

# Updated on Progress and Cleaning Methodologies of the Lebanese Coastline Affected by the Jieh Oil Spill Beirut-Lebanon September 22, 2006. ( Dr Manal Nader)

Submitted by Bahr Loubnan, an environmental NGO

Bahr Loubnan (BL) has taken on the responsibility to clean all the area on the Lebanese shoreline affected by the Jiyeh oil spill. Accordingly, BL has drawn plans and formed teams to attack submerged and beached oil, while leaving the cleaning-up of marinas to the Lebanese Navy in the Lebanese Army.

An international expert has been engaged by Bahr Loubnan to support the national expert and BL members in assessment of the beaches and clean-up techniques. In collaboration and coordination with BL members, the international expert has been carrying out field assessment of sandy, pebble and rocky beaches, and then advising on the best methodology to clean those beaches, the time required and the number of individuals needed.

Below is a report on achievements to date, future activities as well as the methodologies used, or are expected to be used.

## **Clean-up update: shorelines**

BL created teams from Lebanese fishermen (employed at 50USD/day) supported by volunteers as this will compensate lost income incurred by the fishing sector since the beginning of hostilities and the aftermath of the spill.

Each team is formed of one team leader, one team leader assistant, team members and volunteers. Volunteers report to the team leader. Technical support is provided by national and international experts from Bahr Loubnan as well as by international experts made available by donor countries and national experts from the MOE and other concerned institutions. All teams are being provided transport, water and lunch on a daily basis by BL, and therefore the fishermen are incurring no expense.

BL launched activities on priority shorelines in South Lebanon and Beirut. Preparations for clean-up operations in Mount Lebanon and North Lebanon are underway. Depending on the pollution levels, fully equipped teams supported by volunteers are deployed to manually remove the oil and therefore reducing the environmental damages that may be incurred during operations. The clean-up process requires extensive manual labor. In order to reduce health risks, team members and volunteers are all equipped with face masks, working clothes, rubber boots, gloves and goggles.

Below is a summary of several activities that are underway on the sea-bed and at several beaches, while others are under preparation.

## **Clean-up update: submerged oil on the sea-bed**

BL created teams of professional divers to remove the submerged oil on the sea-bed in the identified four locations: Wadi Zeini, Jiyeh, Ramlet el Baidah and the public beach in Byblos.

Clean-up activities are currently taking place in two main areas: Jiyeh and the public beach in Byblos while preparations are underway to launch activities in the other two remaining sites.

Work package	Jiyeh; submerged oil clean-up	No.	1
<i>Duration</i>	On-going		

<i>Outcome</i>	Removal of all submerged area from the sea-bed
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Depth: 3-10 meters</li> <li>• Thirty-six professional divers are employed</li> <li>• Using scuba diving equipment, oil mats are collected by hand underwater and placed in heavy duty, non-permeable bags</li> <li>• Each bag is brought up to the surface and placed in storage tank in the diving boat</li> <li>• When storage tanks have been filled, they are transported to the shore and bags filled with oil is transferred into large containers for further treatment</li> <li>• A total of 70 tons of oil have been collected to date and activities are on-going</li> </ul>

Work package	Byblos public beach; submerged oil clean-up	No.	2
<i>Duration</i>	On-going		
<i>Outcome</i>	Removal of all submerged area from the sea-bed		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Depth: 0-6 meters</li> <li>• Fourteen professional divers are employed</li> <li>• Using scuba diving equipment, oil mats are collected by hand underwater and placed in heavy duty, non-permeable bags</li> <li>• Each bag is brought up to the surface and moved to shore</li> <li>• Bags are then transported to the shore and stored in large containers for further treatment</li> <li>• A total of 55 tons of oil have been collected to date</li> </ul>		

Work package	Ramlet Al Baidah; Sandy beach*	No.	3
<i>Duration</i>	One week		
<i>Outcome</i>	Forty paid fishermen supported by volunteers and supervised by a site manager from Bahr Loubnan removed the top layer of polluted sand and stored it in “Big Bags” for further treatment in order to return it to the beach		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Using shovels, the highly polluted top layer of sand was removed and stored in “Big Bags”</li> <li>• Contaminated solid wastes were picked up and stored for further treatment</li> <li>• Using a loader, all “Big Bags” were moved up the beach in order to prevent waves from transporting them to sea</li> <li>• Preparations are being made to store the polluted sand for treatment in order to return it to the beach</li> </ul>		
<i>* The option of surf washing for all sand beaches is being evaluated</i>			

Work package	Jiyeh; Sandy beach	No.	4
<i>Duration</i>	Ongoing		
<i>Outcome</i>	Forty paid fishermen supported by volunteers and supervised by a site manager from Bahr Loubnan are removing the top layer of polluted sand and storing it in special bags and containers for further treatment in order to return it to the beach		

<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Using shovels, the highly polluted top layer of sand is being removed and stored in the highest point on the beach and away from wave action</li> <li>• Contaminated solid wastes were picked up and stored for further treatment</li> <li>• Preparations are being made to store the polluted sand for treatment in order to return it to the beach</li> </ul>
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Work package	Saadiyat; Sandy beach	No.	5
<i>Duration</i>	Under preparation		
<i>Outcome</i>	40 paid fishermen supported by volunteers and supervised by a site manager from Bahr Loubnan will remove the top layer of polluted sand and store it in special bags and containers for further treatment in order to return it to the beach		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Same method as above for sandy beaches</li> </ul>		

Work package	Byblos and Amchit; Rocky beaches including Byblos port	No.	6
<i>Duration</i>	Under preparation		
<i>Outcome</i>	Removal of all solid wastes and collection of liquid oil in the area. Washing of rocks from oil, collection and removal		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Twenty fishermen from Byblos and Amchit will be employed</li> <li>• Pick-up of all contaminated and non-contaminated solid waste on the beaches in preparation to wash the rocks</li> <li>• Solid waste will be stored in special plastic bags and sent for treatment</li> <li>• Collect liquid oil using spatulas, bowls and buckets in preparation to wash the rocks</li> <li>• Store liquid oil in containers for future treatment and use</li> <li>• Isolate the marine area of the location to be cleaned with booms</li> <li>• Deploy absorbent booms to collect washed oil</li> <li>• Using water jets, wash the oil off the rocks and into the isolated area</li> <li>• Remove absorbent booms after having absorbed the free oil and send for storage and treatment</li> </ul>		

Work package	Byblos and Amchit; Pebble beaches	No.	7
<i>Duration</i>	Under preparation		
<i>Outcome</i>	Removal of all solid wastes and collection of liquid oil in the area. Cleaning of pebble beaches from oil residues		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Twenty fishermen from Byblos and Amchit will be employed (Same team as in work package 4)</li> </ul>		

	<ul style="list-style-type: none"> <li>• Pick-up of all contaminated and non-contaminated solid waste on the beaches in preparation fro beach clean-up</li> <li>• Solid waste will be stored in special plastic bags and sent for treatment</li> <li>• Collect liquid oil using spatulas, bowls and buckets in preparation for beach clean-up</li> <li>• Store liquid oil in containers for future treatment and use</li> <li>• Isolate the marine area of the location to be cleaned with booms</li> </ul> <p><b>Option 1:</b></p> <ul style="list-style-type: none"> <li>• Deploy absorbent booms to collect washed oil</li> <li>• Flush oil embedded between the pebbles and absorbed by the beach into the marine environment</li> <li>• Allow absorbent booms to collect all floating oil</li> <li>• Remove absorbent booms after having absorbed the free oil and send for storage and treatment</li> </ul> <p><b>Option 2:</b></p> <ul style="list-style-type: none"> <li>• Deploy absorbent booms to collect washed oil</li> <li>• Surf wash polluted pebbles in the marine environment</li> <li>• Allow absorbent booms to collect all floating oil</li> <li>• Remove absorbent booms after having absorbed the free oil and send for storage and treatment</li> </ul> <p><b>Option 3:</b></p> <ul style="list-style-type: none"> <li>• Implement option 1 &amp; 2 jointly to remove the largest amount of oil pollutants</li> </ul>
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Work package	Anfeh Historical site; Rocky beaches	No.	8
<i>Duration</i>	Under preparation		
<i>Outcome</i>	Removal of all solid wastes and collection of liquid oil in the area. Washing of rocks from dried oil, collection and removal		
<i>Description of work</i>	<ul style="list-style-type: none"> <li>• Ten fishermen from Enfeh will be employed</li> <li>• Pick-up of all contaminated and non-contaminated solid waste on the beaches in preparation to wash the rocks</li> <li>• Solid waste will be stored in special plastic bags and sent for treatment</li> <li>• Collect liquid oil using spatulas, bowls and buckets in preparation to wash the rocks</li> <li>• Store liquid oil in containers for future treatment and use</li> <li>• Isolate the marine area of the location to be cleaned with booms</li> <li>• Deploy absorbent booms to collect washed oil</li> <li>• Using water jets, wash the oil off the rocks and into the isolated area</li> <li>• Allow absorbent booms to collect all floating oil</li> <li>• Remove absorbent booms after having absorbed the free oil and send for storage and treatment</li> </ul>		