

EXECUTIVE SUMMARY

This book presents the results of an analytical study on the economic valuation for wastewater, comparing the cost of no action versus the cost of effective wastewater management.

One of the Millennium Development Goals (MDGs) adopted by the United Nations was to reduce by half the proportion of people without access to safe drinking water and improved sanitation by 2015. Further, at the Rio+20 Summit in June 2012, governments recognized the need to adopt measures to significantly reduce water pollution, increase water quality and significantly improve wastewater treatment which is now reflected in the Sustainable Development Goals. To achieve these objectives, substantial investment in sanitation including septage and sewage management is required, in particular in developing countries.

Although economic valuation of wastewater management is complex, it remains an important tool to guide policymakers and investors to take informed decisions. A financial analysis of wastewater management looks at its private costs and benefits and can underpin decision making from a business or treatment plant operator standpoint. Economic analysis looks at the broader costs and benefits for society, providing information for public policy decisions to support improvements in wastewater management. Adequate wastewater collection, treatment, and safe use or disposal can lead to significant environmental and health benefits. However, because some of these benefits do not have a market price, they have not traditionally been considered in the financial analysis of wastewater treatment projects, therefore underestimating total benefits.

The valuation of the benefits of action or, in other words, valuation of the **costs of no action** is necessary to justify suitable investments in wastewater management. The costs of no action can be categorized into three groups: adverse human health effects associated with reduced quality of drinking and bathing/recreational water; negative environmental effects due to the degradation of water bodies and ecosystems where untreated or inadequately treated wastewater is discharged; and potential effects on those economic activities that use polluted water for crop production, fisheries, aquaculture, or tourism.

Several methodologies allow the valuation of cost and benefits of wastewater management and the comparison between the estimated cost of no action (benefits lost) with the cost of action to provide essential information for decision-making processes. This book reviews these methods and shows the application of some of these methodologies in empirical examples. Results from these cases show that implementing wastewater programmes in developing countries is often feasible from an economic point of view if environmental and health benefits are integrated into the overall economic assessment.

Next to a set of empirical studies, a hypothetical example is used to illustrate a possible procedure for assessing the economic feasibility (**cost of action versus cost of inaction**) of implementing two extensive technologies — pond systems and constructed wetlands — for treating wastewater over 25 years in small settlements in developing areas. Both technologies are characterized by relatively low investment, operational and maintenance costs if compared with conventional treatment processes like activated sludge systems. While the comparison of costs and benefits can vary depending on the valuation approaches used, the calculated example confirmed that implementing either of these technologies will be economically feasible with health and environmental benefits of higher value than costs.

The selection of best practices/strategies for wastewater management requires consideration of multiple objectives and criteria (e.g. financial, environmental, technical and social) and their complex interactions. Moreover, a reliable analysis of wastewater management demands identifying both strong and weak points of the different operational strategies; uncertainty/risk should be part of evaluation to analyze how it affects decision making. This complexity requires the development of rigorous and systematic multi-criteria decision analysis. With such a tool, policymakers can evaluate and compare the alternatives in a **cost of no action versus cost of action** (CNA-CA) approach appropriately.

