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Environmental Emergencies Section
(Joint UNEP/OCHA Environment Unit)

Environmental Update No. 03
- Lebanon Crisis -
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Key issues

Environmental Update No. 3 contains information on:

- Oil spill response in Lebanon
- Oil spill response in Syria
- Waste assessment mission in Beirut
- Planned post conflict assessment
- Rapid environmental assessment by IUCN
- Flash Appeal and Early Recovery
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Oil Spill Response

Oil spill response in Lebanon

Background

An estimated 10,000 – 15,000 tons of medium/heavy fuel oil has contaminated 150 km of coastline (including about 20 km of Syrian coastline). The source of pollution is a power plant at Jiyeh, south of Beirut. The spill occurred on 13 July (approx 12,000 tons) and 15 July 2006 (3,000 tons). In the United Nations, the Regional Marine Pollution Emergency Response Center for the Mediterranean Sea (REMPEC) and the International Maritime Organization (IMO) are coordinating the oil spill response with support from the Joint UNEP/OCHA Environment Unit (Joint Environment Unit). The European Commission is also extensively involved in relevant activities.

New information:

- Aerial survey flights for visual inspection and in-depth analysis of the oil slick have been agreed to, subject to prior notification and approval of each flight. A first flight has been carried out by the French government. A second visual-only observation flight (i.e. without specialized equipment) will be undertaken in the next few days. A subsequent flight using specialized aircraft, equipment and aerial surveillance techniques is also

planned to ensure a comprehensive assessment. The European Commission MIC is in contact with member states to solicit support for the latter.

- An action plan for the oil spill response was adopted at a coordination meeting in Athens, Greece on 17 August. The meeting was convened by the Secretary General of the IMO and the Executive Director of UNEP, hosted by the Minister of Mercantile Marine of Greece, and attended by Ministers and high-level representatives from Cyprus, Greece, Lebanon, Syria, Turkey, the European Commission, and the French Centre for Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE). The meeting made it possible for the countries, IMO, UNEP and other partners to agree on follow-up actions to address the oil pollution, and on a strategy for resource mobilization to finance these actions. The meeting confirmed IMO and REMPEC's role to coordinate operational aspects of the spill including offers of assistance, and the Joint Environment Unit's role supporting these efforts.
- The Danish team deployed by the EC-MIC has initiated oil spill clean up procedures and completed the removal of oil from the harbor at Byblos, Lebanon, where 250 cubic meters of oil was removed. Operations have moved to Fisherman's Wharf in Beirut. The team continues to train Lebanese officials on the use of the equipment sent to Lebanon from Norway through the European Commission.
- Georges Peigne, an oil spill expert from CEDRE, has been deployed to Beirut through REMPEC to assist the Lebanese Ministry of Environment in the coordination of the oil spill clean-up operations and in particular in the coordination of incoming assistance to Lebanon. Rick Steiner, an oil spill expert affiliated with IUCN, is also on-site and working in collaboration with the Ministry of Environment to provide technical advice and support.
- France has sent equipment by ship from Marseilles to Beirut. It is estimated to arrive August 28 along with experts for in-country training in its use.
- Canada and the United States have notified REMPEC that they stand ready to assist with equipment and experts.

<u>Oil Spill response in Syria</u>

New information:

- Following a request from Syrian authorities to address the oil that reached their coast, experts were deployed on August 12 through the REMPEC, IMO and the Joint Environment Unit to carry out a scientific assessment.
- A preliminary assessment was carried out on August 14 along approximately 20 km of coastline. It indicates that although oil does appear on the shore, damage so far is limited and cleanup efforts have been reasonably effective

Assessment Activities

Preliminary Waste Assessment by Jürg Zaugg (Switzerland) in southern Beirut

New information

Jürg Zaugg, a Swiss environmental and waste management expert, was seconded to the Joint Environment Unit by the Swiss Development Corporation (SDC) and deployed to Beirut from August 16 - August 21. Dr. Zaugg examined two areas with the objective of ensuring safe and effective waste disposal:

- debris and rubble from damaged and destroyed buildings, with the related risks of hazardous waste (HW) and unexploded ordnance (UXO)
- the heavy fuel oil spill originating at the damaged Jieh power plant

Results of preliminary assessment

On August 19, Dr. Zaugg carried out a rapid waste assessment in the heavily bombed southern Beirut suburb of Haret Hreik by visual inspection, measurement of toxic gases, and monitoring of radiation. This affected quarter has an area of approximately 200 x 240 m (48'000 m2). The volume of mixed debris at this location is estimated to be 1'000'000 m3. About 80 % of the buildings are completely destroyed. Debris and metal are being cleared by locals with basic mechanical help. Neither toxic gases nor radioactivity were detected at levels above those normal for motor traffic emissions and background radiation, respectively.

A tentative first estimate of the debris composition is as follows:

Concrete:	**50 - 70 %**
Steel/iron	**5 - 8 %**
Bricks	**10 - 25 %**
Other metals	**2 - 5 %**
Plastics (including styrofoam)	**5 - 15 %**
Organic waste (incl. food)	**2 – 8% %**
Hazardous waste	**< 2 %**

Most buildings in the assessed area had 6 to 10 floors with 1 to 3 basements and were mostly built with steel-reinforced concrete. Ground floor and basements were rented by commercial enterprises (workshops, garages, retail stores), while upper floors were residential apartments. Except for some basic personal items, the contents of households and commercial spaces are mixed with debris. Small quantities of hazardous wastes can be expected among the debris from the ground floor commercial spaces. Transformers, generators and fuel storage can be expected in the basements of some of these buildings. PCBs are unlikely to be contained in the transformers, according to MoE, but the fuel storage could constitute a fire risk. According to the assessment, the most serious risk and the largest impediment for all clearing and demolition activities is unexploded ordnance (UXO). Typically, 10% of spent ammunition ends up as UXO, and heavily bombarded areas may be strewn with bombs, missiles and cluster bomb submunitions. The as-yet unassessed structural soundness of the remaining and the partially damaged buildings remains a problem for further clearing and demolition. Finally, it should be anticipated that the Beirut waste management system as well as landfills, once restarted fully, will be overwhelmed by the quantity of materials from the crisis.

Recommendations based on preliminary assessment

Dr. Zaugg presented his findings to engineers and environmental specialists in the Lebanese MoE, and made recommendations in the following areas:

- Clearance of a site for a temporary recycling center in Beirut to maximize recycling of concrete and steel debris, minimize the amount of debris needing final disposal, and thus reducing the pressure on natural resources. Foreseeable fields of action are debris clearing, transport to the recycling center, separation of debris waste types, reusing the suitable materials and disposal of the unusable remains.
- UXO and hazardous waste specialists should be on-site during demolition works and provide separate containers to collect the small quantities of hazardous waste (e.g. car batteries, paints, oil, etc) during the debris clearing activities
- The findings from this area in southern Lebanon may have nation-wide implications. Accordingly, rapid environment assessments should be carried out at potentially critical sites as soon as possible to prevent or mitigate any irreversible damage

Oil spill

Dr. Zaugg collected samples of oil-contaminated sand for analysis in Switzerland. The issues of disposal and potential recycling of oil, oil slick and oil-contaminated waste and sand remain to be resolved.

Post Conflict Assessment

On 5 August, UNEP received a request from the Lebanese Ministry of Environment to conduct a post-conflict environmental assessment in Lebanon. UNEP's Post-Conflict Branch is now, together with the Joint Environment Unit, making preparations to conduct the assessment. The assessment is planned for mid-September, provided that security and political constraints allow environmental experts to enter Lebanon. UNEP and OCHA will cooperate with IUCN and other stakeholders in this assessment.

Based on monitoring during the conflict, it is believed that significant contamination of the Lebanese and regional environment has resulted from the targeting of key components of the Lebanese infrastructure including, but not limited to power plants, industrial sites, fuels storage tanks, bridges, key roads, along with buildings believed to be housing military personnel or resources. Contamination by UXO may be widespread, with heavy concentrations in the south. Other possible threats to the environmental and public health situation within Lebanon and the region include contamination from hydrocarbons, asbestos, chemicals, the disruption or destruction of waste management systems and impacts from weapons.

Rapid environmental assessment by IUCN

Between 19 – 22 August, the World Conservation Union (IUCN) carried out assessment missions to three sites believed to be of particular ecological significance. Palm Island Nature Reserve, located NW of Tripoli off the coast, was found to be affected by the oil spill, with implications for sea turtles and migrant birds in the upcoming migration season. The Tyre Nature Reserve and turtle breeding areas – a 5km stretch of coastline S of Tyre - were found to be unaffected by the oil spill, but their medium-term sustainability is in jeopardy. The Chouf Reserve alongside the Bekaa valley was found to be affected by some infrastructure damage due to bombing but mainly by issues relating to management budget losses and community income losses resulting from total tourism loss.

Assessment Reports on these three sites, complete with photos and proposals for response will be available from www.iucn.org/wescana on August 27. An IUCN film staff member has accompanied these missions to prepare a documentary, which is expected to be ready by mid-October.

IUCN has also developed a proposal for the use of $100,000 emergency funds to provide flexible resources and organizational capacity for immediate oil spill cleanup and for undertaking a preliminary Natural Resource Damage Assessment (NRDA), and gather national expertise for a full-scale NRDA.

Flash Appeal and Early Recovery

Flash Appeal

- The Joint Environment Unit and UNEP's Post Conflict Branch submitted a joint submission for possible inclusion in the revised Flash Appeal. The submission was compiled from proposals from IMO, REMPEC and the Post Conflict Branch and comprised of two segments: response to the oil spill emergency, and post conflict environmental assessment.
- The first segment would provide for a comprehensive clean up of areas affected by the oil spill. The second segment would allow for a collaborative mission between the Joint Unit and the UNEP Post Conflict Assessment Branch to identify acute environmental impacts, define practical strategies and solutions to mitigate these impacts and to assess medium and longer term impacts and propose remediation strategies, as noted above.

Early Recovery

UNDP-Lebanon is working closely with the Ministry of Environment in Lebanon to develop a government submission on early recovery needs. These will be presented at the Stockholm Conference on August 31. UNEP's Executive Director has sent a proposal for Early Recovery in the environment sector to the Lebanese Minister of Environment for consideration within the national early recovery plan.

Italian team

The Italian government has bilaterally deployed a team of environmental experts to Lebanon. This team inspected the bombed Jiyeh power plant on August 22, reporting the plant itself and all transformers to be intact. These transformers reportedly contain 37 tons of PCB and hence an estimated 90 % of Lebanon's PCB inventory.

Background

The Joint UNEP/OCHA Environment Unit is the international mechanism to mobilize and coordinate the response to environmental emergencies. In a case such as Lebanon, the Joint Environment Unit focuses on working with partners to identify the most acute (e.g. life-threatening) risks and mobilize resources to address them. Additional information is available on our website (see below).

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