

## **Pollution caused by solid waste, rubble, and construction debris is a serious threat to the sea and the shore of the Gaza Strip**

By work team

### ***Introduction***

*It is obvious that the environment of the Gaza Strip is deteriorating year after year. However, the extent of deterioration varies from one location to the other, on land and in the sea. Some wrongful practices of the Palestinian citizens and some of the Israeli occupation conducts have added to such environmental deterioration in Gaza. The pollution caused by solid waste and construction rubble is one of the serious sources of endangering the environment; it damages the main environmental components. The marine environment in the Gaza Strip has been severely impacted by such pollution that has reached the beaches and the sand dunes along the coastal line. Environmental problems of many states in the world are solved by the course of time, however in the case of Gaza Strip additional problems are piling up and becoming more complex every day. If this scenario continues we will reach the stage of total environmental damage. Prompt intervention is needed to solve the rising environmental issues in the Gaza Strip like the waste water problem, water pollution problem and the problem of solid waste.*



Accumulated Old tires and solid wastes are burned on the sea shore

### ***Solid wastes & construction rubble and debris***

Solid wastes are substances and masses resulted by the various human activities that have to be dumped. Solid waste includes industrial waste, medical waste and domestic waste. However construction waste and rubble are defined as rubble and left overs resulted from construction and destruction, which includes also rehabilitation, repair, removal of existing structures and installations. Construction debris and rubble is composed of sand, stone, gravel, and tile, ceramic, marble, glass, aluminum and other metals, wood, plastic, paper, paints, plumbing pipes, electric parts and asbestos. Accumulation of solid waste, construction rubble and debris on the beach has magnified the impact of marine environment pollution.

Marine environment pollution issue has gotten more serious by the course of time. Accumulation of solid waste and construction rubble and debris in many locations along the shores of Gaza is a result of many reasons; most importantly the failure of municipal authorities and local councils to provide the services of solid waste, construction rubble and debris collection and shipping to the designating dumping sites and processing solid waste by using environment friendly techniques.

The Israeli siege on Gaza played a role in the exacerbating of this problem; the lack of fuel, the lack of trucks in the dangerous zones close to the borders with the Israeli territory, the lack of the spare parts necessary for maintaining garbage trucks, the difficulties facing the municipal authorities like not being able to pay their employees salaries, the frequent strikes by the sanitation municipal departments, all were reasons behind the rise of random dumping sites near the public roads and in the alley ways in the vicinity of residential areas and public markets in Gaza.



**Piles of construction rubble and solid waste along the shore of Gaza**

The beach was not excluded from this phenomenon. Our work team has made a field visit to the beaches of Gaza, from the extreme north to Rafah in the South in order to survey the environmental problems of the beach and their impact on marine life and to document the evident concentrations of solid waste and construction rubble and debris. The outcome was listing the types of waste spread on the beaches like piles of construction rubble, piles of garbage and other specific items, like old fishing nets, glass containers, fabrics, corpses of dead animals, empty medicine containers, empty containers of pesticides and insecticides, plastic utensils, old shoes and beach visitors' left overs.

***Huge quantities of construction rubble accumulated in the vicinity of some regions on the sea shore***

According to the study conducted by a number of environmentalists, the quantity of solid waste and specifically construction rubble piled up on the beach is estimated to be 19940 cubic meters. Huge quantities of debris and construction rubbles are piled across from Al Shate' Refugee Camp. It was leveled to prevent the sea water from sweeping over houses, also the kurkar Cavity location was turned into a dumping

sight. It is located across from Sheikh Ejleen Mosque. The main cavity contents now are construction rubble.



**Piles of stone and steel bars and other debris dumped on the beach**

The area across of An Nusairat Refugee Camp suffers also from the accumulation of huge quantities of construction rubble and debris like steel wires etc... the same problem has extended to reach Al Zwaida village south of Deir El Balah by the fishermen's port. Huge piles of asphalt, construction debris and rubble were observed there. They are estimated to be 864400 cubic meters. The huge piles of solid waste have formed a huge cavity, right by the sea water, and completely discontinued the beach on the south side of the fishermen's port.

***Plastic wastes are not less dangerous than construction rubble***

The different forms of plastic waste that spread along the shore are not less hazardous than the construction rubble and debris. Plastic waste takes a very long time to disintegrate, about 400 years, which causes its accumulation on the beach, continue for a very long time.



**Plastic waste and containers that contain hazardous material thrown on the beach**

It is important to note that large number of fish caught by fishermen has plastic fragments in their digestive system, which disturbs their metabolism and reflects negatively on their well being and their reproduction rates.

Many researches have pointed out that plastic bags are a cause of death to large number of sea turtles after they swallow them, which disturbs the environmental balance by allowing the jelly fish population that turtles feed on to grow much larger.

***Environmental and health hazards resulting from solid waste and construction debris and rubble***

The spread of random and uncontrolled solid waste and construction debris dumping sites along the shore of the Gaza Strip, pose a true threat to marine environment and public health. This type of waste contain dangerous toxic material that impact marine life and cause the death of certain kinds of fish and migration of other kinds to less contaminated areas. It also impacts the health of human beings when they swim in the polluted water and the spread of diseases as a result.



**Construction debris and rubble cause beach erosion**

The accumulated construction debris dumped on the beach will be gradually pulled by the waves into the water and added to the rubble placed intentionally by people who thought that they will act as wave breakers, but the result will be muddling and contaminating the water. It blocks fish gills and cause their suffocation due to the lack of oxygen. On the other hand, it destroys the fishing gear and equipment, which impacts the movement of fishermen and their productivity. Some fishermen try to construct artificial fish habitat by dumping old car structures, tiers and construction debris in the sea in order to gather the fish inside them, the fact that increases the pollution of marine life and magnifies the excessive fishing behavior.

The accumulation of massive quantities of waste on the beach harms the beauty of the beach landscape and adds to the visual contamination at their dumping sites. It is noted that polluted areas do not have any tourist or beach recreation activity. It has a negative impact on marine tourism and recreation in general.

***Prompt solutions should be found for the phenomena of accumulating wastes on the beach***

The hazards rising from pollution by solid waste and construction debris adds a heavy burden on the marine environment which already suffers great deterioration in the Gaza Strip. In order to reduce the negative impact of such hazards, it is necessary to

prompt extensive awareness campaigns that target the citizens and fishermen about marine environment and the way to preserve it. It is also important that the specialized bodies and concerned authorities should pay more attention to the environment protection and design solutions for the current marine environment pollution. Otherwise in the future we will witness more serious impacts and destructive consequences on the environment. Media should play an important role in this issue by lighting the environmental problems that the Gaza Strip marine environment are suffering from and to bring this issue to the public opinion, on the local and international level, and in a very clear manner in order to attract participation in the needed solutions. Enforcing laws related to environment protection is also a must, especially the laws and regulations related specifically to protecting the beaches from pollution by the various types of contaminants. Urgent developmental programs must be designed and implemented by the central and municipal authorities in cooperation with the donor countries to remove the huge accumulation of solid waste from the beaches of Gaza.