TECHNICAL SPECIFICATIONS

FOR INFLATION-LINKED BONDS

ISSUED BY THE REPUBLIC OF NAMIBIA

1. SETTLEMENT DATE

1.1. The settlement of primary market transactions will be based on the "t+1" convention, i.e. trade date plus one working day. This is in accordance with the standard Namibian primary bond market convention.

2. REFERENCE CPI

2.1. Reference CPI or "Ref CPI" means, in relation to the settlement date on which the issue took place:

2.1.1. If the issue/settlement date occurs on the first day of a calendar month, the Reference CPI (settlement date) is the Consumer Price Index for the fourth calendar month preceding the calendar month in which the issue date occurs.

2.1.2. If the issue/settlement date occurs on any day other than the first day of any calendar month, then the Reference CPI$_{(settlement\ date)}$ shall be determined as follows:

$$Ref\ CPI_{(settlement\ date)} = CPI_{(4\ months\ back)} + [(Settlement\ date\text{-}1)\ /\ D)$$
$$x\ (CPI_{(3\ months\ back)} - CPI_{(4\ months\ back)})$$

Where:
- **Ref CPI$_{(4\ months\ back)}$** - is the CPI figure for the first day of the calendar month 4 months preceding the issue date
- **Ref CPI$_{(3\ months\ back)}$** - is the CPI figure for the first day of the calendar month 3 months preceding the issue date
- **t** – is the calendar day corresponding to the issue date
- **D** - is the number of days in the calendar month in which the settlement date occurs

2.1.3. The Reference CPI will be unrounded.

3. BASE CPI

3.1. The Base CPI means the unrounded reference CPI on the first issue date.

$$\text{Base CPI} = \textit{Ref CPI}_{\textit{(First issue date)}}$$

4. INDEX RATIO

4.1. The Index Ratio is calculated by dividing the Reference CPI for the settlement date by the Reference CPI for the issue date.

$$\textit{Index Ratio} = \textit{Ref CPI}_{\textit{(settlement date)}} / \textit{Ref CPI}_{\textit{(First issue date)}}$$

4.2. This calculation is subject to the condition that, on the redemption date of the bonds, the Index Ratio will be no less than one. Should the index ratio be less than one, then clause 9.5 applies.

4.3. The applicable rounding convention to the Index Ratio will be rounded off to the nearest 7 (seven) decimal places.

5. BOND PRICING FORMULA

5.1. **INPUT**
- **Y** - Yield-to-maturity, yield at which bond trades
- **S** - Settlement date
- **F** - The semi-annual discount factor, corresponding to the Yield, Y
  - $\mathbf{F} = 1 \Big/ 1 + \frac{y}{200}$
- **B** - BOND(MB ,CB, RB ,CpnDates, BcDates) - Information for the bond
  - $\mathbf{M_B}$ - Maturity Date
  - $\mathbf{C_B}$ - Coupon
  - $\mathbf{R_B}$ - Redemption amount of the bond
  - CpnDates- the dates of the two coupon payments each year; and
  - BcDates- the two books-closure dates corresponding to the coupon payment dates.

- **NOM** - The nominal amount of the bond, in Namibian Dollars

5.2. OUTPUT

- **ACCRINT$_{(B,S)}$** - The accrued interest on the bond as at the settlement date
- **AIP$_{(B,S,Y)}$** - The all-in price of the bond at the yield on the settlement date
- **CP$_{(B,S,Y)}$** - The clean price of the bond at the yield on the settlement date
- **IntConsid$_{(B,S,NOM)}$** - The interest consideration
- **AllinConsid$_{(B,S,Y,NOM)}$** - The all-in consideration
- **CleanConsid$_{(B,S,Y,NOM)}$** - The clean consideration

5.3. The BESA Bond Pricing Formula is used to obtain a value of the bond (All-in-Price)

$$All - in - Price \ \boldsymbol{AIP}_{(B,S,Y)} = F^{\frac{NCD-S}{NCD-LCD}}(CPB@NCD + CPN \ \frac{F(1-F)^N}{1-F} + R * F^N)$$

Or

$$= CPN@NCD + CPN.N + R \qquad if \ F = 1$$

$$\boldsymbol{ACCRINT}_{(B,S)} = (DAYSACC * C_B)/ 365$$

$$\boldsymbol{CP}_{(B,S,Y)} = AIP - ACCRINT$$

$$\boldsymbol{CPB@NCD} = CPN * CUMEX$$

where:

- **DAYSACC** - The number of days accrued interest as at S

$$DAYSACC = S - LCD \qquad if \ CUMEX = 1 \ (S < BCD)$$
$$= S - NCD \qquad if \ CUMEX = 0 \ (S \geq BCD)$$

So a bond which is ex-interest has negative DAYSACC, and where the settlement date coincides with one of the bond's coupon payment dates, DAYSACC is zero.

- **LCD** - The last coupon date, as the most recent coupon payment date of the bond on or before S.

- **NCD** - The next coupon date, as the next coupon payment date of the bond after S. (So, if S happens to coincide with a coupon payment date, LCD = S and NCD will be the coupon date in 6 months' time).

- **BCD** - The books-closure date for the period, as the books-closed date relating to NCD. The BCD must be between LCD and NCD; it is generally 10 days before NCD.

- **CPN** - The basic coupon amount payable on coupon payment dates,
$$CPN = C_B / 2$$

- **N** - The number of remaining coupon dates, after NCD but including the coupon date at M_B.

Note that LCD, BCD and NCD are expressed as days from a common base date (the same base date as used for M_B and S).

5.4. The way in which the formula is used here is slightly different from the way in which the formulae are normally used. The differences are:

- a "real yield" is used in place of the "yield-to-maturity"; and

- the coupon that is used is the coupon of the inflation indexed bond.

5.5. Please note that this inflation-linked specification assumes that the attributes of the inflation linked bonds are similar to those of standard fixed-coupon bonds. In particular:

5.5.1. Coupons will be paid bi-annually and one of the coupon payment dates will coincide with the anniversary of the bond's maturity date.

5.5.2. Book closing dates and coupon dates will be published for each inflation indexed bond and the bond becomes ex-coupon on the book closing date.

5.5.3. The entire capital of the bond will be redeemed at maturity date (there is an exception for certain multiple maturity bonds.)

6. ALL-IN PRICE OF THE INFLATION-LINKED BOND

6.1. The rounded result obtained from the BESA bond pricing formula in (4.5) is multiplied with the unrounded Index Ratio obtained in (3), in order to obtain an unrounded result.

$$\textit{All-in-Price for ILB} = \textbf{AIP}_{(B,S,Y)} * \textit{Index Ratio}$$

7. INTEREST

7.1. The Bonds shall bear interest at the Coupon on the Capital Value of the Bonds in accordance with these conditions.

7.2. A coupon rate will be paid semi-annually in arrears until the date of maturity.

7.3. The Interest in respect of each Interest Period shall be determined as at the Interest Date following that Interest Period (I.e. the first day after the Interest Period) in accordance with the following formula:

$$\textit{Interest} = \textit{(Coupon/2)} * \textit{Capital Value}$$

7.4. The interest in respect of each interest period shall be payable on the interest payment Date in that interest period, or if that date is nor a Business Day then on the next following business day, without payment of additional interest.

7.5. Interest will cease to accrue on the bond from the maturity date.

8. DENOMINATION

8.1. The minimum denomination of each Bond is a minimum of N$50,000.00 (fifty thousand Namibia dollars).

9. CAPITAL VALUE

9.1. The Issuer's indebtedness with regard to the Bond shall be the Capital Value plus accrued interest. The Capital Value of the bond is the adjusted Principal Amount – the nominal principal amount adjusted with reference to any increase or decrease in the NCPI. The Capital Value of the bond at any Date shall be determined as follows:

*Capital Value = Principal Amount * Index Ratio*

10. REDEMPTION OF CAPITAL

10.1. The redemption of capital will be made upon the maturity each bond.

10.2. Redemption payment will be made in the currency of the Republic of Namibia on the redemption date by electronic transfer into the accounts of the bondholders specified in the payments instructions, unless, in respect of individual bondholders, contrary instructions are agreed with the transfer secretaries in advance.

10.3. If the payment date is not banking day payment will be made on the next succeeding banking day without payment of additional interest.

10.4. Bonds are not payable / redeemable prior to the maturity date.

10.5. On the Redemption Date, the Issuer shall pay the Bondholders the Capital Value of the Bonds on that Date provided that, if the Capital Value of the Bonds on the Redemption Date is less than the Principal Amount, the Issuer shall pay the Bondholders an Additional Amount equal to the shortfall.

11. ADJUSTMENT TO CPI

11.1. In the event that the CPI is reset, then a new Reference CPI that is applicable for the issue date will (if necessary) be calculated in such a way that the Capital Value of a Bond is the same immediately before and after reset.

11.2. If, as a result of a delay in the publication of the CPI, the CPI is not available in order to make a determination in accordance with these Conditions, the subject to the clause above a substitute CPI value, calculated as follows will be used:

- *Let the CPI value for the month "m" that is the required be denoted by CPI_m.*

- *Then, in the event of one month delay, CPI_m shall be determined in accordance with the following formula:*

  $$CPI = CPI_{m-1} * (CPI_{m-1} / CPI_{m-13})^{1/12}$$

- *And in the event of a delay, of more than one month (the number of months being denoted by "n"), CPI_m shall be determined in accordance with the following formula:*

  $$CPI_m = CPI_{m-n} * (CPI_{m-n} / CPI_{m-n-12})^{1/12}$$

11.3. If it is necessary to use these formulas to calculate a substituted CPI value, then it will be used for all subsequent calculations that rely on that month's Index ratio, and will not be replaced by the actual CPI when is reported, except for the use in the above formulas. When it becomes necessary to use the above formula to calculate a substitute CPI value, the last CPI that has bee reported will be used to calculate CPI values for months which the CPI has not been reported timeously.

11.4. The calculating agent may re-determine the Consumer Price index if, in the opinion of the Calculating agent:

11.4.1. The CPI is not available or is no longer published in a manner necessary to give full effect of these specification;

11.4.2. There is a change in the basis of calculating of the CPI that is material to the interest of any Bondholder; or

11.4.3. Due to a change in circumstances the CPI is no longer representative.

12. CALCULATING AGENT

12.1. The Calculating Agent is the Ministry of Finance and its issuing agent the Bank of Namibia.

12.2. Any determination or redetermination by the Calculating Agent in respect of the matter to be determined by the Calculating Agent in terms of these Specifications shall be final and binding on the Issuer and the Bondholders shall be carried into effect.

12.3. The Calculation Agent shall not be liable to any Bondholders for any loss of damage arising from any act or omission on the part of the Calculation Agent in the performance of its duties contemplated in these Specifications, provided that the loss damage is not attributed directly to wilful or gross negligence by the Calculating Agent.

13. ROUNDING

13.1 For calculation purposes in terms of these specifications, The Base and Reference index will be unrounded; CPI will be rounded to one decimal place, and the Index ratio will be rounded to the nearest seven decimal places. Any amount payable under these Specifications shall be rounded to the nearest two decimal places.

14. PRICING AND TRADING OF NEW ISSUE

The bonds shall be traded and settled in the following manner:

14.1. The buyer and the seller shall agree on a "Real Yield"

14.2. The bonds shall be traded for value "t+1", as per the Namibian bond market convention;

14.3. The consideration that is paid on any Date for the bond shall be determined as follows:

*Index Ratio$_{date}$ * Bond Pricing Formula (Real Yield)*

where: "Bond Pricing Formula (Real Yield)" is the amount of money that is calculated by using the Bond Pricing Formula, with the Real Yield, nominal value of the bond, Coupon, Date and the Interest Date of this CPI Bond as input parameters.

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Issued by the Ministry of Finance