

Water for Agriculture in Zimbabwe

Policy and Management Options for the
Smallholder Sector



Edited by
Emmanuel Manzungu, Aidan Senzanje and Pieter van der Zaag

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Emmanuel Manzungu
Aidan Senzanje
Pieter van der Zaag

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Preface

This book is based on a selection of papers presented at the UZ/ZIMWESI workshop 'Water for Agriculture: Current Practices and Future Prospects' held at Mandel Training Centre in Harare between 11 and 13 March 1996. The background paper to the workshop observed that water in Zimbabwe was in short supply and that droughts in the recent past have had serious implications on Zimbabwe's economy which depends on agriculture. Such a situation demands that the country's scarce water resources be used in a manner that is best for the social and economic good of the country. The challenge is not easy as the problem is multi-faceted: it encompasses natural processes, technological issues, social aspects as well as institutional and legal dimensions. A number of initiatives, such as this workshop, meant to meet the challenge head-on were already underway. Scientists from different backgrounds have undertaken research with a view to offering informed solutions. Practitioners and policy makers have also added their voice to the debate. On its part the government of Zimbabwe has embarked on a fundamental review of the water sector.

This book brings together the views and experiences of these different actors. It seeks to inform policy and management interventions in water resource management in Zimbabwe with special emphasis on the smallholder farming sector. The smallholder farming sector is quite significant to Zimbabwe. The smallholder sector is the disadvantaged sector of Zimbabwe's dual agriculture in terms of agricultural potential and agricultural support services, a legacy of the colonial history. It is farmed by the country's rural-based black majority which constitutes 70 per cent of an estimated 12 million total population who mostly depend on agriculture. About 4,500 white large scale commercial farms occupy the country's best agricultural land. The smallholder comprises about one million farm units in the communal areas, about 57,000 units in the resettlement areas and 8,500 small-scale commercial farms (ROZ, 1997). Communal areas refers to the native reserves or tribal trust lands which were reserved for the black people by the colonial state. These areas are not only of low agricultural potential, because of poor access to adequate land and water resources, they are also overcrowded. They are severely impoverished (Mehretu, 1994). Resettlement areas are former white-owned commercial farm areas where some black families were resettled by the post-colonial state. The agricultural potential is also limited. Small-scale commercial areas were an enclave created by the colonial state earmarked for black commercial farming. Although they are better off than the communal areas they nevertheless are agriculturally disadvantaged. In looking at the different issues that are of relevance to the sector the authors use a mixture of detailed case studies and more generalised treatments of some subjects.

The post-colonial government has actively sought to redress this situation by undertaking some land reform. Efforts at water reform are a recent development

compared to land reform which so far has produced less than expected results. It can be expected that the current water reforms will be closely watched. This book, to some extent, provides a benchmark against which the water reforms can be judged. There is one main reason for this. The book presents original material that questions commonly held views. By presenting 'down to earth' cases the reality of the smallholder sector is uncovered. The ability of the reforms to engage with the realities of the smallholder farming sector can be seen as the acid test for the reforms. The themes of the workshop and the opening remarks to the workshop given by the Deputy Minister of Lands and Water Resources, Honourable MP Cain Mathema said as much.

FOUR THEMES OF THE WORKSHOP

The background paper to the workshop emphasized the need to document current practices. It was felt that the result will be the much-needed body of empirical evidence which can inform future interventions. Four themes were identified for discussion:

- Rain; fundamentals, figures and forecasting
- Agricultural aspects; technical aspects and social challenges
- River basin development; a catchment perspective
- Institutional and legal issues.

Rain: Fundamentals and Trends

Rain is a major resource feeding into river systems and into farmers' fields. However, this valuable resource can no longer be taken for granted. There is a consensus that Zimbabwe's climate is changing for the worse. A number of questions are relevant. Is this a reality and what are the emerging patterns? How far does land use practices impinge on rainfall patterns? What perceptions do rural farmers, the intended beneficiaries of the water reforms, hold in relation to rainfall? How do the views and perspectives of the different actors inform water management practices at the local and national levels?

Agricultural Aspects: Technical and Social Challenges

A major part of available water resources is used for agricultural production, both dryland and irrigated. Agricultural production contributes significantly to Zimbabwe's gross domestic product (GDP). With dwindling water resources, it is obvious that the socio-economic well-being of country is at stake. What can be done to remedy the situation?

Water conservation techniques hold the promise of improving water use. Research into the new techniques has intensified in recent years but adoption by farmers appears to be disappointing. What has been the problem? Turning to irrigation, modern technologies are regarded as better. However, particular

technologies require narrowly defined conditions before they pay off. These conditions relate to, among others, crops, soils, topography, labour, capital, skills, size of holding, and whether farmers share irrigation facilities or use them individually. What progress has been made towards providing adequate socio-technical solutions for these different circumstances?

Improved agricultural use of water hinges on a number of social and organizational issues. In smallholder schemes, farmers have to cooperate in order to share the water and irrigation facility. Water, however, is often in short supply and/or differentially distributed, reinforcing existing inequalities, for instance of power and gender thereby creating complex managerial dilemmas. An improved water conservation technique may be rejected because of labour constraints not foreseen by its developers or for other reasons lying in the social realm. To what extent can water use be improved by addressing these technical and social challenges?

River Basin Development: A Catchment Perspective

Direct and indirect users of water (which may include the use of water for domestic and irrigation purposes, livestock watering, firewood collectors) share a common destiny in that if a river basin for whatever reason is mismanaged, the consequences are not confined to a few individuals but all. What may vary is the degree and timing of the effects. The catchment approach promises to be a suitable analytical tool for the study of river basins to tease out the complex interactions that obtain there.

A catchment approach, however, raises a number of questions. *Hydrologically*, analyses are required about river regimes, a catchment's response to rainfall and possibilities for infrastructural works such as storage dams or, at a larger scale, water transfer between river basins. *Environmentally* there is a need to understand current practices of land use, and (non)adoption of water harvesting and conservation techniques in order to seek new ways of maintaining or rehabilitating a catchment's potential and of using the scarce water efficiently. The re-use of the water is another possibility. *Politically* a catchment entails a historical analysis of land and water rights. A sociological look at the catchment may focus on people's resource use practices and survival strategies, their perceptions and views about access to the resources offered by the catchment. It may provide understanding of how people stand in mutual dependency relationships to one another. *Administratively*, questions emerge about how competing demands within a catchment can be regulated, how rules and regulations have been enforced so far, and how this could best be done in the future.

These various insights could establish how formal water rights and actual practices relate, an important ingredient for a discussion on how the Water Act,

and the wider legal-administrative system, should be adapted to better reflect the realities on the ground. A catchment perspective can also establish to what extent people's perceptions are 'catchment-wide'. This could inform a discussion on the viability of creating river boards or catchment boards that bring together the various stakeholders concerned.

Institutional and Legal Issues

The above themes all presuppose a suitable institutional-legal environment in place. However, this is not the case, which is why the government is currently reforming the water sector. While the proposed changes themselves are noble, a number of questions remain *vis-a-vis* the practicalities of the changes. How can social objectives e.g. redressing past imbalances, be achieved through the application of market principles such as water pricing? What will be the level of devolvement in the water sector and might this not empower the elites and disempower the already disadvantaged? What essential elements need to be reflected in the Water Act? Is irrigation the answer to the fragile rural agricultural production system?

GOVERNMENT'S WATER REFORMS: THE RATIONALE¹

The issue of water for agriculture in Zimbabwe is high on the political agenda, not only because of increasing demand on this resource, but also because of the lengthy dry period that the country has experienced over the last decade. Even in a normal season large parts of the country receive inadequate rainfall for agricultural production.

In view of the fundamental role water plays in the economic and social life of the country, the entire system of providing water to all categories of water users in the country is being reviewed by the Government of Zimbabwe. It is common knowledge that a few white commercial farmers, numbering about 4,500, and company estate concerns, use a lion's share of water resources (up to 85% according to WRMS, 1997) backed up by access to financial resources and possession of requisite knowledge and expertise ahead of the majority black indigenous population. The government's aim is to rectify the current inequalities. The goal is to achieve efficient utilization of water resources by pursuing a strategy of giving fair access to water to all sectors of the society. The responsible ministry, The Ministry of Lands and Water Development, is thus developing a strategy that will be implemented on an economically viable, social and environmentally sustainable basis.

To achieve an equitable distribution of water, the water right system in the present Water Act (1976) will be rationalised to satisfy agricultural and domestic

1. This section is a slightly edited version of the opening remarks by the Deputy Minister.

requirements by the indigenous population. In the review a number of changes have been proposed.

First, there is a need for the transfer of adequate water from existing water rights to satisfy agricultural requirements along the river system by communal, small scale commercial and resettlement areas. As a first step the government has reserved 10 per cent of the yield available for irrigation in government dams for use in the smallholder farming sector.

Second, government has embarked on the development of a national water resource management strategy spearheaded by the Water Resource Management Strategy (WRMS) steering committee and implemented by the WRMS Technical Secretariat. The strategy reviews existing policies and defines methods for the utilization and management of the country's limited water resources in a sustainable manner. The ministry was concerned about committing the country's water resources before a strategy was in place.

The third aspect relates to representation of stakeholders in management affairs. In the past river board membership was confined to water right holders. The aim is to have a fair representation of all stakeholders including communal, resettlement, small scale commercial farmers. Studies to facilitate change are underway in the two pilot catchments; Mupfure and Mazowe located in Mashonaland West and Mashonaland Central province respectively. The experiences of these will be analysed and incorporated into the new management strategies.

Fourth, options for a new water pricing policy are being investigated. The prices will apply to surface and ground water and not to primary water rights. The review was prompted by the realization that water is an economic commodity that has a commercial value and must therefore be priced accordingly. If water is priced too cheaply inefficiency in its usage results. On the other hand, if water is priced properly, people will treat it as a precious commodity it is. The aim is to establish a water pricing structure that is based on the user pays principle but will be socially acceptable to the different interest groups. The ultimate desire is to remove subsidies in the water sector. However, targeted subsidies for the disadvantaged will be retained. Some progress has already been made in this direction.

Fifth, (advanced) plans are under way to restructure the water sector and to form a new organization, the Zimbabwe National Water Authority (ZINWA) which will run along commercial lines. ZINWA will amalgamate the functions currently performed by the Department of Water Resources and the Regional Water Authority. ZINWA will be responsible to government but not operating within the confines of the civil service. This is a way of strengthening government's ability to develop the country's water resources. A small part of the Department of Water Resources will be retained to deal with policy issues.

Sixth, the reforms aim to inculcate a water conservation ethic in the country. Given the dwindling water resources, water conservation should be taken seriously. This must not be confined to surface water but also to underground sources. Cities, towns and industries need to start recycling water. Some form of leak detection laws need to be brought into being. This will make more water available for agriculture. However, irrigation itself also needs to be more efficient, for example through adopting such techniques as drip irrigation.

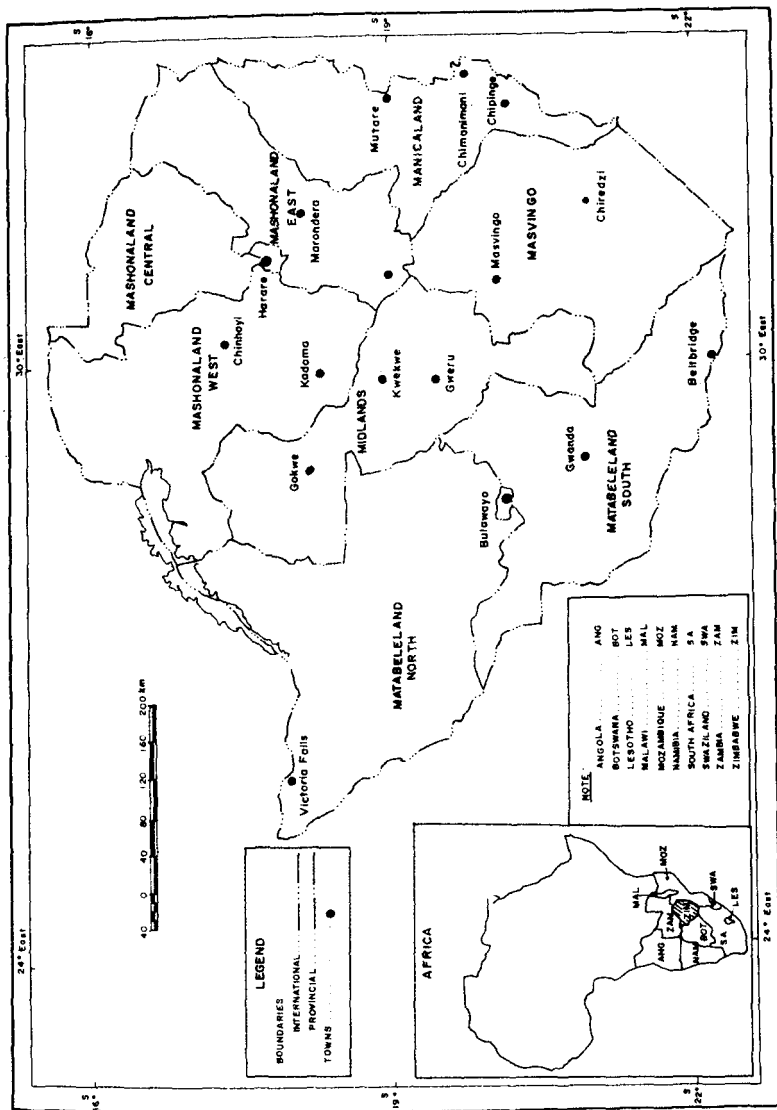
ORGANIZATION OF THE BOOK

The book is divided into four parts. The parts roughly correspond to the four themes; however not all issues raised by the themes are exhausted by the chapters. The chapters are preceded by a small introduction that serves to highlight what each part is about and hopes to achieve. While an attempt has been made to make the parts as unitary as possible the individual chapters retain their own style and emphasis. In the epilogue an attempt is made to preview Zimbabwe's new water legislation which has since been made available. Readers should therefore note that reference to the current/present water legislation appearing in the main chapters of the book refer to the 1976 Water Act.

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Map of area under study



Water for Agriculture in Zimbabwe is a comprehensive account of water-related issues in the smallholder farming sector of Zimbabwe. The book is divided into four parts. Part I discusses rainfall, focusing on its incidence as well as the technical and social interpretations that various people hold. Part II discusses some technologies that can be used to improve, conserve and make efficient use of the limited water resources available in the smallholder sector in both rainfed and irrigated environments. In Part III the discussion shifts to catchment management where technical, managerial, institutional and legal aspects are discussed. Part IV presents relevant policy issues regarding drought and irrigation, water pricing, a comprehensive water reform, including legal aspects and the concept of integrated water resource management.

The book should be of interest to students, practitioners, researchers and policy makers dealing with agriculture, water resources and rural development in Zimbabwe and other developing countries.

ABOUT THE EDITORS

Emmanuel Manzungu completed his PhD research in irrigation management with the Wageningen Agricultural University, The Netherlands, and is attached to the Department of Soil Science and Agricultural Engineering, University of Zimbabwe, which hosted his research. He is the author of a number of journal articles and book chapters. He has also co-edited the book *The Practice of Smallholder Irrigation: Case Studies from Zimbabwe* and *Researcher-Practitioner Dialogue on Smallholder Agriculture in Zimbabwe*.

Aldan Senzanje holds a PhD in Irrigation Engineering from Colorado State University, USA. He has several years experience in irrigation engineering and management in Zimbabwe. He is a former Chairman of the Department of Soil Science and Agricultural Engineering at the University of Zimbabwe and lectures in Irrigation and Drainage Engineering. His main research interests are in the management of surface and drip irrigation systems.

Pieter van der Zaag, a senior lecturer at the IHE Delft in The Netherlands, is currently a project manager of a collaborative programme for capacity building in the water sector with the Department of Civil Engineering, University of Zimbabwe and the Institute of Water and Sanitation Development, Harare. He has published widely on various aspects of water resources management. He is also co-editor of *The Practice of Smallholder Irrigation: Case Studies from Zimbabwe*.



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