

Preventing red-soil runoff in the Ryukyu Islands, Japan, considering biodiversity and environmental economics

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After the reversion of Okinawa (Ryukyu Islands) to Japan in 1972, extensive urban and agricultural development resulted in a significant increase in red-soil discharge to coastal waters. The release of red-soil has caused the degradation of freshwater and coastal ecosystems and biodiversity. A consideration of catchment-to-reef continua, as well as agricultural (socioeconomic) factors is necessary for establishing proper land-based management plans for the conservation of the island environment. We have set up a framework to integrate biophysics and socioeconomics: 1) setting a conservation target and threshold, 2) identifying the sources and processes, and 3) examining cost-effectiveness and management priorities. The framework was applied to Kume Island, Ryukyu Islands.