

## 6 Environmental Measures Taken at the Products Distribution Sector

### ① Ground Transportation

Petroleum products are transferred from refineries to depots, from which they are transported to gasoline stations and factories. Tank trucks mainly transport them, but railroad and marine tankers are also used in transport between refineries and depots. Fuel consumption, exhaust gas emission and traffic hazards can be taken up as environmental problems. However, we consider our current pressing need is to establish the most efficient transportation structure and system and we are focusing our efforts on it. Our target is to reduce fuel consumption by 9% in 2010 as compared with 1990.

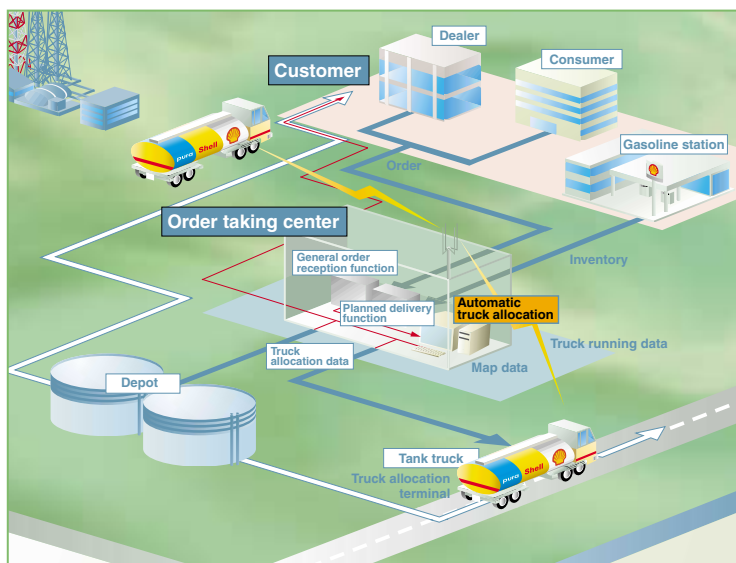
The first step to increase efficiency is to size up tank trucks and marine tankers.

By 2003, Showa Shell Sekiyu increased the percentage of transport by large tank trucks (capacity 20kl and over) to 70% as compared with 52% in 1995. We are working to further increase the percentage to 75% in the future.

The number of super-large tank trucks (capacity 24 kl and over) also increased from 9 vehicles in 1996 to 68 in 2003. As to marine transportation as well, we intend further sizing-up of tankers and reduction in cruising distance, while giving special consideration to safety.

In addition, Showa Shell Sekiyu has striven for raising transportation efficiency and cutting distribution cost by computer controlled distribution planning since many years ago, building up a state-of-the-art vehicle assignment system (currently called "NEU PLANET"). This system has been reviewed and updated as necessary to secure reliability of its optimized data. Apart from that, Showa Shell Sekiyu is pushing forward various initiatives to enhance efficiency, for example, consolidation of depots, encouragement of tank truck delivery at nighttime and on holidays to save fuel consumption and increase turnaround ratio by means of avoiding traffic congestion.

■ Computing the minimum tank truck trajectory with "NEU PLANET"



### ② Marine Transportation

#### *Sizing up of Tankers and Optimization of Cruising Distances*

The Showa Shell Group has been working to increase the sizes of tankers and optimize domestic cruising distances in order to raise the efficiency of our domestic marine transportation.

Sizing up tankers is associated with problems such as the need for improving tanks and reception terminal facilities. However, our group has been pressing forward measures such as increase of marine transportation efficiency and remodeling of reception terminals for accommodating larger tankers.

As a result of our aggressive adoption of large tankers, the average tanker capacity has increased to approx. 3,900 kl in 2003 as compared with 2,400 kl in 1995.

Due to streamlining and reduction of oil terminals, the cruising distance per domestic marine transportation was slightly increasing until 2000. However, by sizing up domestic marine tankers, reviewing transportation plans for joint delivery and optimizing the balance between supply and demand, we have reduced transportation frequency and cruising distance.

#### *About Ship Inspection (Domestic Marine Tanker Screening System)*

Starting 2004, the Showa Shell Group has been working to strengthen our domestic marine tanker screening system in order to verify the safety and soundness of domestic marine tankers engaged in transporting our products and those received by group terminals.

In conducting ship inspection, we check documents, inquire crew and check facilities in accordance with the "domestic marine tanker checklist," which STASCO (Shell International Trading & Shipping Co., Ltd.) has created and Showa Shell Sempaku has revised to meet the circumstances of Japan. For any tanker evaluated to have a problem in safety as a result of the inspection, we take a necessary action such as making a request for corrective measures and denying permission to use the tanker.

For those tankers which have received ship inspections other than our inspection and whose inspection results are registered in ship inspection reports of OCIMF (\*1), we may regard them as tankers that have received our group's ship inspection and evaluate their safety.

For the time being, we will verify safety of approx. 1,100 tankers that cover almost all domestic marine tankers engaged in our group businesses by building a database on the tankers through ship inspections and the likes.

Note (\*1): OCIMF: Oil Companies International Marine Forum