

The Conclusion of an Expert Opinion

By work team



Dr. Yousef Abu Safia

Experienced and specialized environmentalists are the most capable of explaining the environmental problems that impact the environment, its basic components and the public health. In this part of the report, we will attempt to shed light on some sensitive and dangerous issues that have impacted the sea water and sea shores from the point of view of the expert on environmental issues and the chairman of the environment quality authority Dr. Yousef Abu Safia.

We aim to sum up and analyze the problems facing the sea and its shores and to present some of the short term and long term solutions to preserve a sound marine environment. The Right to a Sound and Sustainable Environment Program (RSSEP) team has conducted the following interview with Dr. Abu Safia.

At the beginning lets meet Dr. Yousef Abu Safia, the environmental expert of this report.

Dr. Yousef Atallah Abu Safia, was born in 1949, I acquired my doctorate in environmental sciences from Texas University in the U.S.A. and acquired my Master Degree in Parapsychology from the American University in Beirut where I achieved my bachelor's degree in Biology.

I am a co founder of the Gaza Islamic University, where I worked for ten years. Then I moved to al Azhar University and occupied the position of the deputy chairman for academic affairs. I was appointed by the president Abu Ammar to chair the College of Science and Technology in Khan Younis then I was elected for the Palestinian Legislative council where I was appointed as a chairman of Natural Resources and Energy Committee for the PLC. In 1998, I was appointed as the minister of Environmental affairs in Palestine, which later was changed into the environment quality authority in the year 2002. During the course of my work I prepared and participated in the preparation of many studies and research, the most important of which is a study about the relation between drinking water and kidney failure diseases that resulted in providing Khan Younis district with two water desalination stations funded by Japan. I participated also in establishing the water laboratory for the Palestinian Hydrologists Group, the laboratory of the Ministry of Agriculture and trained its staff, besides many other environmental activities.

Waste water is considered the most serious source of polluting the marine environment in the Gaza Strip, it impacts marine life, sea food sources, sea water, it also impacts sand, air, tourism, and public health, how do you comment on that?

Evidently the sea is one of the important sources of food for human beings; the annual product of each marine square mile in Gaza reaches seven tons of food. Before the Israeli closure the average quantity of the sea food produced is 4000 tons a year, now it is only 40 tons, in other words, only 10% of the regular quantity before the closure, this is due to many reasons, most importantly the Israeli closure of the sea shore for local fishermen.



Sewage discharge pointes are spread along the shore of Gaza

As for the waste water in the Gaza Strip I can say that about 100 thousand cubic meters of raw or partially treated waste water are discharged directly into the sea, at a very short distance from the beach. Waste water contains pesticides and toxicants used in farming, numerous forms of organic material, fertilizers and industrial wastes. Waste water in Gaza is a mixture of a variety of sources and contains a diversity of dangerous organic material and chemicals that are discharged directly into the sea.

Those materials are toxic chemical compounds that are later stored in the bodies and tissue of fish without any changes for long periods of time. When big quantities of the fish that contains such materials and toxic chemical compounds in their tissue is consumed by human beings, their health becomes exposed to many forms of hazards. The positive point is that the average fish consumption for each individual is about 2kgs. Per year, that is only a few grams per day, which reduces the negative impact of consuming contaminated fish. However if the fish consumes large doses of chemicals it will directly affect people without any doubt, like the example of Khan Younis few years ago where we had poisoning cases as a result of consuming contaminated fish.



Sea weeds grow in polluted areasWaste water mixes with sea waves

It is known also that waste water contain high quantities of phosphorous and nitrogen that cause strong growth of moss as a result of the nitrification process and the toxic gases it produces like Nitrate, which leads to the rise and rapid growth of moss among the shore of the Gaza Strip and negatively impact the beach scene and therefore tourism and the numbers of summer vacationers.

On the other hand the organic material contained in the waste water decreases the quantity of Oxygen in the water, from the natural ratio 8gms/liter down to less than 5gms/liter, which leads to the suffocation of many marine creatures or their migration to other areas were cleaner shores are available. The only marine creatures that remain are the types that can live on small ratios of oxygen like Nipper.



Children playing on a beach area polluted with waste water.

Waste water pollution has its impacts also on human health in general, considering that the beach is the only recreational outlet for the population of the Gaza Strip especially during the hot summer days when people resort to polluted beaches and swim in waters contaminated with waste water, which has its impact on the human health directly or indirectly. Human beings may catch many microbiological diseases like meningitis, typhoid, eye and skin infections and other long term diseases like cancer. In addition, people expose themselves to offensive odors caused by the toxic Hydrogen sulfide gas released from waste water. Death can occur after inhaling such toxic gas for along period of time.

Dumping construction debris rubble and solid waste by some citizens or local authorities on some of the Gaza Strip beaches violates the natural beauty of the beaches and negatively impacts marine life and the beach composition. What do you think of that?

Some people choose the easiest way to get rid of construction debris and rubble by dumping them in large quantities in the sea and on the beaches of the Gaza Strip. If you want to see that at its clearest you can just go to Deir El Balah beach in mid Gaza Strip. Thousands of tons of rubble and construction debris are accumulated like a mountain. The hazards of these materials lay in its content, like the dangerous estestos that impact marine life and therefore the human health.

Dumping construction debris and rubble is a serious threat of distorting the beautiful landscape by discontinuing the beach and causing its declination and erosion. That changes the natural terrain of the beach and pollutes the ground water basin.



Thousands of tons of construction debris and rubble are dumped on the beach.

Solid wastes do not present in large quantities on the beach at the present time. We went through a lot of sufferings in order to clean the beach from the settlements' rubble that was left behind by the Israeli army after they withdraw from the Gaza Strip. Solid waste accumulations are found in sporadic locations along the beaches of Gaza especially in the summer time near some restaurants or homes. This phenomenon increases the extent of air pollution in the areas where they exist. They also impact the general scene of the beach, besides their serious impact on the ground water basin when the rain water washes solid waste. The waste left behind by the beach visitors, especially the plastic items, can cause the death of larger marine animals after they swallow them thinking that they are some form of food e.g. sea turtles that feed on jellyfish.



Dumping solid waste on the beach or in the sea is a main source of pollution for marine environment.

Gaza port has many environmental problems that impact marine life, how do you see that?

At the beginning there have been great disagreements and arguments between the Palestinians and the Israelis about the location of constructing the port of Gaza. The Palestinian side suggested the area of Beit Lahia in the north, which is the most suitable for the Palestinians from an environmental perspective, because the waves movement steers the sand from the bottom of the sea and allows it to settle on the southern side of the port, which widens the area of the beach and makes the sand layer thicker. But the Israelis strongly objected this suggestion and insisted that the sea port is to be built in the middle area of the Gaza Strip.

We disagreed because that does not allow us to benefit from the deposited sand, if the port is constructed in the south. And finally it was agreed to construct the port on the present location as a compromise. The existence of the port has negative impact on the marine environment however the choices are limited and they are both bad.

At the present time 350 thousand tons of sand are deposited south of the port every year and need to be moved north of the port.



Gaza port plays a role in contaminating the marine environment.

Will the rubble caused by the Israeli air strikes on Gaza buildings during the last war be dumped in this port?

The latest Israeli offensive on Gaza has left behind thousands and thousands of tons of rubble caused by bombarding homes and buildings during the war. It is wise to think in an environmentally sound manner while getting rid of the rubble in a beneficial way. It should not be dumped on the beach so it won't leave further negative impact on the beach environment, most seriously is the decline and erosion of beaches. I think we should grinded the rubble and recycled it in rehabilitating roads and street maintenance. No ware left overs will be dumped in the port. It will all be gathered on a certain location, grinded and recycled for constructing some projects that received funds from donors, like the U.N.D.P.



The Israeli war against Gaza has left behind thousands of tons of rubble

The random construction along the beaches of the Gaza Strip and the existing installations on the beach has negative impact on marine life and beach compositions. What do you think of this problem?

Random construction is considered a violation against the beach. The construction should take place at least at the distance of 500 meters from the beach. We suffer from two types of random construction; the first is the permanent random construction, which harms the marine environment in terms of the increased pollution rates that they cause. Such structures leave negative impact on marine life on the long run even if they were few. They produce some contaminants like solid wastes and discharge waste water into the sea.

The second type is the temporary random construction represented in the café's, parks and hotels that some citizens build to earn living. We cannot stop them; however those buildings should be built in an organized fashion that does not harm the general scene of the beach. Owners of those buildings must be forced to maintain the sanitation of the location and preserve the marine environment with complete care to guarantee its soundness from any damaging activity.



Random construction harms marine environment

The wide spread phenomena of building high towers at the beach has prevented the sea wind from reaching the land, which is necessary to maintain a moderate weather in the Gaza Strip in summer and winter. Sea water is warmer in the winter and cooler in the summer, the towers have diverted the current of sea wind upwards and back towards the sea and put them in a different path. Unfortunately the only beneficiary from this air current is Israel.

Agricultural activity and the use of pesticides impacts marine life also, how do you comment on that?

We in the Gaza Strip are known for being heavy users of hazardous and toxic pesticides, some of which is internationally banned like D.D.T. Those materials settle in the soil and then rain water washes them into the sea, which impacts marine life and causes the accumulation of poison in the fish tissue and then it is transferred to the human body by eating the contaminated fish. Those materials have other serious impacts; it can kill the fish eggs, which lead to the shortage and the extinction of some species.



Toxic chemical wastes dumped on the beach.

Beach Sand theft for construction purposes, is a rising dangerous phenomena in Gaza, practiced by the Palestinians now and earlier by the Israelis.

Many Gaza citizens depend on beach sand theft for construction. The beach sand was also exploited by the Israeli settlers, the fact that devastated marine life. More than 250 million tons of beach sand was stolen from the Gaza Strip beaches, it is necessary to preserve a layer of 2 meters thick sand above the mud layer to act as a trap for the rain water and then store it in the ground water basin. Sand theft has prevented such process and caused sea water to infiltrate in to the ground water basin due to the lack of rain water supply, which led to rising salinity of the ground water basin and increased the cost of the fresh water supply because it has to be desalinated. On the other hand it is scientifically known that the sea produces sandy beaches according to its nature, however the case in the Gaza Strip is different where the beaches are continuously shrinking and eroding.



Citizens stealing beach sand

Fishing and fishermen have their negative impact on the marine environment due to the use of environmentally hazardous and unsafe means of conducting their work. Can you clarify that?

Fishermen use large doses of poisoning chemicals while fishing in order to catch the biggest possible number of fish within a short period of time. This practice leads to the destruction of marine life and impacts its diversity, which is important for maintaining the environmental balance. In addition to that selling fish that contains high dosage of poison to the public impacts the human health and may cause neurological problems and serious forms of cancer. It also affects the kidneys and the liver. Some fishermen use methods of excessive fishing like the use of explosives or burning flammable material on the sea water. Other fishermen use nets with very small openings that cause severe damage to marine life like killing, migration or extinction of some kinds of fish and other marine species.



A fisherman doing his work next to waste water discharge point.

The latest Israeli war on Gaza devastated the whole Palestinian environment. We would like to know how it impacted the marine environment in specific.

The Israeli war left serious impact on all the components of the Gaza Strip environment, some immediate impact and some long term impact. The Israeli army has used many known and unknown chemical weapons, some of which are internationally banned like white phosphorous and pigmented Uranium; such substances have hazardous impact on surface and ground waters, also on the air, plants, field crops and soil in addition to the serious impact on public health, even on the embryos in their mothers' wombs.

International specialists have picked up some samples from the environment for testing. The results should help us address such a problem. The marine environment is not isolated from such destructive and dangerous impact. Unfortunately all the hazardous deposits and toxic chemicals that landed on the ground and infiltrated into the lower layers of soil has ended up in the sea after the rain fall during the past months. It is not possible to identify the environmental damage that was resulted by the Israeli war on Gaza and has impacted sea land or air environment till after the testing results are released. If the tests prove that those toxicants have reached the marine environment the consequences will be very severe to marine life, the fish population and the human health.

At the end how do you assess the current situation of marine environment?

Marine environment is endangered from many aspects; the Palestinian citizens are responsible for that to a great extent. The Israeli occupation also is responsible for its violations against our marine environment. All of the above mentioned environmental pollutants like solid wastes, construction debris and rubble, the waste water and the excessive fishing methods also the wrong practices of the beach visitors and the Israeli destructive war against Gaza and its marine environment all have added new problems to the previously existing ones.

It is important that the government, the citizens and all the specialized and concerned parties must corporate and find solutions to this problem, even if they were partial solutions, as long as they are suitable to the current situation. The private citizen has an important role in conserving the marine environment and beaches. The specialized organizations and the concerned ministries have their duties towards this issue. In addition to the role of the government and the donor parties that can participate in preserving the marine nature and developing projects that sustains and maintains the beaches and the marine environment in the Gaza Strip.