



RESEARCH ARTICLE

STATUS OF AIR QUALITY AND NOISE LEVEL WITH ASSOCIATED HEALTH RISK VICINITY TO SHIPBREAKING YARDS OF BANGLADESH

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ABSTRACT

Shipbreaking industry has turned out to be dominant sector in Bangladesh without considering the environmental issues. However, to date, extremely limited studies have been performed to monitor the air and noise level around shipbreaking sites of Bangladesh. This study is conducted to assess the air and noise level with associated health risk vicinity to selected shipbreaking areas of the country. Herein, data on various air pollutants, noise level, and meteorological factors were collected from six prominent shipbreaking yards in Chattogram. Findings of the research work revealed that some air quality parameters and noise level adjacent to shipbreaking areas are exceeded the permissible level set by the WHO. The values of Air Quality Index (AQI) is found in the unhealthy category for human health perspective. The average noise level was also recorded beyond the permissible limit in every sampling sites, following descending order: S3 > S4 > S5 > S6 > S1 > S2. From the statistical analysis, the authors explored that there are significant correlation with poor to strong (0.026 to 0.97) among the climatic parameters and air pollutants. Both particulate matters and AQI demonstrate a moderate correlation with the meteorological parameters (humidity and wind speed), and gaseous air pollutants (CO₂ and TVOC) also have considerable correlations. The moderate correlation between AQI and noise level is also observed in this study. The authors recommended for effective control actions to alleviate the detrimental environmental pollution arises due to the consequences of shipbreaking activities for ensuring health safety of workers.

KEYWORDS

Air quality, Noise level, Shipbreaking operations, Pollution

1. INTRODUCTION

Shipbreaking operation is considered as crucial, since all or most of the parts of ship can be turned into resources by adoption of proper recycling techniques. This includes a deep plane of defaulting activities, beginning with the abolition of all utensils for cutting and rescuing the ship configuration. Shipbreaking activities can be a tricky progression because of the intricacy of the ship's configuration and therefore numerous risks related to the environment, safety and health involved (Hossain and Islam, 2007; Nøst, et al., 2015). This industry can be a potential sources of resources such as iron, metals and timber products with proper environmental pollution control (Rabbia and Rahman, 2017; Sujauddin et al., 2017; Barua et al., 2017; Hasan, et al., 2020). After 25-30 years of ship life, the worth of recycling to guarantees has no further advantage and as a result of this crisis, about 900 vessels are sold annually and between them at slightest one yard from the shipbreaking activities of Asian countries. Most of the shipbreaking activities are now going on within the south asian countries because of low manpower values and flexible environmental policies (Barua et al., 2021).

Bangladesh has seemed like a massive sector within the worldwide shipbreaking industries because of contemptible costing of exertions, enough authorities assist, expanded requisite for recuperating materials

from the scraped vessels and over the missing of excessive environmental regulation activities (Sujauddin et al., 2017; Barua et al., 2017). More that last forty-three years, since the 1976 to 2019, the nation has assembled an extremely big quantity of the scrapped vessels in the world (NGO Shipbreaking Platform, 2019). There may be massive scale understanding of the irreparable harm because of grimy and hazardous practices surrounding the coastal land areas, but gain is that the simplest activities for plenty the ship backyard enterprise man whilst promoting own vessels for scrapping. From the various reports, this is observed, that piecing of ships delivers inside the nations, rising piercingly amongst every different international location of the world. During the year of 2000, Bangladesh demolished a complete of seventy-three ships and that changed into 892, 756 MT and worldwide proportion of the United States is 10%, even as during the year of 2006 the shipbreaking improved 87% and universal proportion of USA will become 57% amongst every different nations figure 1. During the year of 2021, Bangladesh demolished 254 ships that became 7.8 million MT and worldwide input observed 48% (Hossain and Islam, 2007; Siddiquee et al., 2009; Muhibullah, 2013; Hossain, 2015; Barua et al., 2017; Rabbi and Rahman, 2017; Das and Shahin, 2019).

Informally beginning in Bangladesh, shipbreaking has always offered some advantages, including cheaper steel and jobs for those working in the industry. Almost 90% of the need for iron and steel inside the country

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