



Distr.: General
24 October 2007

Original: English

I. Introduction

1. The present report has been prepared by a United Nations inter-agency team, pursuant to General Assembly resolution 61/194, entitled “Oil slick on Lebanese shores”. In paragraph 5 of the resolution, the Assembly requested the Secretary-General to submit a report on the implementation of the resolution at its sixty-second session under the item entitled “Sustainable development”.

2. The report includes an assessment of the impact of the oil spill on human health, biodiversity, fisheries and tourism, and implications for livelihoods and the economy of Lebanon; progress made in approaching the Government of Israel in assuming responsibility for prompt and adequate compensation to the Government of Lebanon; and an overview of the financial and technical assistance in support of the efforts to clean up the polluted shores and sea of Lebanon with a view to preserving its ecosystem.

II. Impact of the oil spill on human health, biodiversity, fisheries and tourism, and implications for livelihoods and the economy of Lebanon

3. The marine oil spill resulted in the release of about 15,000 tons of fuel oil into the Mediterranean Sea, leading to the contamination of 150 km of coastline in Lebanon and the Syrian Arab Republic. Paragraph 1 of resolution 61/194 refers to “the adverse implications of the destruction by the Israeli Air Force of the oil storage tanks in the direct vicinity of the Lebanese El-Jiyeh electric power plant for the achievement of sustainable development in Lebanon”, and in paragraph 2 the Assembly “considers that the oil slick has heavily polluted the shores of Lebanon and consequently has serious implications for human health, biodiversity, fisheries and tourism, and the economy of Lebanon”.

the littoral zone where oiling was heaviest and clean-up was ongoing at the time of the surveys (in October 2006). The UNEP findings, which were released in January 2007,¹ along with the recent United Nations inter-agency findings during the mission in October 2007, on the adverse impacts on the coastal and marine environment, can be summarized as follows:

(a) The oil spill resulting from the bombings of the El-Jiyeh power plant on 13 and 15 July 2006 caused significant contamination of the Lebanese coastline. The seabed at El-Jiyeh was significantly affected by the oil spill. Clean-up operations by local and international organizations are continuing, but the safe disposal of oily waste from the work remains a serious concern;

(b) A proportion of the oil spilled sank in the vicinity of El-Jiyeh as a result of loss of volatiles after burning and incorporation of sand, and covered the seabed over an area of a few hundred metres out to sea, smothering biota in the sediment. The oil that did not sink either evaporated, adding volatile organic compounds to the atmosphere,² or was caught in the northbound current and transported up the Lebanese coast, reaching the Syrian Arab Republic. The prevailing wind also prevented the oil from spreading out to sea, pushing it instead northwards against the predominantly rocky and coarse sediment coastline. Most of the oil contamination stuck on the coastline, coating surfaces, filling voids in coarse sediments, and adding petroleum hydrocarbon contamination in the seabed sediments at depths of 4 to 25m along the coast;

(c) Harbours, coves, caves and small natural bays were particularly affected, as the oil tended to get trapped there. Affected locations included the biologically important sites of Palm Islands Nature Reserve, archeologically significant areas in Byblos and various beaches that are important from the standpoint of tourism;

(d) The flora and fauna on rocks and sandy beaches that were directly exposed to the oil were also affected. Significant mortality, as result of toxicity smothering, most probably occurred among littoral invertebrates such as gastropods, polychaetes, crustaceans and algae, especially on heavily contaminated beaches. The full recovery of these habitats is likely to take some years. It is recommended that all available shoreline data on oil concentrations, oil weathering indicators and flora and fauna parameters should be collected to add to the UNEP near-shore findings. Following this, focused monitoring on a routine and long-term basis at different sites may be used to assess the remaining impacts of the oil spill in terms of status, trends and recovery;

scale oil clean-up response operations. Oil-spill clean-up is still ongoing at multiple locations on the Lebanese coast. However, remobilization by natural wave action of the oil coatings on rock and man-made surfaces and of oil mixed with sediments back into the water is still possible, and may lead to temporary increases in oil concentrations in the shallow near-shore and littoral zones;

(g) The clean-up of the oil spill has resulted in substantial quantities of oily liquids, solids and oil-contaminated debris and soils. Currently Lebanon has no environmentally acceptable disposal facilities for these waste streams. Conditions of temporary storage at some clean-up sites are not ideal and evidence of some commingling of other wastes was seen in October 2007 at some sites. The El-Jiyeh power station is well on its way to full reconstruction, but the oiled wastes are still in temporary storage. Mobilization of international technical assistance and donor support to create an environmentally acceptable disposal solution is still needed.

6. The present report is submitted approximately one year after the oil spill. It is recommended that the concentrations of pollutants and biological parameters be monitored on a routine basis to track the recovery of affected sites and the general state of the environment. United Nations agencies and other international partners, in collaboration with the Government of Lebanon, are planning programmes for the development of an environmental-quality monitoring system that includes polluted areas.

7. In August 2006, UNDP initiated a rapid environmental assessment, based on existing research and observations, which was completed in December 2006 and published in February 2007.³ The report identified 46 environmental impacts, of which 9 are marine oil-spill related, as follows:

(a) Severe (2): littoral pollution from oil spill (medium-term, or 1 to 10 years) and impact on marine biodiversity (especially rocky biogenic reefs and Palm Islands Nature Reserve) from oil spill from El-Jiyeh power plant (long-term, or 10 to 50 years);

(b) Critical-significant (3): air pollution from El-Jiyeh fire (short-term, or less than one year),⁴ marine sediment impact from sunken oil (medium-term, or 1 to 10 years) and soil pollution from deposited contaminants of fuel burning at El-Jiyeh (medium-term, or 1 to 10 years);

(c) Critical but non-significant (2): impact on seawater quality from oil spill (short-term, or less than one year) and soil impact at El-Jiyeh site (medium-term, or 1 to 10 years);

(d) Marginal (1): pollution affecting plants and ecosystem from fuel burning in El-Jiyeh (short-term, or less than one year);

(e) Negligible (1): impact on coastal aquifers from oil spill (short-term, or less than one year).

³ See www.undp.org.lb/communication/archives/REA.htm.

⁴ The report addresses the issue of air pollution from fuel burning, stating that the “estimated al burning7wv52 11ning,3.e2.il

8. The UNDP report also addressed the impact of the oil spill on cultural heritage, describing how “Archaeological structures in Byblos were severely affected by the oil spill from the Jiyeh power plant. Two medieval towers that constitute the entrance to the harbour have their basement stones covered by a thick layer of fuel. Some other ancient ruins of different periods, located below the archaeological Tell, are also covered by a fuel layer.”

9. The UNDP report pointed out: “A national oil spill clean-up operation for the Lebanese coast could not start immediately after the spill occurred or even after the ceasefire due to the air and marine blockade enforced by the Israeli army on Lebanon as well as due to the lack of human, material and financial resources.” Existing resources were devoted to attending to humanitarian aid and immediate public health needs. Although the logistics of clean-up operations were initiated earlier, the major clean-up operations could not start until a few weeks after the ceasefire. Moreover, it is worth mentioning that the bombardment of bridges and roads also delayed the onset of the clean-up operations.

10. The UNDP report also stressed the issue of oil-spill clean-up and waste management, particularly taking into account the lack of necessary infrastructures in Lebanon.

11. The World Conservation Union task force and assessment team arrived in Lebanon after the hostilities, on 15 August 2006. The main findings of the mission⁵ include the following:

(a) It is clear that much of the shoreline ecosystem was physically and chemically contaminated. The impact included significant mortality and impairment of the structure and function of the shoreline ecosystem. Of particular concern with shoreline oiling is the impact on Vermetid terraces/coralline reef communities. Populations of sand-beach meiofauna have been diminished by up to 90 per cent in places, according to the National Council for Scientific Research.⁶ These organisms are prey for fish and could thus reduce fish stocks, with possible consequential economic loss;

(b) The oil spill had a direct impact on biodiversity hot spots and fragile marine ecosystems, such as the only marine protected area in the country: Palm Islands Nature Reserve;

(c) Oil from the spill covering the shoreline for long periods of time was seen to have posed a serious threat to migrating birds, marine turtles and other fauna and flora all along the shore, but specifically

well as offshore waters. Such exposure may result in mortality and/or sub-lethal effects, including carcinogenesis and physiological and reproductive impairment. It is likely that slow-moving and benthic species have been the most affected fauna at the El-Jiyeh power plant, where the most significant amount of oil sank to the

16. The World Bank carried out an economic assessment of environmental degradation resulting from the July 2006 hostilities.⁸ The overall cost was estimated at between \$527 million and \$931 million, averaging \$729 million, or about 3.6 per cent of Lebanon's gross domestic product in 2006. Table 1, drawn from that assessment, lists the damage by category of impact. Table 2, also drawn from the World Bank assessment, presents the estimated costs of damage and clean-up relating to the oil spill, estimated at \$203 million (excluding damage such as health-related impacts and losses to ecosystem services, and also excluding damages during the period of actual hostilities and the costs of many clean-up operations to be performed in the future).

Table 1
Overall cost of environmental degradation caused by the hostilities in Lebanon in July 2006

Category	Minimum	Maximum	Average	Percentage of gross domestic product ^a
	(Millions of United States dollars)			
Waste	206.8	373.5	290.2	1.4
Oil spill	166.3	239.9	203.1	1.0
Water	131.4	131.4	131.4	0.6
Quarries	15.4	175.5	95.5	0.5
Forests	7.0	10.8	8.9	0.0
Air	—	—	—	—
Total	526.9	931.1	729.0	3.6

Source: World Bank, 2007.

^a Based on estimated gross domestic product of \$20.5 billion for 2006 (Economist Intelligence Unit, 2006).

Table 2
Estimated costs of damage and clean-up relating to the oil spill

Category of damage	Minimum	Maximum	Mean
	(Millions of United States dollars)		
Hotels	22.8	59.6	41.2
Beach resorts, chalets, public beaches	13.2	34.8	24.0
Marine sports activities	4.0	4.2	4.1
Palm Islands Nature Reserve	0.7	1.2	1.0
Byblos	0.1	0.1	0.1
Restaurants	19.5	31.1	25.3
Commercial fishing	3.0	5.9	4.4

⁸ Cost assessment of environmental dama

	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>
	<i>(Millions of United States dollars)</i>		
Seashore fishing	0.3	0.5	0.4
Oil fuel burnt	39.1	39.1	39.1
Subtotal	102.8	176.4	139.6
Clean-up			

adverse health impacts on exposed populations. Clearly, the establishment of a health database is a high priority and remains to be done. Such a health registry will facilitate the tracking of long-term health outcomes for marine oil-spill workers and citizens in primary zones affected by burned oil plumes (those suffering from dermatitis, bronchitis, etc.).

III. Assumption of responsibility for prompt and adequate compensation by the Government of Israel: progress made

21. In paragraph 3 of its resolution 61/194, the General Assembly called upon the Government of Israel to “assume responsibility for prompt and adequate compensation to the Government of Lebanon for the costs of repairing the environmental damage caused by the destruction, including the restoration of the marine environment”.

22. To date, the Government of Israel has yet to assume its responsibility for prompt and adequate compensation to the Government of Lebanon. The reaction of the Government of Israel to resolution 61/194 was formally sought by a letter from the UNEP Post-Conflict and Disaster Management Branch to the Permanent Mission of Israel to the United Nations Office at Geneva, dated 16 August 2007, and a response is still awaited. Without an official response from Israel, it is difficult to report on progress.

23. In 2007, UNDP reviewed the many conventions that relate to oil pollution at sea and that many Eastern Mediterranean countries have signed, as well as other possible agreements or compensation schemes. Unfortunately, all conventions are inapplicable during armed hostilities. Additionally, the agreements that relate to spill compensation¹⁰ pertain only to oil spills from tanker vessels at sea, and not land-based incidents. In 2007, UNDP recommended examination of the United Nations Compensation Commission as the only precedent major oil-spill compensation regime for spills arising from armed hostilities.

24. All littoral states of the Eastern Mediterranean are signatory to the only oil-spill response convention that relates to cooperation in response to spills arising from coastal oil-handling facilities and not merely from tankers. The International Convention on Oil Pollution Preparedness, Response and Cooperation (1990) entered into force in 1995 to facilitate international cooperation and mutual assistance between States and regions. The spirit of the Convention clearly could not be fully observed during the hostilities and marine oil-spill aftermath.

25. Although not specifically concerned with spill compensation issues (nor with non-accidental acts during war hostilities-related issues), the International Convention on Oil Pollution Preparedness, Response and Cooperation could nevertheless be utilized for capacity-building and regional cooperative spill planning in the future. Israel, Lebanon and the Syrian Arab Republic should be strongly encouraged to take a leadership role in a thorough post-spill review of Convention-related activities in the Eastern Mediterranean Sea, hosted by Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea. Other

¹⁰ The Civil Liability Conventions of 1969 and 1992, the Fund Convention (International Oil Pollution Compensation Funds) of 1992 and the Supplementary Fund Protocol of 2003.

31. Work in phase I was completed in February 2007, with the support of various Member States and organizations (see annex). This assistance is estimated at almost \$15 million, according to table 2.24 of the World Bank report.

32. It should be noted that the first Ministry of Environment estimate of the overall cost of clean-up and rehabilitation was \$137 to \$205 million, based on the Ministry's applied model of costs per ton spilled. The Experts Working Group for Lebanon recommended this as an upper limit, with €50 million as the minimum value. The Working Group therefore proposed that the search for funding be based on an initial amount of €50 million for 2006, with possible complements for 2007.¹² The total assistance received by Lebanon as of spring 2007 was therefore less than 10 per cent of the average upper limit, and only about 30 per cent of the minimum value. Furthermore, the lower estimate of €50 million arrived at by REMPEC was based substantially on the cost of just one major Mediterranean spill (Haven, 1991), which had similarities to but also some significant differences from the present spill in Lebanon.

Phase II

33. Following the completion of phase I, between April and May 2007 the

Annex

**Member States, regional and international organizations,
regional and international financial institutions,
non-governmental organizations and private sector entities
that have provided financial and technical assistance to the
Government of Lebanon**

	<i>Cash contributions</i>	<i>Technical assistance^a</i>	<i>Equipment^b</i>	<i>Contractors^c</i>
Member States				
<i>First response during the war</i>				
Kuwait				
European Union/Denmark				
Norway				
<i>Others</i>				
Canada (Canadian International Development Agency)				
Cyprus				
Finland				
France				
Germany				
Italy				
Monaco				
Spain				
Sweden				
Switzerland (Swiss Agency for Development and Cooperation)				
Japan				
United States of America (United States Agency for International Development)				
Regional organizations				
Arab League				
International organizations				

	<i>Cash contributions</i>	<i>Technical assistance^a</i>	<i>Equipment^b</i>	<i>Contractors^c</i>
United Nations Development Programme				
World Bank				
United Nations Environment Programme, Post-Conflict Branch, and Office for the Coordination of Humanitarian Affairs				
Food and Agriculture Organization of the United Nations				
Regional finance institutions				
Organization of the Petroleum Exporting Countries				
International finance institutions				
None				
International non-governmental organizations				
World Conservation Union, West Asia, Central Asia and North Africa office and Mediterranean offices				
Greenpeace				
International private sector				
None				

Source: Lebanese Ministry of Environment, Directorate General of Environment. The estimated contribution of funds does not exceed approximately 7.5 per cent of overall resources needed.

^a Where technical assistance is transfer of technical know-how by experienced personnel for all kinds of activities related to the oil-spill recognition, evaluation and control activities.

^b Where equipment is hardware and software (consumables) of all kinds for the purposes of oil-spill recognition, evaluation and control activities.

^c Where contractors are third parties contracted to undertake oil-spill recognition, evaluation and control activities and are directly subcontracted by partners (donors).