摘要

本論文所研究之生活污水定價模式分析，其出發點乃是站在政府之減污、防污立場，如何建構污水稅制之最適污水排放定價，以使得污水排放之社會福利最大。政府應如何透過訂定水價及污減污稅制，以誘導集合住宅在其用水利益最大化考量下，投資最適用水減污設備為本模式之主要內容。建構此生活污水定價模式獲得之性質及其相關因素之敏感度分析，則為本文的主要研究結果。其研究結果為：

一、最佳減污費率 t^* 與污染社會成本函數 D 及集合住宅投資減污處理成本函數 A 有密切關係。

二、在社會福利最大化下，最佳進水費率 p^* 有可能為負值。

三、原水含污量 e_0 及污水含污量 e_1 增加，使得最佳進水費率 p^* 上升及最適用水量 Q^* 下降；或是減污設備成本 $A(e)$、社會成本 $D(e)$ 及用水生產成本 $C(Q)$ 增加，使得最佳進水費率 p^* 上升及最適用水量 Q^* 下降。

本文的研究成果提供廣泛的視野，從鼓勵集合住宅（也就是水資源的使用者）自行採取減污措施，以降低整體污染排放，對於政策設計者在制定政策時，可以更為有效的促進整體社會的福利最大化。詳察之，本文的貢獻至少包含：

一、透過此數學模式之製作，以使得污染稅率及單位淨水使用費的影響效果予以具體化。

二、透過此數學模式之求解技巧可獲得最佳解的許多性質，可作為政府制定水資源政策之參考依據。

關鍵詞：環境稅、定價模式、污水排放、外部性

Abstract

The purpose of this thesis is to determine the optimal pollution fee based on the objective of minimized social welfare. The results of the analysis in this thesis provide a broad understanding of policy reforms and serve as a guideline for policy planner to formulate environmental policy. The theoretical analysis conclude results:

1. The optimal pollution charge t^* has close relationship with the function of the society's cost D and the reducing pollution cost A.
2. The optimal water price p^* determined by the principle of social welfare maximization may become negative.
3. An increase in impurity content in raw water e_0 or pollutant concentration e_1 at household discharge may lad to rise-up of optimal water price p^* and optimal consumption quantity Q^*. A rise-up of abatement cost function, social cost, and production cost may lead to an increase in optimal water price p^* and optimal consumption * Q^*.

Through the presentation of the taxation model, the policy planner can encourage the compound housing community to take some measures in mitigating pollution emission with the achievement of maximized social welfare. In brief, the contributions of this thesis at least contains:

1. The effects of the tax rate and water price on social welfare can the demonstrated substantially by this taxation model.
2. The properties of the parameter in this model are analyzed. As a consequence, the results

can serve as references for policy making

Keywords：environmental tax, price-making model, sewage emission, external