

Water quality problems and control strategies in China

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Abstract China's development is severely limited by water shortage, whereby the per capita water resource is only about one quarter of the global average. The limited supply of water has been further aggravated by declining water quality over the past three decades. Almost all water bodies across China, i.e. rivers, lakes and groundwater, are polluted to some degree. According to the *Environment Bulletin of China*, 24.3% of the monitored sections of the seven major rivers were in water quality grade IV–V (meaning no longer suitable as drinking water) in 2009, and 18.4% below grade V, which means that the water cannot be used for any purposes. The water quality of rivers in northern China was found to be particularly impaired. For example, 42.2% of monitored sections along the Haihe River were classified as worse than quality grade V in 2009. Seven of the nine key lakes in China are also severely polluted and suffer eutrophication on account of elevated concentrations of nitrogen and phosphorus. The groundwater supplies for 97% of 195 cities investigated were also found to be polluted. Key pollutants are organic or inorganic nitrogen and active phosphate, which is sourced from not only industrial point pollution, but increasingly from agricultural diffuse pollution and domestic inputs. Although a substantial effort has been made to reduce water pollution from point sources, improvements have largely been offset by the increasing diffuse pollution caused by the over-use of fertilizers and pesticides in agriculture. Some strategic suggestions for more rigorous rules of environmental protection in China, particularly for controlling agricultural diffuse water pollution are presented.

Keywords water quality; water pollution; water body; environmental protection; China