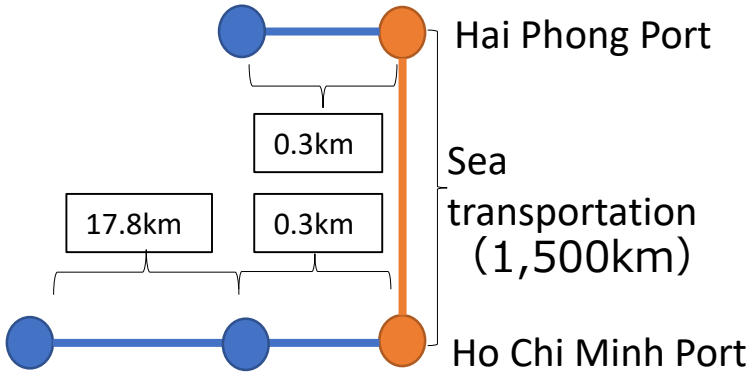
Ho Chi Minh Logistics Base

CO2 emissions based on the assumption that the same amount of luggage transported by the project is transported by truck.

15,947 (tCO2/y)

project

Hai Phong logistics base/
Hai Phong Port Base



Ho Chi Minh Logistics Base

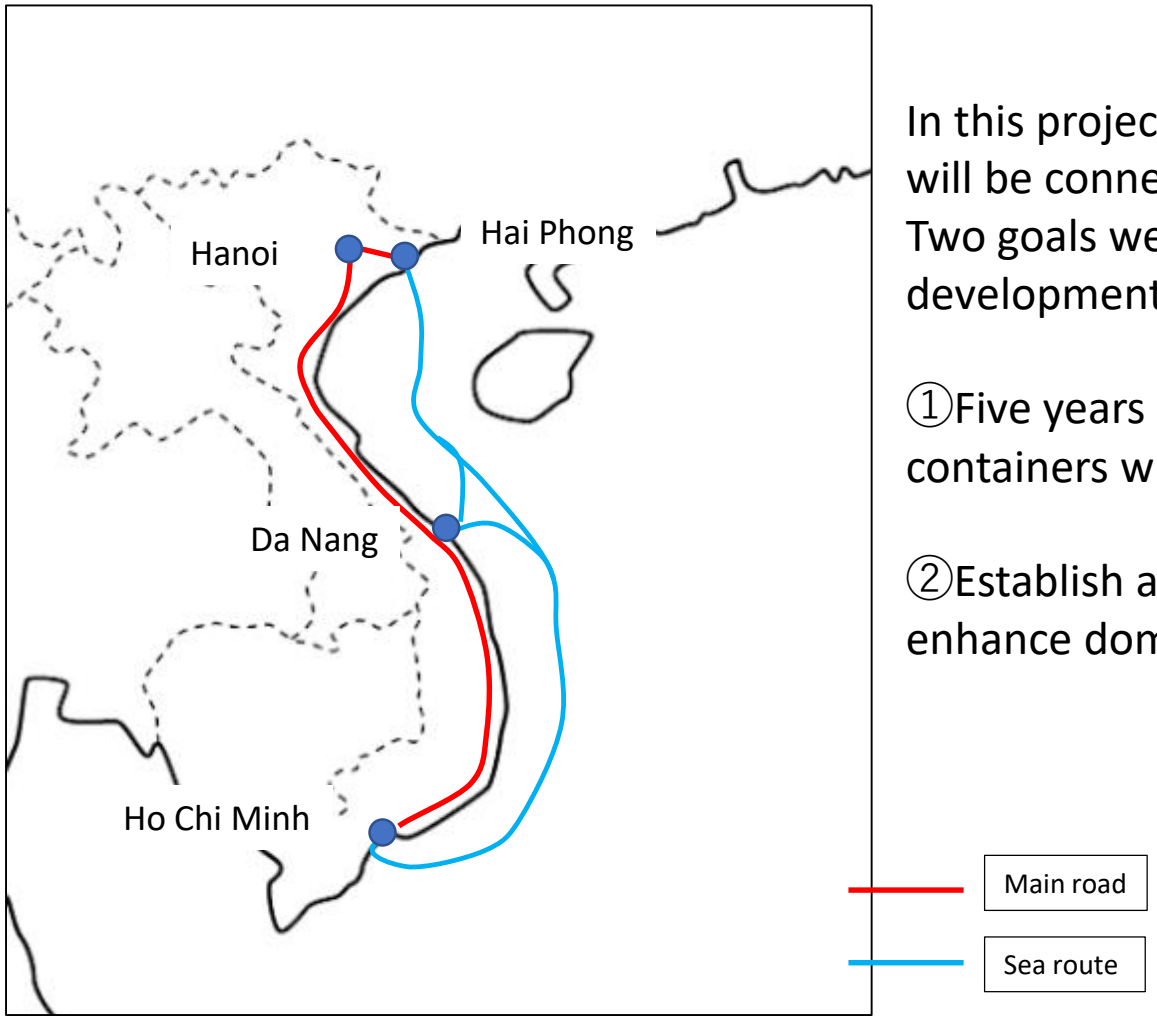
Ho Chi Minh Port Base

CO2 emissions when shipping containers (70 units) to be introduced this time.

5,844 (tCO2/y)

Future business development

- Further business development in Vietnam 1



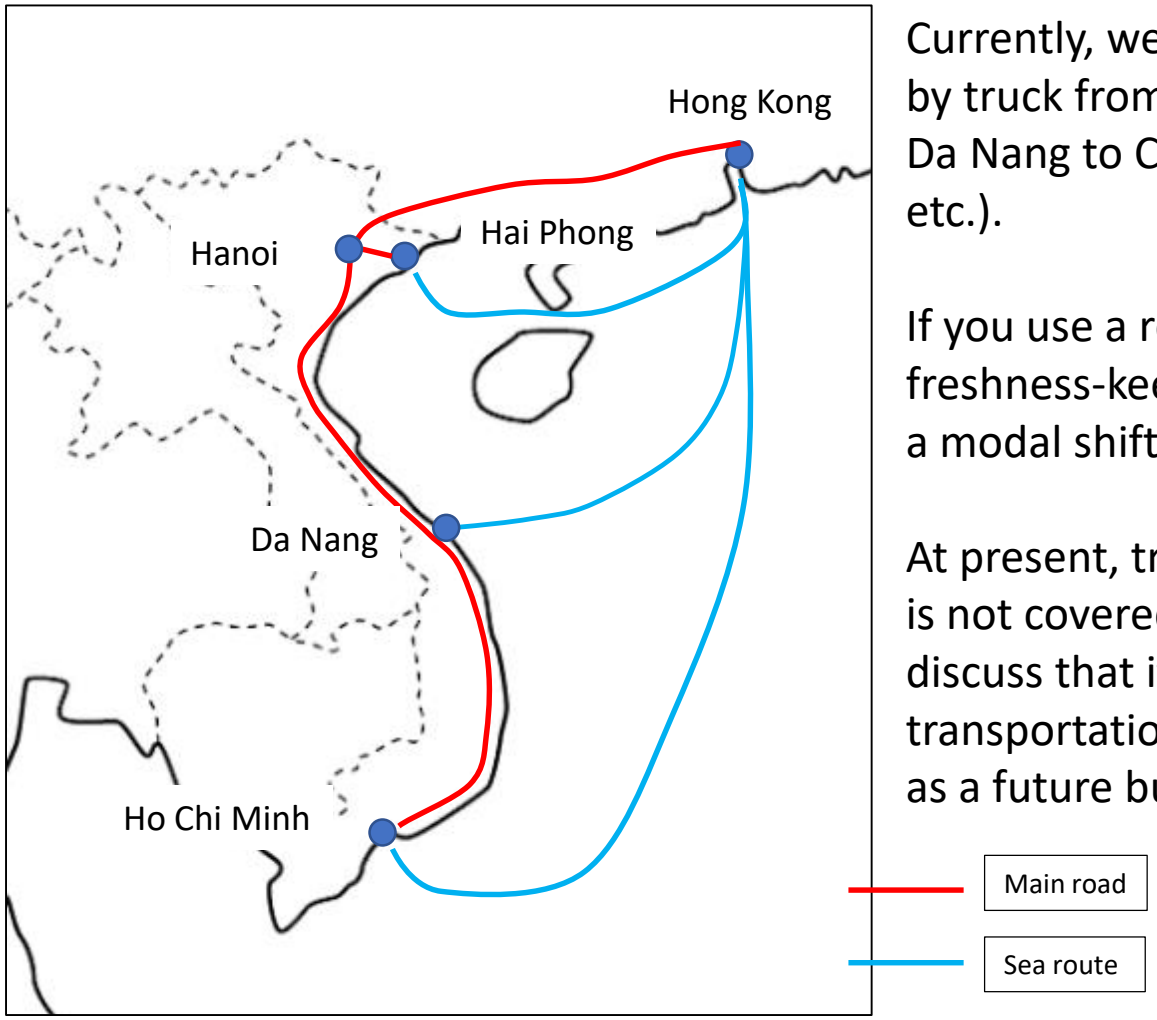
In this project, Hai Phong and Ho Chi Minh will be connected by sea transportation. Two goals were set for future business development.

①Five years later, the number of containers will increase from 70 to 500.

②Establish a logistics base in Da Nang to enhance domestic sea transport.

Future business development

- Further business development in Vietnam 2



Currently, we transport seafood and fruits by truck from Hai Phong, Ho Chi Minh, and Da Nang to China (Hong Kong, Shanghai, etc.).

If you use a reefer container with a freshness-keeping function, you can make a modal shift to sea transport.

At present, transportation outside Vietnam is not covered by JCM, but I would like to discuss that it will be applied to transportation outside the target country as a future business development.

Thank you all for listening.
It was a pleasure being here today.

Cảm ơn mọi người đã lắng nghe.
Đó là một niềm vui được ở đây ngày hôm nay.