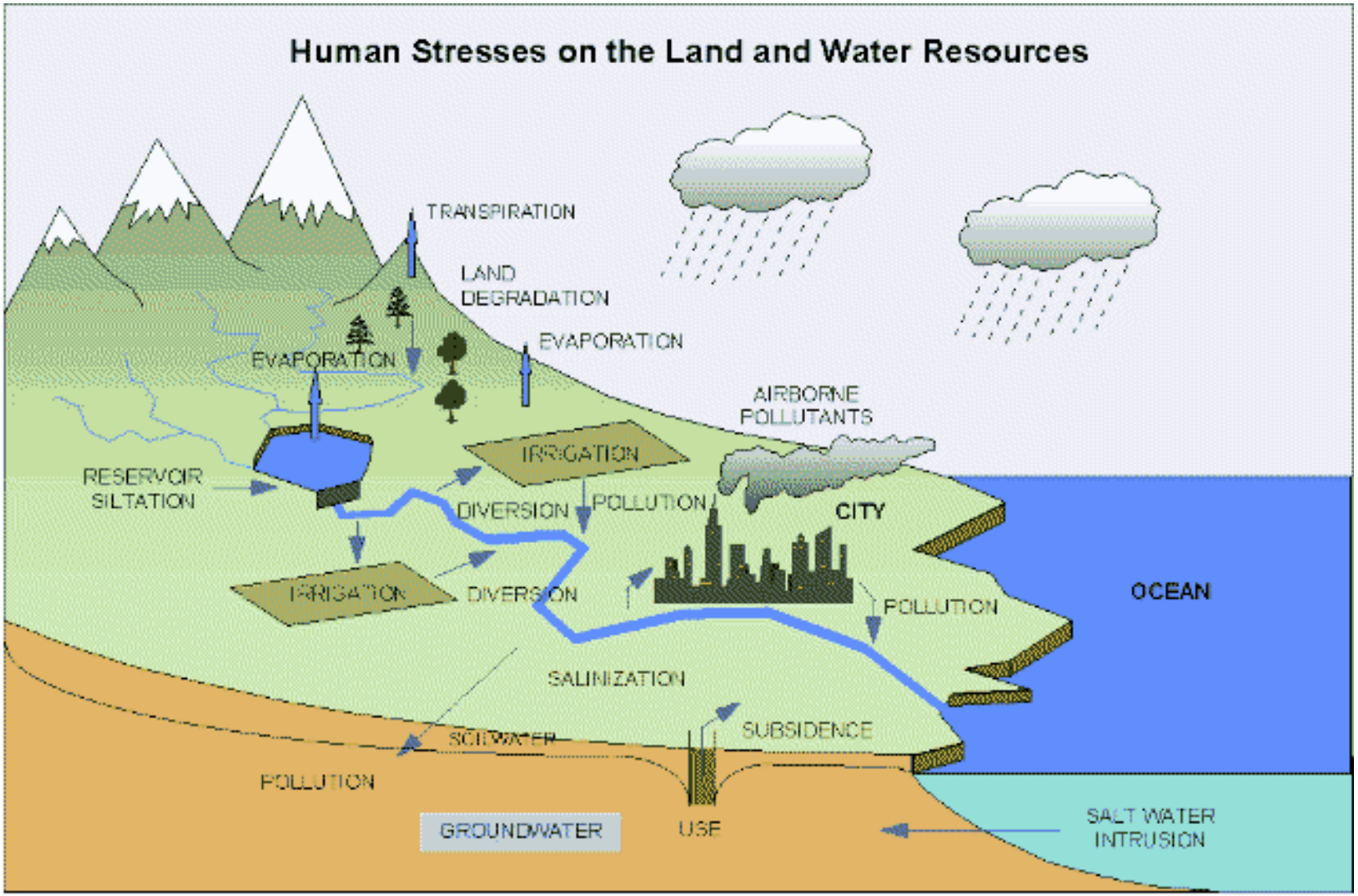
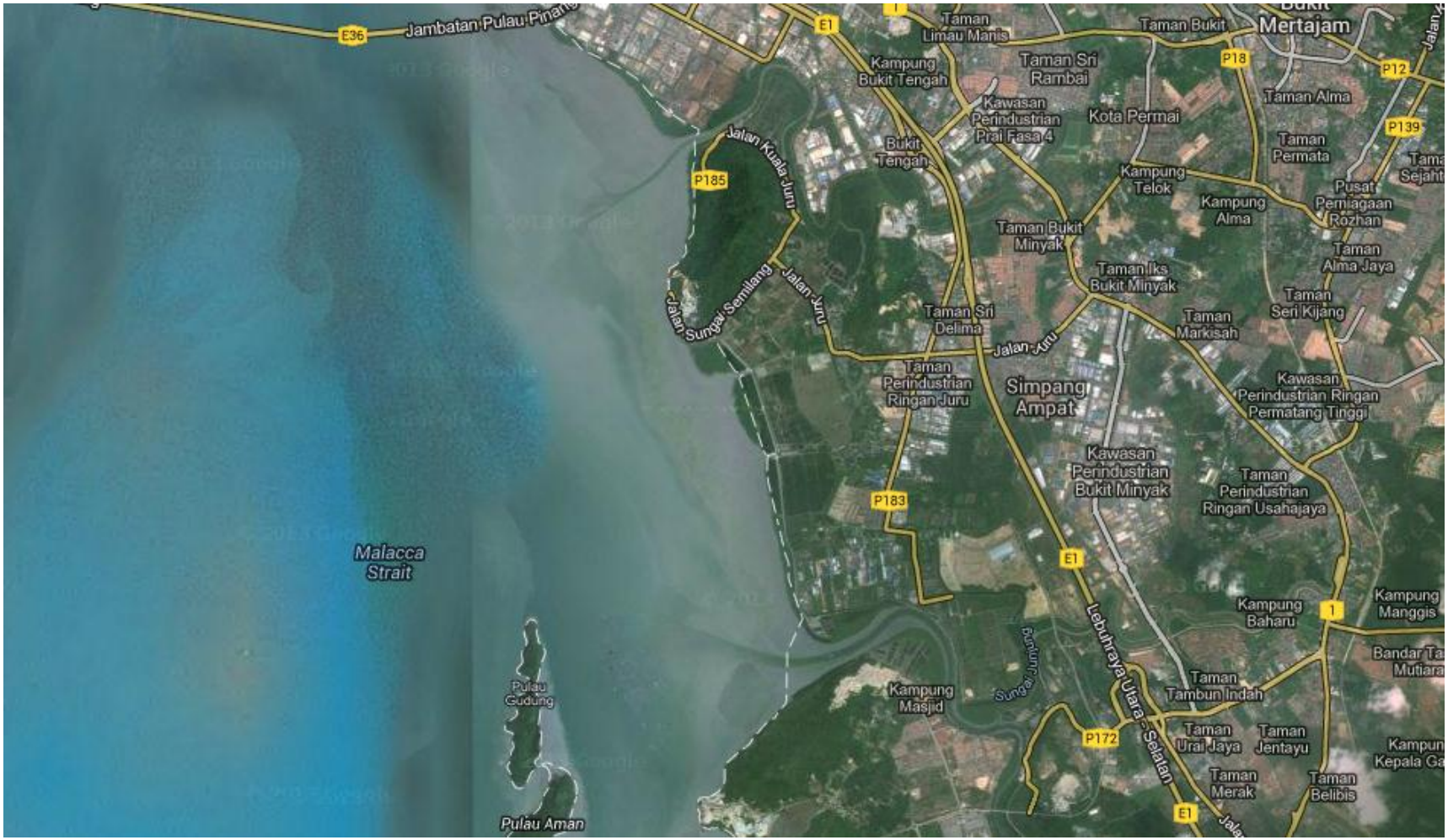
Advanced Radiation Technologies for Ensuring Clean Marine Environment

BUMSOO HAN / EB TECH Co.

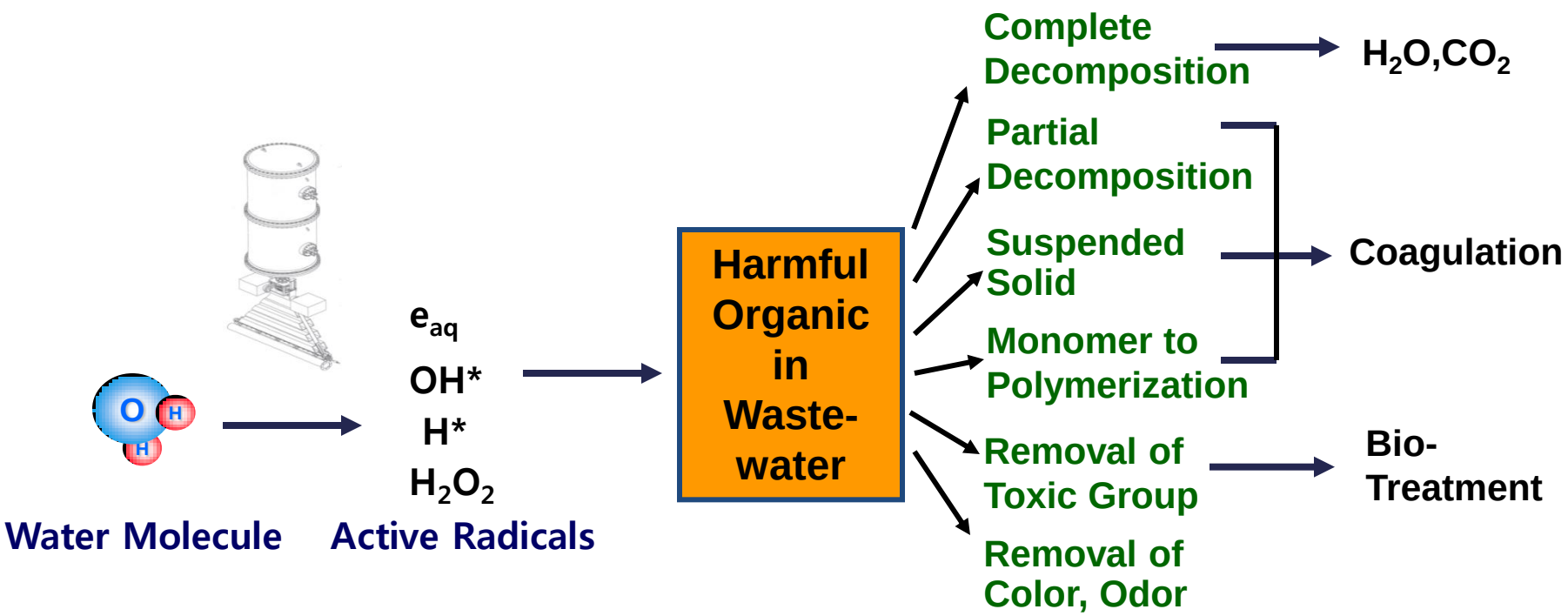
Scientific Forum: The Blue Planet
Nuclear Applications for a Sustainable Marine Environment



All wastewater finally discharge to river and then to the Ocean.

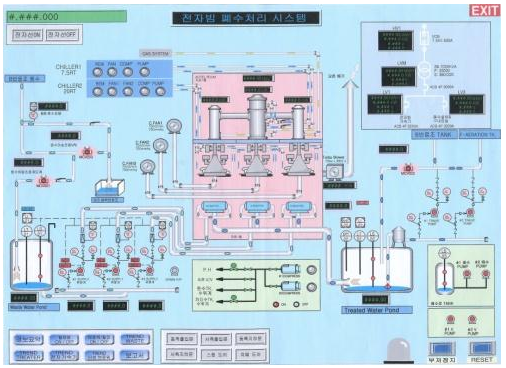


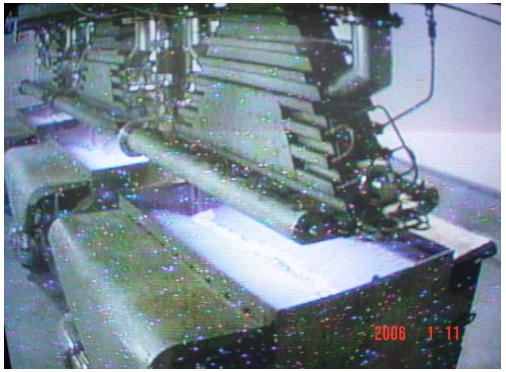
Discharged industrial wastewater from PIZ (Penang Industrial Zone) to Penang strait, Penang Malaysia



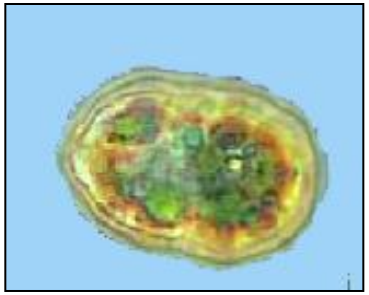
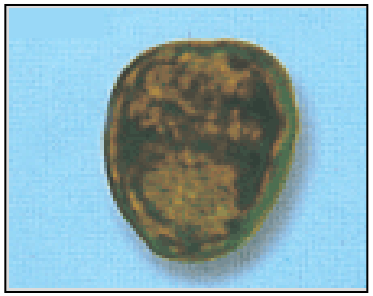
Ionization and excitation of water molecule by radiation produces free radical to treat liquid wastes

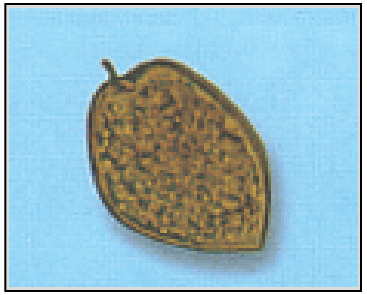
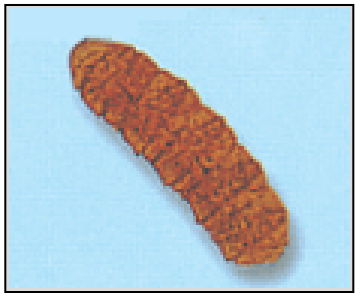
Full-scale application of electron beam wastewater treatment plant for 10,000 m^3/d of textile dyeing waste water with 1 MeV, 400 kW accelerator.



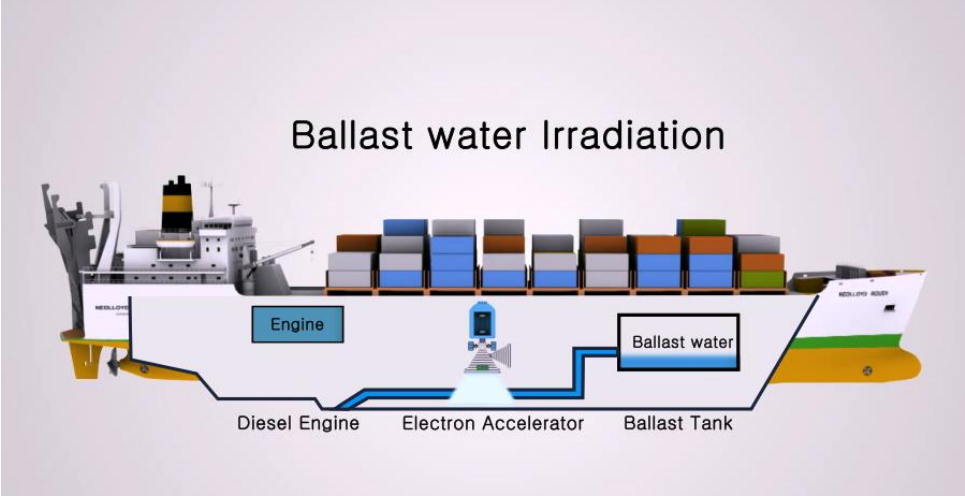


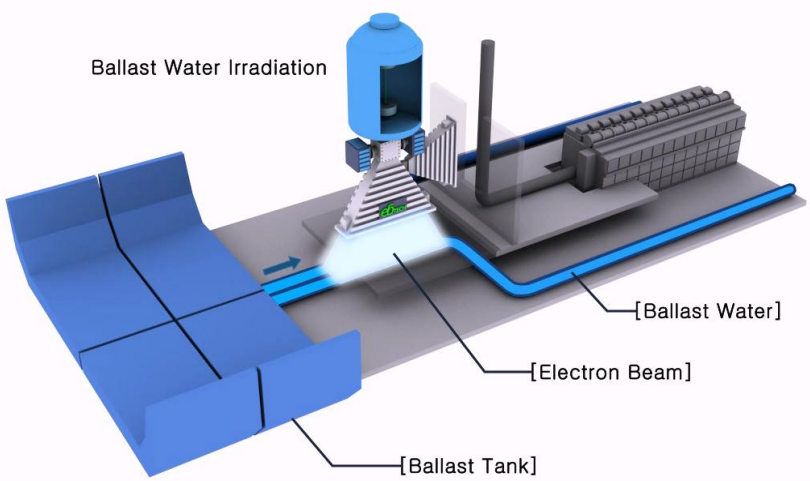
Ballast water discharge typically contains a variety of biological materials, including plants, animals, viruses, and bacteria.

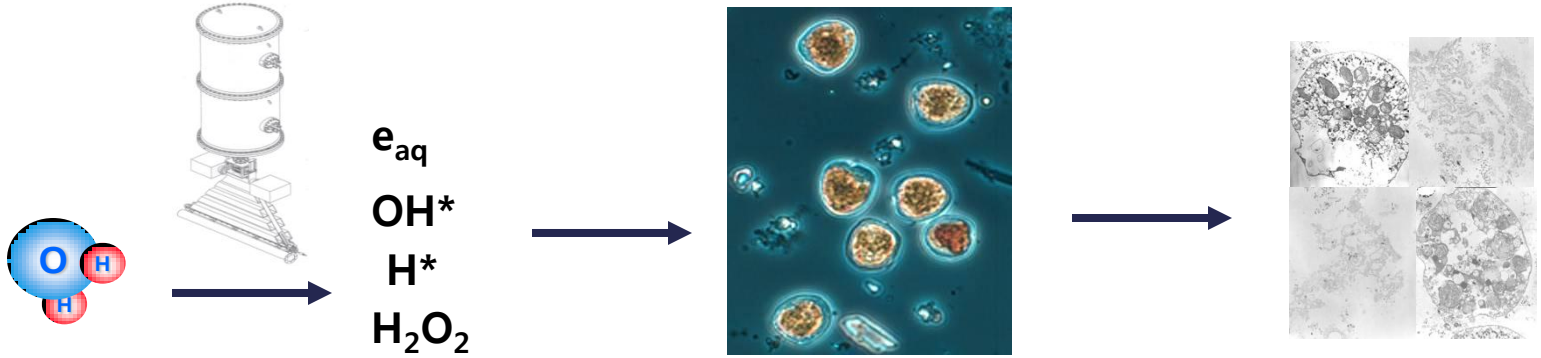



Contaminated ballast water can have serious economic and health impacts by killing marine life and damaging habitats and ecosystems.





Radiation technology has applied for ballast water treatments by free radical formation to prevent the transfer of invasive organisms.



Water Molecule Active Radicals Invasive Orgasms Disinfection

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Summary

The ballast water in ships was carrying thousands of species of aquatic animals and plants. These invasive organisms were creating problems for the marine environment and human health in and around the World, threatening the economies that depend on healthy aquatic ecosystems.

Radiation technologies are effective means of remediation on ecological and economic damage to aquatic ecosystems and are well-proven to practical environ-mental problems.