

Pollution of Karnafully River Water

- causes, effects and recommendations.

Due to a long heritage and contributions to worldwide maritime transport from Bangladesh, this Karnafully river has achieved a special respect and honour from us. It originates at Lusai Hill of Assam, India. After passing about 195 km of passage, near many famous institutions like Chittagong Port, Marine Academy, Chittagong Dry Dock, Naval Academy, International Air Port etc, it reaches to the estuary of Bay of Bengal. This river is surrounded by a dense population of more than 3 million people and also covered by big shipping activities, which pollutes the Karnafully river severely. Long before, this pollution was not so bad, but after early 1950, it started to go bad and at present the situation is really alarming.

Causes: GESAMP (United Nations Group of Experts on the Scientific Aspect of Marine Pollution) has defined the pollution as:

“The introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities”.

As per GESAMP, the sources of marine pollution are Maritime transport (12%), run off & land based discharge (44%), Atmosphere (33%), Dumping (10%), Offshore production (1%). This is a very rough estimation; since we do not have any defined calculation of pollution, so we can think that the Karnafully river is also polluting almost in the same way.

There are about 800 nos. of industries established near the bank of Karnafully river at Chittagong and Chandraghona areas; more than 200 industries out of those 800, are identified as pollution causing units. Some examples of those units are cement factory, tannery, textile mill, DDT plant, oil refinery, chemical factory, fertilizer factory, dry-dock, paint factory, paper mills, rayon mills etc. These factories are continuously discharging unlawfully a huge amount of pollutants to Karnafully river via many canals.

The municipal sewage discharge from city through many canals can be treated as another factor of pollution. There are four major drainage canals i.e. Chaktai, Monoharkhali, Majhirghat and Firingi Bazar. This inadequately untreated municipal sewage discharged to Karnafully, has created a serious pollution problem.

Chittagong port is the main port of Bangladesh, which is handling about 12.5 million tons of cargo per year. Since this port is located at the bank of the Karnafully river, thus every year more than 1500 merchant ships and 3000 fishing vessels are using this river. The illegal/accidental discharges (i.e. grease, fish oil, bilge, garbage etc) from ships are causing a severe pollution. Moreover the other problem is the shortage of adequate reception facilities to receive oily

garbage/bilge at Chittagong port. At present the Chittagong Port Authority is taking very careful steps to protect marine pollution, but there are many unnoticed illegal or accidental discharges are still going on, which create marine pollution.

Chittagong is a dense populated area. So the agricultural lands, mill-factories, transportations, offices, markets etc have being established to support this big population, which also create a huge amount of wastes/garbage. But the waste treatment facilities of the city are not smart enough to handle these wastes/garbage and finally these untreated wastes/garbage are also discharged to the Karnafully river.

So above are the very common causes of Karnafully river pollution. Actually, the human activities, industrial effect at bigger Chittagong distract and also huge shipping activities at Karnafully river are causing continuously this severe pollution to the river.

Effects: To find out the pollution status at Karnafully river, the experts are working for last several years. They have collected the samples of water, sediment, fish etc from various locations of Karnafully river specially at Municipal sewage discharge points, Karnafully Paper and Rayon complex, estuary etc. They analyzed those samples and find out the values of salinity, temperature, chemical oxygen demands, dissolved oxygen, hydrogen ion concentration, transparency, hardness, nitrogen, electric conductivity etc from the samples and the analyzed result is showing a great treat of serious marine pollution.

The maximum values of Chemical oxygen demand, Bio-chemical oxygen demand, Total dissolved solids, Total solids have found 5 to 6 times greater than the Environmental Quality Standard (EQS) values, on the other side, the minimum value of Dissolved oxygen have found 4 times smaller than Environmental quality Standard (EQS) value, which indicates the deterioration of water quality at investigated areas.

Experts also analyzed the Trace metals (Cd, Cr, Cu, Fe, Pb, Mn, Hg, Ni, Zn) contamination at Karnafully river water, because it is also other vital factor to pollute the marine environment. The result is that the contaminations of some trace metals have been exceeded too much higher than the acceptable values, which also shows another danger signal of Karnafully river pollution.

Recommendations: The following recommendations can be considered to reduce/cease marine pollution at Karnafully river,

1. Smart and effective Municipal sewage and also waste treatment plants to be established to handle all sewages and wastes produced at Chittagong city.
2. Rural sanitation systems near the Karnafully bank to be improved up to a satisfaction limit.
3. As per MARPOL, a reception facilities to be established at Chittagong port area to collect all oily bilge/ oily garbage/oil sludge from ships.
4. Chemical fertilizer at agricultural land to be used within controllable limit.

5. Strong industrial policy to be established, so that the pollutant discharge to Karnafully can be ceased from the Industries.
6. A monitoring and evolution system to be maintained under the umbrella of Environmental Management System.
7. CPA, BSC, Navy, Coast guard can form a partnership to protect Karnafully pollution.
8. Pesticide applications to agricultural lands/residential areas to be used in controllable manner and also an Integrated Pest Management (IPM) to be introduced.
9. Manpower needs to be improved/increased under Dept. of Shipping, so that they can play much more effective roles for pollution protection at Karnafully.
10. Take strict legal actions to those unlawful pollution causing industrial units, as detected by Dept. of Environment, to protect the marine pollution.

More over, the environmental scientists, conservationists, maritime experts, shipping authorities, government authorities have to play strong roles to minimize, as well as to cease the pollution at Karnafully river with the help of our resources and wealth.

Conclusion: The Karnafully river is being polluted due to the reasons of urban wastages, sewage discharges, industrial pollutants, land washout, shipping activities, city run-off, atmospheric fallout etc. An environmental friendly human being can easily fill these sufferings of Karnafully river. So this is the very high time to take effective actions to protect the Karnafully river water from the unwanted pollution, under the umbrella of “Save the Karnafully”.

Sources: Khan & Rahman 1994, Environmental Port Management (by A.D. Couper) and also from many Environmental publications.

Published on: June 2003

