SembCorp Marine remained firmly committed to its policy on waste management during the year in review, especially in addressing major environment-related problems in the marine industry.

In the area of oil sludge treatment, subsidiary Karimun Sembawang Shipyard provided sludge and oily water treatment for vessels plying the Straits of Malacca or going to the shipyard for repairs. The shipyard had obtained the full endorsement from Indonesia’s Ministry of Environment for the complete oily waste treatment process. Located just 40 km southwest of Malacca, the shipyard provided de-sludging and de-slopping of tanks while vessels called at the yard for repairs. Its 6,000 square metres modern oily waste management facilities were able to treat oily waste without polluting the environment.

Another subsidiary JPL Industries pioneered the collection and recycling of used copper slag, the biggest single source of waste generated from shipyards in Singapore. Each year some 300,000 tonnes are used for abrasive blasting in shipyards. During the blasting process, copper slag grit breaks into smaller particles and gets contaminated or mixed with rusts and paints, but there is no change in chemical composition. Prior to the setting up of the recycling plant in 1990, there was no process to separate the used copper slag from other impurities. Instead, the waste copper slag with all the contaminants were removed by licensed disposal contractors for dumping at illegal as well as government authorised dumping grounds. About 100,000 cu metres, the size of a football field, were discarded each year posing environmental problem in land scarce Singapore. The Ministry of Environment currently levies a charge of $67 for every tonne of waste dumped at its landfills. The levy is expected to increase further as a measure to encourage greater use of recycling.

During the year, the copper slag recycling plant continued to convert copper slag wastes into usable copper slag and other value-added products. The recycling plant acted as the collection centre for used copper slag in Singapore. The first stage was to mechanically sieve out contaminants. The plant then processed and purified used copper slag. The bulk of these, including scrap metals and famous materials, were discarded, but iron pieces that were picked by magnetic separators were retrieved and sold as scrap. The copper slag was then rinsed and separated into different sizes by the hydrosizer. The fine impurities like paint strips and barnacles were removed and accumulated at a different stockpile. After treatment, the recycled copper slag could be re-used as an abrasive. The remaining copper slag which had become too worn down and too fine for blasting would be used as a replacement of sand and aggregate composition for concrete products.

JPL Concrete Products was established to manufacture such concrete pavers using the worn out and fine grit as replacement of sand and aggregate composition. The concrete plant can turn out more than 240,000 sq metres of bricks a year, which are sold to government departments, real estate developers, manufacturers and even shipyards. SembCorp Marine is pioneering the use of such materials by using the colourful bricks as fencing walls and road pavements within the shipyard to give an aesthetic touch.

In 2001, the Ministry of Environment commended JPL Industries for addressing the waste problem faced by the shipbuilding industry. It further added that the Ministry was “very pleased to note JPL Industries’ recycling plant, which recycles used copper slag waste into new copper slag and other useful by-products have been very innovative. The size of the project underscores the commitment of the SembCorp Marine Group to resource conservation and environmental problem which is indeed laudable”.

Looking ahead, JPL Industries planned to address the lack of existing application standards and poor market perception on the use of pre-treated copper slag as partial replacement for the fine aggregate in graded granite aggregate material. A field trial section was constructed on 19 and 20 October 2001, as part of the Land and Transport Authority’s (LTA) road widening project at Jalan Boon Lay. This road section was originally meant to be paved with a layer of normal unbound plant-mixed graded granite aggregate underlying the asphaltic course. The project is being closely monitored by LTA and if feasible, would be implemented on a larger scale.