

The full financial costs of irrigation services: A discussion on existing guidelines and implications for smallholder irrigation in South Africa

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Abstract

Considering water as an economic good entails, among other requisites, properly assessing the cost incurred by supplying and managing the resource, and the required infrastructure thereof. Regarding irrigation, the International Commission for Irrigation and Drainage (ICID) set up a method for assessing the full financial costs, in the form of guidelines. This paper investigates the applicability of these guidelines in smallholder irrigation conditions in developing countries.

The paper first presents the specific conditions and features of such a sector, with emphasis on South African examples. Several specific issues are identified and discussed, such as the lack of records on infrastructure and initial costs, the multiple purpose and actual uses of certain equipment and infrastructure, the shift in purpose of others over time, the inclusion of certain small, yet indispensable equipment in the calculation, the partial refurbishment works on particular assets, and the lack of a standard basis for calculation under tropical, developing conditions (e.g. on service life, maintenance requirements). Secondly, after a brief review of current frameworks, concepts and terminology, the paper attempts to apply the existing guidelines developed by ICID for evaluating financial costs of irrigation services on a case study in South Africa. The results suggest that the application of the guidelines is feasible, provided that some adapted data and available information replace the original set, especially for capital costs. This applies to the discount rate, calculation of the current value, and estimation of the service life of infrastructure and equipment. In particular, several scenarios have been tested in order to identify a surrogate to the discount rate. The average yield on Negotiable Certificates of Deposit (NCD) is suggested as a surrogate for treasury bills and hence as a substitute for the discount rate. The case study demonstrates the high costs of irrigation services compared to the low income derived from irrigation production in smallholder schemes and hence the need for renewed public intervention and subsidisation, especially on account of the current context of management transfer, privatisation, and liberalisation. The paper suggests a shift in the underlying policy and societal mindset about the water charging system for smallholder irrigation. Cost recovery and water charges should not be considered as being a further burden or deterring factor for smallholder irrigation, but rather as an incentive towards increasing production and ultimately improving their contribution to the country's economy.

Keywords: financial costs, irrigation, South Africa, evaluation, smallholder agriculture, economic viability

Introduction

Water as an economic good: what about irrigation water?

The overall level of spending on water-related infrastructure in developing countries amounts to about US\$ 65 billion a year, with irrigation and drainage accounting for about US\$ 25 billion (Briscoe, 1999). Such figures have tended to decrease in more recent years, owing to a global shift from water resource development and supply to water resource and demand management (Perret, 2006). Saleth (2002) stresses that the cost of creating additional irrigation potential has become prohibitive in many countries. Public investment in irrigation is, however, still high since it also includes the massive rehabilitation works that are usually carried out prior to irrigation management transfer (IMT) (Vermillion and Sagardoy, 1999). Yet, the question as to the financial viability of such schemes remains, especially

in view of the on-going IMT processes. Until recently, surface irrigation in developing countries classically fell under government-driven public works and rent-seeking operations (Briscoe, 1999), that systematically implied central public or parastatal management of operations. In many developing and transition countries, irrigation under public-sector management has long been characterised by poor technical, financial, and economic performance as well as the overall suboptimal use of irrigation facilities (Sampath, 1992). As a consequence, the degree of capital, operation, and maintenance cost recovery in developing countries remains far below the level required for financial autonomy (Briscoe, 1999).

Irrigation schemes worldwide are now faced with decentralisation and privatisation policies, aimed at increasing local participation and relieving Governments from the burden of financial and technical support (IWMI, 2003). During the past three decades, a large number of formerly State-owned and public sector managed schemes have been transferred to users (through the so-called Irrigation Management Transfer), who are now expected to bear at least the expenses incurred through operation and maintenance (O&M) activities (Vermillion, 1997). In 2000, The Hague's World Water Vision clearly recommended that full-cost pricing be promoted and implemented (Cosgrove and

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