

Research on Hydrochemical Characters and Water Quality in the Coastal Region from Quangninh to Haiphong

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The coastal region from Quangninh to Haiphong plays a very important role in the progress of the economic development in the North Vietnam. Almost all big seaports in the North such as Halong, Cailan and Haiphong seaports are located in this region. Besides potentials in sea-transportation, this region is also well known for Halong Bay—a beautiful seascape approved by UNESCO as a “world heritage” site.

In addition to activities for the economic development such as sea-transportation, fishery and tourism people have been damaging the environment and marine ecosystem of the coastal region from Quangninh to Haiphong. Residues of chemicals used for plant protection including insecticides, herbicides, fungicides dilute in water flow of large rivers (Red rives, Thaibinh and Bachdang rivers are main rivers providing alluvia and irrigation water for the “Red river” delta in the North Vietnam) and accumulate in this region. In addition, organic residues contained in wastewater from cities lying along the coastal line such as Halong and Haiphong discharged directly into seawater without any treatment cause environmental pollution to this region. Moreover, oil and coal pollution from ports is a problem concerned by the public. Environmental pollution caused by organotin compounds originated from antifouling paints for ships and boats (mainly are tributyl and triphenyl compounds) is also posing hazardous potential to ecosystems of big sea-ports with heavy boat transportation including Haiphong and Halong.

Almost all coal-mining industry of Vietnam concentrates in the Quangninh province accounting for 90% of coal-mining activities. Coals from this province are exported, estimation value of 8 million tons in 1997, and are transported to coal-burning power stations, steel and cement factories located nearby. They are also used as cheap fuels for domestic cooking. Carcinogenic pollutants known as polycyclic aromatic hydrocarbons (PAHs), which are formed when carbon contain-

ing materials are incompletely burnt, are always a potential threat to the health of population living around Quangninh where many factories involved in coal burning are located.

In order to utilize and to protect the environment and ecosystem of the coastal region from Quangninh to Haiphong effectively, it is necessary to carry out research programs in this region to measure hydro chemical characters as well as to evaluate levels of pollution caused by chemicals used for different purposes.

As a response to the above necessity, in 1995 Research Centre for Environmental Technology and Sustainable Development (CETASD) and Haiphong Oceanography Institute collaboratively have implemented a research program in the coastal region from Quangninh to Haiphong and further to Thaibinh province. Difference samples including water, sediment and bio-organism samples are collected and analyzed for organochlorinated pesticides residues such as DDT, DDE, and Lindane by using GC-14B/ECD (SHIMADZU corporation, Japan).

Additionally, from June 1998, CETASD and the United Nations University (UNU) have collaboratively carried out a cooperative project to evaluate residues (TBT and TPT) in water and fish samples collected from two main harbors, namely Halong and Haiphong ports, in the coastal region of Quangninh-Haiphong. Collected samples were analyzed using GC/MS QP-5000, (SHIMADZU, Japan). Results obtained indicated organochlorinated pesticides and organotin residues. Levels of pollution by these chemicals are still lower than acceptable limits. However, it may be harmful because these chemicals are known for their high possibilities to accumulate and penetrate into food chain. Data of hydro chemical characteristics such as water-flow directions, tides, and salinity were measured by Haiphong oceanography institute.

Studies on Marine Pollution in India

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Due to an increasing attention to Water, Air and Noise pollution in the country, the Government of India constituted the Central Pollution Control Board (CPCB) under the Ministry of Environment and Forests (MoEF) for promoting cleanliness

of the environment through preventions, controls and abatements of pollution in the country. One of the major activities of CPCB is to advice the Central Government on any matters concerning controls of pollution at a national level. India has