Attachment to Coordinator Paper: (5) Overview Note on Value-Added Tax in the Extractive Industries[1]

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[1] This overview note was prepared by Marius van Oordt, Richard Stern and Nana Okoh with input by the Subcommittee on Extractives Industries Taxation Issues for Developing Countries.

1. Overview

1.1. Executive Summary

In the tax structure surrounding investment in oil, gas and the mining sectors, little systematic attention has been paid towards the role of broad-based consumption taxes and their impact on the extractive industries. The value-added tax (referred to as VAT from hereafter), also commonly referred to as the goods and services tax (GST), is the broad-based consumption tax of choice in more than 160 countries worldwide. It is generally also the broad-based consumption tax adopted by countries with large extractive industries.[2]

Due to the VAT being applied to both the inputs and the outputs of the extractive industries and given the long lead times in extractive industries' investments, VAT affects the industry at every phase in the typical life cycle:

Life Cycle Phase	Key Activities Undertaken	Input VAT Deduction	Output VAT Charged	Key Issues
Exploration	• Locating deposits • Assessing commercial and economic viability • Typical 3-10 year period	Yes	No	• Surplus input VAT refunds due • Opportunity cost on cash flow • Exposure to exchange rate depreciation
Development	• Preparation of site for production • Establishment of infrastructure • Typical 2-4 year period	Yes	No	• Surplus input VAT refunds due • Opportunity cost on cash flow • Exposure to exchange rate depreciation
Production	• Commercial processing and production • Typical 15-20 year period or until economic recovery is attained	Yes	Yes Often at a zero rate as output is largely exported	• Generally 0% VAT on export of outputs • Recovery of input VAT • Compliance costs for

[2] One exclusion to this generalization is the United States which has adopted a retail sales tax.

				documentary requirements ac-companying export
Decommissioning / Rehabilitation	• Removal of infrastructure • Restoration of site	Yes	No	• Surplus input VAT refunds due • Opportunity cost on cash flow • Exposure to exchange rate depreciation

Both the exploration and development phase require considerable direct investment, with the development phase alone often accounting for 40 to 50 percent of the total cost of the project.[3]

Large capital goods are generally imported and other inputs might be either imported or supplied by the local economy. As there is no commercial production and consequently, no sales during these periods, there is little or no output VAT on domestic sales against which input VAT can be deducted. This means that input VAT refund claims will arise which could or could not be honored, depending on local legislation. The refund policy of the host country thus becomes critical to investment decisions as it affects the cash flow position of the investor. The timely refund of input VAT can therefore act as a barrier or facilitator to investment during the exploration phase. Further, the adopted VAT policy applicable to the extractive industries and related administration can have spillover effects into the local economy.

During the production phase, produced goods are often predominantly exported, meaning the destination principle will apply to these exports and the supply will be zero-rated.[4] This export orientation limits the amount of output VAT against which input VAT can be deducted. Also during this phase, the timely refund of input VAT can provide challenges for a VAT policy and related administration and be either a barrier or facilitator to investment.

During the decommissioning/rehabilitation phase, services that relate to decommissioning are often supplied by businesses in a different jurisdiction than the extractive site. The VAT treatment relating to these services could provide a challenge. Further, since production will have ceased and generally little supplies will be made during this phase, challenges regarding the refund of input VAT may again arise.

From an extractive industries perspective, the key issues of note therefore relate to:

[3] The United Nations Conference on Trade and Development report, available at http://unctadxiii.org/en/SessionDocument/suc2012d1_en.pdf

[4] All countries with a VAT apply the destination principle. The destination principle ensures neutrality in trade and protects the legal base of the VAT (consumption). It involves zero rating exported goods and services and applying an import VAT to imported goods and services.

- A stable and efficient VAT framework which would inure to investment decisions.
- The timely recovery of input VAT, to i) mitigate opportunity costs on cash flow and ii) protect against exchange rate depreciation which would erode the value of the refunds due.
- Efficiency regarding the administrative requirements when exporting goods.

From a host country perspective, the key issues of note would relate to:

- A stable and efficient VAT framework which whilst contributing to revenue generation would ensure that VAT refunds when due are administered in a timely manner.
- Demonstrating that the host country is an ideal location for long term, stable investments.
- Developing the local economy as a result of the increased investment in the country.
- Limiting evasion under the VAT as it applies to the extractive industries and industries suppling to this industry.

1.2. Purpose

Since VAT policy and related administration are key elements in the extractive taxation framework, the purpose of this note is to provide an overview of aspects of VAT policy and administration issues as they relate to the life cycle of the typical extractive industries. The potential impact on investment decisions and spillover effects into the local economy are also discussed. Place of supply and consumption rules, as they relate to the extractive industries, are also suggested.

1.3. Status of the note

This note is for information purposes only. It is intended to identify VAT issues related to the extractives industries and identify potential policy initiatives which could help mitigate VAT issues which could arise and thus affect the host country being considered as an area for investment decisions. This overview note is expected to be developed into a full guidance note during 2016.

1.4. Meaning of terms used

Exemption: An exemption for the purpose of VAT means that a vendor will not be regarded as making taxable supplies in relation to the supply of exempt goods or services. This means that such a vendor will also not be allowed to claim an input VAT deduction in relation to such an exempt supply (refer to the meaning of input VAT).

Full taxation: Full taxation in relation to VAT means that the standard VAT regime is applied to a supply of goods or services. This means that there are no exemptions, zero ratings, reduced ratings, or other alternative policies that apply to a supply of goods or services.

Import VAT: VAT paid by a recipient of imported goods or services; import VAT is generally paid to a customs or similar office on the importation of goods and to a branch of the revenue services or postal office on the importation of services.

Input VAT: In the case of domestic supplies, input VAT is the VAT charged on the supply of goods and services to a vendor, which qualifies for an input VAT deduction. In the case of imported goods or services, input VAT is the VAT paid by a vendor on the importation of goods and services, which qualifies for an input VAT deduction.

If the purchasing vendor acquires the goods for use, consumption or supply in the course of making taxable supplies, the vendor will generally qualify for an input VAT deduction.

Input VAT apportionment: An input VAT apportionment will generally need to be made by a vendor if a good or service is acquired partly for the use, consumption or supply of taxable supplies and partly for non-taxable supplies (predominantly exempt supplies).

Output VAT: VAT charged on the supply of goods or service by a vendor, where the goods or services are supplied in the course or furtherance of that vendor's economic activities (also often referred to as enterprise or business).

Reverse-charge rule: A rule that is often applied to imported services. The recipients of the imported service would be required to self-assess themselves to VAT. Import VAT will therefore only be paid to the extent it cannot be offset with output VAT.

Taxable supplies: Supplies of goods or services by a vendor that are charged with VAT. This will include supplies that are charged with the standard VAT rate, a reduced VAT rate in the case of a country that applies multiple VAT rates or a zero-rated supply.

Vendor: A person that is registered or required to be registered for VAT. A person will be required to register for VAT if that person's taxable supplies exceed a compulsory threshold within a certain period (generally 12 months). In most jurisdictions a person is allowed to register for VAT even when that person's supplies do not exceed the compulsory registration threshold, subject to a voluntary threshold or other provisions.

Zero rate: A zero rate for purpose of VAT means that a vendor will be regarded as making taxable supplies in relation the supply of zero-rated goods or services, but this taxable supply is charged with VAT at nil percent. This means that such a vendor will be allowed to claim an input VAT deduction for purchases in relation to such a zero-rated supply (refer to the meaning of input VAT).

2. VAT policy and administration in the extractive industries

2.1. An overview of issues relating to VAT policy and administration in the extractive industries

VAT is a tax on final consumption of goods and services charged on the value added at multiple stages of production (see appendix 1 for an overview of VAT).

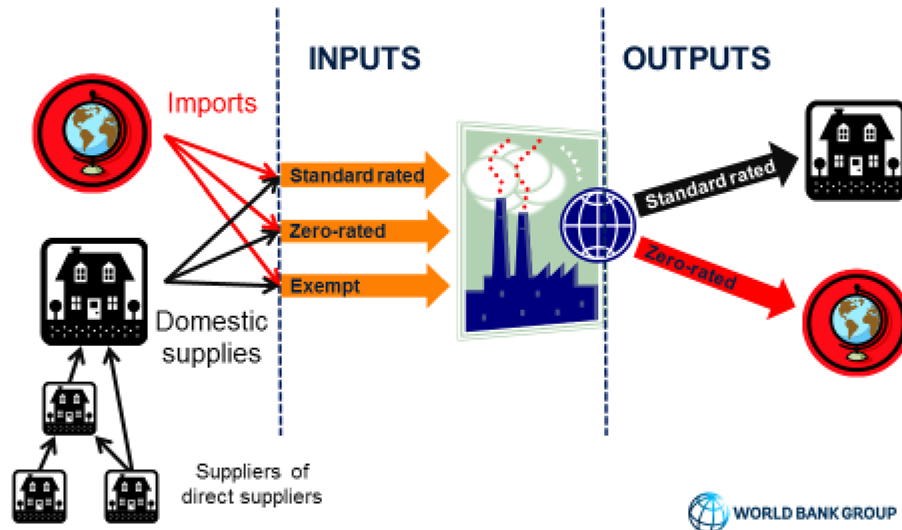
A key feature of a typical VAT framework is the destination principle, according to which VAT shall generally be charged at the place of consumption, i.e. destination, of a good or service. Consequently, only the country of destination shall levy VAT on a good or service. The destination principle intends to ensure neutrality in trade and protect the legal base of the VAT. As such, in principle, VAT should have little impact on the extractive industries, especially as it is export oriented in nature. Further, due to its export orientation, governments should not expect to raise much VAT revenue from this sector since VAT can typically only be raised on domestic consumption. However, it is notable that in practice, challenges with VAT remain, as explained in this note, in particular in relation to refunds.

The exploration and development stages pose particular challenges for VAT. There will be significant capital and other investment (resulting in input VAT including reverse charge on imports) but little or no production (resulting in output VAT). This might ultimately create a surplus input VAT position which – if not repaid in a timely fashion – would impact on *inter alia* cash flow, foreign exchange fluctuations and associated investment decisions, ultimately affecting local content.

2.2. VAT policy and administration options relating to the extractive industries

2.2.1. Best practice policy and administration for the extractive industries

Ideally, a VAT policy for the extractive industries should not be any different to any other industry. The key focus should be an efficient and robust VAT framework which is mutually beneficial for governments as well as investors and which does not leave investors or governments in a position where funds are locked up:



2.2.2. Full application of VAT

The standard VAT rate is charged on all outputs and corresponding inputs are charged at the standard VAT rate as well. Exports are – in compliance with the destination principle, zero-rated. Excess input VAT would be duly refunded. Persons meeting eligibility to register for VAT would duly register such that the typical VAT input, output mechanism would fully function as follows:

- Extractive industries – zero rated VAT on exports and input VAT on inputs.
- Domestic supplies – standard VAT rate on supplies to the extractive industries.
- Full and timely refund of surplus input VAT at the end of the requisite period. [5]

This approach would ensure that domestic consumption attracts VAT whilst production, once exported, would not attract VAT.

This is what the best practice policy approach would ideally look like. However, unless there is a robust system that works to ease the efficient refund of surplus input VAT, this policy has been found to create cash flow issues for the extractive industries (the exploration and development stages do not attract output VAT and the production stage typically attracts zero rated VAT). The administrative requirements (specifically the timely payment of VAT refunds) for successfully implementing this approach may create a preference towards alternative policies. These alternative policies, together with their advantages and disadvantages, are discussed in the remainder of this subsection.

[5] Guidelines towards administration of the extractive industries are provided in 2.2.6.

2.2.3. Exempt goods and services supplied to the extractive industries

One approach to mitigate the issues regarding the timely payment of input VAT refunds is to exempt goods and services typically supplied to the extractive industries. A careful selection of goods and services to be tax exempt would be required to mitigate the risk of this exemption being used for goods and services not specific to the extractive industries.

In the case of imported exempt goods or services, import VAT would already not be imposed; neither would there be input VAT on specific locally sourced goods and services. Consequently, as extractive industries would not pay input VAT on their purchases, there would be neither need nor entitlement to an input VAT deduction and under this approach, the issues regarding the timely payment of input VAT refunds should therefore be largely resolved.[6]

It should be noted, however, that a full VAT exemption regime could result in economic distortions as local suppliers to the extractive industries would continue to pay input VAT on their inputs for which they would not be able to claim a refund since under a VAT exemption (as opposed to a zero rate), the supplier cannot claim an input VAT deduction in relation to his exempt supplies (see definition above). This may result in local suppliers attempting to pass such irrecoverable costs on to the extractive industries. As this exemption might not apply to foreign suppliers in their countries, foreign suppliers might not necessarily lose their possibility for input VAT deductions. There would be a risk of creating a pro-import bias in the sense that supplies imported free of VAT could ultimately be cheaper than local supplies with inflated prices. Such a consequence could negatively impact the local economy also beyond the extractive industries.

Compliance burdens for local suppliers would further increase to the extent that they would be required to distinguish between exempt supplies and standard rated supplies. The local supplier would then be required to do an allocation of input VAT, which may give rise to significant compliance costs to the local supplier.

2.2.4. Zero rated goods and services supplied to the extractive industries

Another approach to avoid the issues regarding the timely payment of input VAT refunds is to zero rate the goods and services predominantly supplied to the extractive industries. Similar to the exemption regime discussed in subsection 2.2.3, there is a risk that the zero-rated goods and services would in practice not only be used by the extractive industries. This risk would be expected to be greater than under the exemption regime. Under an exemption regime, the supplier cannot claim input VAT regarding the exempt supplies which might create an incentive to pass it on to the purchaser in the form of an augmented purchase price. This will affect demand for exempted goods. Under zero rating, the vendor can still claim input VAT. Consequently, there is no need for passing it on. This means that there would likely be a greater incentive (due to a greater price difference) to use zero rated goods for substitute purposes also than there would be for previously exempt goods.

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[6] It may be that there are certain types of goods or services used by many industries that are standard-rated and an input VAT refund may still potentially arise. It can, however, be expected that this refund would be significantly less.

An issue to consider with this this approach is that recovery of any input VAT would effectively be shifted from the extractive industries towards the suppliers.] The suppliers would ultimately be in a refund position since they would in theory be entitled to claim refunds for their input VAT paid, but because of the zero rate applied to their supplies to the extractive industries, there would be no output VAT against which the input VAT could be credited. This would particularly occur in instances where the supplier was not making other standard-rated supplies.

2.2.5. Policies similar to selective zero rating of supplies to the extractive industries

In attempting to resolve or address issues connected to the timely payment of VAT refunds, countries may adopt policies that have a similar result as applying a selective zero rate to supplies to the extractive industries. Such policies aim at creating an effective administration of VAT so that VAT refund positions, should they arise, would not be unduly delayed. Further, such policies would be expected to limit economic distortions and possible risk of using zero-rated supplies in other industries besides the extractive industries.

VAT on imported services – application of the reverse charge mechanism

The reverse charge mechanism could be applied to imported supplies of goods and services whereby the requirement to pay and later request a refund could be lifted. The extractive industries would be required to pay import VAT only to the extent where they collect output VAT.

Deferral of VAT on imported goods – payment time lag

This would require the deferral of the payment of import VAT within a specific period of time. The aim of this approach is to allow vendors to make taxable supplies from the use, consumption or supply of the imported goods for a limited time before ultimately being accountable to pay the VAT, thereby easing cash flow constraints. Such a mechanism would then allow vendors to charge output VAT and then account for the VAT on imports. It should, however, be noted that where the taxable supplies of the importing vendor are zero-rated (as would often be the case in the extractive industries), there would be no output VAT against which the input VAT deduction can be claimed and the issues regarding the timely payment of VAT refunds could remain. Further, if the period of deferral is too short, these issues would also remain since the output VAT collected might not yet suffice to offset the input VAT paid.

Deferral of VAT on imported goods – accounting only, no payment

Another, perhaps more preferred, method of deferral of import VAT is to require the importing vendor to simply account for the import VAT on their VAT returns as an ‘in’ and ‘out’, i.e. show the import VAT as output VAT with an input VAT declaration equal to the output VAT shown on the return, meaning that a net nil VAT position would arise on the importation of goods. This approach would, however, require robust administration between domestic tax collection services and customs services. Further, good tracking mechanisms would be required to ensure that only eligible items are included within scope.

Exemption of specific extractive industries’ related items

It would also be possible to provide exempt status in relation to certain imported goods as well as domestic goods to vendors in the extractive industries. Upon the importation of those specific goods, a vendor would provide proof of his exempt status to the customs office to relieve the

imposition of import VAT. There is, however, an obvious risk of fraud in this approach from importers who falsify their proof of exempt status or import goods under the exempt status of another vendor.[7]

2.2.6. Pure administrative approaches for the extractive industries

It should be understood that the majority of issues regarding input VAT refunds to the extractive industries are of administrative nature. These issues can be associated with compliance costs in claiming VAT refunds, administrative costs in auditing VAT refunds, sufficiently budgeting for VAT refunds and the physical payment of VAT refunds. Such administrative burdens could be reviewed and mitigated as follows:

- Review of the documentation required to claim an input VAT refund as well as the time it takes vendors to prepare and submit applications for input VAT refunds.
- Implementing a risk based approach to VAT administration which could see targeted reviews and potentially more refunds being paid and with less delay.
    - Following a risk channeling approach (often referred to as a “green and red channel” approach[8]) according to which tax compliant vendors would receive refunds in a timely manner through an established mechanism (“green channel”). This could further provide an incentive for “red channel” taxpayers towards increasing compliance in an attempt to be moved to the “green channel”. The only significant issue with risk channeling is that the treatment of older and newer VAT vendors may not be neutral and may favor older VAT vendors.
    - Install post VAT refund audits for lower risk refund claims; such refunds can be paid more often and with less delay.
- In budgeting for input VAT refunds, refund forecasting and monitoring tools could play an important role in ensuring sufficient funds are allocated and made available to pay refunds. Such tools would predict the expected amount of refunds that needs to be budgeted for, based on patterns of past refunds claims. A dedicated VAT refund account at the Central Bank of a country may also assist towards cash flow problems faced by the government in relation to paying input VAT refunds.
- Offsetting input VAT refunds against other tax liabilities.
    - It is important to note that allowing offsetting of input VAT refunds against other debts besides tax liabilities owed to government may provide for significant administrative challenges. Further, input VAT refunds should not be offset against future tax liabilities.

[7] Similar risks of evasion that are present under a retail sales tax could arise under this approach. Goods may be removed from the VAT chain and it may be difficult to track this type of fraud.
[8] This is also sometimes referred to as the “gold and silver status” approach.

Overview of VAT Mechanism Policy options – Best Practice options

Policy option	Overview	Pros	Cons
Full Application of VAT	• Standard rate VAT on inputs • Standard/Zero rated VAT on outputs	• Cyclical flow of VAT funds – no distortion in the VAT Chain	• Opportunity cost on cash locked up in refund positions • Exposure to exchange rate depreciation
VAT exemption regime	• No VAT charged on inputs or outputs	• No refund situations arise to the extractive industries	• Distorts VAT chain; supplier at the lower end of the chain would not be allowed an input VAT deduction • Close monitoring of supplies within/out of scope required
Zero rated supplies to the extractive industries	• Supplies specific to the extractive industries to be zero rated	• No refund situations arise to the extractive industries	• Distorts VAT chain; supplier at the lower end of the chain likely to be affected by surplus input VAT position • Close monitoring of supplies within/out of scope required
VAT on imported services – application of the reverse charge	• Only pay VAT to the extent of not making taxable supplies	• Cyclical flow of VAT funds – no distortion in the VAT chain • Ease on cash flow	• Decreased cash flow to governments, even in the short term affect forecasting and planning
Deferral of VAT on imported goods – payment time lag **Deferral of VAT on imported goods – accounting only, no payment**	• Payment only due once taxable supply is made by the extractives. • Account for VAT on statutory returns only	• Cyclical flow of VAT funds – no distortion in the VAT chain • Ease on cash flow	• Refund issues remain if insufficient output VAT is generated • No cash flow to governments, even in the short term– affect forecasting and planning • Requires close monitoring: mitigates fraud risk

3. Place of supply and consumption of decommissioning/rehabilitation services

3.1. On overview of the issue regarding decommissioning services

Applying the destination principle to services has been problematic due to difficulties in determining the place of supply and consumption of services. Before the recent growth in globalisation and technology, there was little need to establish rules relating to the place of consumption of services, as most services were consumed in the country where they were physically performed. This has resulted in many different proxies used by different jurisdictions in determining the place of supply and consumption of services. These different proxies provide for problems such as double taxation, non-taxation and increased administrative and compliance burdens.

In the decommissioning phase in extractive industries, services are often supplied by vendors located in other jurisdictions. These services often involve a planning stage and an execution stage. The planning stage will generally take place at the supplying vendors' place of operation or fixed establishment. The execution stage would take place at the extractive site. The supplying vendor could separately charge for planning and execution, or only have a single charge that includes both planning and execution.

In the final stage of the extractives life cycle, production has been curtailed, however, costs related to decommissioning/restoration continue to be incurred, both on locally sourced supplies as well as imported supplies. Once again, the issue of VAT recoverability is raised as for an extractives company, there would be limited or no output VAT against which to offset input VAT.

3.2. General rules relating to the place of consumption of services

To avoid double or non-taxation for the supply of inter-jurisdictional services, taxing rights are granted to a jurisdiction. This generally means that the services will be exported services and zero-rated in other jurisdictions and charged with VAT for the jurisdiction which holds the taxing rights. Of course, it is first necessary to determine whether a supply of services is inter-jurisdictional before reference needs to be made to taxing rights.

The OECD has set out draft guidelines in applying the destination principle for internationally traded services.[9] These guidelines as they relate to business-to-business supplies are:

- For consumption tax purposes, internationally traded services and intangibles should be taxed according to the rules of the jurisdiction of consumption.
- The jurisdiction in which the customer is located has the taxing rights over internationally traded services or intangibles.
- The identity of the customer is normally determined by reference to the business agreement.

[9] Refer to the OECD International VAT/GST guidelines. Available: http://www.oecd.org/ctp/consumption/discussion-draft-oecd-international-vat-gst-guidelines.pdf

- When the customer has establishments in more than one jurisdiction, the taxing rights accrue to the jurisdiction(s) where the establishment(s) using the service or intangible is (are) located.

It should be noted that the aim of these guidelines are to correctly allocate the taxing right to ensure that the value added by these services is taxed in the jurisdiction where the goods and services which ultimately arise as a result of the supply of services will be consumed.

3.3. Applying the general rules to decommissioning services

With reference to the general rules, it is evident that the jurisdiction wherein the extractive site is located will have the taxing rights of the decommissioning services. Although the customer may have establishments (extractive sites or others) in more than one jurisdiction, the taxing right should accrue to the jurisdiction where the decommissioning will take place (where the extractive site is located). This approach will ensure that the utility produced by the service is taxed where this utility is enjoyed (consumed).

3.4. Place of supply of decommissioning services

A further issue is the place of supply of these services. These services could either be supplied in another jurisdiction and, therefore, be imported services subject to import VAT or be supplied in the same jurisdiction as the extractive site and, therefore, potentially be subject to output VAT. If the services are supplied in the same jurisdiction as the extractive site, it may be necessary for the supplier of the services to register in that jurisdiction (if not already registered).

Whether the supply of services are imported or domestically supplied could also be important for the extractive industries, especially if the reverse-charge rule were applied to imported services. If the reverse-charge rule applies to imported services, the extractive industries' vendor may well prefer that the services be regarded as imported services. In the case where the services are regarded as domestically supplied services, the extractive industries' vendor would be entitled to an input VAT deduction on these services and issues regarding the timely payment of input VAT refunds may arise.

Under domestic VAT laws, a service is generally regarded as being supplied in a jurisdiction if the economic activities that relate to that service are performed in that jurisdiction. In such a case, the supplier of the services may be required to register as a VAT vendor in the country where the economic activities are performed. In the case of decommissioning services, the economic activities relating to the supply of the service are performed in the jurisdiction of planning the decommissioning and in the jurisdiction of the performance of the decommissioning. Where two invoices are created in relation to the decommissioning services (one for planning and one for performing decommissioning), the services relating to planning will be imported services. The services relating to performing decommissioning may well be domestically supplied services, which may result in issues regarding the timely payment of input VAT refunds.

If a single invoice is created for the planning and performing of the decommissioning services (which is likely to be the case), the place of supply of the services will be difficult to determine. It can be argued that the majority of the economic activities are performed outside of the jurisdiction of the extractive

site (planning), but domestic VAT laws generally do not allow for such “majority” rules. It may, therefore, be preferred to specifically include decommissioning services as imported services in domestic VAT laws, to allow extractive industries vendors to use the reverse-charge rule (if applicable).

4. Conclusion

From a developing country perspective, whilst the benefits of having a VAT mechanism in place are clear, the knock on effects of the system not working should not be understated.

Amongst others, the industries’ investment decisions could be affected and for the host country, spill over on local content could also be a consequence. Whilst the extractive industries should generally not be seen as different to other industries, an efficient VAT mechanism along with supporting administration which works for the extractive industries would inure to investment decisions.

Host countries finding the right balance between an attempt to provide for VAT policy and related administration that is attractive to extractive investors and also supports growth of the domestic economy would ease any perceived barriers to investment. VAT revenue from the extractive industries is likely to be minimal in countries where this industry is largely export-orientated, but administration of the VAT could provide challenges for continued investment in this industry.

From a policy perspective, the ideal approach would be to apply full taxation to this industry. If the full taxation approach is not administratively feasible, deferring the import VAT on capital goods by requiring vendors to report the VAT in their following VAT return may be preferable. Generally, to protect the domestic market, exemptions or zero-rating of goods and services supplied to the extractive industries are less preferred.

From an administrative perspective, measures should be put in place to decrease the delay in paying input VAT refunds. These could include an improved risked based auditing approach and post-refund audits of low risk input VAT refunds. Further, forecasting tools can assist in ensuring sufficient revenue is allocated and available for input VAT refunds. If a taxpayer has a consolidated accounting and debt management system in place, it may also be beneficial to allow taxpayers to offset input VAT refunds against payable tax liabilities.

Structured dialogues between government and the extractive industries could also provide for solutions to the issues discussed in this overview note that are tailored to each countries specific context.

5. Appendix: Overview of the VAT

The VAT and revenue

From an economic perspective, the following two equations show the base of the VAT[10]:

$$Y \equiv W + R \equiv C + I \quad (1)$$

Income (Y) can be divided into wages (W) and capital income (R).[11] Income can be reduced by investment (I) (this can also be called savings) or consumption (C). From the perspective of a firm, value-added is $W + R - I$. In other words, the base of the VAT from the perspective of the firm are wages (W) and "old capital" ($R - I$). The second equality in equation (1) can be written

$$W + R - I \equiv C \quad (2)$$

Equation (2) shows that value added from the perspective of the firm is equivalent to consumption from the perspective of the individual (or consumer). Under a VAT, the tax on investment (including inventories) is immediately creditable against the tax on sales. For purposes of an income tax, investments are deducted over their economic life. It follows that the only difference between the VAT and the income tax is the timing of the credit or deduction on investment goods. In the case where input VAT is only allowed to be deducted over the economic life of the investment, the VAT becomes and income tax.

The VAT should further not only be seen in terms of equation (2). From the perspective of government (and also often to preferred legal perspective), all vendors in the VAT system should be considered. Assuming equation (2) is representative of the value-added by vendor 1 in the production chain, $W + R$ for vendor 1 would be I for vendor 2. It is therefore evident that for a supply between vendor 1 and 2, no revenue should be raised. In other words, the tax should not fall on production. Only in the case where I cannot be deducted (generally meaning taxable supplies will not be made) revenue will be raised. This should generally only be (for reasons discussed later) where the value-added ($W + R$) is consumed. Table 1 illustrates this process:

Table 1: Workings of a VAT (assumed at a standard rate of 10 percent)

Production – Distribution Chain	Purchases incl. VAT	Sales incl. VAT	VAT deduction	VAT charged
Producer	0	100	0	10
Manufacturer	100	300	10	30

[10] These equations show the relationship between sources and uses of income for a closed economy and excluding government influence. For further detail refer to Cnossen (2009), "A VAT primer for lawyers, economists and accountants".
[11] Capital income is the sum of risk free normal return on capital, entrepreneurial reward for risk taking and economic rents.

Production – Distribution Chain	Purchases incl. VAT	Sales incl. VAT	VAT deduction	VAT charged
Retailer	300	500	30	50
Consumer	500	0	0	0

From Table 1 it can be seen that value added ($W + R - I$) for the producer is equal to 100 (100 - 0) and the VAT charged and paid towards government is equal to 10. $W + R$ (100) for the producer is I for the manufacturer. For the manufacturer the value added is 200 (300 - 100) and the net tax paid towards government is 20 (200 x 10%). This process continues until the supply is consumed. The consumer is not able to claim a deduction, since the consumer will not be making taxable supplies. The total VAT paid by the consumer is the VAT charged by the retailer (50). The total value added in the production and distribution chain is 500 (500 – 0). From a government (and often legal perspective) the base of the VAT is and should only be consumption.[12]

The reasons for following the output, input approach of the VAT (taxing value added), rather than taxing C directly (as under a retail sales tax) are predominantly described to decreasing evasion. Under a retail sales tax, both the retailer and consumer of goods or services have an incentive to evade the tax, but under a VAT the retailer is less likely to default on the VAT invoiced and paid by him to the manufacturer (since he gets a deduction for this amount of VAT). Further, the multiple invoices stating the VAT charged in the production and distribution chain provide for a clear audit trail. Revenue services can match invoices to decrease evasion from vendors under-reporting output VAT or over-reporting input VAT. It is, therefore, important for governments to understand that the output, input approach of the VAT and having the base of the VAT be value-added is for administrative reasons and revenue from the VAT should only be raised on consumption.[13]

Taxing production under the VAT

Production can be taxed directly under the VAT. This will be the case where a supply of goods or services is exempt or an input deduction is statutorily not allowed. The disallowance of an input deduction effectively changes the VAT to an income tax without any deduction on investment (refer to equation (1) and (2)). The producer will attempt to recoup the VAT paid from a purchaser, resulting in tax cascading (VAT on VAT).

Taxing production directly also results in economic distortions that decrease the efficiency and neutrality of the VAT. Vendors would prefer inputs that do not include non-deductible VAT. If no economical alternative inputs are available, these vendors will have an incentive to vertically integrate and self-supply. These changes in production can have an effect on not only the production efficiency of the VAT vendor opting for other (possibly less ideal) inputs, but also on VAT vendors in other sectors that utilize

[12] The generally preferred legal perspective is that VAT is a tax on consumption expenditure. The economic perspective is, however, generally that VAT is a tax on all consumption activities.
[13] It should be emphasised that this does not mean that the government only receives revenue when the goods are consumed. Revenue is received at the end of an accounting period on the value-added by a vendor.

the originally produced good. This may in turn put pressure on government to introduce additional exemptions. Besides preferences towards inputs that do not include non-deductible VAT, the destination principle (which ensures neutrality in international trade) will be compromised.

The VAT will generally also be more complex when directly taxing production, resulting in an increase in compliance and administrative costs. Particular burdensome compliance costs arise where vendors who make taxable and non-taxable supplies (meaning an input deduction is not allowed) have to apportion input VAT.

Production under the VAT can also be taxed indirectly. This will be the case where inputs deductions are statutorily allowed, but not paid or paid in a timely manner. It should be understood that in the general case where output VAT exceeds the input VAT for a vendor at the end of an accounting period, the difference is paid by the vendor to government. There is, therefore, no input VAT deduction claimed by the vendor.

However, in the case where input VAT exceeds output VAT, the vendor should in principle have a right to be paid the difference by the government.[14] If the government were not to pay the input deduction, VAT will fall on production. If the government were not to pay this input deduction in a timely manner, costs relating to the time value of money and opportunity costs as a result of cash flow problems will also fall on production.[15] Besides these costs, not allowing an input deduction, or not allowing an input deduction in a timely manner could result in cash flow constraints for the vendor.

In many jurisdictions a vendor is not entitled to an input VAT refund when input VAT exceeds output VAT, but rather only allowed to carry over the input VAT refund to the following accounting period. Special regimes may apply in these jurisdictions towards exporters and other selected industries to allow for a VAT refund at the time of the supply of exported goods and services, or at an earlier time.

Although governments have a time value of money incentive in delaying the payment of input VAT refunds, many countries are unable to pay input VAT refunds in a timely manner due to administrative constraints. Fraudulent input VAT claims can result in a significant loss in revenue. Without risk management systems, manually auditing for and detecting fraud can take an extensive period of time. Further, governments may themselves experience cash flow problems when large input deductions need to be paid. Although from a theoretical point of view input deductions should be paid immediately as not to tax production, this is not always practically possible for countries with limited administration capacities.

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[14] This right generally should arise at the time of the supply of goods and services to the vendor. For administrative reasons, input VAT generally only becomes payable by a government at the end of the vendors next accounting period.

[15] From governments view, revenue will be raised under the VAT from production. Some governments do pay interest on late payments on refunds which alleviate the costs relating to the time value of money.