



Memorandum to the Minister of Water and Sanitation

Ministerial Memorandum #5

Subject: The Future Infrastructure Build Charge and regulator levy

1 Background and Purpose

The Regulator Commission ('the Commission') was established in terms of Section 99 of the National Water Act No 108 of 1997 and Section 76 of the Water Services Act No 108 of 1997 with the purpose of advising the Minister on aspects related to the economic and social regulation of the water sector.

A memorandum on the Draft Raw Water Pricing Strategy was submitted to the Minister on 4 June 2023.

The purpose of this memorandum is to provide the DG and Minister with supplementary comments on the Draft Water Resource Pricing Strategy (commonly referred to as the RWPS). Supplemented comments and recommendations are based on further engagement with the Department and analysis of data undertaken by the Commission, which has enabled a high-level impact perspective. This memorandum provides insight and recommendations, specifically with regard to:

- The proposed Future Infrastructure Build Charge (FIBC); and,
- The proposed Economic Regulator Charge / Levy.

2 The proposed FIBC

2.1 What is proposed

The Draft version of the RWPS reviewed by the Commission over the period June to July 2023, has moved away from the return-on-assets (ROA) charge and replaces this with a Future Infrastructure Build Charge (FIBC).

The proposed FIBC is to be charged to all user categories (agriculture, municipal, industrial and mining, renewable energy, strategic users and stream flow reduction activities).

The FIBC is calculated to fund the annualised costs of the Department's 10-year infrastructure development plan as defined in the latest version of the National Water and Sanitation Masterplan and funded through a national charge based on actual use.

The charge is calculated as a uniform flat rate (Rands per m³) across all schemes and users.

No mention is made of phasing in of the FIBC.

2.2 Purpose and underlying principle

The purpose of the FIBC is given as follows:

- To contribute towards the funds for the development of water resource infrastructure, including the costs of investigation planning, design, construction and finance of schemes that serves, or partly serves, economically distressed users.
- To fund social and economic development stimulus infrastructure where the latter is defined as the infrastructure necessary to provide for future economic development but where there are currently insufficient users to pay for the capital costs of the infrastructure.

The underlying principle of the FIBC is one of cross subsidization, namely the collection of additional revenue on a national basis and using this revenue to cross subsidize poorer municipalities, resource poor farmers, and new schemes that are not yet viable because there are no guaranteed or contracted for off-take agreements. That is, users who are expected to pay for the full costs of the service are also expected to pay an additional tariff to subsidize social schemes and economic development stimulus infrastructure.

2.3 Motivation

The FIBC has been motivated on the following grounds:

- The government budget is constrained and additional resources to fund investments are needed.
- The rate of return on assets component is hard to apply because it requires assets to be known and valued.

The FIBC has also been motivated as a mechanism to reduce the cost of high-cost schemes, by eliminating the return on assets component and replacing it with a lower FIBC.

(The effect will also be to substantially increase the tariff for schemes with low costs.)

2.4 Calculated value

The required value of the FIBC was calculated to be R0.33 per m³ to collect revenue sufficient to fund a build programme of R3.1 billion per year, when the FIBC is applied to registered water use for domestic, industrial and irrigation of 12 900 million m³ per year and with a collection rate of 74% (WRC Report 3023/1/22).

The Water Research Commission (WRC) modelled 2 alternative applications:

- Applying the FIBC as above but excluding irrigation (FIBC = R0.62), and,
- Excluding users paying the capital unit charge as well (FIBC = R1.06).

2.5 Distributional impact and cost of subsidies

A critical analysis of the distributional impacts regarding the FIBC has been lacking by the Department. In addition, the economic impact on irrigation by applying the FIBC is not well understood due to the absence of such sector assessments.

Another critical area requiring assessment is the quantification of costs for subsidizing resource poor farmers and foresters. The draft pricing strategy is ambiguous as to whether these costs would be paid for by the FIBC or from the government budget.

3 Issues with the FIBC and Commission Recommendations

3.1 Summary of Issues on FIBC

While the Regulatory Commission appreciates and supports the basic motivation for the FIBC, namely, to generate additional funds for investing in water resources infrastructure, the proposed FIBC is not considered fit-for-purpose. From an economic perspective, the FIBC will significantly weaken price signals in the sector relative to a true cost and value reflection of water provision. The proposed FIBC is unlikely to be affordable for the majority of irrigators and is likely to have significantly negative economic consequences. Its implementation is also unlikely to generate the revenues envisaged.

The Regulator Commission does not support the proposed FIBC. The Regulator Commission recommends implementing a standard economic regulatory approach to infrastructure pricing without the FIBC. Alternatively, the Department could implement a **fund-needs** model until such time as improved regulatory capacity is in place.

Key issues with the FIBC are summarized in the below bullet points (further context is unpacked in sub-section 3.1.1 to 3.1.9); -

- **Very substantial impact of the cost of water for irrigation:** The application of FIBC as proposed will increase the average water resource infrastructure charge (tariff) for irrigators by 400%, that is, five times the current average tariff.
- **Significant economic consequences that are poorly understood:** The economic impact of increasing the price of irrigated water by 400% has not been studied and is poorly understood. Nevertheless, such a large increase is likely to have significant negative economic consequences for the irrigation sector and for South Africa as a whole. This will affect economic growth, food prices and will increase poverty. Irrigation is highly labour intensive and negative impacts on irrigated agriculture will disproportionately affect unskilled labour. **The Regulator Commission does not support such a significant increase in the cost of irrigated water in the absence of understanding the consequences of the proposed increase.**

- **Very substantial and unequal distributional impacts:** The proposed increase will also have a highly skewed distributional impact (see below detail and Figure 1). Some irrigation schemes will experience an increase of over 2000%, 80% of schemes will experience in impact of over 100% and 20% of schemes will experience an increase of less than 100%.
- **There is significant concern that the strategy reflects a mixed-up-pricing methodology and moves away from a standard economic regulatory approach:** According to the proposed pricing strategy, ‘full-cost’ users must pay operations and maintenance and depreciation and a capital unit charge and FIBC (a charge totally unrelated to the future costs facing the user’s scheme/system), that is, a combination of 3 different approaches as explained further in 3.1.3 below. This does not make sense. Full-cost users are double paying twice. They are paying for depreciation as well as the repayment of loans used for investing in the infrastructure (it should be one of these two, not both), and the user is paying for historical costs (through a capital unit charge) as well as future costs (FIBC).

3.1.1 Significant economic consequences that are poorly understood

The application of FIBC as proposed will increase the average water resource infrastructure charge (tariff) for irrigators by 400%, that is, five times the current average tariff.

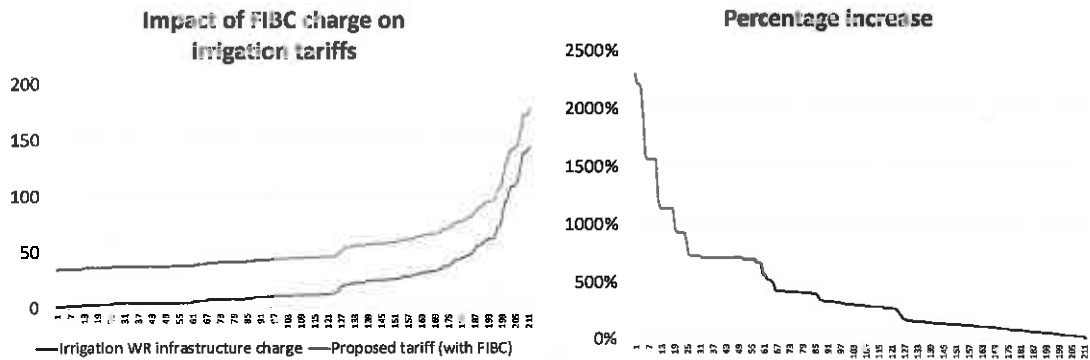
The economic impact of increasing the price of irrigated water by 400% has not been studied and is poorly understood. Nevertheless, such a large increase is likely to have significant negative economic consequences for the irrigation sector and for South Africa as a whole. This will affect economic growth, food prices and will increase poverty. Irrigation is highly labour intensive and negative impacts on irrigated agriculture will disproportionately affect unskilled labour.

3.1.2 Very substantial and unequal distributional impacts

The proposed increase will also have a highly skewed distributional impact (Figure 1). Some irrigation schemes will experience an increase of over 200%, 80% of schemes will experience in impact of over 100% and 20% of schemes will experience an increase of less than 100%.

As a result of this skewed distributional impact, the implementation of the tariff is likely to be highly unpopular. **Payment levels are likely to decrease as a result, undermining a key purpose of the proposal which is to increase revenues. In fact, sector debt is likely to increase.**

Figure 1: Impact of FIBC on irrigation tariffs by scheme (applied to 2023/4 tariffs)



3.1.3 Mixed-up pricing methodology

Users of water for industrial and mining purposes, and for use beyond basic needs for domestic users, are required to pay for the full cost of the water. The view of the Regulator Commission, it that the FIBC, is seen as a user “tax” as it is not a tariff related to the cost of providing the service. If it was to be included in the tariff, Figure 1 above demonstrates how this charge would affect the tariff.

Full costs can be determined in one of three broad ways:

1. A **fund-needs (funding) approach**, where users pay based on the actual costs incurred. The main cost components here are operations and maintenance and the repayment of loans. In this approach, the costs of asset renewals and refurbishment are paid from cash from operations and/or loans. There is no depreciation charge.
2. An **economic regulatory approach**, typically based on a **return on assets**. In this approach, the cost components are operations and maintenance, depreciation, and a return on assets.
3. An **average incremental cost approach**, in which users pay the long-run marginal cost of bringing additional water into the system. In this case the price signal is based on a sum of the operations and maintenance costs and the long-run marginal cost of building new infrastructure to supply water into the system. (There is no additional depreciation charge.)

The first two approaches are widely used. A version of the third approach has been applied in South Africa in the case of the Lesotho Highlands Water Scheme. A levy was applied to scheme users before the scheme was built.

This revenue contributed to the scheme costs in the form of pre-financing and had three benefits; -

1. reducing overall costs by reducing the interest cost,
2. smoothing the tariff, and

3. sending a price signal to users that water was becoming more expensive.

In terms of the above approaches, a user should pay:

1. **Approach 1 (fund-needs):** Operations and maintenance, direct cash contributions towards refurbishment and a capital unit charge (related to loans for investments in refurbishment or new infrastructure), **OR**
2. **Approach 2 (economic regulation):** Operations and maintenance, depreciation and return on assets, **OR**
3. **Approach 3 (marginal cost pricing):** Operations and maintenance and the average incremental cost (for that specific scheme/system).

In a context where costs of additional water is increasing (the case in South Africa), and in an inflationary environment (also the case in South Africa), water tariffs would be progressively higher (and the sector more financially sustainable) moving from approach 1 to 2 to 3.

According to the proposed pricing strategy, 'full-cost' users must pay operations and maintenance and depreciation and a capital unit charge and FIBC (a charge totally unrelated to the future costs facing the user's scheme/system), that is, a combination of approaches (1) and (2) and (3) as explained above. This does not make sense. Full-cost users are double paying twice. They are paying for depreciation as well as the repayment of loans used for investing in the infrastructure (it should be one of these two, not both), and the user is paying for historical costs (through a capital unit charge) as well as future costs (FIBC).

While approach 3 (use of average incremental costs) is fully justifiable in the context of water scarcity and an increasing cost of water from new schemes, this is not what is being proposed with the FIBC. The FIBC raises revenue but undermines the economic pricing signal. The purpose of using average incremental costs is to get users to make investment decisions based on the marginal cost of adding additional water to the system (for that system).

The combination of approaches proposed in the RWPS, by including depreciation and a CUC and an FIBC places an inappropriate burden on full-cost users, and at the same time undermines the pricing signal for the more efficient allocation of resources. This is a poor outcome, and this approach is not supported by the Regulatory Commission.

3.1.4 Substantially weakening the price signal as a mechanism to allocate scarce resources

The implementation of the FIBC will substantially distort the pricing signal.

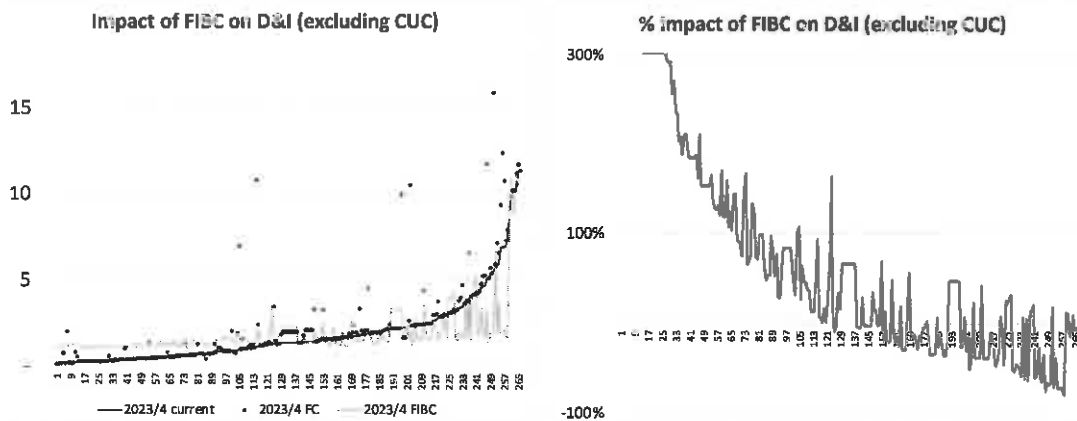
An important role of cost-based pricing is to promote the efficient allocation of resources. Irrigators make investment decisions based on the cost of inputs. If the input cost is substantially distorted, this will result in inefficient allocation of resources. The application of the FIBC, as proposed, will make water both artificially expensive and artificially cheap (for different schemes, depending on whether the underlying costs are low or high). In South Africa, with scarce water resources that are unevenly distributed, it is especially important that

the price of water reflects the costs of providing the waters at a scheme or system level. (If any subsidies are provided, these should be provided directly to users, and not through a subsidized water tariff.)

Assuming that FIBC is not applied to irrigators and not applied to users already paying a capital unit charge for reasons given above, then the distributional impact on domestic and industrial uses is shown below.

The left-hand graph shows the flattening of the tariff from current (black line) to proposed (grey line). The right-hand graph shows the percentage change in tariff from current (including ROA) to proposed (excluding ROA and including FIBC). There are both substantial increases in tariff, with about a third of schemes having a tariff increase of more than 100%, as well substantial reductions in the tariff. **The distributional impact of the proposed FIBC on the pricing of water for ‘full-cost’ users makes no sense and takes the sector away from rationale economic pricing.**

Figure 2: Distribution impact of FIBC on domestic and industrial excluding CUC



3.1.5 Current non-irrigator pricing is close to cost-recovery

Pricing for domestic (beyond basic needs), industrial and mining is close to cost recovery overall (within approximately 10%). Therefore, the motivation to change this pricing model on the grounds of cost-recovery is not strong.

3.1.6 An expectation that users pay more than full cost may be unrealistic

It is hard to achieve full cost recovery for water under the best of circumstances (and this has not yet been achieved in South Africa). The FIBC expects this to be achieved together with an added charge/tax to pay for the social use of water.

This expectation may be unrealistic in the context of steeply increasing marginal costs of water supply.

For example, in the case of the uMkhomasi Scheme, the original tariff was meant to be R5.00 but eThekweni motivated for a 50% subsidy for the project on basis of affordability, saying they could not afford a tariff of more than R2.50. (They received this subsidy). It is hard to justify an additional cost of R0.60 (another 25%) on top of this.

3.1.7 Abandoning the standard economic regulatory approach

The 1999 Raw Water Pricing strategy introduced as economic regulatory approach to pricing water.

The 2007 strategy introduced a complementary mechanism (capital unit charges) for off-budget schemes but did not duplicate loan repayments and depreciation expenses.

The proposed 2023 strategy has abandoned an economic regulatory approach and introduced duplicate charges and undermined economic price signals. This is concerning.

The principle of setting prices for regulated infrastructure services based on allowed revenues made up of three building blocks below is well-established and widely practiced around the world: -

- i) operating and maintenance costs (operating expenses),
- ii) depreciation, and
- iii) a return on assets

There is a solid grounding for this methodology. The principle of pre-financing on a scheme basis (a form of incremental cost pricing) has also been used to good effect in South Africa and is supported. The reasons for abandoning these approaches in the proposed RWPS are not convincing. With improved regulatory capacity there is no reason why the current methodology could not be implemented more effectively, robustly, and transparently.

3.2 Recommendations with respect to charging for water resource infrastructure

Note: These recommendations are consistent with the recommendations made in our previous memorandum on the Raw Water Pricing Strategy (memorandum #4).

The Regulatory Commission recommends the following:

1. **First-best option:** The implementation of an “Economic Regulator approach” along with the development of professional economic regulatory capacity.
2. **Second-best option:** The adoption and implementation of a “Fund Needs” approach to water resource pricing as an interim measure, including pre-payment of future costs on a scheme or system basis for expansion of capacity in order to lower overall costs and to smooth tariffs, and then moving to the first-best option.

3. **Social component of schemes:** There needs to be clear rules set out in the strategy for determination of the social component of schemes, and this should not be left at the sole discretion of the Minister of Water and Sanitation nor to feasibility studies. It is proposed that the social use component of schemes be determined by calculating basic needs at 50 liters per person per day for the share of population living below a defined income level.
4. **Processes to improve the robustness and credibility of the tariff setting process should be well established.** (*Users have little knowledge and confidence in how and where their money is spent and there appears to be an absence of any mechanism to check and verify the proposed tariffs, the data and assumptions used in the calculation, and the accuracy of the calculations themselves*).

In addition to these recommendations, the Commission would like the following points to be noted;-

1. It is our understanding that National Treasury does not support the introduction of the FIBC as currently conceived and would be unwilling to give concurrence without substantive changes to the RWPS.
2. Additionally, it should be noted that if the pricing strategy with the proposed Commission recommendations is fully and consistently applied, the viability of WTE/NWRIA should not be affected for the reasons given below;-
 - i. The RWPS should generate sufficient revenue to sustain **existing infrastructure** if operation and maintenance, and the depreciation and refurbishment provisions are appropriately applied and with the removal of price caps and other provisions. A key objective for the Department is to achieve the required level of cost recovery to sustain existing assets.
 - ii. **New infrastructure** should be funded either by users (economic component, through a CUC), or from the government budget (social component). Implementing both of these approaches effectively should ensure that sufficient funds are available for new infrastructure from these two sources.
 - iii. Implementing both of these approaches (for existing assets, and for new assets) should ensure that the WTE/NWRIA is financially viable.
3. The need and motivation for additional funds to support investment in social interventions is well understood. The Commission strongly recommends that these subsidies are explicit in support of the principle of transparency and in alignment with the provisions of the National Water Act.

4 Regulator charge/levy

The strategy proposes an Economic Regulator Charge to fund the activities of the Economic Regulator. The Commission has now had time to further consider this issue.

(Within the time-constraints of preparing the Commission's previous submission, the Commission was not able to arrive at a consensus view on the introduction of a charge or levy to fund the economic regulation function.)

Given the very severe budget constraints experienced by government, together with the prohibition of funding new positions within government, and appointing staff, the Commission is of the view that the **only realistic mechanism** to develop professional economic regulatory capability is through a dedicated funding stream provided by a Regulatory charge, levy or similar mechanism.

The fairest way to generate this revenue, in the view of the Commission, is through a percentage charge/levy on the water resource infrastructure charge as this is the key tariff to which economic regulation applies. Such a levy is likely to be a small percentage of a customer's water bill and will not be an onerous burden on users.¹

A charge/levy that created a dedicated funding stream will require accountability to users on how the money is spent, encouraging both transparency and effectiveness.

In summary, the arguments for a dedicated charge/levy include the following:

- It will increase accountability of the regulator to users; and,
- It will support adequacy of funding for the economic regulation function.

Further work is needed on the appropriate mechanisms for implementing the charge/levy.

It is recommended that the Department provide a stronger proposal and argument for the inclusion of a regulator charge/levy in the Pricing Strategy.



Daveshini Padayachee

**Chairperson, Water Regulatory Commission
for the Water Regulatory Commission**

Date: 04/08/2023

¹ A 1% charge/levy on the water infrastructure charge would generate a revenue of R50 million per annum, based on the 2023/24 approved water resource charges. This should be sufficient to staff the necessary professional capability to undertake economic regulation, together with the appropriate administrative support.