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- Special Issues
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- Title and Author Search

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Review
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Comment on a Paper

Volumes and Issues | Contents of Issue 4 | Special Issue

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The development of water services and their interaction with water resources in European and Brazilian cities

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Abstract. The extension and complexity of large cities creates "urban water" and a related issue: public water services, including public water supply, sewage collection and treatment, and storm water control, had previously become a policy sector separate from water resource allocation issues thanks to water transport and treatment technologies. Large metropolitan areas today cannot take nature for granted anymore, and they need to protect water resources, if only to reduce the long term cost of transporting and treating water. In this paper, we compare the historical development of water services in European and Brazilian metropolitan areas, placing the technological developments in their geographic, socio-economic and political contexts. Our frame is to follow the successive contributions of civil engineering, sanitary engineering, and environmental engineering: the "quantity of water" and civil engineering paradigm allowed to mobilise water in and out of the city, and up the hills or the floors; in the "water quality" and chemical/sanitary engineering paradigm, water treatment gave more freedom to cities to take water from rivers closer to them, but also to reduce sewer discharge impacts; lastly, the environmental engineering paradigm proposes to overcome the supply side perspective, by introducing demand side management, water conservation, water allocation flexibilisation, and an integrated approach to water services, water resources management, and land use policies.

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