The EVOIKOS Incident and Activity of the Japan Disaster Relief Team (Outline)

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1.Introduction

As the Straits of Malacca and Singapore is referred to as a lifeline, needless to say, it is an extremely important point for marine traffic of various Asia n countries in the Far East, in particular, Japan.

In the Singapore Strait, a collision between tankers occurred, and about 28,00 0 tons of the heavy oil, which was loaded, was spilled in the sea. If we assume the spill volume of heavy oil at the time of the Russian tanker NAKHODKA incident (January, 1997) as about 6,200 tons, the volume 28,000 tons is equivalent to 4 to 5 times the spill volume when the incident occurred to the Russian tanker.

To cope with this incident, the Japanese Government dispatched the Japan Disaster Relief Team to Singapore.

2.Outline of the Incident

At around 9 p.m. (local time) on October 15, 1997, when the tanker EVOIKOS (75 ,000 gross tons, registered in Cyprus, loaded with 120,000 tons of marine fuel oil) sailing east from the United Arab Emirates to Singapore was navigating through the Singapore Strait, a collision occurred with another tanker ORAPIN G LOBAL (129,000 gross tons, registered in Thailand, empty vessel), heading west at the west side of the Raffles Lighthouse near the central part of the Strait. The collision occurred in a manner in which the bow of the ORAPIN GLOBAL pierced into the port bottom near to the position just in front of the bridge o f EVOIKOS, and the cargo tank of EVOIKOS was damaged. Thus, heavy oil (Marine Fuel Oil: Equivalent to Class C Heavy Oil), which was loaded to it, was spilled.

A large portion of the vessel was scraped off by the collision, and the center tank became visible. The severe impact of the collision could be easily imagined. Furthermore, oil which is believed to have spurted out at the time of collision was adhered to the bridge as well as to the top portion of the funnel.

If the oil, which had been loaded, were crude oil instead of heavy oil, the possibility of fire would have been great.

According to the initial information, the spill volume was 3,000 to 4,000 tons . However, according to the information of the following day, it was revised to about 25,000 tons. The final figure of the spill volume was announced as a bout 28,000

tons.

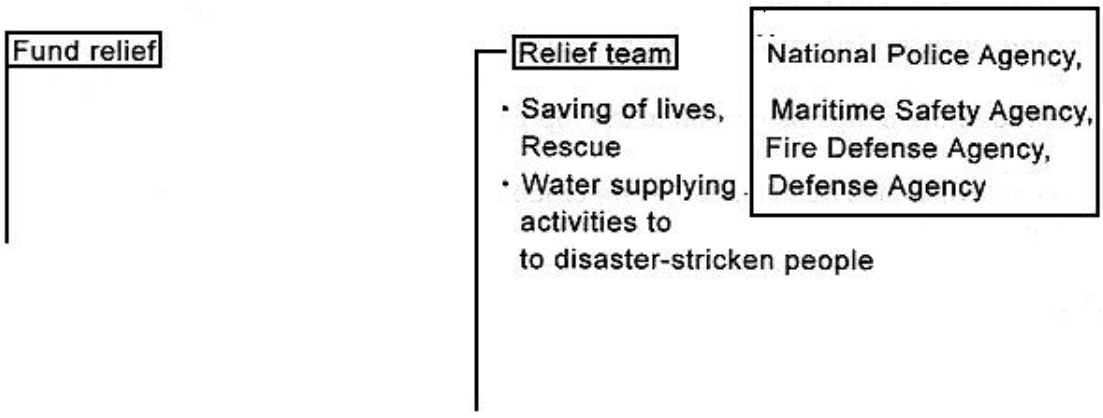
3.What is the Japan Disaster Relief Team?

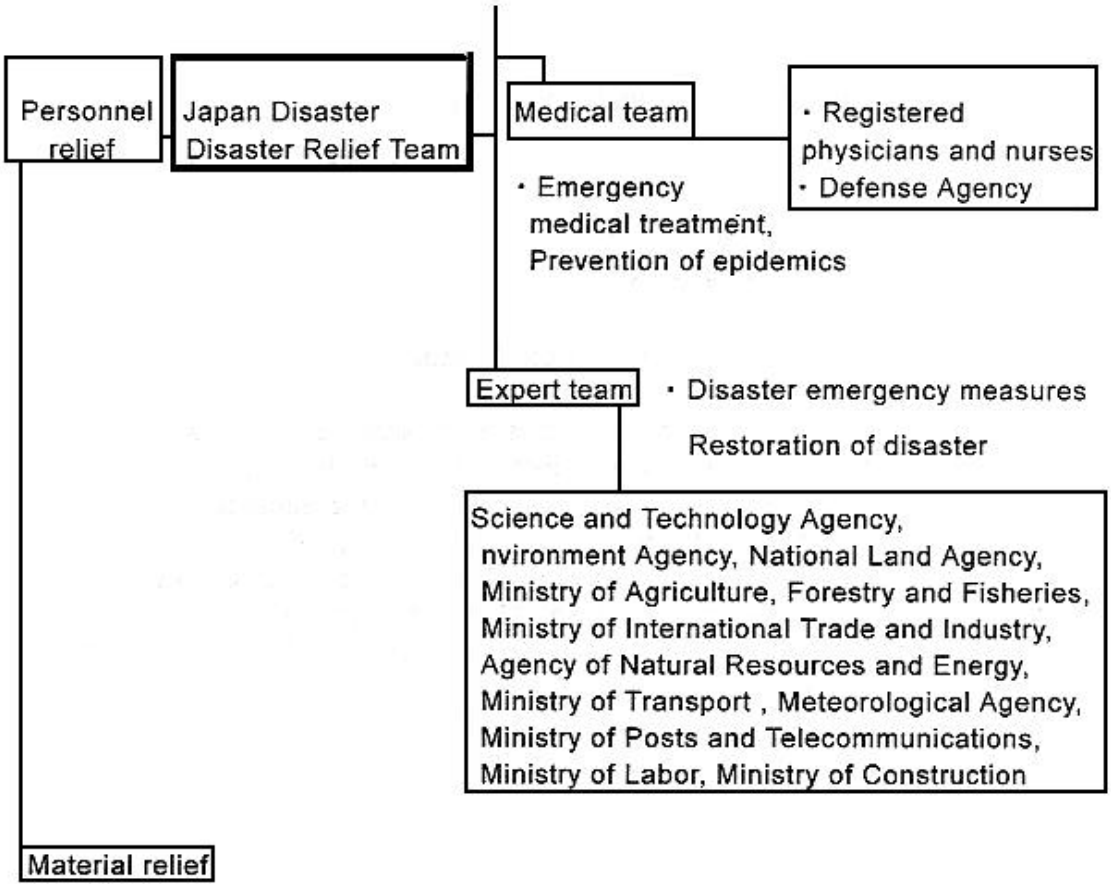
The Japan Disaster Relief consists of three supporting forms, namely, ①dispatch of the Japan Disaster Relief Team, ②supplying of Relief Supplies, and ③fund relief depending on the request of the governments or international agencies of the overseas disaster-stricken countries which were struck by large scale disasters such as earthquake and flood in the developing countries, in particular.

The Japan Disaster Relief Team (JDR) is based on the “Law Regarding the Dispatch of the Japan Disaster Relief Team,” and it was established with the purpose of conducting international disaster relief activities in quick response to the request of the governments or international agencies of the disaster-stricken countries, by dispatching the necessary personnel promptly. As duties of the JDR, activities such as ①relief activities, ②medical activities, and ③ activities for disaster emergency measures and disaster restoration. The Japan Disaster Relief Team consists of “relief team,” “medical team,” and “expert team.” For each disaster, in accordance with the request of the disaster -stricken country as well as scale and type of the disaster, the teams are adequately combined, and dispatched through the Japan International Cooperation Agency (JICA).

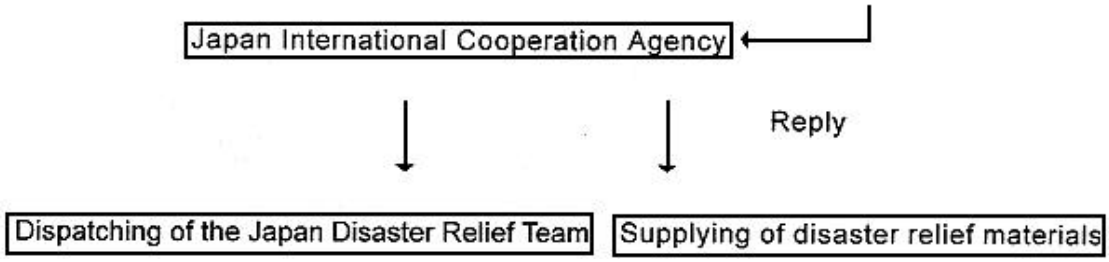
As activity records of the Japan Disaster Relief Team, since the enactment of the aforementioned Law in 1987, about 40 teams (total about 500 persons) have been dispatched to disaster areas all over the world. Almost all of them were natural disasters such as earthquake, flood, typhoon, and volcano eruption. As personnel dispatched to oil spill disasters, in 1991, at the time of the Gulf War, by the destruction of the coastal petroleum facilities, large volume o f crude oil had been spilled in the Persian Gulf. Therefore, the Japan Disaster Relief Team (expert team) for recovering the crude oil spill was dispatched to Saudi Arabia two times. Thus, the dispatch to Singapore on this occasion was the third time as the dispatch for oil spill disasters.

Outline of the Japan Disaster Relief System





Flow Chart until the Japan Disaster Relief Team is Dispatched



4.Dispatching of the Japan Disaster Relief Team

In the evening of October 16, a request for support was made by the Singaporean Government to the Japanese Government. The Maritime Safety Agency had already received information regarding the incident in the morning of October 16, and they were studying what cooperation could be made. As a result of the adjustments made among the Ministry of Foreign Affairs, JICA, and Maritime Safety Agency, in the evening of October 17, the dispatch of the Japan Disaster Relief Team was decided. The dispatch team consisted of 6 members, that is, one ex pert from the Maritime Disaster Prevention Division of the Maritime Safety Agency, as the leader, 4 persons from the Maritime Safety Agency, National Strike Team, and one personnel from JICA as a person to coordinate the operation. O f course, rescue cooperation activities to combat the oil spill will be conducted, but the promotion of friendly relations between the two countries is also included in the duties. This is a characteristic matter since the Disaster Relief Team is dispatched from a governmental organization. As for the materials and equipment supplied, there were 2 units of weir-type oil recovery equipment, 2 units of air-charging-type booms, and 3 units of oil storage barges (delivered separately as air cargoes).

The Disaster Relief Team departed in the morning of October 18, and after arriving in Singapore in the evening, support cooperation activities were conducted to Singapore by giving guidance and executing collection of information, adjustments, local investigation, and marine oil spill combat activities (oil recovery operations), as well as giving advice related to oil spill combat measures.

5.Characteristics of the Incident

(1)Meteorological and Oceanological Conditions
Singapore is located in a tropical zone almost on the equator. The atmospheric temperature exceeds 30℃, and the sea water temperature is 28℃ or higher. The wind was extremely weak, almost a windless condition, and there were no waves. The sea surface was calm as a mirror. The tidal difference in this sea zone is very large, and places where the tidal current is fast reach 4 or more knots per hour.

Furthermore, at the time this incident occurred, the fire, which started in the forests of Indonesia in late June, was not yet under control, and smoke from the forest fire densely covered this area. Owing to the air pollution by smoke (This was locally

referred to as HAZE), the visibility was extremely bad. Under such meteorological and oceanological conditions, it is believed that the following influences and effects existed.

i)Estimating from the damaged state of the collided tankers, it is believed t hat oil spilled out in an extremely short period of time. The oil which was loaded to the EVOIKOS was marine fuel oil (380 cSt / 50℃) or the so-called “Class C Heavy Oil.” The high sea water temperature makes the viscosity low. If we assume the temperature as 28℃, it is estimated that the viscosity become s 1,200 to 2,000 cSt). Thus, we think that the dispersion of the oil spill was very fast.

ii)Although it was Class C Heavy Oil, it is believed that the low viscosity which was due to the high sea water temperature was in the range where the effect of oil treating agent can be anticipated in the initial stage. The oil treating agent used in order to correspond to this incident is referred to as Type II, and we are told that it was self-agitating type. (In Japan, this type o f oil treating agent still cannot be used.) In this sea zone where there is no agitation energy based on wind and waves, it is perhaps a very effective type of oil treating agent in particular.)

iii)We think that the fast tidal current promoted diffusion and movement. Fortunately the direction of the tidal current at the time of the incident was in the westward direction, and together with the westward flow of the marine current in the Straits of Malacca and Singapore, in the initial stage, the spilled oil moved towards the west. If, for instance, the tidal current had been in the eastward direction, the oil spill might have reached Sentosa Island, the main sightseeing place of Singapore, as well as the East Coast. Subsequently , the drifting oil continued moving back and forth by the dominating tidal cur rent, and gradually moved towards the west (northwestern direction). Furthermore, subsequently, in a windless state, significant drifting ashore of oil spill did not take place. (Of course, drifting ashore of the oil spill w as found in small islands close to the incident site.)

iv)In a windless state, it is estimated that the oil which spread on the surf ace of the mirror-like sea surface did not mix with the sea water, but remained in an oil slick state, and the small volume of volatile matters contained in the oil evaporated, thereby increasing the viscosity. Thus, the situation was quite different from the case of NAKHODKA incident in which the heavy oil spill mixed with the sea water and emulsified (i.e. became mousse-like), and increased in viscosity as well as volume.

On October 19, when we conducted field investigation (i.e. 4 days after the incident), it seemed that the drifting oil slick increased considerably in viscosity, and the passing of the vessel caused ripples, but the thin oil slick broke into small pieces at the crest of the waves. When the oil slick was scooped up with the hands, it felt as if the viscosity was far above 10,000 cSt. We judged that oil in this state would be difficult to disperse with oil treating agents.

v)The air pollution by smoke (HAZE) which generated in Indonesia greatly affected one of the most important activities of investigating and monitoring the state of oil

spill from the standpoint of executing combat operations of oil s pill at sea. In particular, it is believed that the people concerned became very frustrated when they were deprived of the opportunity of investigating the oil spill state from an aircraft, several times.

Although the Singaporean Government and the spiller planned investigation of t he spill state by aircraft, because of the bad visibility caused by the HAZE, it is reported that they had to either give up the flight or even if the flight had been made, they could not grasp the conditions of the sea surface.

(2)Circumstances of Singapore

Besides the natural conditions, the domestic circumstances of Singapore, mainly the following matters influenced (especially in the good sense) the oil spill combat operations and the activities of the Japan Disaster Relief Team.

i)Sightseeing and Fishing Activities
Singapore is one of the foremost sightseeing places in the world. As sightseeing spots, there are the coastlines themselves as well as places facing the co asts. The main sightseeing places are Sentosa Island and the East Coast. Thus, Singaporeans feared oil spill pollution of these places, and made prevention of the drifting ashore of oil spill to these places one of their priority ma tters. Actually, in the case of Sentosa Island, installation of booms to prevent drifting ashore of oil spill was made at an early stage. Fortunately, by the help of natural conditions as mentioned before, the worst scenario of oil drifting ashore to these places was avoided.

In addition, the fishing activities of Singapore are not so active. According to hearsay, the number of registered fishing ships is extremely small. Each time an oil pollution incident occurs, the greatest concern is always the influence it will have to the marine resources, and the fishing activities. This is true in Japan, in particular.

ii)Security, Hygiene, Traffic, Communication, Lodging, Meals Although these elements are not directly related to the oil spill combat activities, and the same may be said when coping with domestic incidents, in the ca se of overseas dispatching in particular, they are matters of great concern. If the period of stay becomes long, all the more so.

From such a standpoint, Singapore was one of the best places. As for security , it is reputed as one of the safest countries in the world. As for hygiene, the country is very clean, and tap water is drinkable. Furthermore, medical institutions are complete.

Transportation facilities are good, and the servicing of roads is advanced. T he communication conditions are also good, and communication can be made with portable telephone from any place, even at sea.

As for lodgings and meals, since Singapore is a sightseeing site, the hotel circumstances are good, and there is no worry regarding meals.

Besides the above, in the case of overseas dispatch, it seems that there are problems related to visa, immigration control, customs, quarantine, and preventive injection, but here in Singapore, there were no such worries, and dispatch activities were carried out smoothly.

iii)Local Offices of Japan
In Singapore, needless to say of the embassy, there are JICA Office, Office of Japan Association for Preventing Marine Accidents as well as many offices of Japanese companies. Not only during the dispatch period, but also even before the dispatch, the team was blessed with various type of support and cooperation.

iv)Cooperation of MPA
As a matter of fact, support cooperation of oil spill combat activities cannot be realized without the full cooperation of the receiving side.

In our case, both the Disaster Relief Team as well as the materials and equipment necessary for oil recovery were dispatched. However, actual recovery operations cannot be performed with them alone. Ships are necessary for the opera tion, and the number of operators is insufficient. Furthermore, coordination and cooperation such as communication means for contacts and adjustments, receiving of recovered oil, etc. are necessary. These necessary items were all arranged by MPA. For instance, operation platform vessels (recovery operations), tugboats (to tug the operation platform vessels), small boats (for pulling the booms), 5 persons from the Civil Defense Force (operators), and Liaison Officer (contact and coordination) were arranged. For these matters, we receive d the great cooperation of SEMCO.

By the above-mentioned cooperation, the oil recovery operations of the Japan Disaster Relief Team became possible. That is, “The cooperative activities were realized by cooperation.”

v)EARL - Materials and Equipment Base of the Petroleum Association of Japan In Singapore, EARL, a world famous company specializing in oil spill countermeasures has its base. This is a base, which has experts, materials and equipment, vessels, knowledge, technology, as well as performance records related to oil spill combat. At the time of the NAKHODKA incident, a Disaster Relief Tea m came to Japan with their materials and equipment, and conducted oil spill combat activity. In addition, the materials and equipment base of the Petroleum Association of Japan is equipped with materials and equipment to combat the oil spill.

This means that it is in a very advantageous environment for developing large-scale oil spill combat activities to correspond with the oil spill.

6.Conclusion

During the activity of the recent EVOIKOS incident, we were concerned of the f ollowing.

i)Cooperative activity — What kind of activities can be expected from the country receiving the cooperation? —

ii)Communication — The language to be used.—

iii)Safety control — Accident resulting in injury or death

Oil spill incident is not merely a problem of a certain country, but a problem common to all countries of the world. Thus, framework as an international commitment such as incident prevention and compensation system are prepared, and each country is making efforts to prepare an oil spill combat system. However, at the time a large scale oil spill occurs, there is a limit to what one country can do, and the influence is not restricted to one country. There are cases in which the influence spreads to neighboring countries. According to the OPRC Treaty, promotion and international cooperation are recommended for preparation against and correspondence to oil pollution incidents. Furthermore, even in the vicinity of the Sea of Japan, settling on a plan involving the Northwest Pacific Action Program (NOWPAP) based on regional sea plan of UNEP is being advanced, and operations towards establishment of cooperative relation are being started. Under such circumstances, even for Japan, in future the opportunity of international cooperation may increase even further, but never decrease.

An even better international cooperation is required. In order to achieve this, I firmly believe that improving the capability of responding to such matter s in Japan will lead to the anticipated international cooperation.