BANGLADESH TECHNICAL ASSISTANCE REPORT: METHODOLOGY TO MEASURE THE VALUE ADDED TAX GAP IN BANGLADESH

The consultant Mario Rinaudo prepared this report into the Bangladesh VAT gap for The World Bank. The report is based on the information available to the consultant at the time of writing the document. The views expressed in this document are those of the consultant and do not necessarily reflect the views of The World Bank, Bangladesh National Board of Revenue or the Government of Bangladesh.

PREFACE

This report into the Bangladesh VAT gap was commissioned in response to a request from the World Bank. The purpose of the report is to:

I. Propose a methodology for development of an adequate analytical model to evaluate the potential revenue, VAT compliance rates and the VAT gap in Bangladesh;
II. Develop a model for measuring the tax gap under the VAT and Supplementary Duty Act 2012, including key findings and recommendations to enable the NBR to measure the tax gap;
III. Advise and provide insight on how to estimate the effect of administrative and organizational changes on levels of compliance; and
IV. Provide a strategy to help disseminate the results and tax gap estimates.

As part of this assessment, an initial fact-finding visit to Bangladesh was undertaken between the 20th and 25th April 2014. This visit focused on discussions with staff from the Bangladesh National Board of Revenue (NBR), the Bangladesh Bureau of Statistics (BBS), the World Bank, the International Monetary Fund (IMF), and the International Finance Corporation (IFC).

The report sets out the VAT gap assessment and recommendations of the consultant. It consists of the following sections:

I. Executive Summary
II. Recommendations
III. Background to the Bangladesh VAT system and changes under the VAT & SD Act 2012
IV. Defining the tax gap, uses and benefits of tax gap measurement
V. Estimate of the current Bangladesh VAT gap
VI. Framework and methodology for the evaluation of the VAT gap post 1 July 2015.
VII. Limitations and recommendations to improve the estimate
VIII. Using the gap and other effectiveness analysis
IX. A communication strategy for any release of the VAT gap estimate.

A follow-up visit to Bangladesh is expected to provide a workshop to NBR staff on how to measure the VAT gap (based on the methodology in this paper) for the new VAT system. This will also include discussions on proposed approaches for data collection and estimation.

The consultant would like to express his gratitude for the advice, information, support and co-operation received from staff of the World Bank, International Finance Corporation, International Monetary Fund, Bangladesh National Board of Revenue and the Bangladesh Bureau of Statistics during his time in Bangladesh and when preparing the report.

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EXECUTIVE SUMMARY

This report sets out the findings from a study commissioned by the World Bank into the Bangladesh VAT gap. The study was commissioned on the basis of providing the Bangladesh National Board of Revenue (NBR) and the World Bank with information to assist their assessment of improvements in VAT compliance levels under the VAT and Supplementary Duty Act of 2012. The objective of this paper was to undertake the current VAT gap estimate and to provide recommendations on the feasibility of developing a credible and defensible estimate of the Bangladesh VAT gap post July 2015.

Tax gap is one of many measurement techniques a tax administrator can use to determine if it is performing effectively. Measurement of tax gaps has long challenged revenue agencies around the world and estimating the magnitude of, and trends in, tax gaps is inherently difficult. This report provides an estimate of the current Bangladesh VAT gap and recommendations to The World Bank and Bangladesh National Board of Revenue to improve the assessment of the VAT gap estimate. The report is split into the following components:

     I.   Executive Summary
    II.   Recommendations
   III.   Background to Bangladesh VAT system and changes under the VAT & SD Act 2012
   IV.   Defining the tax gap, uses and benefits of tax gap measurement
    V.   Estimate of the current Bangladesh VAT gap
   VI.   Framework and methodology post 1 July 2015 for evaluation of the VAT gap
  VII.   Limitations and recommendations to improve the estimate
 VIII.   Using the gap and other effectiveness analysis to provide insights of the NBRs administrative and organizational changes on levels of compliance
   IX.   A communication strategy for any release of a tax gap estimate.

The analysis undertaken highlights there is significant non-compliance in the current Bangladesh VAT system, and sizeable scope for increasing VAT collections under the new VAT regime. The estimates presented in this paper are based on information available to the consultant, and contain a margin of error due to the data sources and assumptions used. The estimate of the current VAT gap will be subject to revisions, as new information, data, and improved understanding of the Bangladesh VAT system becomes available.

Tax gap estimation should complement a broader suite of effectiveness measures, providing additional insights into the NBRs performance as the administrator of the Bangladesh VAT system. The estimates will also:

     I.   Provide greater understanding of changes in compliance levels as result of the economic environment;
    II.   Promote community conversation about compliance gaps and what might be done to address them; and
   III.   Provide an opportunity to analyze and understand the significant quantum of operational data and knowledge within the NBR.

VAT gap estimates should be used as a complementary performance indicator to the Tax-to-GDP ratio as part of The World Bank implementation project.

RECOMMENDATIONS

1. The Bangladesh National Board of Revenue (NBR) should measure the VAT gap using the methodologies in this document. This will allow the NBR to determine if the new VAT system has succeeded in its goal of reducing non-compliance. The measurement should start with the introduction of the new VAT regime in 2015.

2. Report both the gross and net VAT gap estimates as a macro performance indicator of the NBR.

3. In order to ensure the VAT gap estimates are as accurate as possible, a thorough review of all the data components used in assessing the tax gap needs to be conducted. This includes

    a. The value of VAT on inputs into exempt supplies and the size of VAT concessions under the new Act. The Bangladesh National Board of Revenue or The Bangladesh Bank should look into the feasibility of undertaking a tax expenditure assessment that estimates the size of VAT concessions. Producing estimates of tax expenditures, in addition to the compliance gap, would also be useful for analyzing the VAT system as a whole.

    b. Review the relevant components of the Bangladesh Bureau of Statistics National Accounts estimates and the accuracy of NBR data to help improve the tax gap estimates. This includes:

        i.   Non-observed or cash economy estimates. It would be beneficial if the Bangladesh Bureau of Statistics (BBS) or NBR undertake cash economy estimates using the OECD framework
        ii. Value of purchases by residents worldwide and purchases by non-residents in Bangladesh (including tourist refund scheme data). Other relevant incomplete data from the Bangladesh GDP (e) estimates should also be determined.
        iii. Collect accurate data on the value of VAT payable and credits claimed by industry.
        iv. Ability to estimate the value of accrued VAT receipts per year from 2015.

4. Explore use of statistical techniques to estimate the gap using operational audit data. Bottom-up estimates could also be performed using a random audit approach in order to determine the composition of the gap.

5. Subject to funding a long-term program of work and relevant data captured by the NBR, it is recommended using the IMF's Fiscal Affairs Department (FAD) Revenue Administration Gap Analysis Program (RA-GAP) framework to measure the gap in 2016. The BBS have recently updated the base year data of their supply-use tables and moved to SNA 2008. These changes will support the use of input-output analysis to estimate the VAT gap by industry.

6. The Bangladesh National Board of Revenue undertakes effectiveness analysis to determine the effectiveness of their compliance strategies.

7. The NBR undertake a thorough communication and engagement strategy if the VAT gap results are released to the public.

BANGLADESH VAT REGIME

The Bangladesh National Board of Revenue (NBR) is the central authority for tax administration in Bangladesh and sits under the Internal Resources Division (IRD) of the Ministry of Finance (MoF).[1] The main responsibility of the NBR is to 'collect domestic revenue (Import Duties and Taxes, VAT and Income Tax) for the Bangladesh government and under the overall control of IRD, the NBR administers the Excise, VAT, Customs and Income Tax services.'[2] 'The NBR collects 80% of total government revenue and 95% of taxation revenue, however the Investment Climate Assessment (ICA), (2007), reported that 'taxation in Bangladesh is characterized by low collections, high complexities of rules, administrative hassle and poor compliance.'[3]

The current Bangladesh VAT system is established under the VAT Act 1991. VAT in Bangladesh uses the destination principle as it taxes value added, at home and abroad, to goods that have Bangladesh as their destination. Exports are exempt and imports are taxable. The following are the major components of the current Bangladesh VAT system:

I. "VAT is imposed on goods and services at import stage, manufacturing, wholesale and retail levels.

II. A uniform VAT rate of 15% is applicable for both goods and services. Exemptions on food grains and essential products.

III. 15% VAT is applicable for all business or industrial units with an annual turnover of Taka 2 million and above

IV. Turnover tax at the rate of 4% can be levied where annual turnover is less than Taka 2 million

V. VAT is applicable to all domestic products and services with some exemption

VI. VAT is payable at the time of supply of goods and services

VII. Tax paid on inputs is creditable/adjustable against output tax

VIII. Exports are exempt

IX. Cottage industries (defined as a unit with an annual turnover of less than Taka 2 million and with a capital machinery valued up to Taka 3,00,000) are exempt from VAT

X. Tax returns are to be submitted on monthly or quarterly or half yearly basis as notified by the Government.

XI. Supplementary Duty (SD) is imposed at local and import stage under the VAT Act, 1991. Existing statutory SD rates are as follows:

    a. On goods: 20%, 35%, 65%, 100%, 250% & 350%

    b. On services: 10%, 15% & 35%".[4]

Whilst the standard VAT rate in Bangladesh is 15 per cent, 'the gradual adoption of the truncated value bases for specific services, tariff values for specific products and package VAT for small retailers has resulted in multiplicity of VAT rates.'[5] The various rates are provided in Table 1:

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1 International Finance Corporation (2013), *Bangladesh Survey Report on Tax Perception and Compliance Costs of the Formal sector,* April 2013, pg 29.

2 International Finance Corporation, (2013) *Bangladesh Survey Report on Tax Perception and Compliance Costs of the Formal sector*, April 2013, pg 29.

3 *Electronic Tin Registration: An Follow up Study*, pg 2.

4 International Finance Corporation, (2013) *Bangladesh Survey Report on Tax Perception and Compliance Costs of the Formal secto*r, April 2013, pg 30. The estimates in this paper do not estimate the value of the supplementary duty gap.

5 Ahmed, N 2013 *Improving Tax Compliance in Bangladesh: A Study of Value Added Tax (VAT)*, June 2013.

TABLE 1: CURRENT BANGLADESH VAT RATES[6]

Item	Application	Rates (%)/Values
Standard Rate	Domestic	15
Truncated value base	21 services	1.5-10
Tariff value	101 headings at production stage	Different values
Package VAT	Small Retailers: • Dhaka and Chittagong City Corporations area • Other City Corporation areas • Pourashava of districts • Other areas	Tk. 9000 Tk. 7200 Tk. 5400 Tk. 2700

Since 1991 the following distortions that have crept into the Bangladesh VAT system:

I.   'Truncated Base: where goods and services producers and sellers face difficulties in availing VAT credit/adjustment facilities due to non-availability of invoices from the sellers of input. Fixed bases such as 10%, 25%, 30%, and 60% value addition is taken into account for calculation of VAT for a number of goods and services. In such circumstances net VAT rate for different rates of value addition comes to 1.5%, 2.25%, 4.5% and 9%.

II. For wholesalers and retailers, there is a special provision for a 1.5% percent VAT known as Trade VAT on the total sale, provided that the wholesaler/retailer do not avail the facility of input credit/adjustment.

III. The government is empowered to fix Tariff Value for some items for the collection of VAT.

IV. As deduction at source is also practiced in case of VAT on certain services, Government, Semi-Government, Autonomous Bodies, NGOs, Banks, Insurance Companies and Limited Companies are authorized by the government to deduct applicable VAT on the services at source'.[7]

These complexities, other administrative concessions, and the lack of current tax expenditure statistics ensure estimates of the current Bangladesh VAT gap are problematic. Because of this, the estimates provided in this paper should be viewed as indicative of the magnitude of the revenue loss from non-compliance.

In 2011, the NBR adopted a modernization program to, in part, eliminate the distortions in the VAT system. 'The rate of VAT remains at 15% for those businesses with taxable sales above Taka 8 million and there is a non-creditable 3% turnover tax for business with taxable sales between Taka 2.4 million and Taka 8 million. The system also provides an input tax credit mechanism, to ensure taxpayers are only liable for the value addition they provide. Main features of the new VAT system include:

I.   VAT will apply to all sectors, including import, manufacturing and services.

II. Registration thresholds have been changed.

III. VAT is imposed on the actual sales price instead of arbitrary tariff values or truncated base.

IV. Taxpayers are no longer required to have prices and input-output coefficients approved by tax officers and the restrictions on price discount have been eliminated.

V.   Law provides for much broader use of input tax credits, as all taxed inputs are creditable to the extent they are used to make taxable supplies. This is compared to the 1991 VAT system, which placed severe restrictions on input tax credits.

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[6] Table from Ahmed, N (2013) *Improving Tax Compliance in Bangladesh: A Study of Value Added Tax (VAT)*, June 2013.

[7] International Finance Corporation, *Bangladesh Survey Report on Tax Perception and Compliance Costs of the Formal sect*or, April 2013, pg 30. See also Rouf, Dr Md Abdur (2013), *Value Added Tax System of Bangladesh*, Liton Law Book Centre, October 2013 pages 572-579.

VI.   The amount of VAT due in each reporting period is based on the invoice-credit method where the amount of tax to be paid equals VAT charged on sales (and other positive adjustments) minus VAT paid on inputs (and other negative adjustments).

VII.   VAT will be remitted to the NBR when the tax return is due and eliminates the current requirement for manufacturers and some service providers to remit VAT before shipping goods or providing services.

VIII.   There are explicit rules are now provided for carrying forward and refunding excess VAT credits.

IX.   NBR will have some additional powers to recover tax arrears, including the authority to freeze a tax debtor's bank accounts, place a lien on the tax debtor's property, and hold company directors liable for paying unpaid taxes.

X.   The number of exempted goods and goods subject to the supplementary duty has been substantially reduced under the new VAT law.

XI.   There is an advance tax on imports, withholding of VAT by certain categories of taxpayers from their suppliers, and special schemes for supplies of residential premises, telecommunications, and alcohol and tobacco products (for supplementary duty).'[8]

These changes, in addition to other planned improvements to VAT administration,[9] are designed to reduce the scope for businesses to avoid paying their VAT and strengthen the NBRs powers to detect and deal with non-compliant taxpayers.[10] The effectiveness of the program would be reflected in downward trend in the VAT gap. The changes to the VAT law, creating a broader destination based consumption tax, allows for the ability to undertake a more accurate assessment of the VAT gap post July 2015.[11]

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[8] Information taken directly from Brondolo, J Adams, D Ryan, J Tregillis, P Vesperman, S (2012) *A Draft Plan for Implementing the New Value Added Tax,* December 2012 pg 5-6. See appendix 3 for summary of the difference in the regimes.

[9] See Brondolo, J Adams, D Ryan, J Tregillis, P Vesperman, (*2012) A Draft Plan for Implementing the New Value Added Tax,* December 2012 pg 6-7 for discussion of improvements to VAT administration.

[10] See Brondolo, J Adams, D Ryan, J Tregillis, P Vesperman, S (2012) *A Draft Plan for Implementing the New Value Added Tax*, December 2012.

[11] See Appendix 3 for a Summary of changes to the VAT system.

DEFINING THE VAT GAP

Simplistically, the tax gap is the estimation of the difference between the theoretical tax revenue payable under the law and actual revenue collected by a taxation agency for a defined fiscal period. It is also known as the "compliance gap", and is distinguished from the policy gap (sometimes known as tax expenditures of the specific tax system). The tax gap can be viewed in gross and net terms. The gross tax gap estimate represents the gap exclusive of the tax administrator's compliance revenue and therefore signifies the amount of tax paid voluntarily. The net tax gap represents the gap after the tax administrator's compliance activities.

The estimate of the VAT gap will provide an overall macro level assessment of the Bangladesh VAT system effectiveness, incorporating direct, indirect and voluntary compliance. It will measure the outcome of the whole range of activities undertaken by the NBR, including direct compliance work, data matching, signaling through media, online channels and the courts, taxpayer education/awareness campaigns and the overall visibility of the NBR presence. The concept of the tax gap should be considered in the context of an "optimal tax gap". The "optimal tax gap" represents an estimate of revenue that a tax administrator can and should reasonably collect in the ordinary course of its administration given a resource-constrained environment. [12]

The VAT gap can arise from a number of taxpayer behaviors. These typically include:

    I.   Non-reporting of VAT through failure to register or failure to lodge (taxpayers intentionally staying out of the system)
    II. Under reporting of net VAT (unintentional and intentional). The behaviors can range from unintentional mistakes, unreported cash transactions or other sales, engagement in tax avoidance activities, fraud, and the over claiming of input tax credits.
    III. Non- payment of tax liabilities – VAT debt owed to the NBR.

CHART 1: TAX GAP CONCEPT FOR BANGLADESH
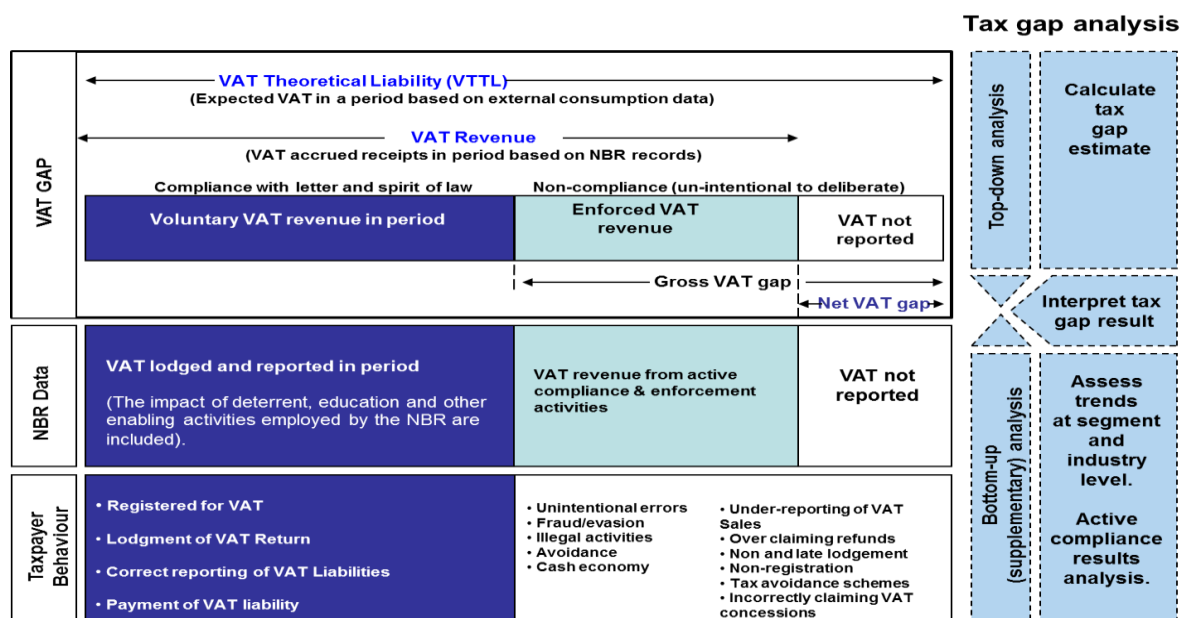
[12] For commentary on Optimal Tax gaps, see Plumley, Allan *A (2007) Framework for Optimal Tax Administration*, Internal Revenue Service 2007, http://www.irs.gov/pub/irs-soi/07resconfplumley.pdf and Alan Plumley, *Estimating Marginal Revenue/Cost Functions for Audit Programs,* http://www.esrc.ac.uk/hmrc/images/1b-estimating-marginal-revenue_tcm19-29907.pdf

BENEFITS AND LIMITATIONS OF TAX GAP MEASUREMENT

The benefits of VAT gap measurement are widely acknowledged. The 2003 paper 'Administrative Dimensions of Taxation Reform' by Richard Bird encapsulates the importance of tax gap estimates for a tax administrator:

> "…… In reality not all taxpayers are honest in any country. The second important task of any tax administration is to keep them that way. To do so, one must first have a good idea of the extent and nature of the potential tax base, for example, by estimating what is sometimes called the "revenue gap." This is not always easy to do, but it is essential if an administration is to have some idea of the size and nature of those not in the tax net. In some instances, the major problem may be that many potential taxpayers are simply not known to the authorities. In others, it may be that many taxpayers who are in the system are substantially underreporting the tax base. In others, both problems may be important. Unless a careful study of the unreported base, and its determinants is undertaken, no administration can properly allocate its resources to improving fiscal outcomes.[13]

In the paper, 'Case for Measuring the Tax Gap', McManus and Warren highlight the benefits of tax gap measurement for Government. These include

- I.   'Tax system integrity
- II.   Risks to revenue buoyancy
- III.   Performance of their tax collection agency and processes
- IV.   Evolving risks to revenue (and potential failures by their tax collection agencies);
- V.   Determining problems with the tax legislation
- VI.   Reviewing National Account statistics and the impact of the non-observed economy on revenue;

to compliment a broader suite of effectiveness measures, providing insight into the performance of an tax administrator.'[14]

Internationally, many tax bodies highlight the importance of tax gap measurement. The IMF's 'Assessment of HMRC's Tax Gap Analysis' report notes that efforts to measure the tax gap have multiple goals, three of which are considered critical:

- I.   'Measuring tax revenue losses to be reduced, providing a view of the overall effectiveness of the tax system over time.
- II.   Supporting efficiency in allocation of resources to reduce the tax gap.
- III.   Supporting perceptions of fairness and transparency in the tax administration's efforts'.[15]

The Internal Revenue Service (IRS) state the benefits of gap measurement as "understanding the tax gap and what its components are, allows the legislative and executive branches of government to make better decisions about tax policy and the allocation of resources for tax administration".[16]

Finally the HMRC have stated the benefits as "thinking about the tax gap forces the department to focus attention on the need to understand how non-compliance occurs and how the causes can be addressed—whether through tailored assistance, simpler legislation, redesigned processes or targeted

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[13] Bird, R. (2003), *"Administrative Dimensions of Tax Reform"*, April 2003 pg 15.

[14] McManus, J & Warren, N (2006), *The Case for Measuring Tax Gap*, eJournal of Tax Research 61, ATAX UNSW See also IMF's 'Assessment of HMRC's Tax Gap Analysis'.

15 Toro, J Ogata, K Hutton, E Selcuk C (2013), *Assessment of the HMRCs Tax Gap Analysis*, International Monetary Fund, October 2013, pg 7.

16 See http://www.irs.gov/uac/Understanding-the-Tax-GapRS website, "Understanding the Tax Gap", 2005.

interventions. Measuring the tax gap helps us to understand whether increasing returns from compliance activity reflect improved effectiveness or merely a decrease in voluntary compliance."[17]

The information gleaned from VAT gap measurement, together with efficiency and effectiveness indicators will provide insight into the performance of the Bangladesh National Board of Revenue. In particular it will provide the NBR relevant information on:

I. Overview of the VAT system integrity
II. The amount VAT revenue losses to be reduced
III. Overall effectiveness of the VAT system
IV. Causes of non-compliance and steps to address these causes
V. Strategic planning decisions supporting efficiency in the allocation of resources to reduce the tax gap
VI. Other problems with the new VAT system and any evolving risks to revenue.

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[17] See http://www.publications.parliament.uk/pa/cm201213/cmselect/cmtreasy/124/12405.htm, *HMRC submission to the Treasury Committee*, 2012.

ESTIMATES OF THE CURRENT VAT GAP IN BANGLADESH

Table 2 provides the estimate of the VAT gap in Bangladesh between 2009 and 2013. Tax gap estimation, in effect, is about measuring what is not visible; hence there is always a degree of uncertainty with its measurement.   The estimates are based on the 'top down approach' using Bangladesh GDP expenditure data to determine value of consumption subject to VAT in the economy. This was undertaken by:

  I.   Determining the total amount of expenditure in the Bangladesh economy using National Accounts expenditure data that is theoretically liable for VAT. This includes expenditure from
  - i.   Private final consumption expenditure of households (HFCE)
  - ii.   Final consumption expenditures of non-profit organizations servicing households (NPISH)
  - iii. Final consumption expenditure of general government (including individual and collective consumption expenditure)
  - iv.   Gross fixed capital formation
  II.   From this expenditure data set determine the amount of expenditure subject to VAT, multiplied by the appropriate VAT rate.
  III. Remove legitimate concessions in the VAT base using tax expenditures estimates. This includes concession such as turnover thresholds etc. The remainder produces an estimate of the Vat Theoretical Tax liability (VTTL).
  IV.   Deducting accrual revenue for the appropriate period to determine the gap.

Like this report, international estimates of the VAT gap undertaken by HM Revenue and Customs (HMRC)[18,] European Union[19] (EU), Australian Taxation Office (ATO),[20] also estimate the VTTL[21]. 'The method employed in these studies is a disaggregated 'top-down' approach. This approach applies the appropriate VAT rates to an appropriately segmented final consumption base and then further adjusts the estimated base to take into account the non-deductible input VAT borne by exempt suppliers'.[22] As stated by Case Research this process is not simple as 'problems arise both in matching consumption data with VAT bases and rates, and in estimating the effects of legal exemptions and non-registrants in different sectors.'[23]

These estimates are based on information available to the consultant and are subject to any revisions in National Accounts data. The estimates are highly reliant on assumptions of the size of tax expenditures for the VAT tax system in Bangladesh, and may be subject to revisions as new information and new data become available.

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[18] See https://www.gov.uk/government/collections/measuring-tax-gaps
[19] See Case Research and CPB, (2013) *Study to quantify and analyze the VAT Gap in the UE-27 Member States Final Report* http://ec.europa.eu/taxation_customs/resources/documents/common/publications/studies/vat-gap.pdf
20 See https://www.ato.gov.au/Business/Bus/Measuring-tax-gaps-in-Australia-for-the-goods-and-services-tax-(GST)-and-the-luxury-car-tax-(LCT)/
[21] See Pakistan sales gap estimate produced Amend, R and Rider, M (2008), *Pakistan's Tax Gap : Estimates by Tax Calculation and Methodology*. The gap for the sales tax regime was approximately Rs. 73.6 billion or about 30% of actual sales tax revenues of Rs 238.5 billion. [21] The estimates were based on Input-Output methodology. For South America VAT gaps between 2002-2006 please see http://www.taxcompact.net/documents/workshop-bonn/2011-09-12_itc_WG2-3-Tax-Gaps_CEPAL_Jimenez.pdf
[22] Case Research and CPB, (2013) *Study to quantify and analyze the VAT Gap in the UE-27 Member States Final Report,* pg 21
[23] Case Research and CPB, (2013) *Study to quantify and analyze the VAT Gap in the UE-27 Member States Final Report,* pg22

TABLE 2: ESTIMATED VAT GAP IN BANGLADESH 2009-2013

YEAR	2009-10	2010-11	2011-12	2012-13
VAT Theoretical Tax Liability (crore Taka)	64,919	72,834	83,792	94,567
Estimated Accrual VAT Revenue (crore Taka)	24,435	30,169	36,233	41,748
Tax Gap (crore Taka)	40,484	42,665	47,559	52,819
VAT Gap as a Percentage of Theoretical Revenue	62%	59%	57%	56%
Sensitivity range of VAT gap[24]	58%-65%	53%-63%	51%-61%	50%-60%

CHART 2: ESTIMATED VAT GAP IN BANGLADESH 2009-10 TO 2012-13
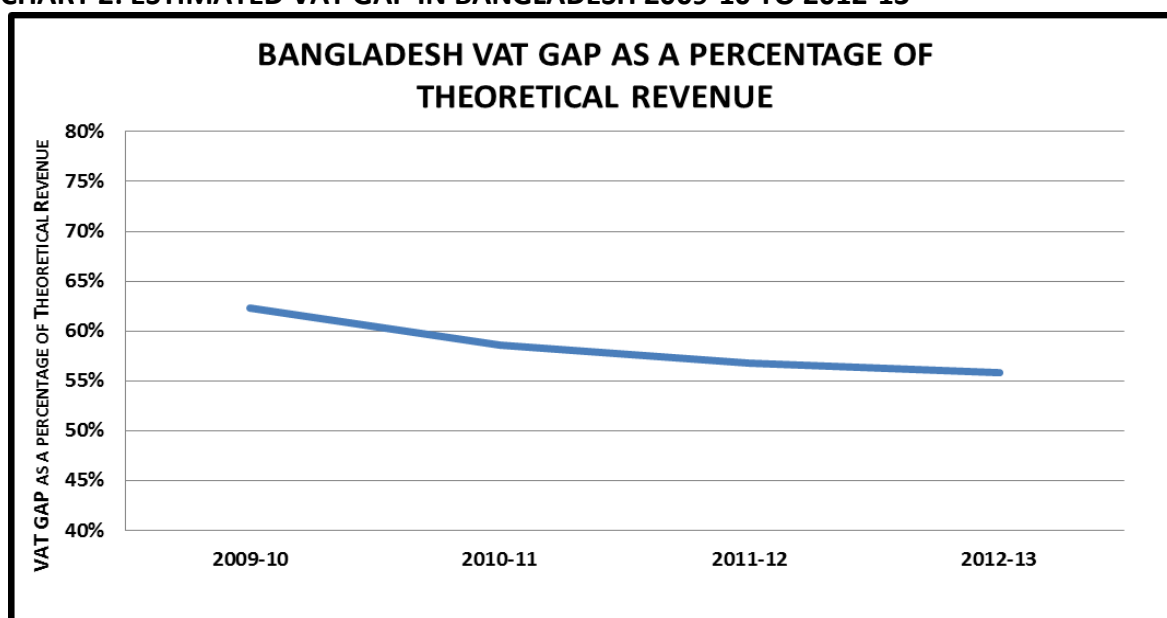
This is the first stage in a longer-term program to estimate the Bangladesh VAT Gap. As the NBRs understanding of the variables, data and assumptions impacting the VAT gap are refined, the estimate will continue to improve and evolve. Based on the calculations there has been a decrease in the VAT gap from 2009-10 to 2012-13.[25] These results however highlight a significant amount of non-compliance in the Bangladesh VAT system and substantial scope for increasing VAT collections under the new VAT regime post 1 July 2015.

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[24] A sensitivity analysis was undertaken to determine a likely range of the VAT gap in Bangladesh with estimates based on a range of concession sizes and adjustments.

[25] Some caution must be taken when interpreting the results, as the VAT estimates are highly reliant on the assumption used in the model, particularity the size of VAT concession in the Bangladesh Vat system. In addition the estimates are likely to be conservative as the GDP(E) estimates do not make any adjustments for underreporting of sales.

TABLE 3: KEY DATA AND SOURCES

Summary		2009-10	2010-11	2011-12	2012-13
GDP Expenditure: Nominal	$Millions Taka	6,786,094	7,742,735	9,030,998	10,325,285
Total Taxation Revenue	Crore Taka	62,042	79,403	95,182	108,453
Taxation Revenue as Percentage of GDP		9%	10%	11%	11%
Actual VAT Revenue	Domestic in Crore Taka	13,817	17,827	22,002	26,355
	Imports in Crore Taka	10,651	12,375	13,730	14,728
	Total in Crore Taka	24,468	30,202	35,732	41,083
Estimated Accrual Receipts	Crore Taka	24,435	30,169	36,233	41,748
VAT THEORITICAL TOTAL LIABILITY (VTTL)	Crore Taka	64,919	72,834	83,792	94,567
VAT Gap	Crore Taka	40,484	42,665	47,559	52,819
VAT Gap of Theoretical Revenue	Percentage	62%	59%	57%	56%

I. GDP data obtained from National Accounts Statistics, Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, June 2013.

II. Taxation revenue information obtained from Bangladesh Bank http://www.bb.org.bd/ and http://www.mof.gov.bd/en/index.php?option=com_content&view=article&id=68&Itemid=1 (Ministry of Finance). Accrued receipts were estimated by adjusting cash revenue by one month to match the expenditure as represented in the GDP estimates. Whilst this is not ideal, it is unlikely to have a significant impact on the estimates.

III. Taxation Expenditure information is based on report by the Bangladesh Bank on the size of tax concessions in Bangladesh in 2005 see http://www.bb.org.bd/pub/research/policynote/pn0706.pdf. The VAT concession estimates for 2009/10 to 2012/13 are determined using the same proportion of VAT expenditures to revenue in 2005, extrapolated to current data. This methodology was chosen due to the absence of current tax expenditures estimates. [26] The model assumes the proportion of VAT expenditures in 2005 to VAT revenue has not changed significantly and is representative of the current size of VAT concessions.

In determining the VAT gap it is important to understand what is known as 'VAT revenues' for a defined fiscal period. To ensure the 'revenue data is more directly comparable to consumption and economic activity in the GDP numbers, it is important to estimate the tax gap on the basis on accrued receipts rather than cash figures.'[27] For example actual VAT cash remitted in any period would include some payments related to liabilities incurred in earlier periods (including audit revenue from a previous financial year collected in a later year, or debt payments made in a later period after the liability was incurred). It should be noted it is extremely difficult to accurately estimate the accrued VAT receipts for any defined period. For the purposes of this report, we use VAT collections as reported by the Bangladesh Bank, offset by one month to determine the accrued revenue in the period. Whilst this might not be ideal in a high inflation economy, it is unlikely to significantly vary the magnitude of the VAT gap estimates. However this limitation would need to be overcome for the post 1 July 2015 evaluation.[28]

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[26] For example of tax expenditures statement please see The Treasury, Tax Expenditure Statement, 2013.

[27] See Case Research and CPB, (2013) *Study to quantify and analyze the VAT Gap in the UE-27 Member States Final Report, pg 22 and IMF http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf*

[28] See *http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf. Also as* Case Research stated on pg 23. "For example, some current collections (even allowing for an adjustment period) may represent input VAT that will subsequently have to be refunded. Moreover losing a major court case may lead to the need for a substantial refund in a particular tax period that relates to liabilities over a number of prior years. While it is conceptually possible to measure accrued payments in a more economically meaningful way – for example, as all payments received in a specified period plus any excess credits carried forward from the previous period – the latter information is usually available only from tax returns and is not recorded in any comparable database'.

Caution should be taken in interpreting these results. Due to following reasons

     I.   The complexity of the current VAT regime
    II.   Lack of current data on tax expenditures
   III.   Deduction at source rules
   IV.   Truncated base rates and duty drawback rules
    V.   Cottage industry rules
   VI.   Packaged VAT and VAT Trader rules
  VII.   No formal adjustments in National accounts for the non-observed economy, and
 VIII.   Incomplete data in National Accounts such as international tourism spending data and FISIM;

the gap should be considered as an indicative level of the magnitude of revenue loss.[29] In addition the data used in this report uses System of National Accounts 1993. The BBS is moving to SNA 2008 and updating the National Accounts base year from 1995-96 to 2005-06.[30] This will significantly improve the quality of estimates for future updates.

CHART 3: INTERNATIONAL AVERAGE VAT GAP OF SELECTED COUNTRIES 2000-2011[31]

Chart 3 provides a summary of VAT gap estimates for various tax jurisdictions. Care should be taken when comparing gap results between countries. Different tax bases, composition of the economy, resources of tax agencies and factors outside the control of the tax agency, will all impact the size of the gap.

AVERAGE VAT GAP OF SELECTED COUNTRIES 2000-2011

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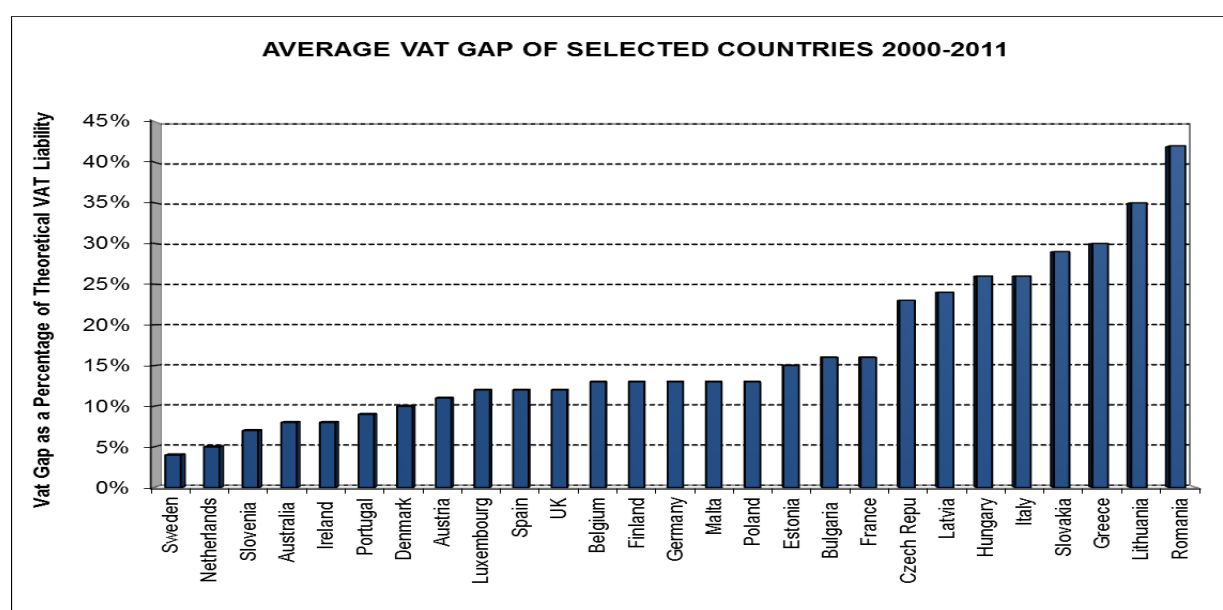
29 Estimates for the post 1 July 2015 VAT system are expected to provide a more accurate estimate of the VAT gap.
30 Informed at meetings with the Bangladesh Bureau of Statistics.
[31] Data from Australian Taxation Office (2012), *Measuring Tax gaps in Australia for the GST and LCT*, HM Revenue & Customs (2013), *Measuring Indirect Tax Gaps – 2013,* November 2013, Case Research and CPB (2013), *Study to Quantify and Analyze the VAT Gap in the UE-27 Member States Final Report,* Warsaw July 2013.

OTHER MEASURES OF PERFORMANCE OF THE CURRENT SYSTEM

In the paper, Consumption Taxes in Developing Countries – The Case of the Bangladesh, the authors provided estimates of the VAT efficiency and C-efficiency ratio for the Bangladesh VAT system. 'The VAT efficiency ratio is the proportion of VAT to GDP divided by the standard VAT rate and it indicates the percentage of GDP collected by each percentage point of the standard VAT rate'.[32] All other things being equal, higher ratios indicated better efficiency performance of the VAT system.[33]

According to the IMF, the average worldwide VAT efficiency ratio is 34% whilst the average VAT efficiency ratio for Bangladesh was 15.92%.[34] The Bangladesh VAT system result is very low by international standards and suggests significant amount of concessions, significant non-compliance or both.

The C-efficiency ratio is the proportion of VAT as a share of consumption divided by the standard VAT rate. The average C-efficiency ratio for Bangladesh over the period reviewed was 19.25%.[35] This compares to a VAT system with a uniform tax on all consumption that would have a 100% C-efficiency ratio. Again the rate highlights the Bangladesh VAT system has significant amount of concessions, significant non-compliance or both. Compared to other low-income countries, the estimated VAT efficiency and C-efficiency ratio in Bangladesh are very low.[36]

The combination of the VAT gap, the C-efficiency ratio and VAT efficiency ratio suggest the VAT system is not performing as well as expected from a revenue point of view.[37] This is likely due to the number of concessions in the system and the size of non-compliance. The report also suggests like most developing countries, the majority of VAT collected in Bangladesh is from imports and a few large enterprises. In the fiscal year 2009-2010, the number of registered VAT payers in Bangladesh was 463,212. Of this amount only 64,664 registered taxpayers (13.96%) submitted their monthly VAT. It is estimated that 84.04% taxpayers do not comply with the VAT Law.[38] The following table provides information on 'BIN registrations and monthly filing of returns of the registered firms. The compliance rate has been calculated as the percentage of registered firms that file monthly returns.'[39]

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[32] Smith, A Islam A, Moniruzzaman M, Consumption Taxes in Developing Countries – The Case of the Bangladesh, pg20.

[33] For more commentary of the VAT revenue ratio, see "OECD (2011), Measuring Performance of VAT, The VAT Revenue Ratio" in Consumption Tax Trends 2010, Trends and Administration Issues, OECD publishing.

34 Smith, A Islam A, Moniruzzaman M, Consumption Taxes in Developing Countries – The Case of the Bangladesh, pg20.

35 Smith, A Islam A, Moniruzzaman M, Consumption Taxes in Developing Countries – The Case of the Bangladesh, pg20.

[36] Faridy, N VAT Compliance and VAT Evasion of Small and Medium Business Enterprises (SMEs) Sectors in Bangladesh: Is there a link?", Griffith University pg 3.

37 For discussions on the c-efficiency ratio and practical problems, see Case Research and CPB page 18-19

38 Every manufacturer or producer or trader of taxable goods or renderer of taxable service shall have to submit return in form ' Mushak-19'for each tax period within 14 working days of the next month after tax period (Section-35 of The Value Added tax Law 199, Bangladesh).

39 Ahmed, N 2013, Improving Tax Compliance in Bangladesh: A study of Value Added Tax (VAT), June 2013 pg 8.

TABLE 4: MONTHLY COMPLIANCE RATES AND BIN REGISTRATIONS[40]

Category	BIN Registration	Monthly Return Filing	Compliance Rate (%)
Importers	125572 (14.35%)	7534 (7.45%)	6.00
Exporters	37106 (4.24%)	9107 (9.00%)	24.54
Manufacturers	46488 (5.31%)	10734 (10.61%)	23.09
Trade	272923 (31.19%)	37465 (37.03%)	13.73
Service Renderers	392899 (44.90%)	36323 (35.91%)	9.24
Total	874988 (100%)	101163 (100%)	**11.56**

Faridy highlights the concentration of VAT collections from few clients in the Bangladesh VAT regime: 'only large taxpayers are submitting their returns regularly and around 78% of total VAT in Bangladesh is collected by few large taxpayers from major sectors such as cigarette, leafy tobacco, natural gas, telephone, construction companies and banks'.[41] In addition, a 2011 report by Transparency International Bangladesh estimated the informal economy in Bangladesh to be 38%.[42]

The fact the current Bangladesh VAT regime is complex (due to the various exemptions, concession, truncated rules and rates)[43] is likely to undermine the level of compliance in the VAT system. 'Whilst most developing countries experience problems obtaining compliance with their tax laws, the data also suggests Bangladesh can increase its VAT revenue significantly by improving its VAT productivity through increasing VAT compliance.'[44] The changes to the VAT law from 1 July 2015 should help compliance in so far the amount of concessions, special rules and exemptions have been reduced. As Smith, Islam and Moniruzzaman state, 'current VAT compliance in Bangladesh might be undermined through unduly complex legislation.[45]

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[40] Table from *Ahmed, N 2013,* Improving Tax Compliance in Bangladesh: A study of Value Added Tax (VAT), June 2013 pg 8.
41 Faridy, N VAT Compliance and VAT Evasion of Small and Medium Business Enterprises (SMEs) Sectors in Bangladesh: Is there a link?", Griffith University pg 4.
[42] Faridy, N VAT Compliance and VAT Evasion of Small and Medium Business Enterprises (SMEs) Sectors in Bangladesh: Is there a link?", Griffith University pg 4.
[43] See International Finance Corporation, Bangladesh Survey Report on Tax Perception and Compliance Costs of the Formal sector, for complexity of the system.
[44] see Smith, A Islam A, Moniruzzaman M, Consumption Taxes in Developing Countries – The Case of the Bangladesh VAT, "in developing countries there is usually a large informal economy that works exclusively on a cash or barter basis and which may be invisible to officialdom. Education levels are often low so that it is unrealistic to expect compliance with the exact letter of revenue laws. Furthermore, there may be a culture of non-compliance with revenue laws and/or an indifference towards public sector institutions and officials.
[45] Smith, A Islam A, Moniruzzaman M, Consumption Taxes in Developing Countries – The Case of the Bangladesh VAT, pg 21

VAT GAP METHODOLOGY POST 1 JULY 2015

The post 1 July 2015 methodology to measure the VAT gap will use the 'top down methodology' applied by most international tax jurisdictions. The top down approach estimates the VAT base by using a combination of National Accounts and Household Expenditure Survey information on consumption disaggregated by expenditure/commodity type that is subject to a countries VAT regime, to estimate the overall potential collections for the VAT.[46] This is referred to by HMRC[47] and Case Research[48] as the VAT Theoretical Tax Liability (VTTL).

The VTTL is the amount of VAT included in 'finally taxed' expenditure throughout the economy. VAT-able expenditures are expenditures where the VAT 'sticks.' The VTTL is undertaken by determining the total amount of expenditure in the Bangladesh economy (using GDP expenditure data) that is theoretically liable for VAT and then multiplying this amount of VAT-able expenditure (by commodity type) by the appropriate VAT rate. For each expenditure category, the expenditure will be split according to the different VAT treatments; zero-rated, standard rated, reduced rated and exempt. The VTTL includes the sum of expenditures from:

I.   Private final consumption expenditure of households (HFCE) by expenditure/commodity type (BBS refers to expenditures as "main aggregate categories").
II.   Final consumption expenditures of non-profit organizations servicing households (NPISH) subject to VAT that is irrecoverable by the NPISH.
III.   Final consumption expenditures of Government (including individual and collective consumption expenditure) subject to VAT, that is irrecoverable by Government.
IV.   Gross fixed capital formation (typically private residential dwelling expenditures).
V.   Adjustments for components that do not constitute national consumption (i.e. consumption by residents on overseas goods and services, and net non-resident consumption in Bangladesh).
VI.   From this base, estimate the tax liability by expenditure category multiplied by the appropriate VAT rate.
VII.   Remove any other legitimate concessions in the VAT base. This includes concessions such as turnover thresholds etc. (which are not included at 6). The remainder produces an estimate of the VAT Theoretical Tax liability (VTTL).

Subtracting accrued VAT revenue from the VTTL then derives the tax gap. It can be expressed as:

VAT GAP = VAT THEORETICAL TAX LIABILITY - VAT REVENUE

VAT GAP AS A PERCETNAGE OF THEORETICAL REVENUE = VAT REVENUE
                                                                                              VAT THEORETICAL TAX LIABILITY

As with any statistical estimate, the VAT gap is subject to a margin of error. It is not possible to produce a precise confidence interval for the VAT gap estimates, as the VAT gap can be affected by:

I.   Assumptions relating to the size of VAT concessions
II.   The non-observed economy uplift component in the National Accounts statistics
III.   Sampling and non-sampling bias in the data, and the extent to which National Accounts statistics account for all consumption in the economy.

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[46] See Keen, M (2013), *The Autonomy of the VAT*, IMF working paper, pg 18.
[47] See UK HM Revenue & Customs (2013), *Measuring Indirect Tax Gaps – 2013,* November 2013.
[48] See Case Research and CPB, (2013) *Study to Quantify and Analyze the VAT Gap in the UE-27 Member States Final Report,* Warsaw July 2013.

METHDOLOGY

Gross Domestic Product by expenditure (GDP (E)) is used as the foundation for estimating the VTTL. GDP represents the sum total of the value added in the domestic production of goods and services in the economy and is represented as:

$$\textbf{GDP (E) = C + I + G + (X-M)} \textbf{ where:}$$

- I. GDP (E) is expenditure on gross domestic product,
- II. C is final private consumption expenditure,
- III. I is investment expenditure,
- IV. G is final government expenditure on goods and services, and
- V. X (exports) and M (imports) is the value of exported and imported goods and services. (X-M) represents the net trade balance of a country.

Since the Bangladesh VAT system is a tax on final consumption expenditure on goods and services within the domestic economy, the VTTL must correspond to the sum of final private consumption expenditure (C), investment expenditure (I), and government expenditure (G) on goods and services *subject to VAT*. The VTTL can be expressed as:

$$\textbf{VTTL = } \Sigma \textbf{ (Csv*Tr) +(Gsv *Tr) + (Isv * Tr) − E where}$$

- I. Csv is household final consumption expenditure subject to VAT (includes NPISH) by expenditure type.
- II. Gsv is government expenditure subject to VAT by expenditure type that is not recoverable by government.
- III. Isv is investment expenditure subject to VAT by commodity expenditure type.
- IV. E is the value of other legal exemptions/concessions (such as outputs sold by entities below the small business threshold) and net input taxed supplies and purchases. It also includes the impact of cascading.
- V. Tr is the statutory tax rate applicable to the expenditure or commodity type.

The Sum of Csv, Gsv and Isv are determined from Bangladesh National Accounts statistics and Household Expenditure Surveys. In determining the value of consumption subject to VAT, it is important to estimate the value of VAT exemptions in the Bangladesh VAT system. These estimates could be undertaken Bangladesh Bank or Bangladesh National Board of Revenue,[49] or estimated from supply-use tables used in the National Account estimates.

Exemptions in the VTTL consist of three components. 'The first component, accounts for the impact of the zero-rating and exemptions that reduces the VAT base. The second component incorporates the cascading effect that results from exemptions at middle stages of the production/distribution chain. The third component adjusts the VAT base for the impact of the VAT threshold, by netting out the sales and adding the input purchase by below-threshold small businesses.'[50]

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[49] For example http://www.treasury.gov.au/Treasury%20Home/PublicationsAndMedia/Publications/2014/TES%202013
[50] Le Minh, T 2007, Estimating the VAT Base: Method and Application. See also See also Shome, P. 1995, Estimating the VAT Base using National Income and Expenditure Data, *Tax Policy Handbook.*

In summary, the steps to estimate the VTTL are:

1.   Estimate the amount of VAT payable by households on their final consumption, based on household expenditure survey and national accounts data;
2.   Estimate final consumption expenditure of general government (including individual and collective consumption expenditure) subject to VAT that is irrecoverable by government.
3.   Estimate final consumption expenditures of non-profit organizations servicing households subject to VAT that is irrecoverable by the NPISH.
4.   Add expenditures that attract VAT but are not included in household, NPISH or government expenditure figures. This includes estimates of the value of gross fixed capital formation subject to VAT.
5.   Make adjustments for components that do not constitute national consumption (i.e. consumption by residents on overseas goods and services and non-residents net expenditure in Bangladesh).
6.   Make adjustments for concessions in the system such as expenditures by exempt sectors (due to registrations threshold etc. and cascading).
7.   Estimate accrued revenue receipts for the relevant period.

The methodology assumes:

I.   Final consumption expenditure (Household, NPISH and Government) represents all Bangladesh consumption.
II.   No adjustment have been made for National Accounts timing issues, despite some known conceptual misalignments in the area of private dwelling investment.
III.   No adjustment for inventory. Stock inventory levels are assumed to remain relatively constant.

VAT revenue is made up of collections from voluntary payments and compliance activities (e.g. audits and lodgment enforcement). Penalties and interest are excluded. To allow appropriate benchmarking against National Accounts statistics, 'the actual collections should be the value accrued for the appropriate period, not cash collections during that period. This should be the approach taken for any exercise where revenue is being compared against economic activity'.[51] VAT accrued revenue is then subtracted from the VTTL to derive the VAT gap estimate.

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[51] See IMF RA-GAP Program, VAT Gap methodology, *An Overview of the VAT Gap Modeling Framework used in RA-GAP, http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf*.

VAT THEORETICAL TAX LIABILITY COMPONENTS

The following are the key components of the VTTL[52]

1. **Household Final Consumption Expenditure**: The value of final consumption expenditure by disaggregated commodity type that is subject to VAT obtained from BBS National Accounts statistics and HES. The base may need adjustments for underreporting of expenditures to reflect true consumption. This step also includes final consumption expenditures of non-profit organizations servicing households (NPISH expenditure).

2. **Government**: The value of government expenditure (G) that is subject to VAT and is irrecoverable by the government agency. For example the portion of government expenditure, that represents wages and salaries, is generally not taxable, and hence must be deducted from the government expenditure.

3. **Capital formation:** That component of gross fixed capital formation (I) that is subject to VAT. This typically includes private new residential dwellings expenditure and private expenditure on alternations and additions to existing dwellings. The remainder of the sum total of fixed capital formation in the economy is generally not taxed and should, be removed from the VAT base. Where land is subject to VAT as part of a new residential property, this amount can be added at this step.

4. **Net Trade balance:** As a destination-based VAT taxes consumption at the point where consumption occurs, it covers imports but exclude exports. Therefore the net trade balance, (exports less imports) is excluded from the VTTL.

5. **Exempt sectors:** The VAT base must be reduced by the sum of the value added of exempt sectors. Exempt sectors typically include some services in the financial and insurance sector and the actual and imputed value of owner-occupied rents. 'The value added of capital goods purchased by exempt sectors is also an addition to the base, as tax credits would not be available to these sectors. The calculation of non-recoverable input tax is complex. Thus the level of uncertainty around input tax adjustments is larger than for the other elements of the VTTL'.[53]

6. **Cascading:** 'Whenever an exempted business sells its products to any taxed business under a VAT using the credit-in-voice method, cascading occurs (much the same way as turnover tax does), and consequently would cause the VAT base to be higher than had the exemption not been granted'.[54]

7. **Exemption thresholds**: Under the new Bangladesh VAT system, businesses with turnover of Taka 2.4 million or below are exempt from the VAT system. Those businesses with taxable sales between Taka 2.4 million and Taka 8 million have a non-creditable 3% turnover tax. The value of these concessions (and any cascading) must be determined by the NBR. i.e. the total sales of the businesses below the threshold should be deducted from the VAT base. Taxed inputs used in these sales, however, must be added back owing to cascading.

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[52] See Shome, P. 1995, *Estimating the VAT Base using National Income and Expenditure Data*, Tax Policy Handbook for further information on these components.
[53] Shome, P. 1995, *Estimating the VAT Base using National Income and Expenditure Data, Tax Policy Handbook.*
[54] Shome, P. 1995, *Estimating the VAT Base using National Income and Expenditure Data, Tax Policy Handbook.*

8. **Net Tourism Adjustment**: Adjustment to National Accounts data for expenditures by foreigners in Bangladesh (an increase to the base) and purchases by Bangladesh residents abroad (a decrease to the base).[55] This stage should include the amount of refunds paid through any tourist refund scheme.

The sum of the above (multiplied by appropriate VAT rates) will estimate the VTTL based at current prices (i.e. inclusive of all existing indirect taxes in the base). The difference between the VTTL and accrued receipts is the VAT gap.

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[55] See Keen, M (2013), *"The Autonomy of the VAT", IMF working paper*, Fiscal Affairs Department.

LIMITATIONS WITH THE ESTIMATES

As this is a relatively untested and difficult area of work, one of the main concerns is the quality and extent of data being used. 'Accurately assessing the size of the tax gap can be challenging, as it can rely on data of uncertain quality. In order to ensure any estimate is as accurate as possible, a thorough review of all the data components used in assessing the tax gap needs to be conducted. In conducting this data review, including reviewing NBR taxation data, other aspects of the operations of the tax administrator can be identified that might be impacting tax gap measurement'.[56]

Whilst there are few alternatives (except an expensive random audit program) to using National Accounts data sources when estimating VAT gap, there are nonetheless a number of qualifications associated with the use of National Accounts data. These include:

I.   The time lags which exist in the availability of Input-Output data applicable to the period for which the VAT gap is estimated.
II. National Accounts data are often subject to significant revisions and the VAT gaps must be updated accordingly.
III. No adjustments to National Accounts estimates for the non-observed economy for Bangladesh.
IV. The margin of error evident in National Accounts data can significantly impact the gap estimate.
V.   No formal up-to-date estimates of concessions or tax expenditures.
VI. Quality of revenue data from Bangladesh authority and the ability to match the revenue with the appropriate accrual economic benchmark.[57]

The top down approach assumes that the National Accounts data is a comprehensive measure of economic activity in an economy. However the Bangladesh National Accounts estimates does not make adjustments for non-observed economy, whilst other components of GDP expenditures are incomplete (for example FISIM and tourist expenditure). As the VAT gap estimates are the difference between two large aggregates; any small errors in the estimation of VAT base or National accounts data can result in large relative errors in the gap.

The OECD Handbook on Measuring the Non-Observed Economy (NOE) provides comprehensive guidance for measuring individual elements of the non-observed economy.[58] It is recommended that the BBS or NBR undertake estimates of the non-observed economy using this approach to ensure all relevant adjustments to consumption expenditure are included in the VAT gap estimate.

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[56] McManus, J & Warren, N (2005), *GST Gap in Australia – Final Report – A research project for the States and Territories GST Policy Advisory Group (GPAG).*

[57] See McManus, J & Warren, N (2005), *GST Gap in Australia – Final Report – A research project for the States and Territories GST Policy Advisory Group (GPAG).*

[58] see http://www.oecd.org/std/na/measuringthenon-observedeconomy-ahandbook.htm.

TABLE 5: DATA SOURCE TABLE TO ESTIMATE THE GAP POST 1 JULY 2015

Data	Source	Comment
GDP at current prices original	National Accounts Statistics Bangladesh Bureau of Statistics	Table 18 GDP by Expenditure Categories at current (market) prices: original.
Household Final Consumption Expenditure Aggregates by Commodity type	National Accounts Statistics & Household Expenditure Survey. Bangladesh Bureau of Statistics	Table 20. Household Final Consumption Expenditure by basic heading (main aggregates categories) at current price: original
Government Consumption Expenditures	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 18 GDP by Expenditure Categories at current prices. Table 20. Household Final Consumption Expenditure by basic heading at current price. Only Include taxable consumption that is not recoverable by government.
Consumption expenditure of Nonprofit organizations Serving households	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 19 and Table 20. Consumption expenditure at current price.
Trade Balance (Exports minus Imports)	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 18 GDP by Expenditure Categories at current prices.
Supply Use Tables	Bangladesh Bureau of Statistics	To determine size of VAT concessions and determine VAT gap by industry.
Business understatement Adjustment for cash transactions/skimming	Not undertaken. See OECD framework: http://www.oecd.org/std/na/measuringthenon-observedeconomy-ahandbook.htm	Without adjustment, gap is likely to be underestimated.
Private second hand goods sales	National Accounts Statistics. Bangladesh Bureau of Statistics	Assumed that private cars sales will be a significant portion of second hand goods sold.
Actual and imputed rent split	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 20. Final Household Consumption Expenditure by basic heading at current price.
International Tourism Adjustment (Purchases by Residents overseas and purchases by non-residents in Bangladesh)	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 20. Household Final Consumption Expenditure by basic heading at current price. Remove expenditures by residents abroad and add overseas residents expenditure in Bangladesh (minus any tourist refund scheme)
Value added of exempt sectors Minus indirect taxes in exempt sectors such as Financial Supplies	National Accounts Statistics. Supply-Use Tables. Bangladesh Bureau of Statistics	'Businesses making input taxed outputs that are exempt from VAT (usually financial services) are generally not permitted to reclaim VAT

		on inputs associated with their exempt outputs. In order to make an adjustment for this irrecoverable input tax, a separate survey maybe needed for financial supplies to ascertain the proportion of purchases on which VAT cannot be reclaimed'.[59]
Exemptions of the VAT system post 1 July 2015	National Accounts Statistics. Bangladesh Bureau of Statistics. NBR. Estimates based on input/output tables.	Suggest estimates of VAT concessions/expenditures to be undertaken.
Threshold Exemptions	National Accounts Statistics. Bangladesh Bureau of Statistics. NBR estimates based on input/output tables. Businesses with turnover of Taka 2.4 million or below are exempt from the VAT system. For those businesses with taxable sales between Taka 2.4 million and Taka 8 million and non-creditable 3% turnover tax can be applied.	'Businesses with turnover below the VAT threshold can legitimately exclude VAT on their sales. Expenditure on the output of these businesses will have been picked up in the theoretical liability.'[60] To adjust for this, an estimate of relevant expenditure should be made using a combination of BBS and NBR information on the distribution of business turnover below the VAT threshold (to determine the size of this concession).
Cascading effect	Caused by credit-invoice method	National Accounts and supply-use tables
Gross fixed capital formation by asset type (Private and Public dwelling investment)	National Accounts Statistics. Bangladesh Bureau of Statistics	Table 18 and 20 National Accounts Statistics. Bangladesh Bureau of Statistics. Components include: 1. Residential buildings 2. Alternations and additions 3. Capital formation in exempt sectors. 4. Land subject to VAT (where applicable)
Actual VAT collection	NBR, Bangladesh Bank or Department of Finance	Estimated from cash collections adjusted to match the timing of economic activity in National Accounts.
Net VAT and Input Tax Credits by Industry	VAT data (both VAT payable and paid) from VAT returns from NBR based on industry codes.	To allow estimates of the VAT gap by industry using IMF approach

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[59] See HM Revenue & Customs (2013), *Measuring Indirect Tax Gaps – 2013,* November 2013 and Shome, P. 1995, Estimating the VAT Base using National Income and Expenditure Data, *Tax Policy Handbook,*
[60] Shome, P. 1995, Estimating the VAT Base using National Income and Expenditure Data, *Tax Policy Handbook.*

TABLE 6: HOW THE ESTIMATES COULD BE PRESENTED

VAT GAP		2015-16	2016-17	2017-18	2018-19
VAT Theoretical Tax liability (VTTL)	Taka				
Voluntary VAT accrued receipts	Taka				
Estimated VAT voluntary compliance gap (Gross VAT gap)	Taka				
	%				
Enforced VAT collections by NBR	Taka				
TOTAL Accrued VAT receipts	Taka				
Estimated VAT gap (NET TAX GAP)	Taka				
	%				

SUMMARY

While tax gap estimates are an important compliance management tool capable of complementing other performance indicators, such measures do have their limitations. These typically result from data constraints confronted when preparing comprehensive tax gap estimates and the methodology adapted to model the VAT gap. Therefore Bangladesh National Board of Revenue should:

1.   Compile the data necessary to overcome the data deficiencies of the top-down methodology outlined in this paper.
2.   Determine estimates of the size of VAT concessions (such as those businesses below the VAT registration threshold) under the new Act.
3.   A process should be put in place to ensure accrued VAT receipts for a financial year can be determined by the NBR. In addition, industry VAT data should be regularly updated to allow for estimation of the VAT gap by industry.
4.   Look into the feasibility of preparing bottom-up VAT gap estimates to complement those made using the top-down approach.

METHODOLOGIES TO SUPPLEMENT TAX GAP

The methods used to supplement the VAT gap will depend on both data availability and the objectives of The World Bank and the NBR.[61] Bottom up estimates can supplement top-down methodologies to determine the underlying cause and locus of non-compliance. They can also be used to validate the reasonableness of the top down VAT gap estimate, and can provide greater insights into tax administrative approaches that might be taken to close the gap. However top down approaches may be more accurate when operational information is relatively weak—or even contaminated by governance issues within the tax administration. Bottom up approaches can be undertaken by:

I. **Stratified random audit program:** This will allow the NBR (in conjunction with other techniques) to characterize those areas, sectors, industries or businesses in the economy susceptible to VAT non-compliance and the size of this non-compliance.

II. **Analyzing audit liabilities.** This can be undertaken using statistical techniques. These methods generally suffer from an unknown level of selection bias introduced from the use of risk-based case selection data and from significant detection and interpretation bias. For this reason they are generally considered less credible estimates – particularly for larger-scale populations of individuals and small business, where the available compliance data is small compared to the total populations.

STRATIFIED RANDOM AUDIT PROGRAM

Stratified random audit programs are used by international tax jurisdictions as a way to understand taxpayer compliance behaviour and assure/improve the credibility of tax gap estimates. The OECD highlights "validating existing risk assessment system as the most frequently cited use of the data collected from random audits. Other issues include: compliance measurement, workload selection, identification or emerging issues, taxpayer profiling and programme evaluation". [62]

A random audit program would provide the NBR intelligence of those areas that taxpayers are having difficulty complying with the VAT law. This may drive broader discussion on how to make the tax system easier to comply with. A random audit program could also help build the competency of NBR auditors, as well as provide important intelligence which can help refine risk models for case selection to improve non-compliance (risk) identification. A summary of the advantages of a random audit program include:

I. Improved risk identification

II. Enhanced efficiency in the allocation of agency resources

III. Statistically valid compliance measures

IV. Insight into new forms of economic activity, and

V. Evaluation of the 'indirect' effects of enforcement actions on taxpayer compliance behaviour.[63]

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[61] Keen, M (2013), *"The Autonomy of the VAT", IMF working paper*, Fiscal Affairs Department.

[62] See OECD, 2004 Compliance Risk Management, Use of Random Audits, Centre for Tax Policy and Administration. http://www.oecd.org/tax/administration/33818547.pdf

[63] OECD, 2004 Compliance Risk Management, Use of Random Audits, Centre for Tax Policy and Administration. http://www.oecd.org/tax/administration/33818547.pdf

Whilst a stratified random audit program has significant benefits, there are many drawbacks of a full fledge random audit program. The main disadvantage to a tax administrator of a random audit program is its significant cost. Other problems include the opportunity costs of a program, undue compliance costs on taxpayers, timeliness of research findings, a negative public perception and internal tax agency acceptance. These problems must be balanced against the advantages to determine if the NBR see a net advantage of undertaking a random audit program.

ESTIMATES CONSTRUCTED USING OPERATIONAL COMPLIANCE DATA

These approaches, working from the statistical work undertaken by Heckman to correct for selection bias,[64] essentially attempt to adjust operational audit results to make them more representative of the overall population. Using compliance data has the significant advantage of being relatively low cost for the NBR (by using the operational compliance information they hold) and, unlike random audits, do not place unnecessarily compliance costs on businesses. Removing selection bias in the operational data is a key challenge when using these methodologies, particularly for larger populations.

A number of statistical approaches can be used to adjust operational audit results to make them more representative of the overall population. These include:

I.   Heckman two-stage estimation method using probit regression at the first stage and then correcting for self-selection by incorporating a transformation of these predicted individual probabilities as an additional explanatory variable.[65]

II.   Approaches based on research from Brain Erard. The paper 'Compliance Measurement and Workload: Selection with Operational Data', provides working examples of using operational compliance data to estimate the Estate Tax Gap and Underreporting of Business Income by sole proprietors for the IRS. [66]

III.   Logistic regression approaches – this builds a classifier based on known cases of compliance and non-compliance and then applies it to the broader population,

These methods generally suffer from an unknown level of selection bias and from significant non-detection and interpretation bias of the tax administrator audits. For this reason they are generally considered less credible estimates – particularly for larger-scale populations of individuals and small business, where the available compliance data is small compared to the total populations. However the approach can still provide overall insights into the size, behavior and locus of the tax gap.

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[64] Heckman, J. (1979), "*Sample selection bias as a specification error"*, Econometrica, Vol 47, No1 January 1979.

[65] see Heckman, J. (1979), "*Sample selection bias as a specification error"*, Econometrica, Vol 47, No1 January 1979 This can be supplemented by Monte Carlo stimulations or bootstrapping.

66 See Erard, B 2002, Compliance Measurement and Workload, Selection with Operational Audit Data, 2002.

TOP DOWN METHODOLOGY USING IMF METHODOLOGY: GAP BY INDUSTRY

This top-down measure, currently being applied by the IMF, uses National Accounts supply-use tables to mimic the chain structure of the VAT, estimating unpaid VAT by sector and aggregating this to arrive at an estimate of the overall gap.[67] Using the RA-GAP methodology would allow for a breakdown of the VAT gap by sector of economic activity, which is useful for compliance management.[68]

Theoretically, the value-added based approach used in the RA-GAP model should produce the same results as the top down model based on National Accounts expenditure data used in this report. One of the main advantages that the IMF model has over a traditional consumption based VAT gap model, 'is that the results are compiled by sector of economic activity, so comparing revenues aggregated by the sector of the taxpayer, to the models outputs, allows for a decomposition of the gap by sector.'[69] This production approach allows the analysis to be expressed on a sectorial basis. 'The IMF expresses the potentials collections model as:

$$PV^s = \sum_c (M_c^s \times \tau_c) + \left[\sum_c (Y_c^s - X_c^s) \times \tau_c \right] \times r^s - \left[\sum_c (N_c^s + I_c^s) \times \tau_c \right] \times r^s \times (1 - e^s) \times \eta_c^s$$

'PV_s = the potential net VAT for a sector,
M_{cs} = imports by sector s of commodity c,
Y_{cs} = output by sector s of commodity c,
X_{cs} = exports by sector s of commodity c,
N_{cs}= intermediate demand (consumption) by sector s of commodity c,
I_{cs}= investment by sector s of commodity c,
τ_c = the VAT rate that applies to commodity c (zero if zero-rated or exempt),
η_{cs} = the proportion of input tax credits for commodity c by sector s allowed to be claimed,
e_s = the proportion of output for a sector which is exempt output, and
r_s= the proportion of output for a sector produced by registered businesses.' [70]

The theoretical base is then compared to the value of accrued collections for the period in question.[71] This approach requires accurate information of VAT revenue (both VAT payable and input tax credits) by industry. After implementation of the new VAT regime has been embedded, it is recommended the NBR adopt the IMF methodology to estimate the VAT gap by industry from 2016. This will allow analysis of those industries that are contributing the VAT gap, and thus is useful as a risk management and resource allocation tool.

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[67] see http://www.imf.org/external/pubs/ft/wp/2013/wp13111.pdf
[68] See IMF RA-GAP Program, VAT Gap methodology, an overview of the VAT gap modeling framework used in RA-GAP, http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf
[69] See IMF RA-GAP Program, VAT Gap methodology, an overview of the VAT gap modeling framework used in RA-GAP, http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf
[70] See IMF RA-GAP Program, VAT Gap methodology, an overview of the VAT gap modeling framework used in RA-GAP
71 See http://www.esrc.ac.uk/hmrc/images/6b-measuring-the-vat-gap_tcm19-29917.pdf page 26 for definition of accrued payments, which is the sum of all payments recorded in the payments transaction database (up to a specified cut-off date) for the tax period, plus excess credits carried forward from the previous period used to pay down net VAT owing from all VAT returns in the period.

## EFFECTIVENESS REPORTING FOR THE BANGLADESH VAT SYSTEM

Reporting on performance measurement indicators is one of the key components of a good management framework. Many tax programs appear promising before implementation, and then fail to generate the expected revenue benefits. There is a need for an evaluation program to help the NBR determine whether the new VAT Act and administration did indeed generate intended benefits. Effective impact evaluation should be able to assess precisely the mechanisms by which taxpayers are responding to NBR activities. The three approaches to evaluate any program include:

    I.   'Monitoring – This tracks key indicators of progress over the course of a program as a basis on which to evaluate outcomes of the intervention.

    II.   Operational evaluation – This examines how effectively programs were implemented and whether there are gaps between planned and realized outcomes.

    III.   Impact evaluation studies whether the changes in compliance are indeed due to the program intervention and not to other factors.'[72]

A compliance effectiveness measurement program will determine the extent to which the NBR compliance strategies have achieved positive and sustainable changes in compliance behavior. Typically tax compliance refers to the extent to which a taxpayers adhere to the following four obligations: registration, timely filing of tax returns, reporting of complete and accurate information; and payment of taxation obligations on time. Tax administrators usually undertake efficiency indicators (the ratio of inputs and outputs) attached to these pillars of compliance. However compliance effectiveness indicators determine if desired outcomes match actual outcomes (see Chart 4). The trend in the VAT gap is one of many indicators that can be used to monitor the macro effectiveness of NBR. As noted by the OECD

> "Compliance effectiveness is the extent to which the actual outcomes of a revenue body's compliance strategies align with its desired outcomes—*Did the strategies employed have the effect or impact on compliance behaviour and/or community confidence that were expected of them*? Effectiveness, relates to outcomes and impacts to the corresponding objectives. Reliable measures of effectiveness are highly desirable, but often difficult to find…. The compliance effectiveness methodology described briefly in this note is a tool that can be used to plan the right mix of strategies, measure their effectiveness and identify opportunities for continuous improvement. A revenue body can use it for both planning and evaluation purposes. What it learns about its effectiveness may inform its future planning and help reshape its compliance improvement strategies. "[73]

CHART 4: THE OECD TAX COMPLIANCE EFFECTIVENESS FRAMEWORK [74]

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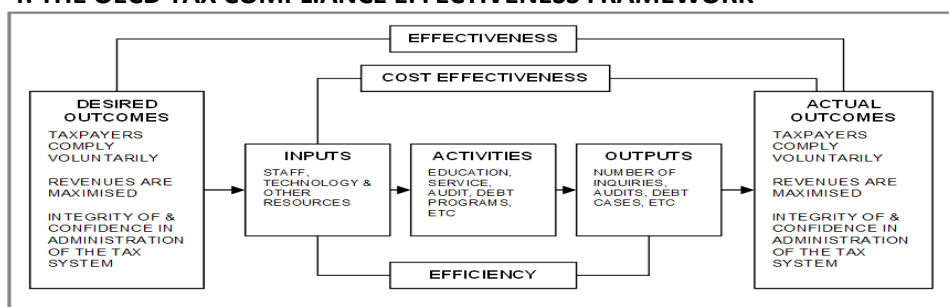
[72] Khander, S Koolwal, G Samad, H (2010) Handbook on Impact Evaluation: Quantitative Methods and Practices, The World Bank.

[73] OECD, (2010), *Evaluating the Effectiveness of Compliance Risk Treatment Strategies*, Forum on Tax Administration, November 2010, OCED, pg 6.

74 Chart from OECD, (2010), *Evaluating the Effectiveness of Compliance Risk Treatment Strategies*, Forum on Tax Administration, November 2010, OCED, pg 6.

The Bangladesh National Board of Revenue should undertake a compliance effectiveness framework to gain insights that may inform its future planning and help reshape its compliance improvement strategies. Undertaking compliance effectiveness assessments will provide a clear line of sight of the NBRs performance. By understanding these principles, the NBR will then be in a position to answer these questions:

    I.   Have the compliance strategies of the NBR been successful in improving voluntary compliance and community confidence?
    II.   How do you know? What changes in behavior have the NBR observed?
    III.   Are these changes sustained? Are these changes observable wider than the group specifically addressed (ripple effect)?
    IV.   Have the NBR observed any unintended consequences?

The steps for compliance effectiveness program in Bangladesh should include:

    I.   Select and clearly define outcomes
    II.   Define impacts, representing the specific results expected
    III.   Identify resources, the set of inputs to produce the outputs
    IV.   Identify outputs such as services delivered or goods produced.**[75]**

The OECD further expands the phases of the methodology as:

    I.   "Phase 1: understanding and articulating the risk and making sure it aligns with the revenue bodies business intent.

    II.   Phase 2: clearly expressing a revenue bodies desired outcomes from its compliance strategies and what would be different if it was successful. It also involves identifying the right mix of strategies that treat the drivers of compliance behaviour and not just the behaviour.

    III.   Phase 3: identifying potential indicators for each compliance strategy and validating them to ensure they are viable and useful. The suite of indicators should be capable of providing a credible picture of the effectiveness of a revenue body's compliance strategies.

    IV.   Phase 4: evaluating and reporting on the extent to which a revenue body has been effective in changing compliance behaviour, building community confidence, or both, over the immediate, intermediate and long term.

Phases 1, 2 and 3 focus on planning to be effective while phase 4 focuses on evaluating the extent to which a revenue body has been effective."[76] Outcome effectiveness measures should aligned with the NBRs strategic compliance strategy, provide a comprehensive view of NBR performance that can be attributable to the NBRs administration, can be pragmatically measured and should be integrated into the NBRs existing risk processes. Based on this framework and the pillars of compliance, it is recommended the NBR use the following indicators to measure the effectiveness its administration:

1. TREND OVER TIME IN THE GROSS AND NET VAT GAP

The trend in the tax gap is a macro compliance effectiveness indicator. The gap measures any shortfall in reported liabilities through incorrect registration, lodgment, reporting and payment.

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[75] Australian Taxation Office, 2012, *Measuring Compliance Effectiveness*, Evaluating Effectiveness.
[76] OECD, (2010), *Evaluating the Effectiveness of Compliance Risk Treatment Strategies*, Forum on Tax Administration, November 2010, OCED, pg 6.

2. TREND IN THE VOLUNTARY COMPLIANCE RATIO (VCR) OVER TIME.

As stated by Erard, 'the degree of voluntary compliance is a fundamental, but elusive measure of the health of a tax administration. In the face of measurement difficulties, most tax agencies have shielded away from attempting to estimate the extent to which taxpayers voluntarily report their taxes, and instead have relied on proxy measures, such as the share of tax revenue that comes in without direct enforcement effort. A difficulty with such proxy measures is that they typically provide an incomplete and distorted perspective on the actual compliance environment.'[77] One way to measure the extent of voluntary compliance is through a concept known as the 'voluntary compliance ratio.'[78]

The VCR compliments the tax gap by measuring the proportion of taxpayers that are fully compliant with their VAT obligations (and the value of revenue) that is remitted without action by the NBR. By definition the VCR (by value of tax), will be less than the gross tax gap. The voluntary compliance ratio is represented as:

<u>Number (and value of VAT) of NBR Voluntarily Compliant Taxpayers</u>
Number (and value of VAT) of NBR Obligated Taxpayers

The VCR provides an estimate of the extent of compliance at each of the four pillars of compliance:

    I.   Registration - the percentage (and value of tax) of taxpayers correctly registered for the VAT system

    II.   Lodgment - the percentage (and value of tax) of taxpayers that lodge by the due date.

    III.   Reporting - the percentage (and value of tax) of taxpayers that correctly report their VAT obligations

    IV.   Payment - the percentage (and value of tax) of taxpayers that pay their full VAT liabilities on time.

The method provides a cumulative assessment of compliance whereby failure against one of the pillars counts as non-compliance with respect to the taxpayer's total tax affairs. Taken in isolation a taxpayer who complies with some pillars and not others would lead to an overstatement of compliance if not viewed through the lens of an end-to-end cumulative process metric. Therefore the VCR is a subtractive process. Non-compliant taxpayers are removed from an initial starting population at each pillar to leave a final compliant population, which is expressed as a percentage of the total starting pool. A taxpayer failing at any stage is considered non-compliant and is not tested for compliance at a later stage.

The VCR is undertaken on the number of taxpayers (client count) and value of VAT liabilities correctly reported (transaction value) to the revenue authority and can only be undertaken once the tax gap has been estimated. The client count level of the VCR is determined by counting the number of clients that voluntarily comply over the total count of the starting population. The transaction level sums the VAT value of a client's compliant obligations as it moves through the system. This level aims to determine the amount of VAT that is voluntarily received in the Bangladesh VAT system.

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[77] See Erard, B 2002, *Compliance Measurement and Workload, Selection with Operational Audit Data*, pg 1

[78] For example, the IRS is one tax jurisdiction that measures the degree of voluntary compliance.

If the data is not available to estimate the VCR, the NBR could separately report:

a) Registration: Trend in the percentage of registered taxpayers compared to estimates of potential VAT payers.
b) Lodgment: Trend in the percentage of returns lodged on time by entity, industry and segment type.
c) Correct Reporting: Net VAT revenue tracked against changes in expenditures based on National Accounts data and the VAT gap.
d) Payment: Trend in the percentage of tax paid on time by entity, industry and segment type.

3.   AUDIT LIABILITIES RAISED AND COLLECTED FROM COMPLIANCE INTERVENTIONS AND VOLUNTARY DISCLOSURES.

4.   TREND OVER TIME IN THE COST OF COMPLIANCE FOR BUSINESS

Based on information and updates of the *Bangladesh Survey Report: the Tax perception and Compliance Costs of the Formal sector,* by the International Finance Corporation.

5.   FUTURE REVENUE BENEFIT OF AUDIT INTERVENTION AND REVENUE LOST PREVENTION

Compliance effectiveness evaluation methods should examine whether changes to taxpayer behavior can be attributed to the NBR and not to some other cause. These measures determine the additional flow-on revenue benefit following a compliance intervention program (or the revenue loss prevented from activities that do not result in cash revenue but prevents revenue being lost i.e. refund protection work). One quantitative method commonly used in tax evaluation is examining the behaviors of taxpayers pre and post audit. This is also known as "the difference on difference" approach. As shown in the following diagram, the additional flow-on revenue associated with an audit is the difference between actual revenue post audit and a counterfactual revenue had the taxpayer not been audited:
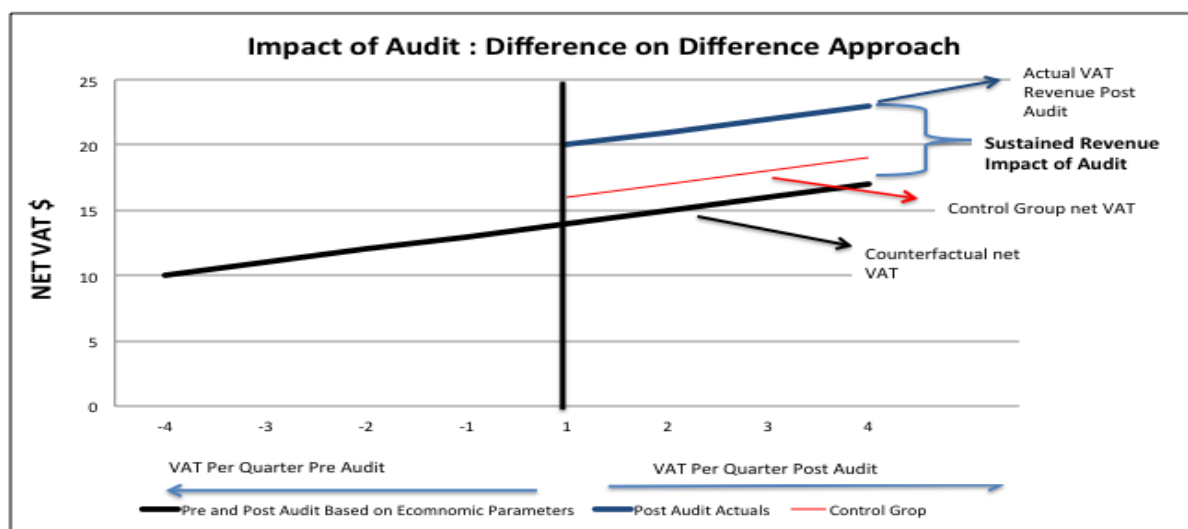
In the example above, the sustained revenue impact (direct flow-on revenue) from the audit intervention is the different between the actual revenue post audit and the counterfactual of an estimate of what would have occurred with the audit.

6. LEGISLATIVE CHANGE

The value of revenue protected or gained (from the VAT gap) for new initiatives post 1 July 2015 by the NBR or other bodies (by limiting avoidance opportunities).

7. PROCESS CHANGES, DETERRENCE AND RIPPLE IMPACTS OF AUDITS

Estimates of the revenue protected by process changes to NBR systems, and education through guidance and NBR forms that reduce scope for error and fraud. This also includes the ripple effect of NBR audit program to taxpayers who were not audited. This could be determined through the changes in the VCR, VAT gap or and using control group studies to estimate the impact of specific compliance programs have had on an unaudited population.

Whilst no single evaluation method may be perfect for the NBR, a combination of effectiveness measures (quantitative and qualitative approaches) will help the NBR determine the effectiveness of the new VAT system. As highlighted by The World Bank *'to evaluate a program depends critically on understanding the design and implementation of an intervention, the goals and mechanisms by which program objectives can be achieved, and the detailed characteristics of targeted and non-targeted areas. Data availability and quality are also integral to assessing program effects; data requirements will depend on whether evaluators are applying a quantitative or qualitative approach—or both—and on whether the framework is ex ante, ex post, or both.'*[79] Undertaking accurate and timely compliance effectiveness analysis will enable the NBR to determine if it has had a sustained impact on taxpayer compliance.

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[79] Khander, S Koolwal, G Samad, H (2010) *Handbook on Impact Evaluation Quantitative Methods and Practices.*

COMMINUCATION STRATEGY FOR RELEASE OF VAT GAP RESULTS

The overall benefit of VAT gap estimation for the Bangladesh VAT system will hinge on how effectively key stakeholders are given answers to the following questions:

I. The What question: What is a "tax gap" and how it will be used by the NBR?

II. The Why question: Why is the NBR estimating Bangladesh VAT gap? How is it linked to funding from international organizations?

III. The How question: How does the NBR intend to estimate tax gap, and is this methodology robust, defensible, credible and fit-for-purpose? How will the NBR use the information to determine sources of non-compliance to help improve the administration of the new VAT system?

The key messages in the communication strategy should be:

i. The "VAT Gap" is the difference between the tax that should be payable assuming full compliance with the law and the amount actually collected for a defined fiscal period. The tax gap includes incorrect reporting, non-payment (including bad debts), incorrect registration and non-lodgment. It does not include any general interest charges or penalties.

ii. Analyzing trends in the VAT gap over time is one way of gauging the high-level effectiveness of a tax system. This reflects whole of tax system effectiveness including NBR administration, design of the tax laws and the community's attitudes to compliance.

iii. Estimating the VAT gap shows the NBR are accountable, transparent and will build on the work from the IMF and The World Bank to help the Bangladesh VAT system become a leading tax administration.

iv. Tax gap estimation, when considered with other efficiency and effectiveness indicators will help tell a more complete story of the state of Bangladesh VAT system. Estimating tax gap also demonstrates transparency, promoting community conversation about compliance gaps and what might be done to address them.

v. Tax gap should not be considered as the 'sole' performance measure of the VAT system in Bangladesh. A tax gap is inevitable and in a resource constraint environment, it is not possible to fully "close the gap". The aim of any tax jurisdiction should be to reduce the gap "as low as practical" given the complexity of the policy and law being administered and available resourcing. Tax gap estimates should not be viewed as a standalone performance measure, and will be placed among a suite of efficiency and effectiveness performance indicators. A key conversation will be around the "optimal" gap, i.e. the "break even" point at which the resources allocated to administer the system are commensurate with the amount collected.

vi. Provide working examples of work the NBR are undertaking to improve the administration of the tax system.

vii. While the estimate itself has a significant degree of uncertainty, this will be an evolving body of work in a complex area and the methodology may change over time to provide a more accurate figure. Estimating a tax gap is a challenging task for any jurisdiction.

ISSUES MANAGEMENT AND MITIGATION STRATEGIES

Strategies will need to be put place to cover the following issue:

I. The size of the VAT gap may become a catalyst for criticism of the broader tax system. There may also be a loss of community confidence in the NBRs ability to administer the tax system, leading to diminished voluntary compliance.

II. Regardless of the stated NBR purpose for the VAT gap estimate, others in the Bangladesh and international community may seek to use the information for alternate purposes.

III. The VAT gap becomes the NBR de facto key performance indicator and how the public and government gauges the NBR's performance on a year-to-year basis. The tax gap shouldn't be used as a sole performance measure, but rather as part an suite of effectiveness and efficiencies indicators for the NBR.

IV. There may be confusion regarding the distinction between the compliance gap and the policy gap.

It is important to be proactive and decisive in communicating tax gap estimates and analysis, otherwise the analysis will be undertaken by other groups, or used in a manner contrary to the NBR's stated purpose. The NBR needs to be clear on the purpose of the tax gap estimation work, including as a performance indicator. This can be done by:

I. Early engagement (post July 15) with pre-briefing to Government, Bangladesh Bank, Ministry of Finance, key journalists, professional associations and other relevant government departments as appropriate

II. Issue media pack (with Q&As). Align key compliance/tax gap messaging in relevant external (and internal) communication. Typical media questions associated with the release of VAT gap include:
   a. Why haven't you measured the VAT gap before now?
   b. Now that you've identified the VAT gap, what are you doing to do to close it?
   c. What is the amount of the VAT gap?
   d. Does the size of the VAT gap concern you?
   e. According to your graph, the VAT gap has been trending down. Why is that?
   f. Is this rate of the VAT gap consistent with what the gap in other countries?
   g. How do you define the VAT gap?
   h. How have you calculated the VAT gap?
   i. What macroeconomic data do you use?
   j. What other data do you use and where do you get it?
   k. What do you see as the sources of the VAT gap?
   l. Would putting more resources into audit close the VAT gap?

TABLE 7: STAKEHOLDER IMPACT STATEMENT

Stakeholders	Impact/Anticipated Reaction	Mitigation Strategy
Community	Experiences of other jurisdictions demonstrate community and media interest in tax gap estimation, however there is a tendency to focus on a "headline number" rather than a range, giving rise to expectations that this number should/can be reduced to zero. Release of a gap estimate will be a catalyst for conversations about the Bangladesh community's compliance culture (particularly around cash economy), which will be beneficial in the long-tern. External communication must ensure broader benefits are understood, as well as how such a program may lead to reduce red tape: - by reducing non-compliance due to complexity in the system.	Development and deployment of a communication strategy, including proactive engagement with the media/journalists to better inform the community about the VAT gap.
Large business	Large businesses account for a significant component of Bangladesh tax revenue, and as a result, one can expect interest in how this segment is represented in the VAT gap.	Engagement with the segment through external communication and consultation
Small and Medium Business	Small businesses account for a significant portion of Bangladesh taxpayer population, and thus it is expected that they will be interested in how small businesses are represented in the tax gap.	Consultation through Small Business Liaison Groups in Bangladesh.
Tax profession	There is usually significant interest in the gap from tax professionals and a desire to see what the NBR is doing to "close the gap".	Communication through available tax professional channels
Government	A tax gap estimate will significantly impact government due to the likely questions regarding the policy debate and the effectiveness of the tax law. The VAT gap analysis may provide an opportunity to provide more evidence-based policy advice to government.	Early consultation with government about uses of tax gap and how they complement effectiveness measures.
Bangladesh Bank and Ministry of Finance	Tax gap estimation will impact these departments as it may highlight the size of tax expenditures or the policy gap.	Early engagement with Bangladesh Bank and Ministry of Finance in estimating VAT concessions post 1 July 2015.
Scrutineers including IMF and World Bank	The World Bank has interest in gap estimation as a performance indictor to ensure changes under the new Act helped reduce non-compliance in the Bangladesh VAT system. The World Bank and IMF are also being key contributors to broader commentary into the effectiveness of the Bangladesh VAT system, which may arise following gap estimation.	Ongoing engagement with the IMF and The Work Bank.
NBR employees	NBR employees will be interested in the gap estimate, in particular in policy/compliance areas. Depending on the trend and the engagement with the community/media, the gap estimates could lead to complimentary/critical perceptions and reporting of NBR capability, which could impact (either positively or negatively) employee morale to some extent.	Internal communication campaign with contextualized messaging.

GLOSSARY

Gross Domestic Product

Represents the sum total of the value added in the domestic production of goods and services the economy

Gross tax gap

Theoretical tax liability <u>less</u> tax actually collected which was paid voluntarily.

Hidden / Shadow / Illegal / Underground / Cash economy

These terms all refer to income, from various sources that is not reported or taxed for various reasons. There are overlaps between these terms and some of them are used interchangeably but there are differences in the way they are used by various tax jurisdictions and researchers.

Indirect tax

Tax that is imposed when a taxable transaction occurred; it is levied on one entity (e.g. the seller) and paid by another (e.g. the buyer). Value Added Tax (VAT) is an example of an indirect tax.

Net tax gap

Gross tax gap <u>less</u> tax collected from enforcement activities and late payment.

Tax evasion

Actions taken to deliberately evade lawful taxes.

Tax gap

Tax that is legally owing to government but not collected for a defined period.

VAT Theoretical Tax Liability VTTL

The amount of VAT that would be collected for the tax year in question if all relevant aspects of the tax law were correctly applied.

Value Added Tax (VAT)

An indirect, consumption tax. From the buyer of the vat product view, it is a tax on purchase price from seller view it's a tax on the value added of the product or service that the rate applied varies by countries. A well function and effective vat system is similar to a sales tax in that its ultimately only the end consumer that is taxed.

ABBREVIATIONS AND ACRONYMS

1993 SNA	System of National Accounts 1993
2008 SNA	System of National Accounts 2008
ATO	Australian Taxation Office
BB	Bangladesh Bank
BBS	Bangladesh Bureau of Statistics
EU	European Union
FISIM	Financial Intermediations Services Indirectly Measured
GDP	Gross Domestic Product
GFCE	Gross Fixed Capital Expenditure
GST	Goods and Services Tax
HES	Household Expenditure Survey
HFCE	Household Final Consumption Expenditure
HMRC	Her Majesty's Revenue and Customs
I-O	Input-Output data
IOCC	Input-Output Classification of Commodities
IMF	International Monetary Fund
KPI	Key Performance Indicator
NBR	Bangladesh National Board of Revenue
NOE	Non-observed economy
NPISH	Non-profit Institutions Servicing Households
SNA	System of National Accounts
OECD	Organisation for Economic Co-operation and Development
VAT	Value Added tax
VTTL	VAT Theoretical Total Liability

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APPENDIX 1: TERMS OF REFERENCE

The terms of reference include:

a.   Develop a VAT methodology and model which can be used to evaluate and estimate at the macro level:
i.   Potential revenue for VAT;
ii.   Potential unrealized revenues for the VAT;
iii.   Compliance rate for the VAT population;
iv.   Evasion rate for the VAT population;
v.   Number of potential VAT taxpayers;

b.   Identify data requirements and relevant specifications to conduct the VAT gap analysis;
c.   Assess the quality of available data and propose alternative methods for data collection when data quality is weak.
d.   Provide a seminar for the methodology of tax gap analysis and discuss the proposed approaches for data collection and processing and calculating the tax gap that should by adopted by NBR.

The mission is expected to deliver

e.   An inception report;
f.   Comprehensive report covering the following aspects:
i.   The proposed methodology for development of an adequate analytical model to evaluate at macro level the Potential Revenue, and the VAT compliance rates, VAT gap in Bangladesh.
ii.   How to develop a model for measuring the tax gap under the new 2015 VAT law;
iii.   Key findings and recommendations to enable the NBR to measure the tax gap.
g.   Advise and provide insight on how to estimate the effect of administrative and organizational changes on levels of compliance.

APPENDIX 2: VAT BASE

As presented in Shome, P 1995, *Tax Policy Handbook*, Estimating the VAT Base Using National Income and Expenditure Data, IMF

	Remarks	Likely Data Source**
Starting point of estimation: GDP (market prices)	Sum of value added of domestic production	NIA
Adjustment A: trade balance	For destination–based VAT	
1. *Minus* exports		NIA
2. *Plus* exports		NIA
Adjustment B: capital formation	For consumption-type VAT	
1. *Minus* gross domestic capital formation		NIA
2. *Add* residential buildings		NIA
3. *Add* capital formation in exempt sectors		NIA
Adjustment C: exempt sectors		
1. *Minus* value added of exempt sectors (factor costs)	e.g. non-exportable agriculture, financial services, owner-occupied dwellings, wholesale and retail	NIA
2. *Minus* indirect taxes in exempt sectors	Convert adjustment from factor costs to market prices	NIA/GOT
Adjustment D: cascading	Caused by credit-invoice method	
1. *Add* purchases of output from exempt sectors by taxed sectors		I/O
2. *Add* taxed inputs in exportable agriculture		I/O, GOT
Adjustment E: government expenditure		
Minus expenditure on wages and salaries	Nontaxable expenditure component in NIA	NIA, GOT
Adjustment F: final private expenditure		
1. *Minus* exempt expenditures	e.g. rents, education, and health services	NIA, CPI
2. *Add* taxed inputs in exempt expenditures	Due to cascading	I/O
3. *Add* foreign expenditures in local markets		NIA
4. *Minus* expenditures abroad by residents		NIA
Adjustment G: exemption threshold	For reducing administrative costs	
1. *Minus* sales of firms below threshold		GOT
2. *Add* taxed inputs in above sales	Due to cascading	GOT
Adjustment H: tax replacement		
Minus sales tax to be replaced by the VAT		GOT
Adjustment I: collection leakage		
Minus estimated extent of leakage		GOT

* The estimation framework assumes a destination-based, consumption-type VAT implemented with a credit-invoice method.

** NIA = national income accounts; I/O = input/output tables; CPI = consumer price index basket; and GOT = various government and tax departments.

APPENDIX 3: Major Differences between the VAT Act 1991 and the VAT and SD Act of 2012

Presented in Improving Tax Compliance in Bangladesh: A study of Value Added Tax (VAT), June 2013 page 21.

Feature	VAT Act, 1991	VAT and SD Act, 2012
Tax base	• Narrow tax base • Wide ranging exemptions • Limited coverage of services	• Broad tax base • Narrow exemption list of goods and services
Registration	• Separate registration for each place of business	• Single registration for each taxpayer • Consistent with accounting practices, option for branch registration if separate accounts are maintained
Taxable value	• Arbitrary tariff values for specific products • Truncated bases for specific services • Package VAT for small retailers	• Actual transaction value is the basis for taxation • No tariff values • No truncated bases • No package VAT
Price approval	• Requirement to have prices and input-output coefficient approved by tax officers	• No requirement for price and input-output coefficient approval • Keeping input-output coefficient for audit purpose
Input tax credit	• Severe restrictions on input tax credit • No input tax credit allowed for VAT deducted at source nor for Advance VAT paid on import	• All taxed inputs are creditable to the extent that they are or will be used to make taxable supplies
Invoice system	• Partial	• Full
VAT accounting	• Under the present 'Account Current System', manufacturers are required to make advance VAT payment before clearing goods from factories	• VAT accounting on a monthly return basis
Tax refund	• Very complex and almost impossible for taxpayers to get refund	• Simplified VAT refund system
Tax clearance certificates to taxpayers	• No provision	• Tax clearance certificate to be given to good taxpayers
Collection of arrear taxes	• Limited power of the NBR	• Additional powers given to the NBR to recover arrear taxes
System management	• All systems are manual	• The law provides for full conversion to electronic processes, including tax payment

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