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Topics in Trans-boundary River Sharing Problems and Economic Theory

Many river basins are trans-boundary. Disputes over trans-boundary river water resource allocation are well documented. Different countries within the same river basin might have different interests in the water use. Externality issues are often present, for example, upstream countries might pollute the river carelessly without taking into account downstream countries' water use. In this thesis, we firstly investigate the efficiency and fairness of trans-boundary river water resource allocations. We incorporate two principles from the International Water Law into our study. Though in almost all cases, the cooperation involving all relevant parties deliver maximum benefits, international agreements over trans-boundary river water resource allocation are often delayed. We explain this phenomenon from a bargaining perspective. Dam projects and the trans-boundary externalities of dam projects further complicate the international river sharing problem. The optimal dam plan and reasonable compensation plan because of the trans-boundary externalities of dam projects are investigated in this thesis. As a side project of this thesis, we examine the pricing issues in a two-sided market (for example, a shopping mall needs both consumers and product providers on board) by adding within-group externalities, i.e., members within the same group might exert externalities over others.

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