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The sustainable development of shipping and port operations has attracted increasing attention of the shipping community. Of particular concern is the environmental damage caused by shipping-related activities. In this study we evaluate the external cost incurred from barge and containership usage in the Pearl River Delta (PRD) region and, based on this external cost, determine the environmental damage caused by container shipping activities in the region. Applying the external cost approach, we classify the ports in the region into feeder ports, direct ports, and hub ports. Our analysis suggests that three green shipping networks servicing the region can be developed. Our findings provide policy makers with helpful guidance on ways to strengthen the logistical capability of the PRD region while reducing the environmental harm from shipping activities.

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