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TOWARDS REFORMING
THE INSTITUTIONAL AND LEGAL BASIS OF
THE WATER SECTOR IN ZIMBABWE :

*Current Weaknesses, Recent
Initiatives and Their Operational Problems*

Edited By

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with Bill Derman²

August 1997

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FROM APPROPRIATING WATER TO SHARING IT :

Water Reform in the Nyachowa Catchment Area

Pieter van der Zaag¹⁰

Introduction

Visit a catchment area in Zimbabwe, and you will encounter a situation full of contradictions and compromises. The differences between the worlds in which the commercial farmers and the communal farmers live are simply vast. Yet, they are there in the watershed, living side by side, as if it was self-evident. You will soon ask yourself, how could this situation change for the better? The most obvious answer is making access to resources more equal. Water is probably one of the most crucial, as it is a limiting factor in agricultural production in Zimbabwe. How could such a reform be accomplished? On the basis of a case study of a small catchment area of Nyachowa stream in Mutare district¹¹ I suggest that we can do three things with respect to water reform:

- 1) we need to reform the water act;
- 2) we need to redress the historically unbalanced distribution of water rights;
- 3) we need to base these reforms on watershed-specific data, that encompass a variety of disciplines, such as hydrology, law, history and sociology.

Nyachowa Catchment

Nyachowa stream springs upstream of the only commercial farm in the catchment area. In accordance with the farm's water right, the farm takes all the water from Nyachowa at a point where its catchment measures approximately 4 km². This water right has a priority date of 1918. Ever since, the water right has been revised and amended. The right to divert 'the whole flow' changed to the right to divert a continuous flow of 20 litres per second (lps) in 1970. This was increased to 80 lps in 1977. In reality much less is normally available during the dry season. Hence the farm constructed a storage dam in the early 1980s, for which it obtained a formal storage right in 1986; which, two years later, was increased to 30,000 m³.

By the time the river has reached the boundary between this farm and the communal land, its catchment measures approximately 12 km². Here the Department of Water Resources has a measuring weir. Somewhat downstream is the intake of the Nyachowa Irrigation Scheme. The Scheme was constructed in the 1930s. In 1961, the 28 plot holders cultivated 45 hectares obtaining maize yields of 1,400 kg/ha. Since the 1980s the plot holders have received no appreciable water any more. Upstream along the Scheme's feeder canal are some irrigated gardens.

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¹¹ The first part of this paper is based on an article by Roling and van der Zaag (1996).

immediately below the Scheme's intake, is another intake for a garden furrow. One kilometre further down, the river is joined by a small stream with a catchment area of nearly 5 km². Here at least four other garden furrows take out Nyachowa water. Somehow the water manages to reach these scattered gardens.

The communal farmers have a right to a continuous flow of 57 lps, which the Scheme irrigators have to share with the other communal irrigator groups. In reality only some 5 to 30 lps is available during the dry season (Figure 1)

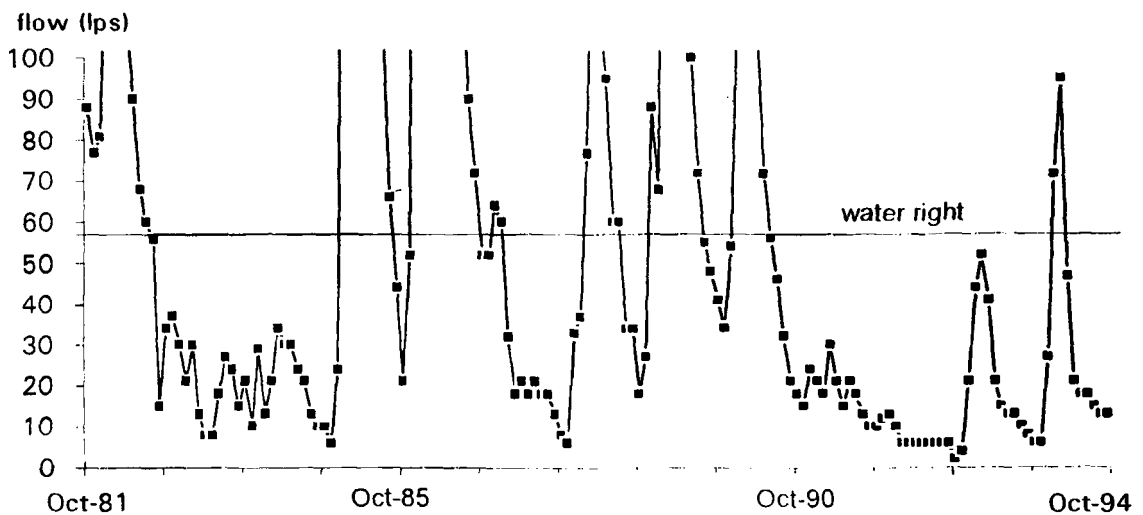


Figure 1: Monthly Minimum Flow in Nyachowa River at Communal Area Boundary, 1981-1994.

(based on discharge data at gauge EGP59, provided by the Department of Water Resources)

This right has a priority date of 1933, 15 years later than the commercial farm's. The commercial farm thus has priority. This is one of the reasons hardly any water reaches the Scheme and the garden furrows.

Policy Implications: Reform of the Water Act

The water problems in Nyachowa point to a discrepancy between reality and legality. Two characteristics lie at the root of this discrepancy: *water* does not blindly follow the rights granted according to the Water Act; also *people* do not blindly follow the rights as granted according to the Act.

A reformed Water Act should therefore be more in accordance with the actual behaviour of rivers and irrigators. The hydrologic model of a river shows the discharges naturally fluctuate, whereas the legal model conveys a static picture of absolute volumes of water. An Act based on rights to proportions of a river's flow

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would make it more in line with real-world problems. In this scenario, the concept of 'priority' becomes superfluous and can simply be abolished. And with it its discriminatory connotations.

Proportional rights to a river's flow implies the water to be distributed among right holders in one of two ways: (1) a system of rotating the total flow in turns, whereby the time length of the turns is equivalent to the corresponding proportional rights; (2) a system whereby the total flow is split into parts by means of weirs that are equipped with notches, the width of the notches corresponding with the proportion of the flow the various users are entitled to.

In both cases (time-based turns and a new technical design of weirs) the distribution system would be transparent, easy to 'read' and verifiable by lay persons. It would at any one time precisely define users' entitlements; also, and importantly, during times when river flow is low. It would furthermore convey the central tenet of the legal system: water resources within a catchment have to be shared. Such a reform, from appropriating water to sharing it, connects up with communal farmers' practice and perception of what is fair and just (and may even appeal to similar perceptions held by their commercial colleagues!).

Basing water rights on a sharing principle as suggested here, is not enough. What is also needed is an effective transfer of water rights from the historically privileged to the deprived. The difficult question is: what criteria should be used in order to establish how much water should be transferred.

Policy Implications: An Example of Redress

In my view, redress of the distribution of water rights at any scale (be it at watershed, catchment or river basin level) should do justice to historical violations. Redress should be perceived as just and legitimate by the majority. It must therefore be transparent and be based on accurate data; data that best approximate the reality on the ground. I am here arguing in favour of a pragmatic approach to attain this goal of redress. A pragmatic approach does not in any way rule out drastic transfers of water rights. It will in many cases yield useful criteria that are precise and perceived as just. Let me attempt to apply this pragmatic approach to the Nyachowa catchment.

The commercial farm was originally granted the total flow in the Nyachowa at a specified point in the river. This was, strictly speaking, thus a water right formulated in proportional terms. In 1997 the commercial farm's right, in its original sense, is still satisfied to the full: it still takes out all the water from the stream 300 metres below the farm's upper boundary. The communal farmers, however, received less than their original water right of 57 lps. Calculated per month over the period 1981 to 1994, they received only 76% of this amount; and much less during the winter months.

One possible and pragmatic criterion for re-dress, applicable to the Nyachowa watershed, could be defined as follows: both the commercial and communal water rights should be satisfied in exactly the same proportion.

To be able to make a quantitative assessment, a simple water balance model of Nyachowa was developed in a spreadsheet. The model was run for flow data covering the period October 1981-September 1994 (Figure 2).

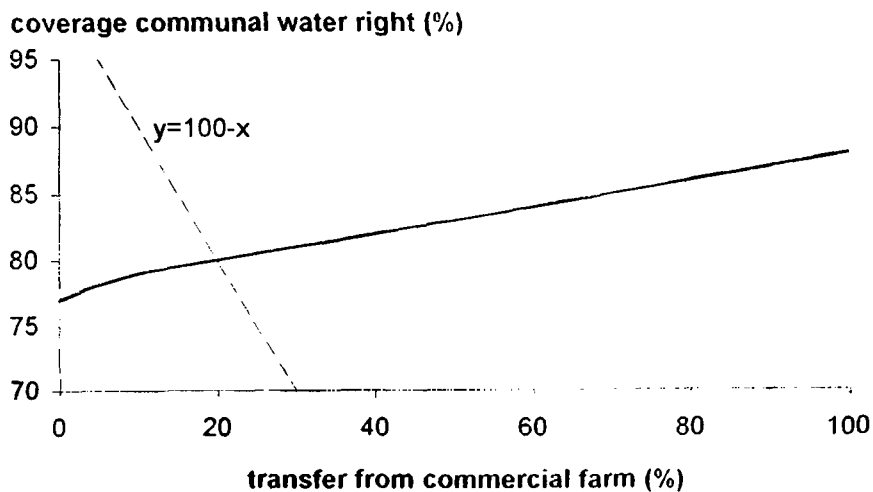


Figure 2: Effect of transfer of water from commercial farm on Nyachowa communal water right.

(calculated from discharge data 1981-1994 at gauge EGP59, Department of Water Resources)

The graph shows that a balance is reached at approximately 80%. This means, that if the commercial farmer takes 80% of the water flowing at his diversion site, surrendering 20% to the Nyachowa communal farmers, the latter's right is also satisfied for 80%.

This may seem a straightforward proposition, but the commercial farmer will be upset; production will be affected, and with it, the employment for, among others, the Nyachowa community. There is, however, an alternative that may be more acceptable to him: he could finance the construction of a dam for the exclusive use of the communal farmers.

The capacity of the dam should be such that it would result in an increase in water availability similar to a 20% transfer of water. Running the model with various storage levels for the communal irrigators yielded another graph (Figure 3). According to the model, a dam of 200,000 m³ might be sufficient.

The example presented above is just one possible scenario. Other scenarios based on alternative criteria are thinkable. One alternative criterion would be to base redress on the subsidy given out to commercial farms in the past for storage facilities. Another criterion would be to correct those judicial rulings of the past that blatantly conflicted with the letter of the (then) Water Act.

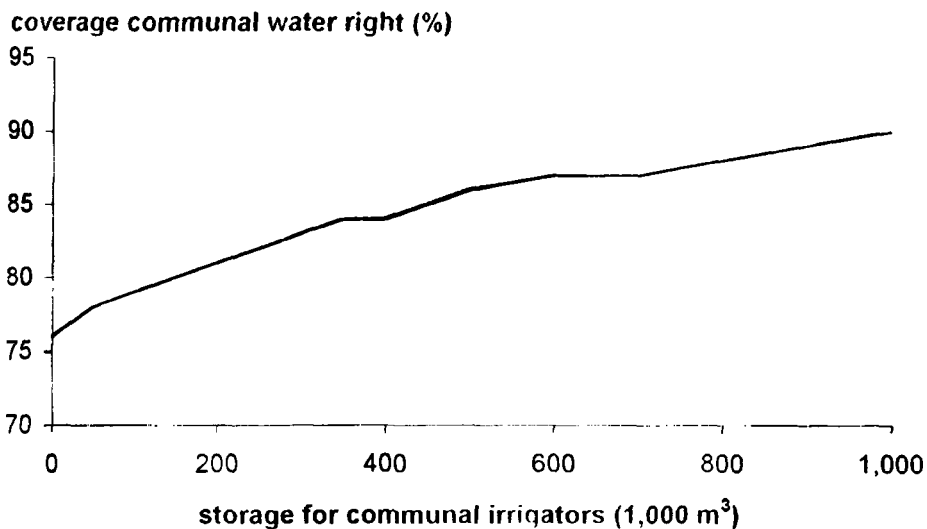


Figure 3: Effect of storage capacity on Nyachowa communal water right

(calculated from discharge data 1981-1994 at gauge EGP59,
Department of Water Resources)

Conclusion

The Nyachowa case shows that in a context of dwindling water resources, the present Water Act enlarges existing inequalities, for the rights to water are defined in absolute volumes, with a priority system that (in practice, not in principle) discriminates against indigenous Zimbabweans. With it, the discrepancy between what people perceive to be fair and reasonable and what actually happens also increases. The basis of the Water Act needs therefore to be overhauled. Here I propose to define rights in proportional terms.

As Zimbabwe's water resources are fast becoming the most limiting factor in agricultural development, a catchment perspective to land use should override

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sectoral interests. Such a perspective requires a pragmatic, negotiated approach to catchment development. The first issue to address is the imbalances in access to water. In this paper I gave an example of how the situation might be redressed.

The Nyachowa case contains elements with far-reaching policy implications. This is because the story is a case study that uses a range of different kinds of data, derived from different disciplines. I am convinced that the interdisciplinary case study is therefore a powerful tool in the process of implementing water reform.



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