Memorandum to the Minister of Water and Sanitation

Ministerial Memorandum #4

Subject: Comments on the Draft National Water Resource Pricing Strategy

1 Background and Purpose

The Regulator Commission (RC) 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

The purpose of this memorandum is to provide the Minister with comments on the Draft Water Resource Pricing Strategy and to make inputs and recommendations with respect to proposed changes and improvements for consideration by the Department, and on future ways to improve the robustness and integrity of the Water Resource Pricing Strategy process.

General and Specific Comments on the Water Resource Pricing Strategy are provided hereunder.

2 General Comments

- Overall, the draft Raw Water Pricing Strategy reflects current government's commitment to sustainable water resource management, transparency, and equitable access to water. By incorporating principles of cost recovery, differentiation of charges, transparency, and social equity, the strategy aims to strike a balance between economic development, environmental protection, and social welfare. However, the actual implementation and monitoring of the strategy will be key to its success in achieving the stated objectives and ensuring the long-term sustainability of the nation's water sector.
- The categories of charges aim to ensure that the costs associated with water resource management and waste discharge are adequately recovered from water users. By differentiating charges based on the type of water use and the specific users, the pricing strategy aims to promote equity, efficiency, and accountability in water management practices.
- The implementation and monitoring of water charges will be crucial to ensure their effectiveness in funding water resource management activities and promoting sustainable water use practices. Regular evaluation and adjustment will be necessary to align the charges with changing circumstances and priorities in the water sector.
- The objectives of the pricing strategy are aimed at cost recovery, provision of financial assistance, and redress for poor, marginalised and historically disadvantaged communities, alignment with the goals of equitable and sustainable growth and vibrant

economic development. The principles, including the user pay principle, polluter pays principle, and consideration of ecological sustainability, demonstrate a commitment to balancing economic, social, and environmental factors in water management.

- The objectives of the pricing strategy's scope include various water management institutions, ensuring that the pricing framework applies to a wide range of stakeholders involved in water resource management. This inclusivity is crucial for maintaining consistency and fairness across different entities involved in the water delivery value chain.
- The strategy allows for differentiation of charges based on geographic areas, categories of water use, and water users. This approach recognizes the diverse needs and priorities within the water sector, including considerations for basic human needs, irrigation, municipalities, industry, and power generation. By tailoring charges to specific categories, the strategy aims to support national objectives such as food security, equity, job creation, and economic development.
- The pricing strategy emphasizes transparency and accountability in the management of funds and water resource services. This is crucial for building trust among stakeholders and ensuring that charges are affordable and effectively utilized. The inclusion of multi-year tariff determination provides greater certainty for water institutions and users, enabling better long-term planning.
- The strategy recognizes the importance of affordability and social equity by considering the needs and financial capabilities of poor, marginalized, and historically disadvantaged communities. This ensures that water resources are allocated based on both need and affordability, addressing previous imbalances and promoting equitable access to water.
- The current document requires significant refinement to improve clarity and the overall structure.
- The Commission agrees with the submission by BUSA that a revised document, taking into account the comments received from stakeholders (including comments and inputs from the Regulator Commission), should be used as a basis to consult again with key stakeholders prior to submission to Parliament, especially National Treasury and organized business and agriculture.
- The provision in the WRPS for **multi-year tariffing** is strongly supported along with a three (3) year cycle.
- The elimination of **capping** for agriculture and domestic water users is supported.
- The **duplication of tariff charges** is a significant concern. The Department must be clear on how tariffs as a consequence of the establishment of the NWRIA is differentiated from that of the RWPS. Inter-departmental consultation and updating of the WRPS in this regard is crucial before finalizing.

- The strategy outlines the charge categories at a high-level. The need for strengthened context and financial **transparency** is noted as a strong theme in BUSA and NT stakeholder comments. Adequately addressing the need for further detail and transparency will aid the Department in bolstering confidence within the sector and is an aspect well supported by the Regulator Commission.

- The infrastructure charges, particularly the **Future Infrastructure Build Charge (FIBC)** require a strengthened framing and context so that users better understand how this charge is calculated and how it will be utilized. This has a direct correlation to upholding the pricing principal on Accountability and governance.

3 The components of Water Resource Management Charges

3.1 Water Resource Management Charges

- The approach of differentiation of water charges is strongly supported however this needs to extend ensuring that the differentiation takes place at catchment level not at Water Management Area level (WMA). The new WMAs will be aligned with Catchment Management Agencies (CMA) areas of operation and these will be large areas with differing water use patterns e.g. the new Limpopo CMA (Oliphants) has catchments) with a high level of mining activities along with agriculture and international obligations.
- The determination of "percentage" of public interest functions appears to be arbitrary. All inherent catchment-based water resource management functions performed by a water management institution (CMA/WUA/NWRIA/Water Board) should be costed and charged. In this regard, the Department should be guided by the work done by the Water Research Commission on this topic.
- There is a strong argument that national functions related to legislation, national regulations, policy, international agreements, development of NWRS, national plans, regulation of water management institutions, etc should be regarded as public interest functions and be fully funded by the fiscus.
- Where an authority (DWS or CMA) contracts an external entity such as irrigation board or WUA to perform a water resources management function (including being appointed as billing agent) on behalf of the authority, all costs for performing the function must be included in the WRMC and no additional costs should be passed to the water user by the entity appointed/contracted to perform the water resource management function. The gazetted charge should be the only charge billed to and collected from the water user.
- The strategy should also provide for an "independent" review of institutional costs to ensure efficiencies in water resource management. This approach ensures that end-users do not pay for institutional inefficiencies.

- The strategy needs to clearly separate and clarify the difference between a tariff; charge and levy.
- Differentiation should not lead to cross-subsidisation. Where resource-poor farmer support is provided, government must carry the cost of the under-recovery.
- The strategy should include a public consultation strategy and actions for strategy review and for setting of charges.

3.2 The Water Resource Infrastructure Charge

The water resource infrastructure charge is the primary focus of the RC input. This is by far the most significant charge in terms of impact on users as well as revenue generation for the sector with an annual revenue of R13 billon going to the Water Trading Entity from the sale of water, compared to revenue of less than R1 billion from water resource management charges.

The standard approach in economic regulation to pricing of water infrastructure, an infrastructure-intensive service, is to determine allowed revenue (and hence tariffs) based on three categories of costs:

- **Operations and maintenance costs** – to cover the cost of operating and maintaining the asset, including employment costs, energy costs etc.
- **Depreciation** – to cover the cost associated with the use of the asset over time because assets have a limited life. This cost allows for the asset to be rehabilitated and/or replaced as the infrastructure ages (that is, as the asset is "used up").
- **Return on assets** – in recognition that there is an opportunity cost related to the investment in this particular asset (rather than in other assets). That is, the money used to investment in water could have been used for other investments. This is an important element of the costs because it promotes an approach to financing infrastructure that is sustainable.

The **operations and maintenance costs** are straight forward to determine, though there is the important question of efficiency to be addressed. Should users be required to pay for inefficient costs, for example, and what incentives can and should a regulator implement to improve cost efficiencies?

Depreciation can be based on the historic cost of the asset, or a depreciated replacement cost of the asset, or on the current replacement cost of the asset. The underlying principle is that the charge should be sufficient to be able to make the underlying assets sustainable. That is, **the charge should be sufficient such that, through the reinvestment of the revenue from the depreciation charge, the use of the asset can be sustained into the future**.

The expected **return on assets** component is context-dependent and would typically be within a range of a "social" rate of return on one hand through to a commercial rate-of-return on the other.[1] A social rate of return would typically apply to domestic use (at least for a basic supply)

[1] National Treasury define the social discount rate as the Economic Opportunity Cost of Capital and estimated this to be 10% in 2021. (National Treasury, Budget Facility for Infrastructure, 2021 budget cycle guideline on budget submissions for large strategic infrastructure proposals, April 2021). Mullins *et al* estimate a long term

whereas a commercial rate of return would typically apply to commercial/industrial use. In an international context, irrigation is often considered to be a social use of water because of its high employment intensity relative to the level of investment. There is a relationship between the rate of return and appropriate funding sources, with a social rate of return related to government funding and a commercial rate of return related to commercial funding. This approach can be used across all sectors regardless of the project or programme.

Changes in the draft 2023 Water Resource Pricing Strategy

Reference: A pricing strategy for raw water use charges, 2023 draft (Version 3, 2023)

The 1999 Raw water pricing strategy implemented an economic regulatory approach as described above. This was amended to a hybrid approach in the 2007 to include a capital unit charge to cover the cost of off-budget schemes financed through loans, but excluding a depreciation charge in these cases. The application of these approaches is explained briefly in **Annexure 1.**

The proposed draft strategy does away with the return on assets charge and replaces it with a "Future Infrastructure Build Charge" (FIBC). The draft states that "The FIBC will be calculated at a national level, such that all users [as listed in figure 1 below], pay the same charge per m3. It will be based on the annual costs for infrastructure development / betterment and management costs (investigation, planning, design, pre-financing, overheads, etc.), as defined in the Department's 10- year infrastructure development plan."

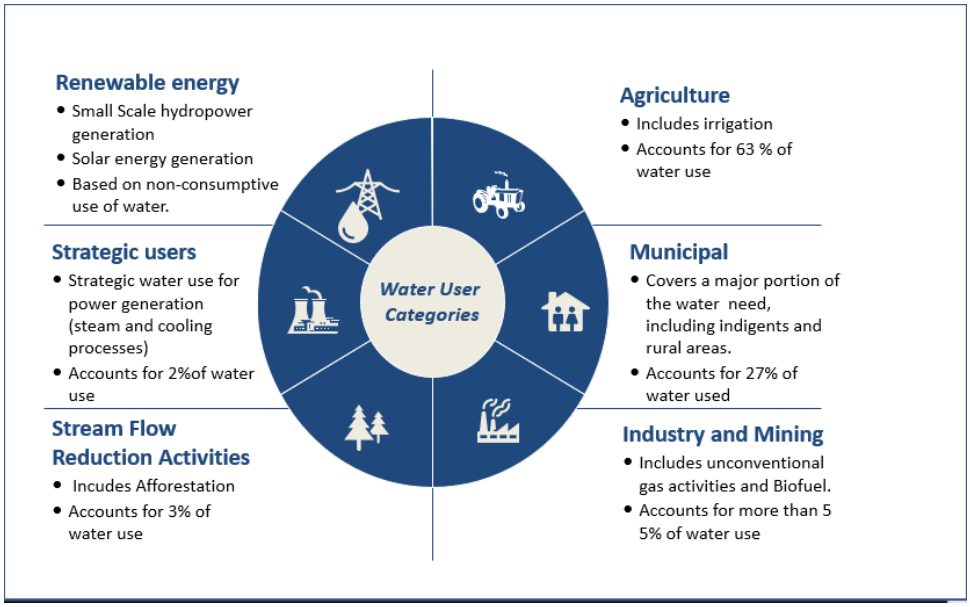

Figure 1: Water user categories for charging purposes

social discount rate of 8% in "A manual for cost benefit analysis in South Africa with specific reference to water resource development" (WRC, 2014). The cost of capital serves as a benchmark for determining the discount rate used in evaluating investment opportunities using discounted cash flow analysis and the calculation of net present value.

The Strategy also changes the depreciation calculation by introducing two approaches to be used.

There are several problems with the proposed new formulation of raw water infrastructure charges as outlined hereunder:

- **The application of a uniform future infrastructure build charge as a uniform per cubic meter charge is a concern**. This implies that the same charge (in cents or Rands per cubic meter) will be charged to a low-cost irrigation scheme, with a tariff of a few cents per cubic meter as well as a high-cost industrial scheme, which could have a cost of several Rand per cubic meter. If, for example, the FIBC is 5 cents per cubic meter (there is no estimate provided in the strategy), then this would represent a 100% add on to an irrigation scheme with a current tariff of 5 cents per cubic meter (44% of irrigation schemes have a raw water infrastructure tariff of less than 10 cents per cubic meter. This same FIBC would add just 0.5% to the tariff of an industrial scheme with a tariff of R10 per cubic meter. It is very likely that this will be considered to be unfair by users (In the previous rate of return approach, the charge would have been proportional to the asset value of each scheme or system.)

- **The proposed approach in the WRPS is, in effect, a mixture of three approaches with the result that the resulting hybrid approach is hard to make sense of and potentially difficult to defend**. Tariffs are normally based on one of three principles – (1) a **backward-looking accounting approach**, in which tariffs cover actual **average historic costs**, (2) an **economic regulation approach**, in which tariffs are based on an appropriate return on investment, and (3) a **marginal cost approach**, in which tariffs are based on future costs. The first two approaches are frequently used. The third approach is much less common.

- The **average historic costs approach** ensures that the actual investments made are paid for but suffers from the limitation that it does not support adequate levels of investment to rehabilitate/replace existing assets in a context of increasing costs. The **economic regulation approach** is designed to support adequate levels of sustained investments in both current and future infrastructure by ensuring an appropriate return on investment and by adjusting the depreciation provision to take into account changes in price levels. The **marginal cost pricing approach** is intended to provide price signals that reflect the marginal cost of providing more capacity.

The proposed approach in the Draft WRPS has elements of all three of the above approaches, but they are poorly and inconsistently applied.

While it is possible to appreciate the intention to raise funds to support the building of new infrastructure, the **FIBC, as currently conceived in the Pricing Strategy,** is essentially a tax on users to fund future costs. The charge does not follow marginal cost pricing principles because it is not related to the cost of providing water to users in any way. The FIBC will, in fact, send the wrong economic signals related to the relative cost of water and will not promote efficient allocation of scarce investment resources, because the FIBC will be very expensive for users with cheap water, and cheap for users with expensive water. The intention to fund

future infrastructure costs through the FIBC also seems ambitious in a context where existing schemes are not being adequately maintained and rehabilitated.

Nevertheless, there is merit in introducing a charge related to future costs **on a scheme or system basis**, and there is already precedent for implementing this (for example, in the case of the Lesotho Highland Water Project). A scheme-based charge related to future costs has three advantages: (1) it sends an appropriate price signal related to future costs, following the marginal cost pricing principle, (2) it lowers the overall cost of the scheme by reducing the overall interest-burden related to the project, and (3) it assists with the smoothing of price increases.

The application of two approaches to depreciation also appears to be arbitrary, one based on historic cost and the other based on depreciated replacement cost, because the application of each approach is stated to depend on the availability of information rather than the merits of each respective approach. The application of a depreciation charge based on historic costs will lead to the under-resourcing of rehabilitation and replacement costs in a context of inflation and is not supported by the Regulator Commission.

3.3 Water Research Levy

This Levy has been raised as a concern by many users over time. The comment by National Treasury in their submission to the Department is considered to be relevant and valid as it questions the following:

- The Water Research Levy which directly funds the costs of the Water Research Commission (WRC) is currently funded by user charges, and this raises the important issue of, is this a direct cost for using water paid for by the users or a national interest function? Are the research projects exclusively serving users or the sector as a whole? Should it also be partially funded by the national fiscus?
- For example the Agricultural Research Levy is funded by both government and the agricultural sector. Should WRL be subjected to the same regime. It is proposed that the RC investigate this by assessing how different research commissions are funded.

3.4 Economic Regulator Charges

The strategy proposes an Economic Regulator Charge (ERC) as a separate category with the intention to fund the activities of the Economic Regulator. This charge isto be implemented if and when an independent regulator is established. At present there is no proposal to establish an economic regulator on such basis and therefore the proposal to include a charge for economic regulation in the WRPS may be premature.

There are arguments both for and against the use of a charge to fund the economic regulator and both approaches are used internationally.

The argument against a charge is that economic regulation is a public interest function and therefore this function should be paid for by the fiscus, as is currently the case.

The arguments for a charge include the following:

- It promotes independence of the regulator
- It increases accountability of the regulator to users
- It will support adequacy of funding of the economic regulation function

Thus, in summary, the economic regulator charge may be an area of contention and based on the comments seen, further transparency in this regard is required. More context as to how and when this charge will be implemented is needed. The internal Departmental model may see this charge as something to be funded through internal fiscus. However, a more independent model as initially envisaged through such a charge would be perceived more justifiable to the sector.

Within the time-constraints of preparing this submission, the Commission was not able to arrive at a consensus view on the introduction of a charge to fund the economic regulation function. It is recommended that the Department provide a stronger proposal and argument for the inclusion of a regulator charge before it is considered further.

4 Specific Proposals on Water Resource Pricing

In light of the comments made in Section 3, the Regulatory Commission proposes one of two possible approaches on Water Resource Infrastructure Pricing:

(1) Ideally, the pricing approach should **adopt an economic regulatory approach**, **and apply this consistently across all categories of use**. All tariffs should have three components (a) O&M, (b) depreciation and (c) rate of return, where depreciation is based on a depreciated replacement cost approach and the rate of return depends on the nature of the project, using a social rate of return for social projects, and a commercial rate of return for commercial projects, and a blended rate of return for hybrid projects. This approach separates the pricing from how schemes are funded and will result in.

- Consistency of approach
- Easier to understand
- Equality of treatment
- Appropriate price signals for all categories of use and schemes
- Sufficient levels of investment to sustain the sector both in terms of rehabilitation of existing infrastructure as well as construction of new infrastructure.
- In combination with this approach, any subsidies necessary to support social purposes over and above that provided for through a social rate of return, should be targeted, and ideally provided directly to end users. A general price subsidy (even for a category of scheme or user) is generally a very poor way to allocate subsidies because it is poorly targeted and creates perverse incentives, for example, inefficient use if water that is highly subsidized.

If implemented well, this approach will ensure sustainable financing of the sector going forward. It allocates costs and financing related to these costs in an efficient way. The rate of return should be based on the nature of the project (social – commercial or mix). Subsidies can be implemented alongside this model, with specific targeted objectives.

However, this model can only work well within a well-capacitated professional regulatory function. The approach needs rigor and transparency, and requires regular determination of depreciated replacement value of assets which is technically demanding.

(2) Alternatively, adopt a pragmatic **fund-needs approach**. This approach would have the following characteristics:

- Actual operation and maintenance costs are calculated for each scheme.
- Actual rehabilitation and refurbishment needs are calculated for each scheme and the costs of specific or ongoing rehabilitation and refurbishment programme are built into the tariff for the scheme (rather than a more theoretical depreciation charge).
- The costs of betterment/expansion are paid for through a combination of government funding and loans, as appropriate to the nature of the project.
- The strategy allows for differentiation and categorization of charges on a scheme and user basis however there is no clear definition of what constitutes a scheme.
- Costs for each scheme are ring-fenced and accounted-for separately.
- The tariff for each scheme is a **sum of the operation and maintenance cost, a rehabilitation charge (for that scheme) and the cost of betterment/expansion** (interest cost and repayment of any loans used to pay for system betterment/expansion for that scheme). This revenue is ring-fenced for use in that scheme.

In this system there is a high level of transparency and a direct relationship between what users pay for and what they get. This will improve accountability, build trust in the system and increase willingness to pay.

In addition to the application of general subsidy rules, for example, providing capital grants for the social portion of new schemes, government could apply subsidies to users of specific schemes in the case of specific circumstances or needs. This will also be more clearly understood and more transparent than the implicit and opaque subsidy with the FIBC.

This approach is more pragmatic because it is less demanding. It does not require the valuation (and regular revaluation) of assets. If implemented well, it can meet the funding needs of the sector.

5 Recommendations

5.1 Water resource infrastructure pricing

The regulatory Commission recommends the following:

1. The adoption and implementation of the "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.
2. A progressive move to the implementation of an "Economic Regulator" approach at a suitable time in the future, alongside with the development and capacitation of professional economic regulatory capacity.

5.2 Other Recommendations

1. There needs to be clear rules 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.
2. The infrastructure charges, particularly the FIBC require a strengthened framing and context so that users better understand how this charge is calculated and how it will be utilized. This has a direct correlation to upholding the pricing principal on Accountability and governance.
3. Processes to improve the robustness and credibility of the tariff setting process should be well established. *(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)*

6 Concluding Remarks

Water Resource tariffs suffer from a problem of legitimacy. This is a result of the poor financial management of the Water Trading Entity, the inability to spend budgeted amounts, and low levels of transparency. Users have little knowledge and confidence in how and where their money is spent.

As a result, there appears to be a reduced willingness to pay in a context where users have little confidence that their payments are being effectively used to address sector challenges.

Low payment levels have been allowed to persist without consequences, therefore undermining the willingness of 'users who continue to pay' and inadvertently creates a negative impact on the entire system.

The way the water resource pricing has been implemented over the past number of years has contributed to significant underinvestment in water infrastructure and to deterioration in asset conditions and reliability of supplies. Failure to apply cost recovery pricing has resulted in a revenue loss to the sector of at least R20 billion over 10 years. This is money that could and should have been available for investment in sector infrastructure**.** The water resource pricing strategy applies only to the economic use of water. A range of measures are in place to support the Ppricing strategy's social equity objective. Beyond these specific targeted measures, keeping water prices below cost does not support the social equity objective. Tariff subsidies (keeping tariffs below cost) that are broadly applied to contribute to social equity, have a dire consequence of undermining the financial sustainability of the water sector. It is believed that the recommendations made in this memorandum, if implemented will make a substantial difference in the sustainability of the water sector.

The Commission looks forward to an opportunity to engage with the Minister and Department on this important matter at his convenience.

_____ Date: 04/06/2023

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for the Water Regulatory Commission

Annexure 1: Approaches to pricing water resources infrastructure in the 1999 and 2007 Raw Water Pricing Strategies

Application of approach in 1999 water resource pricing strategy

Reference: A pricing strategy for raw water use charges, 1999 (GNR.1353 of 12 November 1999)

Depreciated was applied on "a straight-line basis, based on the annual depreciable portion of the **depreciated replacement value**, which [was] determined in accordance with a revaluation policy whereby water resource assets [were to] be periodically revalued.

Full technical revaluations [were to] be carried out in intervals not exceeding 10 years. The remaining useful lives of assets and the depreciable portion [were to] be reassessed during the revaluations. The depreciable portion, useful lives and technical revaluations [were to] be determined by qualified engineers."

In the 1999 Strategy it stated that "The **rate of return** should be based on the **social opportunity cost of capital to government"** and that "this should approach a level sufficient to fund the annual cost requirement of providing new assets." If further stated that "this component of the charge will be determined by applying an average percentage to the current depreciated replacement value of water infrastructure assets." The percentage return was to be "determined in consultation with the Department of Finance" and based on "the real long-term cost of capital to Government." A figure of 4% [was] suggested as being an appropriate.

The rate of return on assets was to be applied on a scheme-by-scheme basis, but only to the local government, industrial, mining and energy sectors. A constant return, in real terms, was calculated for each scheme over 45-years (to avoid a declining return as assets depreciated) and adjusted by PPI between re-valuations.

Phasing in: Implementation was subject to maximum increases of the PPI + 10% over current tariffs for the first number of years from April 2000 onwards (for local government, industrial, mining and energy sectors). The objective was to reach the target charges within ten years, that is, by 2010. Thereafter, annual tariff increases were to be limited to the inflation rate (PPI).

A special dispensation for irrigation was agreed: "all management, operating, maintenance and current refurbishment costs, together with certain water resource management costs plus a 10% surcharge, will be recovered in respect of existing Government schemes by March 2001, by **gradually phasing out the subsidy over a five-year period**." The agreement also made provision for "the full recovery of future refurbishment and betterment costs." The agreement was to be reviewed before April 2001, from which date the introduction of a depreciation charge on existing schemes was to be considered. This depreciation component was to replace the obligation to pay for the future replacement, betterment and drainage costs in terms of then current agreement.

Application of approach in the 2007 water resource pricing strategy

Reference: A pricing strategy for raw water use charges, 2007 (Government Gazette 29697, 16 March 2007)

In 2007, an "off-budget" funding approach was introduced, in addition to the three components in the 1999 strategy – O&M, depreciation and return-on-assets. The off-budget funding model was applied where the costs of the scheme were fully funded off-budget (market-based loans), typically undertaken by TCTA. In this case, a depreciation and rate of return on assets charge would not be applied, being replaced by a capital unit charge (set at a rate to repay the loan). Once the loan was repaid, the depreciation and return on asset charges would apply.

The rate of return on assets was set at 4%.

The strategy stated that a "dedicated refurbishment fund" would be established and the proceeds from depreciation used to fund refurbishment of existing infrastructure on a prioritized basis (page 20).