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**Extractive Industries Taxation**

**The Valuation of Mining Products for Tax Purposes**

***Summary***

This paper is presented to the UN Tax Committee at its Thirtieth session for a *second reading and the Committee's approval*.

This report highlights the critical role of accurate product valuation in preventing profit-shifting in the natural-resources sector, particularly in the mining industry. It reviews available examination methods for tax administrations and identifies the important technical challenges that these methods present.

The report observes that determining the value of mineral products is by its nature subject to judgment, with the result that valuation often involves challenging tax examinations and difficult tax controversies. The report discusses various procedural approaches to managing these controversies, all of which can be useful in different kinds of circumstances.

At the last session an earlier version of the paper was presented to the Committee for discussion and guidance. Some of the comments and suggestions made related to: (i) coordination with the Subcommittee on Transfer Pricing; (ii) the need for practical guidance to help tax administrations address valuation challenges; (iii) the impact of tax stability agreements on product valuation; and (iv) periodic review of advance pricing agreements, including an option on royalties.

In the course of addressing comments received and concerns raised, the Subcommittees had several exchanges with the Transfer Pricing Subcommittee, and sought the views of identified tax officials and other experts in the field. The draft presented at the Thirtieth session is an updated and improved version which aims to be a balanced and practical guidance for tax officials and practitioners in developing countries.

## **The Valuation of Mining Products for Tax Purposes**

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## The Valuation of Mining Products for Tax Purposes

### I. Background and Purpose of Report

- a. For developing countries with substantial mineral deposits, the extraction and sale of minerals can constitute a major potential source of government revenue. Moreover, mineral deposits are non-renewable, meaning that minerals from a particular deposit can be extracted and sold only once. If the government fails to receive proper compensation at the time of the deposit's sale, the opportunity to do so can be lost forever. For this reason, if the country and its people are to receive the full benefit of the country's natural endowment of wealth, it is crucial for the fiscal authorities to be able to ascertain and enforce payment of the proper amount of the government's take with a high level of effectiveness.
- b. As discussed further below, governments often apply a combination of two different levies ("fiscal instruments") on the extraction of mineral products: (i) royalties, which often (but, as described below, not always) are imposed as a percentage of the value of the product that is extracted; and (ii) taxes on the net profits of the mining companies that perform the extraction and sale of the product (including corporate income taxes and resource rent taxes). In some instances, other fiscal instruments, including production sharing agreements and other profit-sharing arrangements, also are used.<sup>1</sup> The valuation of extracted products is crucial to the proper application of all these fiscal instruments. In particular, if the extracted minerals are undervalued, government revenue from both royalties and taxes on profits, as well as other fiscal instruments, will be unwarrantedly reduced. Ensuring the accurate valuation of extracted products is therefore an important part of the responsibility that is entrusted to the taxpayers and, through their auditing efforts, the tax administrators of mineral-rich countries.
- c. The need to value extracted products for tax purposes can arise in connection with both related- and unrelated-party transactions. Valuation issues arise routinely in connection with sales of product after extraction is made from an extractive company to a related party – that is, to another member of the company's multinational group. The valuation of products in related-party sales generally is referred to as transfer pricing, under which prices in transactions between related parties are to be determined in accordance with the arm's length principle. Under the arm's length principle, the price agreed in a related-party transaction must be comparable to the price that would prevail between unrelated parties in comparable circumstances, taking into account the parties' functions performed, risks borne and assets used.<sup>2</sup> Sometimes, tax administrators also express concern regarding the possible

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<sup>1</sup> For an overview of different available fiscal instruments, *see generally, e.g.*, United Nations Handbook on Selected Issues for Taxation of the Extractive Industries by Developing Countries (updated edition), chapter 2.6, [https://financing.desa.un.org/sites/default/files/2024-03/web\\_VERSION\\_EH\\_2021.pdf](https://financing.desa.un.org/sites/default/files/2024-03/web_VERSION_EH_2021.pdf).

<sup>2</sup> The topic of transfer pricing administration in developing countries is addressed comprehensively in the United Nations Practical Manual on Transfer Pricing for Developing Countries, <https://desapublications.un.org/publications/untied-nations-practical-manual-transfer-pricing-developing-countries>. The OECD has provided detailed guidance for application of the arm's-length principle in its Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations,

undervaluation of product when it is sold to either a related or an unrelated party; in particular, the possibility is raised that the extracting company might intentionally alter sales records to avoid taxes and other government levies, and to circumvent currency controls. This kind of intentional mispricing in sales involving both related and unrelated parties is often referred to as trade mispricing.<sup>3</sup> This report does not attempt to address the topic of deliberate alteration of records or other intentionally wrongful practices, although it should be noted that the valuation techniques described in this report may in some instances be relevant in dealing with deliberate mispricing.<sup>4</sup>

- d. Although this report addresses specifically the valuation of mining products, it should be recognized that other transfer pricing issues also can arise with respect to extractive-industry taxpayers.<sup>5</sup> These include, among others, issues involving related-party debt; marketing, management, and service fees; the purchase of equipment; the use of intangibles; and the tax treatment of financial derivatives and intragroup hedging arrangements.
- e. This report incorporates information derived from a series of conversations with tax administrators from minerals-rich countries at different levels of economic development, as well as other experts.<sup>6</sup> The report (i) describes the importance of effective product valuation in controlling profit-shifting in the natural-resources setting; (ii) reviews the examination techniques that are available to tax administrations in addressing product valuation issues and describes the practical difficulties that tax administrations face in addressing these issues; and (iii) suggests possible means by which governments, assisted by capacity-building from international organizations and national governments, might more effectively address the challenges posed by the valuation of mineral products. In the interest of enhancing its useability, this report is intended to provide relatively brief practical guidance to policymakers and tax administrators and does not attempt to cover exhaustively any of the topics that are addressed. It should be read in conjunction with other relevant guidance such as the United Nations Handbook on Selected Issues for Taxation of the Extractive Industries for Developing Countries and the United Nations Practical Manual on Transfer

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[https://www.oecd.org/en/publications/serials/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations\\_g1ghb7b0.html](https://www.oecd.org/en/publications/serials/oecd-transfer-pricing-guidelines-for-multinational-enterprises-and-tax-administrations_g1ghb7b0.html).

<sup>3</sup> See generally UN Handbook, *supra* note 1, chapter 13.10. Trade mispricing is sometimes called trade misinvoicing. See, e.g., UNCTAD, Trade Misinvoicing in Primary Commodities in Developing Countries (2016), <https://unctad.org/publication/trade-misinvoicing-primary-commodities-developing-countries-cases-chile-cote-divoire>.

The UN Handbook observes at section 13.10.2 that “trade mispricing can be contrasted with transfer pricing where there is a requirement that transactions with related parties apply arm’s length prices and where there is potential for genuine disagreements to arise between tax authorities and taxpayers in relation to the price of related party transactions.”

<sup>4</sup> It is sometimes difficult to determine whether parties are “related” for purposes of applying transfer pricing rules. For this reason, countries sometimes examine transactions among facially unrelated, as well as related, parties for possible transfer pricing issues.

<sup>5</sup> See generally UN Handbook, *supra* note 1, chapter 11.

<sup>6</sup> Tax officials from Argentina, Australia, Liberia, Mexico, Peru, and Senegal, as well as experts from the OECD, Tax Inspectors Without Borders, the Intergovernmental Forum on Mining, and the International Senior Lawyers Project were consulted in the preparation of this report. This report reflects only the views of the authors and does not reflect the views of any other person or organization.

Pricing for Developing Countries. References are provided in footnotes to these and other sources with more extended discussion of important topics.

## II. Frequency and Importance of Product Valuation Issues

- a. Multinational groups in the natural resource sector often employ a corporate structure in which the transfer of legal title to products from group members that conduct mining operations is not made directly to unrelated customers, but instead is made to a related company, often referred to as a marketing hub, that is located in a low- or zero-tax jurisdiction.<sup>7</sup>
- b. The marketing hub or similar group member then on-sells the products to unrelated purchasers, retaining a profit, on the basis of intragroup contracts intended to place the economic and financial risks of sales and marketing on the hub company.<sup>8</sup> Given the potential for profit shifting, the pricing of product in sales to related-party marketing hubs or other low-tax group entities can become subject to difficult and extended tax controversies.<sup>9</sup>
- c. Notwithstanding the importance of marketing hubs in extractive-industry tax administration, it should be recognized that profit shifting can be achieved through misvaluation of mineral products in connection with other transaction structures as well. The absence of a marketing hub in a particular situation thus does not preclude the need for review of the product valuations provided by the taxpayer with respect to its related-party transactions.

## III. Methods Available to Tax Administrations for the Valuation of Extracted Product

- a. There are two primary methods for taxpayers to determine and for tax administrations to audit the valuation of extracted mineral products. First, it is possible to attempt a direct valuation, by reference to market prices, of the products transferred to the marketing hub or other related-party purchaser. Second, it is also possible to examine whether a controlled

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<sup>7</sup> For discussion of marketing hubs *see, e.g.*, Alexandra Readhead, Toolkit for Transfer Pricing Risk Assessment in the African Mining Industry, <https://rue.bmz.de/resource/blob/75614/transfer-pricing-risk-tool.pdf>, (2017), 11-22; *see also* “Example 1, Marketing Hub Taxation,” UN Handbook, *supra* note 1, at 447.

<sup>8</sup> A marketing hub may also serve as a centralized point for arranging various intragroup transactions including the procurement of equipment and the provision of centralized management services.

<sup>9</sup> It is possible that widespread implementation of the global minimum tax of the OECD’s “Pillar 2” might over time reduce taxpayers’ incentives to make use of tax-favored marketing hubs or similar purchase-and-resale arrangements. It is possible, however, that the effective corporate income tax rate in a country with mining operations will be higher than the 15-percent rate of the Pillar 2 minimum tax, so that use of the marketing-hub structure will continue to offer potential tax advantages. Therefore, even if the new minimum tax is implemented around the world, the valuation of natural resource product is likely to remain an important issue for tax administrations. In any event, current international reform efforts should not be seen as reducing the importance of developing and maintaining effective capacity to audit product valuation in the extractive sector.

entity, such as a marketing hub or other purchasing entity, retains profits that are in line with the entity's functions, assets and risks. The discussion below addresses both methods.

b. Direct Valuation of Extracted Product under the Comparable Uncontrolled Price (CUP) Method<sup>10</sup>

- i. One method for valuing natural-resource products is the Comparable Uncontrolled Price (CUP) Method. The method requires that comparability factors of the controlled and uncontrolled transactions are similar or that adjustments for differences in comparability factors can be reliably performed. The method involves (i) identifying an appropriate "index price,"<sup>11</sup> if one exists for the particular product, from published sources like the London Metal Exchange (LME) or London Bullion Market Association (LBMA); and (ii) adjusting the index price for factors specific to the particular taxpayer's transactions, including adjustments among others for product quality (both premiums and discounts), for the value of any processing of product done within the country of extraction,<sup>12</sup> for transportation and insurance expenses, for production volumes, and for the contractual terms used by the taxpayer group in its sales of product to unrelated parties.<sup>13</sup> In addition, taxpayers may argue that under the facts of the particular case, adjustments should be made for marketing expenses. Determining the appropriate levels of the various adjustments requires the application of expertise in mining engineering and in-depth knowledge of an industry's value chain.<sup>14</sup> Any adjustments should be well documented. The process is further complicated in the case of products like lithium and cobalt, for which

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<sup>10</sup> A recent overview of the process of direct valuation of minerals prices is provided by IGF and OECD, *Determining the Price of Minerals – A Transfer Pricing Framework* (2023), <https://www.iisd.org/system/files/2023-11/determining-the-price-of-minerals-framework.pdf>. See also UN Practical Manual, *supra* note 2, section 4.2.

<sup>11</sup> Index prices also are referred to as "posted" or "quoted" prices.

<sup>12</sup> Initial processing of ore near the mine, prior to export, can be economically efficient, and pre-export processing is common in practice.

<sup>13</sup> For an overview of the adjustment process see generally IGF/OECD, *Determining the Price of Minerals*, *supra* note 10, at 18 ff. Necessary adjustments to index prices to account for economically relevant characteristics "include, among others, the physical features and quality of the commodity; the contractual terms of the controlled transaction, such as volumes traded, period of the arrangements, the timing and terms of delivery, transportation, insurance, and foreign currency terms." OECD Transfer Pricing Guidelines, *supra* note 2, paragraph 2.20.

<sup>14</sup> The different technical aspects of product valuation, including the assessment of product quality and the measurement of production volumes, present significant operational challenges. See, e.g., A. Readhead, *Monitoring the Value of Mineral Exports: Policy Options for Governments* (2018), <https://www.iisd.org/publications/report/monitoring-value-mineral-exports-policy-options-for-governments> (discussing the technical demands of assessing product quality); Intergovernmental Forum on Mining and African Tax Administration, *The Future of Resource Taxation* (2023), <https://www.iisd.org/system/files/2023-06/future-of-resource-taxation-en.pdf>, chapter 14 (describing the experience of Ghana in measuring production volumes).

In addition to determining appropriate adjustments to index prices, it is important that a valuation method specify the time during the export process (e.g., the date of loading) at which the index price is to be applied. Index prices typically fluctuate on a daily basis. Leaving the timing of pricing unspecified can leave room for undue flexibility in valuation.

demand has grown rapidly in recent years and for which identification of index prices and appropriate adjustments are still developing.<sup>15</sup>

- ii. Taxpayers and tax examiners frequently disagree with respect to both the identification of appropriate index prices and the adjustments that should be made to those prices, and examinations often involve complex technical analyses. As discussed further below, tax authorities, especially in developing countries with constrained administrative resources, may perceive the need for access to additional expertise to conduct the in-depth engineering and economic studies necessary for the conduct of an effective examination. Moreover, some aspects of valuation, including the adjustment of index prices to account for contract terms, require that tax examiners have access to the taxpayer group's sales contracts with unrelated purchasers, but taxpayers sometimes resist efforts by examiners to gain access to those contracts, claiming that the contracts are subject to confidentiality restrictions. This topic is addressed further below.
- iii. Even with high levels of expertise available to both parties, technical analysis alone cannot definitively resolve valuation issues, which always involve some degree of judgment. Disagreements therefore generally cannot be resolved entirely on objective grounds, and results typically reflect, to some extent, the dynamics of bargaining. The negotiation process can be extended and differing views hard to reconcile, so that even under the best of circumstances, the resolution of valuation disputes is likely to be difficult and uncertain. This likelihood places a premium on dispute resolution techniques that might render the negotiation process more tractable, including the advance resolution of issues under advance pricing agreements or other means of advance resolution, as discussed further below.
- iv. The "Sixth Method"
  - Some countries seek to simplify the direct valuation of natural resource products using what has come to be known as the "Sixth Method,"<sup>16</sup> which consists of the use of index prices while allowing only limited comparability adjustments, for example for product quality. The Sixth Method originated in the context of valuation of agricultural products and was intended to resolve the basic question whether index prices constitute "comparables" that can be used as the basis for a transfer pricing analysis. Countries applying the method have differed in their views concerning whether and the extent to which comparability adjustments are to be made. Insofar as no or limited adjustments can be made, the Sixth Method can be seen as an administrative simplification.
  - Significant legal uncertainty surrounds the legal question whether the Sixth Method departs from the arm's-length principle, or whether it constitutes an

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<sup>15</sup> See J. Taquiri, T. Lassourd, and A. Viola, *Determining the Price of Minerals: A Transfer Pricing Framework for Lithium* (IISD/OECD 2024), available at <https://www.igfmining.org/resource/determining-price-minerals/>.

<sup>16</sup> For discussion of the Sixth Method, including analysis of legal issues raised by the method, see UN Practical Manual, *supra* note 2, chapter 4.7. See also *The Future of Resource Taxation*, *supra* note 14, chapter 10.



anti-abuse measure, or perhaps a safe harbor. It is therefore uncertain whether the Sixth Method offers the prospect of significant simplification of valuation processes.

- This question may be clarified over time. In the meantime, countries' experience under simplified versions of the Sixth Method should be monitored closely to evaluate the extent of the method's promise in simplifying product valuation.<sup>17</sup>

c. Benchmarking Profitability under the Transactional Net Margin Method (TNMM)

- i. As an alternative or supplement to the CUP Method, tax examiners sometimes seek to apply the TNMM to test whether the profitability of a controlled entity<sup>18</sup> such as a marketing hub or other entity that purchases product from an affiliate in the producing country, is commensurate with its functions, assets and risks.
- ii. When using the TNMM to benchmark the profitability of a marketing hub, it is essential that tax administrations have access to the hub's financial data as well as the data of comparable companies. As discussed further below, some countries do not yet have sufficiently effective information-gathering laws in place to ensure access to the necessary data.
- iii. The application of a benchmarking analysis in reviewing a controlled entity's profitability is not simple.<sup>19</sup> It requires many subjective judgments, including those regarding the selection of "uncontrolled comparables," and attempts by examiners to benchmark hub profitability have given rise to difficult tax controversies. Nevertheless, the application of the TNMM may in some instances be less demanding than use of the CUP Method. Also, the use of the TNMM as a supplement to the CUP method can provide added confidence to the results of a comprehensive transfer price examination.

d. The importance of information-gathering authority<sup>20</sup>

- i. Under all methods available to determine the value of extracted mineral products, tax examiners may have a legitimate need for access to various kinds of documents of taxpayer group members located outside the country of the mining operation that is under audit. These include financial records and operational details of the

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<sup>17</sup> Zambia has had significant experience in seeking to limit the extent of permissible comparability adjustments under the Sixth Method in connection with the pricing of copper. The results of that experience should be studied to determine what lessons might be available with respect to the Sixth Method's potential promise. *See* The Future of Research Taxation, *supra* note 14, paragraph 10.4.3.

<sup>18</sup> *See also* UN Practical Manual, *supra* note 2, chapters 3.5 and 4.5. Paragraph 3.5.1.2 states: "The tested party normally should be the less complex party to the controlled transaction and should be the party in respect of which the most reliable data for comparing the results of similar independent transactions is available."

<sup>19</sup> The Australian Taxation Office has provided guidance to taxpayers regarding the ATO's approach to assessing compliance risk based on the profitability of marketing hubs. The guidance is available at <https://www.ato.gov.au/law/view/pdf/cog/pcg2017-001.pdf>.

<sup>20</sup> For discussion of this topic *see* IGF/OECD, Determining the Price of Minerals, *supra* note 10, at 16.

marketing hub or similar entity that are necessary to benchmark that entity's profitability. For application of the CUP Method, examiners may also need copies of sale and purchase contracts between group members and unrelated customers.

- ii. In some instances, taxpayers decline to comply with examiners' requests for resale contracts and other taxpayer documents on the ground that by their terms the documents are proprietary and confidential. It may also be argued that the examiners are not authorized to compel production of documents that are held by group members other than the local entity that is under audit.
- iii. Examiners should have access to the information needed to properly audit the related party transactions of the entity under review. Of course, tax authorities face a strict obligation to protect the confidentiality of all taxpayer information, and taxpayers are entitled to assurances that this obligation will be met. Provided that adequate safeguards of confidentiality are in place, countries should ensure that their statutes and regulations, along with applicable international information-exchange agreements, are sufficient to enable their tax administrations to compel access to relevant information.<sup>21</sup> Comparative research on this topic would be useful.

#### IV. Administrative Approaches to Facilitating the Valuation Process

##### a. Administrative Pricing

- i. The taxpayer is the first mover in a potential controversy when it files a tax return that incorporates the taxpayer's valuation. The tax administration then is in the position of challenging the taxpayer's valuation if a challenge appears warranted. Under this structure, although formally the burden of proof may fall on the taxpayer, as a practical matter a court or other review authority may place a heavy burden of persuasiveness on the government in its role as the challenging party.
- ii. Administrative pricing offers an alternative to the traditional tax reporting structure in which the taxpayer is the first mover in valuation. The most prominent instance of administrative pricing is that which has been maintained since the 1970s by the Government of Norway for valuing North Sea oil production.<sup>22</sup> Under the Norwegian system, a government authority establishes daily norm prices for crude oil based on prevailing global price levels and those adjustments that the authority considers necessary to determine an arm's-length price.<sup>23</sup> Taxpayers may appeal the

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<sup>21</sup> Statutes might, for example, provide that if a taxpayer declines to comply with a formal request for relevant information, the tax administration will be entitled to apply presumptions against the taxpayer with respect to factual matters related to the request. *See, e.g.*, U.S. Internal Revenue Code section 6038A.

<sup>22</sup> *See* Norwegian Petroleum, "The Petroleum Tax System," <https://www.norskpetroleum.no/en/economy/petroleum-tax/#:~:text=This%20entails%20a%20special%20tax, and%202023%20is%20shown%20below> .

<sup>23</sup> The norm prices established under the Norwegian system apply with respect to both related- and unrelated-party transactions.

government's valuation, but appeals are rare, and the administrative pricing system has been functioning smoothly for many years.

- iii. It is not clear, however, that a system like Norway's could be applied to hard minerals. Oil is a relatively uniform natural-resource product with relatively clearly defined grades of product quality, and the oil market is tracked by well-accepted index prices for the different grades. Similar uniformity and well-accepted product quality grades often are not present for hard minerals. Indeed, Norway does not extend its oil pricing system even to natural gas, since pricing criteria for natural gas are not as well defined as they are for oil. Moreover, Norway had very substantial economic leverage over oil producers at the time of initial exploitation of the North Sea fields, a situation which might not be present with respect to hard minerals deposits in countries around the world (although it is possible that similar leverage may now be available to countries with large deposits of some strategic minerals). In view of the possible procedural benefits, further consideration should be given to the possibility of administrative pricing for mineral products, but approaches similar to the Norwegian system for oil may be of limited applicability in the hard minerals setting.<sup>24</sup>
- iv. Safe Harbors – A variant of administrative pricing is the establishment by governments of safe harbors for minerals pricing.<sup>25</sup> A safe harbor is not mandatory, however, and the taxpayer is free to adopt more favorable pricing at the risk of tax-administration challenge. The optional nature of safe harbors raises the question whether they would change taxpayer behavior significantly in the natural resources setting. To date, the use of safe harbors in natural resource taxation has been relatively limited.<sup>26</sup>

b. Advance Pricing Agreements

- i. Advance pricing agreements (APAs), sometimes called advance pricing “arrangements,” are advance administrative rulings regarding transfer pricing methodologies on which governments agree with taxpayers in a wide range of industries. Detailed background on APAs, including their advantages and disadvantages, are provided in guidance from the UN Tax Committee.<sup>27</sup> APAs are seen around the world as a tool for providing increased predictability and avoiding

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<sup>24</sup> Indonesia applies administrative pricing to some extent for metal products and coal. *Cf., e.g.,* Intimedia, Coal and Metal Mineral Pricing for October 2024: What Impact Will It Have on the Mining Industry?, <https://www.media.inti.asia/read/coal-and-metal-mineral-pricing-for-october-2024-what-impact-will-it-have-on-the-mining-industry>. Research on the history and operational details of the Indonesian system would be useful.

<sup>25</sup> See generally IGF/OECD, Determining the Price of Minerals, *supra* note 10, at 27-29; UN Practical Manual on Transfer Pricing Manual, *supra* note 2, chapter 5.5 ff.

<sup>26</sup> It may be helpful, in assessing the possible usefulness of safe harbors, to study the experiences of Guinea, <https://www.igfmining.org/impactstory/guinea-bauxite-reference-price/>, and Senegal, <https://www.igfmining.org/impactstory/setting-a-benchmark-price-for-phosphate-to-bring-financial-benefits-to-senegal/>.

<sup>27</sup> Detailed guidance on APAs is provided by the UN Practical Manual on Transfer Pricing, *supra* note 2, section 15.3.4, and in UN Transfer Pricing Subcommittee, Bilateral Advance Pricing Agreement/Arrangement Programs, <https://financing.desa.un.org/sites/default/files/2024-10/CRP%2024%20APA%20FAQs%20Appendix%20A%20.pdf>.

costly disputes in transfer pricing administration. To date, at least one APA has been completed by a developing country in the field of hard minerals pricing.<sup>28</sup> (Notably, that APA extends only to the determination of prices for royalty purposes and does not extend to valuation for income-tax purposes.)

- ii. The extent to which APAs or other forms of advance agreement might simplify the task of minerals valuation is inherently limited. Although an APA might specify the use of a particular index price, as well as the adjustments to be made to the index price, an APA may not address all the parameters that must be measured in computing the adjustments. An APA typically has a limited term, subject to mutually agreed renewal, and also contains “critical assumptions” under which the APA can be voided, requiring renegotiation, if specified facts change. An APA governing product valuation may not close off all avenues for profit shifting, as it might not cover other, sometimes related, issues like the assignment of hedging costs to particular members of the related-party group. Nevertheless, although it is unlikely that an APA or similar advance ruling will be able to resolve all areas of potential disagreement, APAs can simplify the audit process and may be cost-effective in the right circumstances.<sup>29</sup>
- iii. Sometimes, an APA is used to resolve issues for completed tax years as well as agreeing on pricing methods for future taxable years. This use of an APA to resolve issues for prior years is generally referred to as a “rollback.” Using APAs in this manner can significantly increase the benefits provided by the agreements.
- iv. It is not necessary for a tax administration to establish and staff a formal APA process to achieve the administrative benefits of an advance agreement on minerals valuation. The same kind of agreement can be incorporated in a concession document or other contractual arrangement governing an extractive project, without the need for a separate document that is formally labeled an APA.<sup>30</sup>

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<sup>28</sup> See Stephen E. Shay, “Negotiating a Royalty Pricing Agreement: Lessons from Liberia” (2020), <https://oecd-development-matters.org/2020/06/18/negotiating-a-royalty-pricing-agreement-lessons-from-liberia/>.

<sup>29</sup> An APA can be either “unilateral,” in that it resolves issues between the taxpayer and a single country’s tax administration, or “bilateral,” in which case the APA also involves agreement by the competent authorities of both countries that are involved in the covered transactions. APAs also can be multilateral, involving more than two countries. Bilateral and multilateral APAs serve primarily to avoid double or multiple taxation. It may be noted that if the implementation of the OECD’s Pillar 2 proposal results in a general increase in tax rates in countries that serve as hosts for marketing hubs and similar arrangements, the significance of possible double taxation might increase.

<sup>30</sup> The duration of a concession agreement or similar document might be longer than would be desirable for an agreement governing pricing methods. If that is the case, provision can be made for periodic review and renewal of the agreement at a desired interval within the longer term of the underlying concession agreement or other contract governing a project.

## V. Additional Means of Addressing Difficulties in Valuation

### a. Need for Innovative Approaches

- i. Even with improvements to the audit process as discussed above, the valuation of mineral products will remain challenging. All the methods available to determine the value of mineral products unavoidably depend to some extent on judgment as well as technical analysis. Although the Sixth Method and advance pricing agreements might improve the process, the resolution of valuation issues will continue to involve uncertainty, conflict, and high administrative cost. The successful conduct of examinations, and of ensuing negotiations and other interactions with taxpayers, will continue to require involvement by highly experienced personnel with substantial industry knowledge.
- ii. It accordingly is important to consider possible means of addressing the inherent challenges of valuation that extend beyond the technical and administrative approaches outlined above. The discussion below addresses two potential approaches: (1) the possibility of somewhat greater reliance, in the fiscal mixes governing extractive projects, on levies based on gross revenue rather than net income, particularly carefully constructed variable royalties; and (2) the possibility of relying more heavily, in technical assistance to developing countries, on long-term assignment of advisers who can participate directly in taxpayer-government interactions in order to provide advice and transfer knowledge in a comprehensive manner.

### b. Increasing the Weighting of Variable Royalties in the Fiscal Mix<sup>31</sup>

- i. Often, the fiscal instruments by which a government receives revenue from an extractive project consist of a mixture of (1) royalties based on the gross revenue from sales of extracted products, and (2) a tax based on the project's net income. A number of important economic and administrative factors should be considered in determining the optimal relative weighting of royalties and income-based taxation within a project's fiscal mix, and care should be exercised to avoid ascribing excessive importance to any single factor.<sup>32</sup>

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<sup>31</sup> A comprehensive analysis of variable royalties in the minerals sector, including discussion of variable royalties implemented by fifteen different jurisdictions, is provided by *The Future of Resource Taxation*, *supra* note 14, chapter 9.

<sup>32</sup> A recent analysis lists the following factors which should be considered in determining the optimal mix of fiscal instruments: administrative simplicity; the timing of revenues under different fiscal instruments; the relative economic neutrality of different fiscal instruments (*i.e.*, the extent to which use of different fiscal instruments affect the timing or pace of extraction or investment); the progressivity of different fiscal instruments (*i.e.*, the extent to which different instruments adjust to a project's changing levels of profitability); the stability of a fiscal regime (*i.e.*, the extent of any assurance provided to investors that the fiscal regime will remain unchanged during the life of a project); and the extent to which different fiscal instruments are conducive to profit shifting. *The Future of Resource Taxation*, *supra* note 14, Ch. 4.2.

It also should be noted that historically, royalties and income taxes have sometimes been seen as serving different purposes, with royalties being seen as compensation to the sovereign for the relinquishment of the extracted product, and income taxes seen as a levy on the income generated from the extractive company's operations. In

- ii. Among the factors to be considered in designing the fiscal mix is the greater degree of protection provided by royalties, as compared with income-based taxes, against potentially substantial revenue loss arising from the undervaluation of product and other kinds of profit shifting. Consider, for example, a taxpayer in the mining industry in a country that imposes corporate income tax at a rate of 35 percent and a royalty of 4 percent.<sup>33</sup> Assume as well that the arm's length value of product extracted during the year is \$100,000,000, and that the company's deductible expenses are \$90,000,000, so that the company's correctly measured taxable income is \$10,000,000 and its correct level of income tax is \$3,500,000. Assume now that the company understates the value of its extracted product by 5 percent, or \$5,000,000. The royalty is reduced by five percent, from \$4,000,000 to \$3,800,000, a difference of \$200,000. The government's revenue under the income tax, however, is reduced from \$3,500,000 to \$1,750,000, a reduction not of five but instead fifty percent.<sup>34</sup> The income-based tax is substantially more vulnerable to revenue loss from undervaluation than the royalty based on gross revenue.
- iii. Other administrative advantages of royalties based on gross revenue include:
- Royalties based on gross product value are less vulnerable than income-based taxes to transfer pricing issues related to taxpayer business deductions, including deductions for interest payments, related-party management fees, and intellectual property royalties. Similarly, royalties are not vulnerable to excessive payments of interest or interest-equivalents to related parties.<sup>35</sup>
  - Royalties based on gross revenue do not require "ring-fencing" rules designed to prevent taxpayers from distorting the apportionment of deductible expenses among different, separately taxed projects within a country.
- iv. Frequent Economic Observations
- It is often pointed out that, since royalties based on gross revenue may be imposed from the beginning of production, before the investor has begun earning profit, royalties have the effect of increasing the investor's exposure to

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economic substance, however, both kinds of levies serve as components of a single "government take." In practice, determinations of the fiscal mix between royalties and income-based taxes should be based on the different economic and administrative features of the two levies, rather than on historical characterizations.

<sup>33</sup> This example is hypothetical, and the facts are not those of any actual extractive project or any country's particular fiscal mix. Different assumptions as to royalty rate, income-tax rate, and taxpayer profitability would yield different results, although royalties based on gross revenue should, in all realistic circumstances, be less vulnerable to product undervaluation than income-based taxes.

<sup>34</sup> In some countries, different government agencies are responsible for the administration of income taxes and royalties. In those circumstances the two agencies should cooperate closely.

<sup>35</sup> Examination of taxpayer business expenses may, however, be necessary under a revenue-based royalty where appraisal is conducted at a "downstream" point in the product value chain, for example where the product has been subject to post-extraction refining or other processing. *See* Jack Calder, *Administering Fiscal Regimes for Extractive Industries* (2014), chapter 2.

financial risk. Greater relative reliance on royalties therefore risks reducing investment demand and constraining economic growth.<sup>36</sup>

- A countervailing consideration is that royalties ensure the government of compensation for the extraction of a country's natural resources from the inception of sales during a project's lifecycle, whereas profitability typically might not be achieved for a period of at least several years. Therefore, whereas royalties can be seen as increasing the economic risk faced by investors, they also can be seen as mitigating the economic risk of the public in its role as the owner of the natural resource.

v. Variable Royalties

- Overall, while fiscal instruments based on gross revenues pose significant advantages, including but not limited to robustness against undervaluation of product and other causes of potential profit shifting, other important considerations, including the avoidance of economic distortion, favor fiscal instruments that are progressive with respect to the investor's net income. The need to achieve a desirable balance among competing considerations suggests that hybrid instruments, which retain some of the benefits of royalties based on gross revenue while at the same time affording the investor a significant measure of progressivity, can play a useful role in the design of a fiscal regime.
- Countries often seek to achieve a desired balance of administrative and economic considerations by fashioning variable royalties that remain based on the gross value of extracted product but are adjusted in a manner designed to approximately track the investor's profitability. For example, the percentage at which a royalty is charged might rise and fall according to changes in the index price of the extracted product (taking into account the likelihood that the mining company's costs as well as revenues are likely to fluctuate in some degree of correlation with the product price). A variable royalty might also take account of variations in production volume,<sup>37</sup> or the level of a company's financial statement profitability.<sup>38</sup> In each case, the goal of a variable royalty is to achieve a desirable balance among the competing advantages and disadvantages of levies based on net income as opposed to gross revenue.

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<sup>36</sup> For this reason, levies based on gross income are often said to be generally more distortive, economically, than levies based on net income. It should be noted in this connection that Calder, *supra* note 35, warns explicitly against overstating the administrative advantages of royalties.

<sup>37</sup> In practice, however, whereas variable royalties based in part on production volume are common in the petroleum industry, they appear to be used only rarely in the minerals sector. Future of Resource Taxation, *supra* note 14, Ch. 9.2 (p. 120).

<sup>38</sup> The inclusion of profitability as a factor in a variable royalty is frequent in practice, notwithstanding that inclusion of a profitability factor would appear to sacrifice some of the administrative benefits of royalties based on gross revenue rather than net income. See Future of Resource Taxation, *supra* note 14, Ch. 9.2.2 - 9.2.3.

## c. Technical Assistance and Capacity Building

- i. International organizations, including Tax Inspectors Without Borders,<sup>39</sup> the United Nations (UNDESA), IMF and World Bank, IGF, OECD, African Tax Administration Forum, and Interamerican Center of Tax Administration, as well as national governments and nongovernmental organizations, currently provide technical assistance to developing countries in tax administration and tax policy design. Technical assistance over the years has been helpful to many developing country tax administrations and appears to have contributed significantly to enhanced revenue collection in a number of countries.<sup>40</sup>
- ii. It should be considered, however, whether technical assistance in the administration of extractives taxation could be further enhanced. Current technical assistance efforts include (1) classroom instruction for tax administrators, (2) hands-on assistance in developing technical processes for product quality assessment and production monitoring, and (3) the medium- and long-term provision of hands-on advice regarding particular cases. Another model for hands-on technical assistance, the long-term secondment of experts to host-country tax administrations, has been used with good results, but limitations on available resources have meant that the model is used only relatively infrequently.
- iii. Effective technical assistance and capacity-building must be demand-driven and tailored to the specific needs and circumstances of recipient countries, recognizing that there is no one-size-fits-all solution. To the extent feasible, however, in terms of financial support and availability of personnel, the greater use of long-term secondments, in which experienced experts are integrated operationally within host-country tax administrations, may be especially beneficial in the complex environment of extractive-industry tax examinations and other interactions with taxpayers. The effective conduct of examinations and other interactions with taxpayers in the extractive sector requires more than mastery of technical elements of product valuation. Examinations and other aspects of tax administration in the extractive sector need to be led by personnel with experience of managing matters holistically, combining the various technical and procedural elements involved into effective examination plans and the formulation of negotiating positions. Examinations and related proceedings are fluid by nature, which requires the ability to adapt to changing circumstances as they evolve. In addition, those leading examinations and negotiations need to have deep understanding of the economics of the industry sectors in which they are working. These skills can be transferred most effectively by broadly experienced, hands-on advisers, serving on a long-term basis through all the stages of examinations and related proceedings.

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<sup>39</sup> Tax Inspectors Without Borders (TIWB) is a joint venture of the OECD and the United Nations Development Program (UNDP). TIWB also acts in coordination with the African Tax Administration Forum (ATAF) in assisting tax administrations of African countries.

<sup>40</sup> The annual reports published by Tax Inspectors Without Borders, available at <https://tiwb.org/>, provide estimates of revenues recovered with the aid of the organization's technical assistance efforts.



- iv. Experienced seconded experts, moreover, can make important contributions not only through the application of their own expertise, but also through their ability to recognize when specialized assistance should be obtained in particular areas like product pricing and industry economics, including the financial modeling of extractive-industry projects.<sup>41</sup> Further, seconded advisers can provide assistance not only in tax examinations and related proceedings, but also in the equally complex processes of designing and drafting statutes and regulations, and in negotiating concession agreements and other governing instruments for natural-resource projects.
- v. The value of long-term secondments may, moreover, be enhanced further by employing South-South personnel exchange, thus building regional pools of expertise

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<sup>41</sup> The importance of government access to high-quality economic modeling of proposed minerals projects cannot be over-emphasized. *See generally* The Future of Resource Taxation, *supra* note 14, Ch. 4.3. It is fair to say that state-of-the-art modeling capacity is essential if governments are to negotiate effectively with natural-resource industry investors. It is also common and best practice for the investor to be required to share its model with the government.

An important tool for extractive-industry modeling is the IMF's Fiscal Analysis of Resource Industries (FARI) model, <https://www.imf.org/en/Topics/fiscal-policies/fiscal-analysis-of-resource-industries>.