

# BLACK SEA REGIONAL EXERCISE ON OIL SPILL PREPAREDNESS AND SAR IN TURKEY; SULH 2007 (SEA OF UNITED LIVING AND HOSPITALITY)

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## ABSTRACT

A Black Sea Delta Exercise called SULH 2007 was conducted on a regional scale on 5-7 September 2007 in Karadeniz Ereğli, located on the western Black Sea coast of Turkey. The exercise composed of all relevant emergency response components including marine pollution preparedness & response, fire fighting, emergency towing and search and rescue (SAR), with a scenario based on collision of an oil tanker and a Ro-Ro passenger vessel, 12 nautical miles off the Karadeniz Ereğli coast. The exercise was hosted by Turkey but planned and realized through the cooperation and participation of all Black Sea littoral States under the umbrella of the Black Sea Commission (established under the 1992 Bucharest Convention and based in Istanbul). Russian Federation and Romania contributed the exercise by equipment and trained staff and other Black Sea littoral states participated with observers. A Black Sea Delta Exercise in this scale coordinated by the Undersecretariat for Maritime Affairs (UMA) has been carried out for the first time in the Black Sea region.

This paper outlines the Black Sea Delta Exercise SULH 2007 with its elements and describes the process of implementation and inter-governmental cooperation in the Black Sea region. The related preparatory activities and lessons learned from the Exercise SULH 2007 are also presented. The role of the oil industry and OSPRI (Oil Spill Preparedness Regional Initiative) in supporting this government-led programme is additionally described, representing a positive example of government-industry partnership and cooperation. SULH 2007 was a full test of the Black Sea Contingency Plan and the mobilization and deployment of oil pollution combating resources.

## INTRODUCTION

The Bucharest Convention (The Convention on the Protection of the Black Sea Against Pollution), signed in 1992, establishes the legal base for the protection of the marine environment of the Black Sea ratified by its six littoral States in 1994. Basic framework of the Bucharest Convention includes joint action in the case of accidents resulting in marine pollution. Article IX of Bucharest Convention specifically indicates to take necessary measures and cooperate in cases of grave and imminent danger to the marine environment of the Black Sea or to the coast of one or more of the Parties due to presence of massive quantities of

oil or other harmful substances resulting from accidental causes (Anon., 1992).

The Emergency Response Protocol (Protocol on Cooperation in Combatting Pollution of the Black Sea Marine Environment by Oil and Other Harmful Substances in Emergency Situations) to the Bucharest Convention addresses cooperation mechanisms to make intervention in emergency situations for cases of major pollutions caused by oil or other harmful substances resulting from shipping accidents and the related operational procedures are given in the Black Sea Contingency Plan. This regional framework complements International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC Convention 1990), which is currently ratified by four of the six littoral States.

While the regional cooperation is addressed by the Black Sea Commission's Advisory Group on Environmental Safety Aspects of Shipping (AG ESAS), in 2005, the AG ESAS established a detailed regional exercise programme, designed to implement and test the Black Sea Contingency Plan. The programme drew on experiences from the Baltic Sea region and adopted a similar terminology for the different types of exercises, as follows:

BLACK SEA ALPHA : Synthetic or Table-top Exercise  
BLACK SEA BRAVO : Alarm or Communication Exercise  
BLACK SEA CHARLIE : Equipment Deployment Exercise  
BLACK SEA DELTA : Operational Exercise  
BLACK SEA ECHO : State-of-the-art Exercise

An initial regional exercise programme was agreed for the 2006-07 biennium, which included a series of communication exercises, table-top simulations and equipment deployments. The first delta exercise within this programme was made bi-lateral in collaboration with Russian Federation and Republic of Turkey on 14-15 June 2006. The second but more comprehensive one, hosted by Turkey off Karadeniz Ereğli coast, western Black Sea coasts of Turkey in September 2007 with the participation of other five littoral States, namely Bulgaria, Romania, Ukraine, Russian Federation and Georgia, covers the major oil spill exercise also incorporating Search and Rescue aspects, called as SULH 2007 (Sea of United Living and Hospitality). A series of technical seminars and workshops covering the basic needed elements of a drill were held before the exercise to build up capacity in preparation for Exercise SULH 2007. The exercise extended over three days and involved all the littoral States and the other relevant stakeholders including the port operating and oil spill response private companies and municipality and the oil and shipping industries.

The main aim of the SULH 2007 Black Sea DELTA Exercise is to test the cooperation among the Black Sea littoral states within the framework of “Ankara Agreement” dated November 27, 1998 (Cooperation Agreement on the Search and Rescue Services Among Black Sea Littoral States) and to increase the cooperation among the signatory states to the Bucharest Convention (Convention on the Protection of the Black Sea Against Pollution) dated 1992 and the Protocol on the Cooperation to Combat Against Marine Pollution by Oil and Other Harmful Substances (Anon., 2003).

## THE PLANNING AND PREPARATION PHASES OF THE EXERCISE

AG ESAS (Advisory Group on the Environmental Safety Aspects of Shipping) of the Black Sea Commission has discussed the second delta exercise at their 13<sup>th</sup> meeting held in 24-25 July 2006 in Istanbul. This large scale delta exercise was proposed to be hosted by Turkey in this meeting and Turkey officially provided the invitation letters through the Undersecretariat for Maritime Affairs (UMA) to other littoral States and the Black Sea Commission in October 2006, informing that the name of the delta exercise would be SULH 2007, which stands for “Sea of United Living and Hospitality”. First, in October 2006, the general scenario was drafted by UMA in cooperation with the relevant Turkish governmental departments and it was presented in the 14<sup>th</sup> AG ESAS meeting held in December 2006, during which the general scenario were discussed and agreed by the participation of Black Sea littoral States (Fig. 1) and supported by the Black Sea Commission and OSPRI (an initiative of eight oil companies, coordinated under the IPIECA umbrella). Also, the structure of exercise planning and preparation was formulated in the meeting as given in the Fig. 2. In case of bad weather conditions, as a plan B, it was agreed on scene activities to be carried out inside the Karadeniz Ereğli harbor which has enough sea area to let vessels, SAR boats and tugs to maneuver.



FIG. 1: BLACK SEA LITTORAL STATES; BULGARIA, GEORGIA, ROMANIA, RUSSIAN FEDERATION, TURKEY AND UKRAINE. ISTANBUL HOSTS THE PERMANENT SECRETARIAT OF THE BLACK SEA COMMISSION.

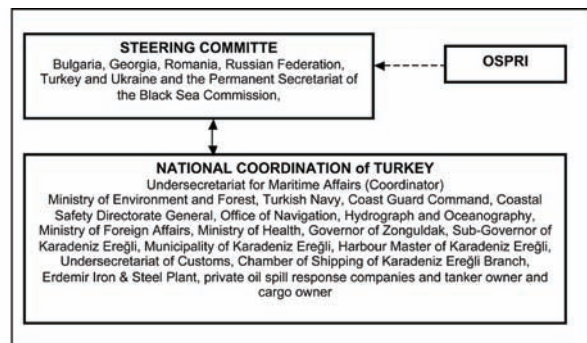


FIG. 2: STRUCTURE OF SULH 2007 BLACK SEA DELTA EXERCISE PLANNING AND PREPARATION

Meanwhile, an aerial survey and photography was carried out by an helicopter in the vicinity of Karadeniz Ereğli by UMA and the Coast Guard Command in February 2007 to assess the location and develop the scenario accordingly. After 14<sup>th</sup> AG ESAS meeting, 1<sup>st</sup> and 2<sup>nd</sup> Steering Committee meetings were held in March and April 2007 respectively. General scenario was discussed widely and agreed upon by the Steering Committee members. Also, workshops and seminars to be implemented by the cooperation and considerable assistance from OSPRI were agreed by the Steering Committee members and realized as follows;

- 1 Sensitivity Mapping Workshop (29-30 March 2007, Karadeniz Ereğli)
- 2 Integration of International Resources Seminar (26 April 2007, Istanbul)
- 3 Aerial Surveillance Workshop (27 April 2007, Istanbul)
- 4 Shoreline Deployment Training and Local Administration Liaison Workshop (5-6-7 June 2007, Karadeniz Ereğli)
- 5 Claims Workshop (25-26 June 2007, Ankara)
- 6 Media Handling Seminar (22-23 August 2007, Ankara)

Workshops and seminars were provided with the lecturers and materials from OSPRI, OSRL/EARL, ITOPE, IOPC FUND, Bilgi University Istanbul, UK P&I Club, UK and private response companies from Istanbul. All these preliminary workshop and training seminars were found to be beneficial for all the relevant stakeholders in the design and implementation of SULH 2007 exercise.

Detailed scenario was drafted by UMA and then scrutinized by the most relevant -core- national bodies in August 2007 and finalized. It was circulated to only limited staff in certain organizations in Turkey, who has taken critical and/or commanding roles in the scenario as well as officials of Russian Federation and Romania, represented in the Crisis Center (CC) room, as active participants to SULH 2007 delta exercise with ships, crew and equipment. Detailed scenario consists of a comprehensive matrix in which # of event, time (or time period), main event, sub-event(s), location, responsible organization(s), specific responsible bodies and expected result(s) are included. General scenario, on the other hand, was distributed all the participants, observers and press before the exercise.

## THE OVERVIEW OF THE EXERCISE

The program of the three-day exercise can be summarized as follows;

### Phase 1 (5 September 2007)

- Briefing is held for press and all participants & observers before the exercise starts

- 1<sup>st</sup> phase commences with the distress signal and proceeds with Search and Rescue, emergency medical assistance and transfer of the survivors to shore and then fire-fighting, damage stability control and emergency towing of the tanker to a safe anchorage area and communication of littoral states according to Black Sea Contingency Plan pollution reporting procedure.

**Phase 2 (6 September 2007)**

- The response to oil spill is realized jointly in cooperation in accordance with the Black Sea Contingency Plan.
- Components of response to the oil pollution include off-shore waste oil recovery, shoreline clean-up in Ereğli port and on beach clean-up.
- Assessment of claims and compensation issues for cost of clean-up activities and damages caused by the oil spill, and other relevant activities are realized.

**Phase 3 (7 September 2007)**

- The hot wash-up covering a briefing and an evaluation of the exercise, informing the press, open forum among the participants and observers on the exercise as well as a discussion on good areas and points to be improved.

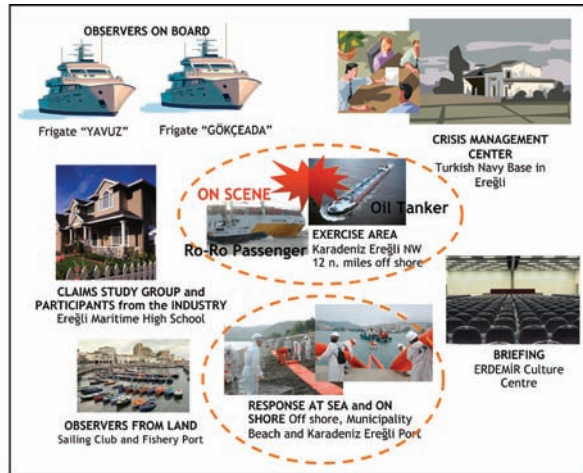


FIG. 5 ORIENTATION OF THE BASIC ACTIVITIES OF THE EXERCISE IN KARADENİZ EREĞLİ INCLUDING THE ACTUAL ON SCENE LOCATIONS INDICATED WITH RED DOTTED LINES.

**THE EXERCISE SCENARIO**

SULH 2007 Black Sea Delta Exercise was based on a scenario in which a large size oil tanker and a Ro-Ro passenger vessel collide 12 nautical miles off shore NW of Karadeniz Ereğli port of Turkey. Karadeniz Ereğli is a highly industrialized and well known fishery town which belongs to Zonguldak province. Tanker “*M/T Ottoman Nobility*” which departs from Novorossiysk port of Russian Federation carries Kazakhstan crude oil and navigates in the Black Sea with 240 degree course. Ro-Ro vessel “*M/F Erdeniz*” departs from Odessa port of Ukraine and carries cars and trucks with additional 22 passengers to Karadeniz Ereğli port, as she is having her regular line. *M/F Erdeniz* follows 170 degree course.

	Tanker	Ro-Ro Vessel
Name	M/T Ottoman Nobility	M/F Erdeniz
Flag	Turkey	Turkey
DWT	152,660	6,266
# of crew	25	17
# of passengers	-	22
LOA	286 m.	198 m.
Width	40 m.	21 m.
Draft	17,5 m.	5 m.
Cargo	Light crude oil	Cars, trucks, passengers
Cargo owner	Chevron	Various

FIG. 3: CHARACTERISTICS OF TWO SHIPS INVOLVED IN THE ACCIDENT ACCORDING TO THE SCENARIO

Accident takes place on 5 September 2007 at 12:05 hours. As a result of collision, tanker has a serious tear in no. 1 tank on its starboard side and some of the cargo spills into the sea (total 3,800 m. tons; approximately 2,000 m. tons instantaneously at first stage and 1,800 m. tons continued by time) and fire starts on the deck. There are injured crew members and passengers reported. The accident is immediately informed by the master of *M/T Ottoman Nobility* to Turkish Radio at VHF channel 16. And collision position determined from VHF DSC by Turkish Radio and the real EPIRB signal from Ro-Ro vessel determined by the TRMCC Ankara (Turkey Mission Coordination Center in Ankara) through COSPAS-SARSAT system.



FIG. 4: SIMULATED ACCIDENT LOCATION IN THE BLACK SEA.

**SHIPS, STAFF AND EQUIPMENT USED IN THE EXERCISE**

**Undersecretariat for Maritime Affairs**

General coordination and trained staff

**Turkish Navy**

- “TCG Gökçeada” Frigate
- “TCG Yavuz” Frigate
- “TCG Ödev” Tug boat
- Maritime Patrol Air Craft
- Booms (250 m.)

**Coast Guard Command**

- “TCSG 86” SAR Boat
- “TCSG 128” SAR Boat
- SAR Helicopter

**Coastal Safety Directorate General**

“Gemi Kurtaran” Salvage Vessel  
 “Kurtarma-2” Tug Boat  
 “KEGM-5” SAR Boat  
 “Tahlisiye-3” Boom Deployment Vessel  
 Trained staff  
 Boom (off-shore type 400 m.)  
 Skimmers (2 pieces)  
 Sea Slug (floating waste oil storage)  
 Temporary storage tanks on board

**Ministry of Environment & Forest**

Beach and Shore Line Clean Up Team and Equipment

**Ministry of Health**

Land ambulances  
 Sea ambulances and special medical team

**Russian Federation**

“Svetlomor-3” Tug Boat  
 “Shahtyor” Tug Boat

**Romania**

Mobilized Medical Team  
 Mobilized Diver Team

**ERDEMIR Integrated Iron & Steel Plant**

“ER-3” Tug boat  
 Erdemir Pilot Boat  
 Booms (300 m.)

**MEKE Marine Ltd.**

“Meke Süpürge” Oil Spill Response Vessel  
 Booms (250 m.)  
 Skimmers (4 pieces)  
 Shore-line clean-up equipment

**Alyans Shipping**

“M/F *Erdeniz*” Ro-Ro Vessel (to act as vessel involved in the accident on-scene)

**Güngen Maritime & Trading A.S.**

“M/T *Ottoman Nobility*” (Simulated Suezmax.Tanker)  
 Simulated Tanker owner and Tanker captain  
 DNV Emergency Response Service

**DTO Shipping Company**

“M/T *DTO*” Tanker (to act as *M/T Ottoman Nobility* involved in the accident on-scene)

**OSRL/EARL (from their Bahrain base)**

Booms (250 m. shore line type)  
 Shore-line clean up equipment  
 Trained staff

**CRISIS MANAGEMENT STRUCTURE**

The Black Sea Contingency Plan outlines the procedures and mechanisms for cooperation between littoral States in cases of major oil pollution. However this Plan also recognizes that command and control during an incident is determined within the framework of the region’s national plans. The incident in this exercise occurred within Turkish jurisdiction and therefore a Crisis Management Center (CMC) was successfully established in accordance with the Turkish Act no. 5312 (*Act on Principles for Emergency Response and Compensation of Losses in Case of Pollution of the Marine Environment from Oil and Other Harm-*

*ful Substances*) which deals with accidental oil pollution (Anon., 2005).

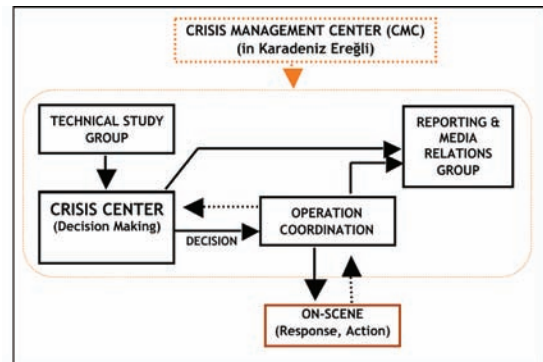


FIG. 6 CRISIS MANAGEMENT STRUCTURE IN SULH 2007

Crisis Management Center (CMC) is formed by 4 units in the same location; Crisis Center (CC), Operation Coordination (OC), Technical Study Group (TSG) and Reporting and Media Relations Group (RMRG). In case of pollution at Tier-3 (national) level, the Crisis Centre (CC) at the accident site is chaired by the Governor of Zonguldak, coastal province within where oil spill happens. In this exercise, the representatives of UMA, Ministry of Environment & Forest (MoEF), Ministry of Health, Navy, Coast Guard Command, Coastal Safety Directorate General (CSDG), Sub-governor of Karadeniz Ereğli, Harbor Master of Karadeniz Ereğli and Erdemir Iron & Steel Plant and authorized representatives from Russian Federation and Romania have taken part under the leading Governor of Zonguldak. CC worked in close contact with OC and has generally monitored the developments. Generally OC has given decisions in accordance with the national legislation relevant to SAR and oil pollution response and communicated with on-scene to take necessary actions smoothly. However, OC has provided regular feed back to CC about actions done, steps taken and actions that could not be achieved or problems faced. OC also simultaneously informed RMRG to let them prepare their hourly and daily reports as well as press releases based on information it gets from on-scene. TSG also informed RMRG the relevant technical data they produced. The hourly reports yielded by RMRG have been printed and distributed to OC, CC and TSG rooms regularly.

All the calls from press have been directed to CC. And the press releases have been drafted by RMRG through the instructions either from the Governor or Sub-governor. The approved press releases have then been forwarded to media by the RMRG. The TSG served as a group of experts and consultants on scientific and technical issues. Experts from UMA, MoEF, Office of Navigation, Hydrography and Oceanography (NHO) and State Meteorology Department as well as academicians from Black Sea Technical University and Istanbul Technical University have closely worked on the basic subjects such as weather forecast, oil spill trajectory modeling, oil spill mass balance calculations (oil spill budget), damage stability calculations, biological diversity (species’ and colonies’ distribution and density), sensitivity mapping of the local area and the vicinity (including wildlife, fishery, port activity, industry and leisure activities as well as coast types) and priority areas to be protected. The reports on the above mentioned issues have been prepared by the TSG and submitted to CC and OC simultaneously, which helped these two units in decision taking. At the end of each day, RMRG has issued daily reports which provide brief and chronologic overview of the day. Hourly and daily reports have been regularly distributed to CC, OC and TSG simultaneously.

Units in the CMC have been provided with necessary communication devices (VHF, telephones and faxes) as well as internet connected computers, B/W and color printers and xerox machines. A projection screen and a large LCD screen was available in CC while another large LCD screen was used in TSG office in the CMC in order to facilitate analyzing the situation at the given time by the authorities and experts.

On-scene was composed of three different locations; 12 n.miles off-shore Karadeniz Ereğli port, rip-raps inside the Ereğli port and Municipality beach, 7 km. south of the town.

Claims Study Group (CSG) has been established in another building in the town and formed by the staff from UMA, MoEF, CSDG and private experts. The CSG received information and reports from the RMRG in the CMC and prepared their cost analysis and reports on the expenses made during each response activity.

National Coordination Committee (NCC) was also established in Ankara as simulated but actually was present in Karadeniz Ereğli for the exercise purpose. In accordance with the Act no. 5312, NCC is chaired by Minister of MoEF and composed of Undersecretary of MoEF, Undersecretary of UMA, Deputy Undersecretary, and Director General for Maritime Transport. The NCC has been established in a more compact structure and it was reported by the CC in the CMC regularly during the exercise.

In order to ensure close integration of response between government and industry, the cargo owner (Chevron) and ship owner (Güngen Maritime & Trading A.S.) established a coordination facility in Ereğli. This enabled the industry's supporting resources to communicate with the CMC and tried to ensure synergy in the response operations. The industry team included representatives and advisers from the vessel's insurers (UK P&I Club), the International Tanker Owners Pollution Federation (ITOPF) and OSRL/EARL. OSPRI members also joined this group as observers, in order to view the lessons learned first-hand and therefore obtain maximum benefit from the exercise.

## IMPLEMENTATION OF THE EXERCISE

When *M/T Ottoman Nobility* collides with *M/F Erdeniz* 12 n.miles off shore at 12:05 in day-1, the accident is immediately informed by the master of *M/T Ottoman Nobility* to Turkish Radio at VHF channel 16 and VHF DSC.

In the first day, Turkish Coastal Radio swiftly informed Main Search and Rescue Coordination Center (MSRCC/ANKARA) of UMA. To test the system Ro-Ro vessel transmitted the real EPIRB signal and MSRCC/ANKARA (in UMA) detected the position of collision from COSPAS-SARSAT. 14 passengers (2 of which were heavily injured) from *M/F Erdeniz* jump or fall into the sea in panic while 4 crew members of *M/T Ottoman Nobility* are heavily injured when they try to extinguish the fire on the starboard side near head. All the survivors and injured people from the vessels, in total 18, are saved by two SAR boats and a helicopter of the Coast Guard Command, the two tug boats of the CSDG, the two sea ambulances and four land ambulances of Ministry of Health and Romanian Mobilized Medical Team in a well coordinated SAR and emergency medical response operation. There has been no problem between On-Scene Coordinator (Coast Guard Command) in the accident site and OC in the CMC. Firefighting and emergency towing operations were carried under the On Scene Commandership of the CSDG. Firefighting was carried out by the tug boats of CSDG itself. The diver team from Romania has made underwater survey to check the condition around the tear and the bottom of the tanker in general while damaged stability calculations were made by the Classification Society DNV and a member from the Istanbul Technical University in the TSG. It was reported that ship stability was OK and there was no danger for both ships to move from the accident site. Suitable safe anchorage area was then determined swiftly by the TSG and the two tug boats of Rus-

sian Federation tugged the tanker and the Ro-Ro vessel from the accident site to the safe anchorage area separately. The required legal procedure was started for the tanker's crew regarding the accident and its results.

At the end of first day, TSG has also completed oil spill trajectory study using GNOME and oil spill mass balance using ADIOS. Due to nature of Thengiz light crude oil, it was calculated that 40% of the oil to be evaporated after 24 hours with very little dispersion. Based on oil spill trajectory analysis, sensitivity mapping of Ereğli and vicinity was completed compiling available data with the contribution from experts from different organizations. Sensitivity mapping of Ereğli town and vicinity was prepared by the TSG and reported to CC and OC using the available data and additional information was collected by the experts to complete the study.

In the second day, Erdemir Iron & Steel Plant inner port and Navy port were successfully closed with the booms by their own means and capabilities against oil spill drifting towards Karadeniz Ereğli harbor while OSRL/EARL closed entrance of Ereğli fishing port by the deflecting booms so as to allow fishing boats and leisure crafts can navigate to and from the port without any problem, all in coordination with MoEF. Municipality beach was cleaned up by MoEF staff and Meke, the private oil spill response company. All shore and port clean-up operations were coordinated by MoEF as OSC. Off shore waste oil recovery was realized by CSDG oil spill response boats, "Svetlomor-3" tug boat and "M/V Meke Süpürge", private oil spill response company boat with the assistance from Navy in terms of aerial surveillance. Reported oil spill quantity was 3.800 m. tons while 525 m<sup>3</sup> waste oil (mixed with some water) was collected off shore by the joint operations by CSDG, Russian Federation and the private response company from Turkey. Also, 400 m<sup>3</sup> waste oil on the rip-raps and 150 m<sup>3</sup> waste oil on the Municipality beach were collected by MoEF and oil spill private company. All the recovered waste oil was sent to Erdemir Port Reception Facility. No any material for simulating the oil slicks, such as pearlite or pop corn, was used in this exercise.

Based on the current national legislation, UMA has the responsibility to act as On Scene Commander on the operations at sea while MoEF is the On Scene Commander on shore. However, UMA has transferred its OSC role to the Coast Guard Command when SAR and emergency medical response activities are to be realized and to CSDG when fire fighting, emergency towing and off-shore waste oil spill recovery activities are to be carried out. On the other hand, MoEF has the responsibility to carry out OSC in case response to oil pollution on shore in accordance with the Act No. 5312 and its implementation regulation.

Claims Study Group (CSG) established by relevant state bodies as required by the national legislation also worked in a parallel way and prepared their detailed report including expenses made during off shore and shoreline clean-up operations in day-1 and day-2. CSG also started to collect, in day-2, claims from the fishermen and tourist facilities due to their financial losses in terms of reduced income caused by oil pollution for further evaluation and process.

In total, Exercise SULH 2007 involved the participation of around 250 people representing more than 70 different organizations and including 12 nationalities.

## DISCUSSION AND CONCLUSION

Turkey has successfully organized and implemented the Black Sea Delta Exercise SULH 2007 with the support of Black Sea Commission, Black Sea littoral States, OSPRI and other private organizations. The three-day exercise covered all the relevant components of maritime accidents; communication, SAR, emergency medical assistance, emergency towing to safe anchorage

area, oil pollution response off shore and shore line clean-up and claims and compensation issues. Initial communication and SAR intervention and medical assistance have been made successfully and oil spill both off-shore and stranded along the coasts have been collected or cleaned up in good coordination. Crisis Management Centre (CMC) was established and functional in a timely fashion. All the elements, both in CMC and on scene -off shore and the port area and the beach- worked efficiently and communicated smoothly among themselves.

One of the non-smooth process happened as a case of disagreement between the OC and the Captain of *M/T Ottoman Nobility* regarding towing of the vessel to the safe anchorage area during VHF communication in early phases of the exercise. The captain did not consent for the tanker to be towed to the safe anchorage area by the tugs and preferred to steer the vessel by her own engine. Finally, after some discussions, Coast Guard and Coastal Safety evaluated quickly and deemed necessary to tug the tanker to the preliminary determined safe anchorage area. International assistance for shoreline clean-up operation could not be organized as expected for beach clean-up. MoEF has managed to order needed clean-up staff and equipment for beach clean up on Municipality beach at the end of 1<sup>st</sup> day and both MoEF and Meke teams could hardly start cleaning in the morning of the 2<sup>nd</sup> day. However, clean up operations both off shore and rip-raps inside port area went very good while closure of needed parts of the harbour by booms at Navy port, fishing port and Erdemir port by Navy, OSRL/EARL and Erdemir respectively had been very successful. Material for simulating oil spill such as popcorn could not be used in this exercise. However, we believe that use of such materials will demonstrate the success of the operations and coordination activities more clearly. UMA considers using oil spill simulation material in the next drills. Regarding another problematic situation, international media could not be informed effectively during the exercise. The initial press release for foreign media was delayed which would cause misunderstanding about the real developments while informing public and the media in Turkey was successful. Reports and press releases were prepared regularly and satisfactorily. Turkey plans to carry out oil spill exercise at least 3 times from now on, one on national scale (Tier-3) and two on district scale (sub-national, Tier-2). Turkey also proposed in the 16<sup>th</sup> AGESAS meeting under Black Sea Commission in Istanbul in October 2007 that every two year Black Sea regional scale Delta Exercises should be performed and invited other Black Sea littoral States to take the turn.

Turkey has necessary legal base in both national and international level to carry out SAR services and combat oil pollution after a marine accident. She has increased its capacity in terms of trained staff and oil spill response equipment within the relevant State bodies such as CSDG, port operating State companies, Navy and private port operating as well as oil spill response private companies in the last years. The incorporation of equipment and expertise from within the Black Sea region and beyond demonstrated the feasibility of the tiered response concept and highlight the organizational and logistical issues that arise to make this work efficiently.

In order to consolidate national capability, UMA has launched a comprehensive nation-wide project on the "Feasibility Study on the Establishment of Emergency Response Stations (ERSs) along Turkish coasts" in 2006. It is expected to have maritime traffic and risk analysis, sensitive areas, oil spill trajectory modelling (Oilmap), GIS based program and locations and specifications of the emergency response centres and their manning. The investment shall be starting in 2008. With the establishment of these ERSs, Turkey will be much more prepared against oil spill pollution by shipping accidents not only in Black Sea but also in the Sea of Marmara, the Aegean Sea and the Mediterranean. The capa-

bilities being established by Turkey will also strengthen regional preparedness.

Turkey and Russian Federation had cooperated in the oil spill response exercise held in Novorossiysk in 2006. This cooperation has been enhanced in this exercise as well with the further support by Romania. Hence, Black Sea littoral States has proved effective cooperation, commitment and willingness among the littoral States in case of large oil spills by shipping accidents in the Black Sea. The support provided both during the preparation and exercise stages from OSPRI is also appreciated. It is believed that the cooperation and coordination between the Lead State and the industry is also important element in the emergency response situations.

Relevant national NGOs which are specialized or potentially be beneficial in this field are suggested to be integrated to similar exercises in the future aiming to increase effectiveness of the response and to annihilate catastrophic results of marine accidents resulting in oil pollution.

## ACKNOWLEDGEMENT

We would like to thank the maritime administrations of the Black Sea littoral States Bulgaria, Georgia, Romania, Russian Federation and Ukraine and the Black Sea Commission which actively participated Steering Committee meetings of the exercise SULH 2007 and Russian Federation and Romania for their generous contribution to SULH 2007 exercise and having roles in the scenario with tug boats "Svetlomor-3" & "Shahtyor" and medical & diver teams respectively. This exercise would not be possible without proper coordination and enthusiast cooperation among all the relevant national organizations given in the article. We also thank Assist. Prof. Ersan Başar from Black Sea Technical University and Assoc. Prof. Hakkı Helvacıoğlu from Istanbul Technical University for taking part in oil spill modelling & oil budget calculations and damage stability calculations respectively during the exercise, Mr. Kemal Battal for his support and assistance given to CSG and also Mr. Lary Straatman and Capt. Bayden Johnson from Chevron and Mr. Kjell Landin and Mr. Peter Taylor from OSPRI and also OSRL/EARL for their contribution in the SCMs and/or the implementation of relevant workshops in Turkey prior to the exercise and Peter Taylor for his valuable comments on the draft manuscript. We finally thank Prof. Dr. Ahmet Kideys, Director of the Permanent Secretariat and Ms. Violeta Velikova, Pollution Monitoring and Assessment Officer from the Permanent Secretariat of the Black Sea Commission and Mr. Lyubomir Stoyanov, Chairman of AG ESAS, for their support and contribution given during the preparatory phase, workshops and in other several occasions prior to SULH 2007 exercise.

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