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Nota di contenuto	Research Background -- Advances of Research on the Mechanisms of Selenium-Mercury Interactions and Health Risk Assessment -- Research Subject, Methods and Significance -- Overview of the Study Area (Wanshan) -- Biogeochemical Cycles of Mercury in River System -- Biogeochemical Cycles of Selenium in River System -- Interaction of Mercury and Selenium in River System -- Biogeochemical Cycles of Mercury in Soil-Rice System -- Biogeochemical Cycles of Selenium in Soil-Rice System -- Interaction of Mercury and Selenium in Soil-Rice System -- Health Risk Assessment for Human Exposure to Mercury -- Health Risk Assessment for Human Exposure to Selenium -- Health Risk Assessment for Human Exposure to Mercury and Selenium

Sommario/riassunto

From a new perspective, namely focusing on the interaction of selenium and mercury, this thesis provides new insights into traditional research on biogeochemical cycles of mercury in soil-plant interaction and associated human exposure and risks. The subject of this thesis is both valuable and timely, providing essential information not only on selenium-mercury interaction in the soil-plant system but also on how to assess the combined benefits and risk of co-exposure to mercury and selenium. This work also sheds light on future aspects regarding prevention, remediation and risk management for environmental mercury contamination. Presenting high-quality papers published in leading international SCI journals such as Environmental Health Perspectives and Environmental Science & Technology and having been recognized with the Special Award of Presidential Scholarship Award and Excellent Doctoral Dissertations Prize of the Chinese Academy of Sciences (CAS), this thesis offers a valuable resource for scientific communities, policy-makers and non-experts who are interested in this field. Dr. Hua Zhang works at the Norwegian Institute for Water Research (NIVA), Oslo, Norway.