

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

Le Huu Tuyen¹, Pham Hung Viet¹, Nguyen Viet Hung¹,
Nguyen Chu Hoi², and Luu Van Dieu²

¹ Research Centre for Environmental Technology and Sustainable Development (CETASD),
Hanoi of University Sciences, Vietnam National University

² Haiphong Institute of Oceanography, Vietnam

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

K. Srinivasan

Central Pollution Control Board, India
E-mail: srinivasan_mathi@yahoo.com

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

total length of the coastline of 7516.6 Km, which includes maritime states like Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Orissa, West Bengal and Union Territories - Daman and Pondicherry in mainland, Lakshdweep on Arabian Sea and Andaman and Nicobar Islands on Bay of Bengal. All these coastal areas are highly dynamic and complex with a variety of ecosystems. Nearly 25% of the population of the country lives in these coastal areas largely depending on coastal waters for their livelihood, and highly populated cities are located on the coastal area. These regions are experiencing rapid development and therefore, hectic human activities, resulting in human interference with the environment. In order to regulate pollution controls in coastal areas, several studies have been carried out under "Marine Pollution and its Control" in the country. At present, the following studies have been carried out by the Central Board.

Coastal Ocean Monitoring and Prediction System (COMPS): It is carried out to monitor coastal areas along West Bengal. The study includes seasonal monitoring of coastal waters, sediments and biological materials for recommended parameter up to the distance of 22.5 km offshore. The study also includes the bacteriology.

Studies on Sensitive Coastal Areas: The preliminary studies were carried out in some of the sensitive coastal areas for obtaining comprehensive information for Environmental Impact Assessments (EIA) and Environmental Status such as type of industrial estates, marine out falls, water quality parameters, weather, solid waste disposal (quantity), and socio-economic status. Also, the Conservation measures are taken and Conservation measures will be taken on mangroves and coral reef beds. This study would be great helpful in establishing basic information and baseline data required for the implementation of marine pollution controls in India.

Environmental Status of Aquaculture in India: India has about 1.2 million hectares of brackish water areas, and only 0.08 million hectares are used for shrimp farming. At present, the shrimp culture has been slowly gaining impetus in India. The rapid expansions are likely to cause a number of social and environmental side effects, which have been witnessed elsewhere in the world. Therefore, Central Pollution Control Board is studying the environmental status of brackish water aquaculture in the country. The study includes the inventory of the coastal aquaculture and its impacts on coastal environ-

ment.

Environmental Status of Ports in India: Ports and harbors are the gateways to national and international funds and are inseparably linked with the countries economic development. The environmental impacts by various activities in 11 major and 140 minor ports as well as 6 major and 27 minor fishing harbors are deterioration in the estuarine and coastal water quality, degradation in sediments quality, contamination of soil, air quality and generation of vibrations, noise and other type of wastes. The oil and grease contented in the waters of Paradeep Port were less than those of waters of Calcutta Port. High content of phosphates were also observed, probably due to mixing phosphates while handling rock phosphate.

Status on Marine Pollution due to Ship Breaking Yard: Alang in the Gujarat coast is an important and the largest ship-breaking yard in the world. Two million tons of steel are produced by breaking two hundred ships annually, which creates environmental degradations and pollutions. Hence, measures for pollution control have been carried out for past two years, and guidelines have been prepared for ship breaking activities. The present investigation has revealed that during the ship breaking activities a water quality of Alang coast deteriorates. The Chemical Oxygen Demand (COD) values reaches as high as 469 mg/l, and oil and grease rise up to 23 mg/l as no measures to control pollution caused during breaking activities have been introduced. Huge quantities of the hazardous solid wastes also are generated during the ship breaking activity, which is either burnt on the same plot or disposed at the seashore. This unscientific burning of solid wastes creates significant air pollutions in the area.

A Case Study on Environmental Status of Marine National Park, Jamnagar, Gulf of Kutch. The Marine National Park at Jamnagar coast in Gujarat, which covers an area of 169 sq. km, was declared as a protected area to save more than 200 species of marine flora and fauna. The area is sandwiched by the ports of Vadinar and Kandla and also by the private jetties. Imported crude oil and petroleum products are unloaded here and increasing activities like laying oil pipelines and tourists arrivals may endanger the system. Therefore, the studies including collection of water quality data from predetermined areas covering the marine park area and its surrounding are carried out.

Status of Heavy Metal Pollution in Sundarban Mangrove Forest, A Coastal Wetland of Upper Bay of Bengal

Md. Kawser Ahmed¹ and Md. Shahadat Ali²

¹Department of Aquaculture & Fisheries, University of Dhaka, Bangladesh

²Department of Zoology, University of Dhaka, Bangladesh

Trace metals from the coastal mangrove forests i.e., west coast of Bangladesh and also from the Ganges-Brahmaputra-Meghna (GBM) river system were analyzed. In GBM estuary,

low concentration was found in water but higher concentration was found in sediment. Heavy metals concentrations were observed in water and sediment and some macrobenthos from