

**Position of the Peruvian Taxation System as Compared to Mining  
Taxation Systems in Other Nations**

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## **About the Author**

*Professor James Otto* has worked in the mineral law and taxation field for many years advising both governments and companies. He is the editor of The Taxation of Mineral Enterprises (Graham and Trotman/Kluwer, London 1995) and co-author of Global Mining Taxation Comparative Study (Colorado School of Mines 2000) which are widely regarded as among the definitive volumes on the mining taxation. He has published widely on mining law and tax issues both through the academic press as well as in United Nations publications. He has previously led mining taxation seminars and studies for the United Nations, World Bank, private mining companies and governments. He has had a direct role in the review and amendment of national mineral fiscal systems and has been involved in large mining project fiscal negotiations. He holds degrees in law, economics and engineering. Over the past five years, often in conjunction with the United Nations and World Bank, he has worked to educate senior government officials from over 75 nations in mining taxation matters. He is a Research Professor at the Colorado School of Mines where he heads the Institute for Global Resources Policy and Management and is Director of Natural Resources and Environmental Law Graduate Studies at the University of Denver College of Law.

## **Position of the Peruvian Mine Taxation System as Compared to Mining Taxation Systems in Other Nations**

### **1. Executive Summary**

This report investigates the Peruvian mining taxation regime taking into account major government taxes, fees and similar imposts. It compares each major type of tax levied on the mining industry with similar types of taxes in other selected countries. In addition, it uses a model base metal mine and a model gold mine to compare the overall effect of taxes in Peru as compared to the overall tax regimes in other nations.

The purpose of the study is to indicate whether the existing taxation system imposes a higher or lower overall tax-take than is imposed generally on mines in other nations, to conclude whether the system is internationally competitive, and to make recommendations for fiscal reform.

The report contains the following:--

- description of how tax fits in with company investment decision-making.
- description of the standard IGRPM Colorado School of Mines base metal (copper) mine and gold mine tax assessment models.
- tables showing the relative position of the Peruvian tax system applied to the model mines as compared to taxation systems in selected other countries.
- summary of whether the Peruvian tax regime imposes a higher or lower overall tax take than is imposed generally on gold and base metal mines elsewhere.
- sensitivity analysis of the tax system to price and cost changes.
- sensitivity analysis of the tax system to variations in the debt to equity ratio.
- summaries indicating the relative position of Peruvian tax types versus their counterparts in other selected nations.
- analysis of possible tax changes and recommendations.

The comparative analysis utilizes a standard base metal mine model (copper) and a standard gold mine model developed by the Author. The model is described in detail in a March 2000 comparison of mining taxes worldwide. The study, *Global Mining Taxation Comparative Study 2<sup>nd</sup> Edition*, has been distributed worldwide by the United Nations, World Bank and the Colorado School of Mines. At the present time, the models are widely used in the comparative analysis of mining fiscal systems and the aforementioned study is a standard reference found on the shelves of most ministers of mines.

#### **The key findings of this report are as follows:**

- Taxation is an important criteria that foreign investors analyze when deciding where to invest, but it is not the only criteria.
- The current Peruvian mining tax system, as assessed by the model base

metal model, is among the more globally competitive systems worldwide. Among the 23 taxing jurisdictions assessed, Peru is in 50% lowest taxing nations.

- Most companies would hesitate to invest in any project not yielding a Discounted Cash-flow Rate of Return of at least 12%. The mine models indicated that the DCFROR for the two model mines under the current system would be about 12% (for the base metals mine) and 15% (for the gold mine), thus meeting the financial investment profitability criteria of many companies.
- The fiscal needs and administrative capabilities of individual nations vary and tax systems thus evolve differently in different nations. However, as the world moves forward into the next century it is clear that mining fiscal systems are becoming increasingly similar. Nations whose mining fiscal systems impose non-competitive levels of overall taxation can expect to see lower levels of investor interest than nations with systems that approach the “global” norm.
- An important factor that companies consider is tax stability. Peru has in the past allowed companies to stabilize their taxes, at a premium tax rate, and this practice is one way that Peru is able to compete favorably with nations that do not provide tax stabilization.
- **Most international base-metals exploration/mining companies would probably find the current Peruvian mining tax system acceptable. Mining companies have many alternative nations to invest in, and nations with favorable geology and lower tax impositions have an advantage over higher taxing nations.**
- **The current tax system provides a good balance between investor needs and government needs.**
- Although the current system is competitive and provides a fair share to government, **there is room for improvement.** Detailed recommendations are provided in the report regarding each major tax type. These are available in Summary and Recommendations section of the report.

The individual recommendations include the following:

### **Recommendation on Tax Stabilization**

Companies find tax stabilization very attractive and Peru's stabilization agreements are an incentive to investors. It is recommended that the disadvantages of such agreements, sector discrimination and administrative burden, are more than offset by a) the increased tax base that may be created in the future by higher levels of investment, and b) the higher levels of tax paid based on the 2% premium. Investors would probably be willing to pay a higher premium for tax stability. **It is recommended that tax stabilization agreements be retained but that the premium for all future such agreements be raised to 5%.**

## **Recommendation on Income Tax**

Peru's income tax rate of 27% is lower than most nations. However, because Peru also levies a 4.1% tax on remitted profits, the effective rate for most foreign mining companies would be about 30% which is in-line with the rate imposed by many nations. **It is recommended that the current income tax rate be retained.**

## **Recommendation on Depreciation**

The concept of depreciation is that a taxpayer should be able to over the life of a piece of physical plant (equipment or building) be able to deduct the full cost of that plant. In most countries, governments provide an acceleration of depreciation for mine equipment as an incentive. Peru does provide for accelerated depreciation of mine equipment. Some countries allow for accelerated depreciation of buildings based on the rationale that unlike most other commercial buildings, a mine building will have no value after mine closure. Thus, mines with a life span less than the normal depreciation rate for commercial buildings will not be able to deduct the full cost. In Peru, the current depreciation for buildings is 3% which yields a depreciation period of over 33 years (longer than the life of most mines). **It is recommended that previous system of 20% depreciation be reinstated, or that the depreciation be based on the established life of the mine.**

## **Recommendation on Loss Carry Forward Time Limit**

The loss carry forward time limit in Peru is 4 years, which is one of the shortest, if not the shortest of any major mining country. While this period is adequate for most small, short-lived mines, it is not conducive to attracting investment for larger mines. **It is recommended that loss carry forward time limit be extended to at least 5 years, or preferably, that no time limit be imposed.**

## **Recommendation on Reclamation/Closure Costs**

During the last year(s) of a mine substantial closure costs will be incurred. Because production revenues will have ceased or been reduced, the company may receive no useable tax deduction for these important and essential costs of business. **It is recommended that the tax system be modified so that money irrevocably set aside for reclamation and closure purposes (there are any number of ways to do this) may be deducted straight line as amortization over the productive life of the mine.**

## **Recommendation on Deductibility of Investment in Communities and Infrastructure**

The current practice of allowing government approved miner paid for investment in communities and infrastructure to be tax deductible should be continued. However, the current system of approval does not work well, if at all, and needs reform. **It is**

**recommended that such approval authority should vest in a single ministry, not with the ministry responsible for that particular type of infrastructure. The relevant law should also state that if the ministry does not give its approval for such tax status for the proposed investment within a reasonable time period, say 60 days, the request will be deemed to have been approved.**

#### **Recommendation on Reinvestment Allowance**

**The prior decision to eliminate the reinvestment tax allowance should not be reversed.**

#### **Recommendation on Royalties**

Peru does not presently impose a royalty tax. It is recommended that a reasonable royalty be imposed but that import duty be eliminated by exemption or zero-rating. Peru currently has substantial input type taxes (import duty and IGV) and most companies view such taxes as less attractive than taxes based on profits or outputs. **If Peru does impose a royalty tax, it is recommended that: (a) it be based on gross mineral sales revenues, (b) the rate not exceed 3%, (c) the rate be uniform for all mineral types, and (d) import duty be effectively eliminated.**

#### **Recommendation on Import Duty**

Import duty is mainly paid during the construction of a mine when there are no cash flows. Thus, companies view such an input tax very negatively. Most nations have exempted mines from import duty during construction or zero-rated most mine type equipment. **It is recommended that Peru follow the lead of most other nations and eliminate import duty through either an exemption or if duty category lists are sufficiently detailed, to isolate most mining equipment and zero rate such categories. However, if this recommendation is adopted, a royalty tax of 1 to 3%, preferably 2%, should be imposed on gross mineral sales revenues.**

#### **Recommendation on IGV**

**The current system of IGV as applied to mining should remain unchanged.**

#### **Recommendation on Loan Interest Withholding Tax**

There is a trend for nations with substantial levels of foreign investment to enter into bilateral double taxation agreements or bilateral investment treaties with countries where such investment originates. Peru has not done so. A chief attribute of such treaties is to reduce the normal statutory rates for withholding taxes. Thus, while the current Peruvian statutory withholding rate on loan interest appears low relative to statutory rates in other nations, it is more in line with treaty rates. **It is recommended that withholding tax on loan interest remain at its present level.**

## Recommendation on Worker Profit Share

**The worker profit share should be abolished for all sectors, or strictly limited to some multiple of salaries.** This is what most other Latin American nations have done. If the government desires to distribute tax revenues to a certain segment of society or for a certain purpose, it should do so through normal tax allocation mechanisms that disburse general tax revenues. **If abolishment is not possible, or reduction to just a multiple of salaries, two other options should be considered: 1) reducing the 8% assessment rate to 5%, and 2) allowing the "tax" to be used as a credit, rather than a deduction, against income tax.**

## Recommendation on Tax Distribution

The Peruvian distribution of mine income tax back to the mine area (canon) is more generous than in most nations. However, because the tax is profit-based, local expectations will be disappointed in low or no profit years which may lead to discord between the local people and the mine, and between local government and central government. **To reduce such discord, it is recommended that the scheme for local infrastructure development tax deductions be implemented effectively, and should a royalty scheme be implemented, that such royalty flow directly to the canon with the income tax retained fully by the central government.**

## 2. Factors Affecting Investment Decision Making By International Mining Companies

Companies have many countries to choose from when deciding where to expend their exploration and development budgets. Those nations with prospective geology, reasonable tax terms, acceptable legislation and political stability have brighter prospects for long term mineral sector development than where one or more of these are absent. In analysing investment conditions a company will apply key criteria, including tax criteria, and see how well these are met; the types of decision criteria and the weight placed on each varies from company to company.

During the past decade, there have been several studies published by multi-lateral institutions to assist nations and companies to better understand foreign direct exploration and mining investment decision-making. At least two of these studies include comprehensive surveys investigating the investment patterns, objectives and decision criteria of major mining companies. The first, by Johnson at the East West Center (Johnson, 1990) revealed a short list of key decision criteria that later surveys have confirmed. When asked to list the investment factors which they considered critical (non-negotiable), over 50 percent of the Johnson survey respondents indicated that in addition to geology, security of tenure, the right to repatriate profits, management control, equity control and fixed tax terms were a precondition for a positive investment decision.

Subsequent to the Johnson survey, the Author implemented a major United Nations mineral sector foreign investment study<sup>1</sup>. In addition to the development of a standardised methodology by which governments could undertake a self-assessment of their mineral sector investment competitiveness<sup>2</sup>, the study also produced a comprehensive global survey of international mining companies to establish better information on what factors are taken into account in their investment decision-making process (Otto, 1992b). From out of a list of over 60 investment decision criteria evaluated in the survey, the criteria in Table 1 were ranked as "very important" by over half the survey respondents. Among the 10 top priority factors, all but one, geological potential, are in some way related to or affected by the regulatory system. Of the top 20 factors, 4 are related to taxation: measure of profitability, ability to predetermine tax liability, stability of fiscal regime, and method and level of tax levies. Governments have become increasingly aware of investors' requirements and this growing awareness is often reflected in investment-oriented policy and legislation.

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<sup>1</sup>Economic Restructuring and International Trade in the Mineral Commodities Project, RAS/89/027, ESCAP/UNDP.

<sup>2</sup>A comprehensive methodology for assessing a nation's mineral sector investment climate was devised (Otto, 1992a) and then used to evaluate the investment climate in 10 Asia-Pacific nations. The standard methodology and model studies are now available as a framework which can be used by governments and companies in undertaking evaluations of the mineral sector investment environment including the regulatory system.

**Table 1. Ranking of Investment Criteria at the Exploration and Mining Investment Stage (out of a choice of 60 possible criteria)**

Ranking		
Exploration Stage	Mining Stage	Decision Criteria Based on:
1	na	geological potential for target mineral
na	3	<b>measure of profitability</b>
2	1	security of tenure
3	2	ability to repatriate profits
4	9	consistency and constancy of mineral policies
5	7	company has management control
6	11	mineral ownership
7	6	realistic foreign exchange regulations
8	4	stability of exploration/mining terms
9	5	<b>ability to predetermine tax liability</b>
10	8	ability to predetermine environmental obligations
11	10	<b>stability of fiscal regime</b>
12	12	ability to raise external financing
13	16	long-term national stability
14	17	established mineral titles system
15	na	ability to apply geological assessment techniques
16	13	<b>method and level of tax levies</b>
17	15	import-export policies
18	18	majority equity ownership held by company
19	21	right to transfer ownership
20	20	internal (armed) conflicts
21	14	permitted external accounts
22	19	modern mineral legislation

na - not applicable  
source: (Otto, 1992b)

It is beyond the scope of this report to undertake a thorough analysis of the Peruvian mineral sector investment climate, the emphasis here is just the tax system. However, the Author has provided to the Government, along with the submission of this report, a copy of the above-mentioned United Nations 2002 methodology for national mineral sector self-assessment.

In looking at the mining phase investment factors listed in the table, the factor "measure of profitability" is ranked third by companies. In this study, the Author has in the mine tax system assessment models calculated a measure of profitability often used by companies, internal rate of return (IRR) to aid in understanding the fiscal system from an investor's point of view. Governments are of course interested in their "take" and in addition to IRR, the effective tax rate and estimated dollar inflows are also calculated. The other three key investor criteria--ability to predetermine tax liability, stability of fiscal regime, and method and level of tax levies--are also addressed in this report.

### 3. Description of the Existing Peruvian Mining Fiscal System

The mining fiscal system in Peru has been modified from time-to-time in order to meet the evolving needs of its society. Today, the world is becoming ever more economically linked and a nation that desires to attract foreign investment must increasingly take into account both the needs of the nation and the needs of investors in order to compete in the international marketplace. In such an environment it is useful to understand whether the current fiscal system is meeting the needs of society efficiently and whether the system is viewed as competitive by private sector investors.

In this section, the existing Peruvian tax system that is applied to mining is described based on information provided by Peruvian government ministries. The term tax here, and throughout this study, is used in its broadest sense.

**In this study "tax" is defined as any tax, fee, impost or other payment that is paid by a taxpayer to the government or to another party because the taxpayer is required to do so by government (i.e., such as a mandatory profit-share to workers).**

Table 2 contains a list of tax types that are sometimes used by governments to tax the mineral sector and indicates whether each tax type is imposed in Peru. As can be seen in the table, many of the major tax types are imposed. Detailed comparisons of tax rates are provided in subsequent tables.

**Table 2. Taxes Sometimes Applied to Mines in Other Countries and Whether they are Applied in Peru**

Tax type	Tax levied?		Comments
	Yes	No	
Income tax	X		
Excess profits tax		X	
Royalties		X	
Withholding tax on remitted dividends		X	An additional rate of 4.1% (income type tax) is applicable when dividends are distributed (similar to a dividend withholding tax, but it is not technically termed a withholding tax)
Withholding tax on remitted loan interest	X		
Import duties on equipment	X		Equipment imported for temporary usage, such as for exploration work, may be imported without payment of import duties if such equipment is re-exported within a year.
Export duties on minerals		X	
Sales tax on purchased equipment		X	
Sales tax on minerals paid by mine		X	
Value added tax on services (IGV)	X		Fully refundable during exploration (as of the date of this report, refund is not applied because the procedural rules are pending)
Value added tax on equipment (IGV)	X		Fully refundable during exploration (as of the date of this report, refund is not applied because the procedural rules are pending)
Value added tax on mineral sales (IGV)	X		IGV does not apply if the mineral is sold for export.
Property tax/fee		X	A property tax applies only to mines located within urban areas
Education tax/fee		X	An education tax is not applied, however an 8% profits based profit sharing requirement is applied, and a portion may go to a special educational, social and recreational fund
Local development tax/fee		X	
Fees based on Land Area	X		Called a "validity tax" or "good standing fee"
Stamp tax		X	
Payroll taxes	X		
Excise tax on fuel	X		Exempted during exploration (as of the date of this report, the exemption is not applied because the procedural rules are pending)

The current Peruvian mining fiscal system is described generally in Table 3 and details regarding various deductions for computing taxable income are given in Table 4.

**Table 3. Description of the Existing Peruvian Mining Fiscal System**

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- Income tax:
  - distribution: 50% of Income Tax paid by a mine to Central Government is to be remitted by Central Government back to the Canon where the mine is located
  - rate: 27% under the general tax regime. If the taxpayer has elected to enter into a Stabilization Agreement or Mining Contract, the rate is 29%. An additional 4.1% tax is applied to net profits remitted (see withholding tax description below)
- deductions for computing taxable income:
  - feasibility studies: there are two possible interpretations. (1) treated as a development cost; may either be expensed in the year costs were incurred, or costs may be amortized over a period of three years from the year the minimum production is achieved; or (2) treated as a preoperative cost; may either be expensed in the year the cost is incurred, or costs may be amortized over a period of ten years from the year in which the minimum production is achieved
  - pre-production exploration costs: costs may either be expensed in the year they were incurred or amortized as from the year the minimum production is achieved, over a period determined based on the life of the mine
  - development expenses: costs may either be expensed in the year they were incurred, or may be amortized over a period of three years from the year the minimum production is achieved
  - capital costs: taxpayer can select the rate of straight line depreciation up to the allowed maximum; most mining, processing and power equipment has a maximum of 20% per year; roads and buildings have a maximum of 3% unless a stabilization agreement (15 years) is in effect in which case a 5% maximum applies; costs incurred for government approved infrastructure such as a school, hospital or recreational facility can be expensed as incurred.
  - costs qualifying for depreciation or amortization may be adjusted for inflation using the whole price index; however, adjustment is not allowed if a) there is a stabilization agreement and b) the taxpayer has elected to keep its books in US Dollars.
  - the following types of costs may be deducted for computing net taxable income: pre-production exploration expenses, mine site development costs, feasibility study cost, operating costs, capital costs, qualifying loan interest, withholding tax on interest, property tax, fee based on land area, payroll taxes, workers profit share, value added tax (when IGV is not used as a credit)
- excess profits type tax: none
- royalties: there are no royalties or similar taxes
- withholding tax on loan interest paid to foreign lenders: 4.99% is applied to loans from abroad provided monies are sent into Peru, lender is a financial institution person and the maximum interest is less than prime + 6 points or LIBOR + 7 points. 30% is applied for the excess of interest exceeding the maximum limit; in cases where loans are entered into between related partners; and if the lender is a resident of a tax haven.
- withholding tax on dividends remitted abroad: none by that name. However, an additional rate of 4.1% on income tax is applicable when dividends are distributed.
- withholding tax on salaries and fees paid to foreign consultants: 30% tax rate is applied on 80% of gross income (thus, in practice, the effective rate is 24%) if technical services are rendered in Peru). If technical services are rendered partly abroad and partly in Peru, 30% tax rate is applied on 40% gross income (thus, in practice, the effective rate is 12%). Services totally rendered abroad are not subject to withholding tax
- import duty on foreign equipment: rates are generally 12 - 20%; representative rate for mining equipment is 12%; import duties are not immediately deductible, rather, they are added to the asset acquisition cost and depreciated at the asset's depreciation rate

- export duties on minerals: none
- sales tax on equipment: none
- value added tax (IGV) on purchased goods or services: 18%; IGV is levied on sales of goods and services, imports of goods, construction contracts, sales of real property by construction concerns, and services rendered abroad but used in Peru; IGV may be reimbursed by means of assignable credit notes based on export sales; can offset IGV against income tax, or obtain a refund check. If minerals are sold locally, IGV applies to sales except for gold. The amount of IGV that may be credited is restricted to 18% of export sales, and any amount exceeding this may be carried forward as a credit against future export sales. IGV paid during exploration is refundable.
- time to claim back value added tax: 3-6 months
- education tax: none
- property tax: only applies to operations located in urban areas
- local development requirement: none. If a taxpayer voluntarily contributes to local development and that local development project is approved by the proper government ministry, the costs may be expensed as incurred. In practice, approval is difficult or time consuming.
- land use fees: a validity tax, also called a good standing fee, is calculated based on the area in mining concession from the moment the claim is filed. The fee is US\$3/ha/yr and is deductible. 75% is distributed by the central government to the Canon where the mine is located.
- stamp tax: none
- payroll taxes paid by employer: extraordinary solidarity tax: 2% of salaries paid; health service (ESSALUD): 9% of salaries paid; national technical industrial training service, if more than 20 workers (SENATI): 0.75% of salaries paid;
- National Service for Construction Industry Training (SENCICO): 0.2% of total incomes comprised of materials, workmanship, general expenditures, technical direction, profits or any other item that might be invoiced to the company's clients
- workers' profit sharing: it is obligatory to pay a workers' participation of 8% on the net profits; of this amount up to 18 times monthly salary goes to the worker, with the remainder going to a special educational, social and recreational fund. Disbursements are decided by a Board comprised of representatives for mining companies, government and workers. The amount paid is allowed as a tax deduction. Not all foreign governments recognize this as a creditable tax and double taxation can thus occur.
- tax incentives
  - loss carry-forward: 4 years
  - loss carry-back: none
  - tax credits: income tax paid abroad in respect to income of foreign source taxable in Peru, may be deducted against Peruvian income tax within certain limits; qualifying IGV may be credited (see above)
  - tax stabilization: title-holders of mining activities may enter into several types of tax stabilization agreements. Two types are defined under the Foreign Investment Law and two others under the General Mining Law. They are not mutually exclusive and a company can have both (one under the Foreign Investment Law and one under the General Mining Law). If an agreement is in place under the mining law, the income tax is increased by 2%.
    - Under the Foreign Invest Law, a Stabilization Agreement (as an investee -the company which received the investment) granted by the National Commission for Foreign Investment and Technology (CONITE) guarantees for 10 years stability concerning: income tax regime, currency exchange regime, free availability of foreign currency and non-discrimination). As an investor the Stabilization Agreement is similar and also is available to stabilize withholding tax. To qualify, the investor must invest a minimum of US\$10,000,000 within two years of the Stabilization Agreement.
    - Under the General Mining Law, an investor can enter into a Mining Contract. The agreements can be for a period of 10 or 15 years. 10 year - the investment must equal US\$2 million and be destined to either start up an operation with a production capacity of 350 to 5,000Mt/day. 15 year - this agreement targets production of at least 5000Mt/day and requires an investment of US\$20 million for a start-up operation, or US\$50 million to capitalize an existing operation. A Mining Contract guarantees the following: free marketing of mineral products for export or domestic sale; free disposal within the country and abroad of foreign currency generated by exports; free convertibility into foreign exchange of local currency generated by mineral sales; non-discrimination in exchange

matters; depreciation rates of 20% for mining and processing equipment and 5% for buildings (15 year agreements); the electable option to keep books in US\$ (15 year agreements); general tax stability including income tax, regime, compensation and/or tax refunds, customs duties, municipal taxes, and validity fee; non-discrimination in exchange matters; freedom to remit profits, dividends, financial resources.

- tax reduction in jungle regions: special tax rules and rates apply to IGV, Income Tax and Excise Tax in some jungle regions
  - requirement to use local goods and services: none
  - local equity requirement: none
  - government equity requirement: none
  - no ring fencing principles apply (may consolidate books)
  - foreign external accounts are allowed for receipt of revenues
  - exchange controls: no significant restrictions
-

**Table 4. Peru: Identification of items that may be deducted for calculating net income subject to income tax**

	Deductible	Not Deductible	No Such Cost/Tax
Income tax paid to provincial or local government			X
Pre-production exploration expenses	X		
Mine site development costs	X		
Feasibility study cost	X		
Annual operating costs	X		
Capital cost of equipment and plant	X		
Loan interest	X		
Royalty tax			X
Withholding tax on interest	X		
Withholding tax on dividends			X
Import duties on equipment	X		
Export duties on minerals			X
Excise/sales tax on equipment and services			X
Value added tax on equipment and services **	X		
Education tax			X
Local development taxes and fees			X
Property tax	X		
Fee based on land area (such as rent)	X		
Stamp taxes			X
Depletion allowance			X
Payroll taxes	X		
Worker profit participation	X		

\* Only real estate located in urban areas is subject to this tax.

\*\* Unless credited

The mine models used in the comparative analysis were developed at a level of detail similar to the level used for pre-feasibility studies. Thus, some simplifications have been employed. In addition, taxpayers often have several options to choose from, and in the model, reasonable choices have been used based on the Author's experience and on the advice of the government appointed counterparts to this study.

The simplified tax assumptions for the mines modeled in this analysis are summarized in Table 5.

Minor taxes and some worker related fees are not included in the analytical model (in order to maintain comparability with the Colorado School of Mines IGRPM copper mine model and gold model which are used as the main comparative tool in this

study). These taxes and fees, such as the extraordinary solidarity tax, ESSALUD, SENATI and SENCICO are assumed to be included in the model's general annual operating expenses. All information and assumptions contained in the table were provided to the Author by appropriate government officers.

**Table 5. Summary of Peru's Mining Fiscal System as Reproduced in the Computer Analysis Copper and Gold Mine Models**

- 
- Income tax rate: 27%
  - Feasibility study: amortized over 3 yrs, from year production commences
  - Pre-production exploration expenses: amortized over the life of mine, from year production commences
  - Mine site development costs: amortized over 3 yrs, from year production commences
  - Capital equipment costs: depreciated straight line over 5 years (20%)
  - Buildings: depreciated at 3%
  - Royalty: none
  - Import duties: 12%, depreciated along with equipment costs
  - Validity fee: US\$3/hectare, 1000 hectares for Au mine, 2500 hectares for Cu mine
  - Withholding Tax on loan interest paid to foreign lenders: 4.99%
  - Withholding type tax on dividends remitted abroad: 4.1%, applied to net profits remitted
  - Import duty on foreign equipment: 12%; import duties are not immediately deductible, rather, they are added to the asset acquisition cost and depreciated at the asset's depreciation rate
  - Value added tax (IGV) on purchased goods or services: 18%. IGV paid is credited against Income Tax. The amount of IGV credited or refunded is restricted to 18% of sales in that year (assumes all sales are for exports).
  - Loss carry forward: 4 years from first profitable year
  - Workers profit participation: 8% of net profits, deductible
  - Imposts that may be payable but that are not included in the model: payroll type taxes, excise taxes, property taxes, and miscellaneous minor fees
  - deductions for computing taxable income:
    - the following types of costs are deducted for computing net taxable income: pre-production exploration expenses, mine site development costs, feasibility study cost, operating costs, capital costs, qualifying loan interest, withholding tax on interest, validity fee, workers profit share, value added tax (IGV)
- 

#### **4. Description of the IGRPM/Colorado School of Mines Standard Mine Models**

In order to assess the Peruvian tax system as compared to fiscal regimes in a cross-section of countries, pre-feasibility type mine models were developed. The models are based on the standard base metal (copper) mine model and gold mine model used for mining tax studies at the Institute for Global Resources Policy and Management at the Colorado School of Mines.

#### **4.1 Methodology and Limitations Inherent in IGRPM/Colorado School of Mines Standard Mine Models**

There are a number of ways to assess a mineral sector taxation system. The method used in this study is to create a financial model of a typical mine and then to calculate a number of quantifiable economic measures based on that model. These measures include an investor's measure of profit (the investor's discounted after tax rate of return - DCFROR - also known as the Internal Rate of Return), the total effective tax rate (ETR), and the distribution of sales revenues to each party.

When building a mine model that incorporates various tax and impost features it is necessary to determine the depth to which the model will attempt to mirror the fiscal system. In theory, a very detailed model could accurately account for every "tax" type. However, many types of taxes are calculated based on a level of information available only where a detailed feasibility study is available. The level of detail in the IGRPM/CSM standard base metal model is similar to that found in many mine pre-feasibility studies. Some of the simplifying assumptions and limitations that may impact the tax analysis are described below.

Point of view. The way that any particular taxpayer is taxed may depend on the nationality or company structure of the taxpayer. For instance, a branch may be taxed differently than a subsidiary, and a foreign company may be taxed or have other fiscal measures apply in a unique manner. A foreign investor from one country may be treated differently than an investor from another because of a tax treaty or other bilateral or international instrument. In the models, it is assumed that the taxpayer is a foreign entity enjoying no special treaty treatment.

Depreciation. In many countries the costs of acquiring equipment may be used to reduce the income or profits tax liability through the means of depreciation or amortization deductions. In many countries, different classes of equipment are depreciated using different calculation methods or different rates or different economic "lives". To accurately model a mine one would therefore need to identify every piece of equipment (and its price) qualifying as being depreciable. The model simplifies the depreciation calculation by assuming only one representative class of depreciable capital and one method of calculation. However for Peru, the mine model is adjusted to allow two classes for depreciation: equipment and buildings.

Payroll taxes. The group of taxes commonly referred to as "payroll taxes" are not directly included in the model. The payroll taxes paid by the mining company can include a wide variety of government levies tied to the activity and salary level of each employee. Examples include government mandated company contributions to social security, pension or national retirement schemes, and to national or other health care programs. Thus, it may be assumed that the overall effective tax rates and other measures that quantify the amount of funds paid by the mining company to the government are understated. The base annual operating costs are assumed to include these types of taxes. However, the Peruvian worker profit participation share, which is based on a net income concept, has been included in the model.

Property tax limitation. Many countries impose some form of property tax. In most

cases, the features of this tax, rate and setting of the base, is determined at a local municipal or district level, and the rate and tax base may vary quite considerably from one local area within the country to another. This tax has not been included because in Peru as it applies only in urban areas.

Tax minimization methods. One of the limitations of any tax study is the degree to which the study should incorporate legal tax minimization methods. The most “transparent” system was used as the basis of the model.

Tax treaties. A bilateral or other tax treaty can significantly affect a foreign company’s fiscal obligations. Under many such treaties, various duties, withholding rates and other imposts can be effectively reduced. In the models, the treatment was to assume the rates as stated in the general tax law, not a special tax treaty rate. Peru has not signed such treaties with any countries that significantly invest in mining.

## 4.2 IGRPM/Colorado School of Mines Standard Mine Models - Basic Attributes

Many factors can be taken into consideration when selecting the parameters and values to define a mine model, and the selection of many key project attributes can influence taxation system analysis. For example, some tax systems may be more favorable to shorter-lived mines than longer-lived mines. The approach chosen by the IGRPM/CSM when creating the standard mine models was not to determine the optimal configuration of a mining project given the tax system, but instead to define a set mine model, and determine the taxes it would pay in any selected country. To insure the reasonableness of the IGRPM/CSM base metal mine model, feedback and comment was sought from a number of major private sector copper and gold producers prior to settling on the final project parameters. The CSM base models used in this report were constructed in 2000. Key parameters and values are shown in Table 6.

**Table 6. IGRPM/CSM Base Metal Mine Model Assumptions**

	<u>Gold mine</u>	<u>Copper mine</u>
Total reserve base:	2,350,000tr.oz au	2,360,000,000lbs cu
Average annual metal sold:	261,000tr.oz.au	124,200,000lbs cu
Development period:	2 years	2 years
Production period:	9 years	19 years
Debt to equity	60:40%	60:40%
Loan life:	5yrs	5yrs
Loan interest rate:	8%	8%
Mine cost:	US\$182,000,000	US\$690,000,000
Pre-production exploration	US\$ 5,000,000	US\$ 5,000,000
Feasibility	US\$ 10,000,000	US\$ 20,000,000
Development	US\$ 40,000,000	US\$ 55,000,000
Equipment/plant	US\$127,000,000	US\$610,000,000
Working capital	US\$ 12,000,000	US\$ 25,000,000
Reclamation	US\$ 10,000,000	US\$ 25,000,000
Base annual operating costs:	US\$210tr.oz au	US\$0.45/lb cu
Sales price	US\$361tr.oz au	US\$1.10/lb cu
Type of analysis:	escalated (nominal)	escalated (nominal)
Escalation of costs:	3% per year	3% per year
Escalation of metal price:	2.5% per year	2.5% per year

Deposit size, capacity and mine life. The size of a deposit will lend some guidance to defining the size (annual capacity) and life of a project. However, given the same deposit, different companies would view the optimal extraction rate and mine life differently. Should the firm build a large capacity project and mine a deposit quickly, or a small capacity plant and mine it over many years? Taxation policies can influence such decisions. In the development of the model, reasonably large capacity mines were assumed.

Financing. The extent to which a mine is financed through debt rather than equity

capital can have a measurable impact on the amount of taxes it pays. This is largely attributable to the fact that in many jurisdictions, some or all interest payments on loans may be used as a deduction when calculating the amount of income subject to a profits or income tax. Most larger scale mines use a combination of debt and equity capital financing. Debt financing can reach up to 100% and for many mines a 60 to 40% debt to equity balance is common. A ratio based on 60% debt to 40% equity has been assumed. The amount to be borrowed is based on 60% of the capital costs incurred during the two-year mine development period and the first year of production. It is assumed that the borrowed amount is in the form of three separate loans, each made one year apart, commencing in the first year of project development. It is assumed that subsequent mine expenditures are paid from funds generated by sales revenues. An annual percentage rate of 8% compound interest has been assumed for all three loans and the repayment period for each loan is 5 years. Loan repayment is calculated assuming simple compound interest with annual equal end of year payments.

Costs. The costs associated with a mine will have an effect on that mine's tax liability. In most tax jurisdictions, some taxes (such as those based on profits or income) will be directly affected by certain costs, i.e., costs may be allowable as expensible or deductible for computing the amount of taxable income. Costs for any one activity will vary considerably from country to country. For example, mine capital equipment costs are lower in Canada than in Zambia but labor costs in Zambia are lower than in Canada. To provide comparability with the IGRPM/CSM global mining tax study, the base capital cost and operating cost are the same as used in the IGRPM/CSM model. The IGRPM/CSM base case costs were established using input from several multinational mining companies who were asked to submit their best estimates of what it would cost to establish and run a "typical international" large scale operation and from annual surveys of costs reported in *Mining Journal*. All remaining tax benefits from any write-offs at the end of the project have been neglected.

Prices. Most mineral commodities are subject to substantial price variations over even a short time horizon. The base-case model uses the standard IGRPM/CSM adopted long-term price assumptions for copper, i.e., the 10 year average LME price from 1989-1998. Sensitivity of the tax system to price changes is also provided.

Escalation adjustments. Costs and prices in every country are subject to escalation/de-escalation factors, such as inflation/deflation and technological progress, and costs and prices relating to the mineral sector are no exception. In the mine models, capital costs, operating costs (recurring costs) and working capital are escalated at 3 percent per year and prices at 2.5 percent per year.

Since no adjustments have been provided for costs and operating efficiencies in the various countries, the model mine before-tax rate of return is identical in each country. For the model copper mine it is 18.8% (NPV at 12% discount rate before tax = 144million) and for the model gold mine it is 24.4% (NPV at 12% discount rate before tax = US\$50 million). All cash flows represent escalated (nominal) dollars.

### **4.3 Economic Measures and Profiles**

Based on the estimated cashflows resulting from the model base metal mine, a number of economic measures and profiles were calculated.

Internal Rate of Return. The investor's discounted internal rate of return (IRR) is a commonly used measure of profitability. Given a model mine, a fiscal system yielding a higher IRR is preferred by an investor over a fiscal system yielding a lower IRR. IRR is defined as that interest rate which equates the sum of the present value<sup>3</sup> of cash inflows with the sum of the present value of cash out-flows for a project.<sup>4</sup> An alternative, but numerically identical definition, is that the IRR is the interest rate at which the net present value of a project is equal to zero. A company can compare a project's IRR to the company's hurdle rate (the minimum IRR) that every project must meet. If a project's IRR is equal to or exceeds the hurdle rate, the project meets the company's minimum profitability requirements. While IRR is useful to determine the effect of a fiscal system on profitability, it does not directly measure taxation levels, nor does it provide governments with a measure of their fiscal take. However, by looking at both the before-tax and after-tax IRRs, an investor can compare how the various methods of taxation can impact this economic measure of profitability.

Effective tax rate. The effective tax rate (ETR) is a measure, expressed as a percentage of the effective net cash flow, of all amounts payable by the company to the government (including dividends in the case of a free carried government equity share). ETR is calculated by summing the present value of all taxes and other payments to the government paid in each year (except for dividends arising out of a paid government equity), then dividing that sum by the present value of the total effective annual cash flow. This measure can take into account the time value of money (the preference to receive money sooner rather than later). In adjusting a future cash flow to a present value, the future value is discounted to the present using a discount factor based on a defined discount rate. The models use a discount rate of 0 (not discounted) and 12 percent (see appendices).

$$\text{Effective Tax Rate} = \frac{\text{net present value of all amounts paid to government}}{\text{net present value of project before-tax cash flow}}$$

Division of sales revenues. The amount going to each major party has been calculated to identify the relative division of gross sales revenues between the parties. The amount of the total revenue "pie" going toward capital and operating costs, to the government and to the company are calculated on a present value basis (12% discount rate). This information is provided in the Appendices.

Composition of tax structure. Each major tax payable to the government has been separately calculated on an un-discounted basis to illustrate the relative contribution of each tax type to the government's total tax take. This data is available in the Appendices.

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<sup>3</sup> The term "present value" is used in its classical accounting meaning to indicate that the calculation has taken into account the time value of money. The time value of money is simply a recognition that given a set amount of money, one would prefer to have that sum earlier rather than later. The standard way in which to account for the time value of money is to adjust future earnings and costs to a base year by discounting those amounts to the base year at a given discount rate. For the purposes of this study, all present value calculations were based on a discount rate of 12 percent.

<sup>4</sup> Donald Gentry and Thomas O'Neil, Mine Investment Analysis, American Institute of Mining, Metallurgical and Petroleum Engineers, New York 1984, p.267.

## **5. Comparison of Peru's Tax System to Minerals Tax Systems in Selected Countries**

### **5.1 Mine Model Comparative Results**

Comparisons of mine taxation in different taxing jurisdictions is not straightforward. A comparison of any one type of taxing mechanism (such as a royalty tax or income tax rate) may lead to certain insights, but taken alone may not provide a useful indication of how mine taxation in one jurisdiction compares to that in another. To gain a broader understanding of how the overall system works and compares, it is necessary to analyze the fiscal system as a whole. To facilitate such an analysis, it is a common practice to define a hypothetical model mine and then apply different taxation systems to that mine. In this study, a model mines were defined and various measures of taxation and profitability calculated to allow comparison (see descriptions provided above) with results reported by the Colorado School of Mines for other nations.

**Tables 7 and 8 summarize measures of profitability (IRR) and overall effective tax rates (ETR) for the base and gold mine models applying the fiscal systems in 23 taxing jurisdictions. The results clearly show that compared to other nations, the overall current tax system in Peru is globally competitive for these types of mines. In terms of overall effective tax rate based on the model mines, Peru ranked 11<sup>th</sup> out of 23 (base metal) and 7<sup>th</sup> out of 23 (gold) in terms of lowest taxes.**

**The policy question then is: should Peru tax mines at a level which is in the mid-range of other mining nations tax systems, or more lightly to have a comparative advantage?**

**Within the South American region Peru competes primarily with Argentina, Brazil and Chile. Of these three, comparable EFTs are available for Argentina and Chile. Both countries' current tax systems impose an overall lower tax burden on gold and base metals mines than does Peru's.**

**Table 7. Comparative Economic Measures for a Model Base Metal Mine in Selected Jurisdictions**

<b>Country</b>	<b>Foreign Investor's Internal Rate of Return (%)</b>	<b>Total Effective Tax Rate (%)</b>
Lowest taxing quartile		
Sweden	15.7	28.6
W. Australia	12.7	36.4
Chile	15.0	36.6
Zimbabwe	13.5	39.8
Argentina	13.9	40.0
China	12.7	41.7
Second lowest taxing quartile		
Bolivia	11.4	43.1
South Africa	13.5	45.0
Philippines	13.5	45.3
Kazakstan	12.9	46.1
<b>Peru</b>	11.7	46.5
Tanzania	12.4	47.8
Second highest taxing quartile		
Indonesia	12.2	48.6
Poland	11.0	49.6
USA (Arizona)	12.6	49.9
Mexico	11.3	49.9
Greenland	13.0	50.2
Ghana	11.9	54.4
Highest taxing quartile		
Papua New Guinea	10.8	57.8
Uzbekistan	9.3	62.9
Ivory Coast	8.9	62.4
Ontario Canada	10.1	63.8
Burkina Faso	3.3	83.9

Note 1. Values in the table for all jurisdictions except Peru are extracted from: J. Otto, J. Cordes and M. Batarseh, *Global Mining Taxation Comparative Study*, second edition, IGRPM Colorado School of Mines, March 2000.

Note 2. A ranking by IRR would be different. IRR takes into account the time value of money and EFT here does not.

**Table 8. Comparative Economic Measures for a Model Gold Metal Mine in Selected Jurisdictions**

<b>Country</b>	<b>Foreign Investor's Internal Rate of Return (%)</b>	<b>Total Effective Tax Rate (%)</b>
Lowest taxing quartile		
Sweden	19.2	29.1
South Africa	18.8	32.6
Chile	18.3	36.8
Philippines	18.4	38.2
Argentina	16.6	42.5
W. Australia	15.2	43.1
Second lowest taxing quartile		
<b>Peru</b>	14.7	43.3
Zimbabwe	15.7	45.9
USA (Nevada)	15.1	49.3
Bolivia	12.2	52.4
Kazakstan	13.5	54.4
Greenland	14.7	54.9
Second highest taxing quartile		
Ghana	13.6	56.7
Tanzania	12.7	57.9
Indonesia	11.4	60.4
Uzbekistan	11.2	62.0
Mexico	10.4	62.9
Ontario Canada	10.7	68.3
Highest taxing quartile		
Ivory Coast	9.1	69.1
Papua New Guinea	8.7	72.3
China	7.1	73.9
Poland	3.0	90.2
Burkina Faso	-1.6	106.0

Note 1. Values in the table for all jurisdictions except Peru are extracted from: J. Otto, J. Cordes and M. Betarseh, *Global Mining Taxation Comparative Study*, second edition, IGRPM Colorado School of Mines, March 2000.

Note 2. A ranking by IRR would be different. IRR takes into account the time value of money and EFT here does not.

## 6. Tax System Sensitivity to Prices and Costs

The impact of a tax system on a mine can vary according to its profitability. If the overall effective tax rate (ETR) goes up as profitability goes up, the system is said to be progressive. If the ETR decreases as profitability goes up, it is said to be regressive. In a progressive tax system, mines that are marginally economic are subject to a lower overall effective tax rate than are mines that are highly profitable. In other words, progressive tax systems tax more profitable mines at a higher effective rate than lower profit mines. Most economists agree that neutral or slightly progressive tax systems are better than regressive systems.

Using the standard CSM copper mine model that incorporates the Peruvian mining tax systems, the effective tax rate (ETR) was assessed in three ways to determine if the system was progressive, neutral or regressive. Base case parameters were held constant except for the parameter being tested, i.e., only one parameter was varied at a time.

First, for the copper mine model, prices were varied assuming copper prices of US\$0.80, US\$1.10/lb (base case), and US\$1.50 per lb copper. Second, operating costs were varied assuming costs of US\$0.40, US\$45 (base case), and US\$0.50 per lb cu. Finally, capital costs were varied assuming total development period equipment costs of US\$550,000,000, US\$610,000,000 (base case) and US\$650,000,000. Table 9 indicates the results.

In summary, the Peruvian tax system is quite neutral except when prices become low. This is attributable to the fact that the major input taxes (import duty, IGV) are not based on profits. Reduction of one or either of these would move the tax system toward a more neutral orientation.

**Table 9. Copper Model: Tax System Sensitivity to Price and Cost Changes**

	Effective Tax Rate (%)	System Effect
<b>Price Sensitivity:</b>		
US\$0.80/lb	126	Regressive
US\$1.10/lb (basecase)	47	
US\$1.50/lb	39	
<b>Operating Cost Sensitivity:</b>		
US\$0.40/lb	45	Fairly Neutral
US\$0.45/lb (basecase)	47	
US\$0.50/lb	49	
<b>Capital Cost Sensitivity:</b>		
US\$550,000,000	43	Fairly Neutral
US\$610,000,000 (basecase)	47	
US\$650,000,000	48	

Note: a rate higher than 100% indicates that the mine is paying taxes in excess of its net income.

## **7. Comparisons of Approaches and Rates in a Cross-Section of Countries for a Selection of Different Tax Types**

The tax information reported in the following tables was gathered via a questionnaire distributed by the Author in 1999/2000 and reported in the aforementioned Global Mining Taxation Comparative Study. The information on taxes in Peru were provided by designated offers of the Peruvian government (see acknowledgements).

### **7.1 Tax Stabilization**

In an earlier part of this report 20 key investor decision criteria were listed in priority order. In a global survey of mining companies over 50% of the respondents listed tax stability as a "very important" factor in investment decision making. Out of list of 60 investor criteria, tax system stability ranked 10<sup>th</sup> in importance.

Many mines are long-lived and companies are reassured by systems that reduce their fiscal vulnerability, particularly during the loan and project payback periods.

However, while stabilization is attractive to companies many governments are hesitant to use them. There is a basic tenet of state sovereignty that one generation of lawmakers should not be able to bind the hands of future lawmakers. Thus, most governments place key matters that are to be stabilized in their Constitution, and provide for the changing needs of society in statutory law. Additionally, tax stabilization is sought by all sectors as it reduces fiscal uncertainty. If stabilization is offered to one sector, other sectors will also seek it. Table 10 shows for selected countries whether they allow mineral sector tax stabilization or not.

**Table 10. Availability of Tax Stabilization in Selected Jurisdictions**

Country	Some form of tax stabilization available?	Description
Argentina	Yes	30 yrs, provincial & municipal taxes, import duties, exchange rules
Bolivia	No	-
Burkina Faso	Yes	during the term of the contract; except mining taxes and fees
Canada (Ont)	No	-
Chile	Yes	10 yrs, if mine elects a higher income tax rate (42%)
China	No	-
Ghana	No	-
Greenland	No	-
Indonesia	Yes	tax stabilized for life of mining agreement or a shorter period (Contract of Work)
Ivory Coast	No	-
Kazakhstan	Yes	taxes stabilized for life of mining agreement
Mexico	No	-
P.N.G.	No	-
<b>Peru</b>	Yes	two systems of tax stabilization: mining contracts (10-15 yrs tax stabilization), and 10 yr Legal Stability Agreements that fix the income tax regime and certain other fiscal imposts; 2% additional rate
Philippines	No	-
Poland	No	-
South Africa	No	-
Sweden	No	-
Tanzania	No	-
USA-Arizona	No	-
Uzbekistan	Yes	most major taxes may be frozen for 10 yrs from date of establishment; tax experts warn that there may be difficulties with the practical implementation
W. Australia	No	-
Zimbabwe	No	-

Source: J. Otto, J. Cordes and M. Batarseh, *Global Mining Taxation Comparative Study*, second edition, IGRPM Colorado School of Mines, March 2000.

In Peru several tax stabilization schemes have been available in the past (see section of this report summarizing the tax system). One scheme, under the foreign investment act, does not discriminate for just mining, the other, under the mining act, does.

If taxes are stabilized for various mines, then an administrative challenge can arise over time. As the underlying tax laws change, each stabilized mine will have a tax regime dating to the time the stabilization agreement was entered into. This means that over time there will be many tax regimes, and the government agency charged with tax administration will increasingly face a more complicated situation monitoring and enforcing each. This entails costs. At the present time in Peru, there are hundreds of mining concessions with stabilization agreements. However, as these

agreements stabilize taxes for only around 10-15 years, over time, they will revert to the general tax system in the future.

The government has a dilemma. On the one hand, stabilization agreements enhance the potential for mineral sector investment, and on the other, they complicate the tax system and raise administrative challenges.

In Peru, stabilization also carries a price for companies--an additional 2% rate is applied to the 27% income tax. Stability is important to investors, witness the number of mining concession holders who have agreed to pay the premium. One option open to government is to raise the amount of this premium. Table 11 shows the effect of raising the stability premium.

**Table 11. Tax System Sensitivity to Income Tax Rate**

Income Tax Rate	Effective Tax Rate	Investor IRR	Government Revenue: All Taxes & Fees
<b>Copper Model:</b>			
25%	45%	11.9%	US\$451million
27% (current)	47%	11.7%	US\$471million
27+2=29%(stabilized rate)	48%	11.5%	US\$491million
27+3=30%	49%	11.4%	US\$501million
27+5=32%	51%	11.1%	US\$521million
<b>Gold Model:</b>			
25%	42%	15.0%	US\$73million
27% (current)	43%	14.7%	US\$76million
27+2=29%(stabilized rate)	45%	14.4%	US\$79million
27+3=30%	46%	14.3%	US\$80million
27+5=32%	48%	13.9%	US\$83million

As can be seen in the table, for the two model mines a premium of 5% on the regular income tax rate of 27% reduces the investor's rate of return by about 1%, and the effective tax rate remains at about 50% or lower.

### **Recommendation on Tax Stabilization**

Companies find tax stabilization very attractive and Peru's stabilization agreements are an incentive to investors. It is recommended that the disadvantages of such agreements, sector discrimination and administrative burden, are more than offset by a) the increased tax base that may be created in the future by higher levels of investment, and b) the higher levels of tax paid based on the 2% premium. Investors would probably be willing to pay a higher premium for tax stability. **It is recommended that tax stabilization agreements be retained but that the premium for all future such agreements be raised to 5%.**

## 7.2 Income Tax

At the beginning of the 20<sup>th</sup> century, the main way governments taxed mines was by imposing some type of royalty tax on production. Today almost all nations rely primarily on profit (income) based taxes. When designing an income tax system there are two key elements—the income tax rate, and the tax base that the rate is applied to.

Over the past two decades there has been a general lowering of income tax rates, and it is now uncommon to see a corporate income tax rate higher than 35%. Many nations have a rate lower than 35%. Table 12 lists corporate tax rates for a cross-section of nations surveyed in 2000. The income tax rate of 27% in Peru is somewhat lower than in some nations. In addition, a 4.1% additional income tax is applied to remitted dividends; the net effect for many foreign companies is the a rate of around 30%. If a taxpayer desires a stabilization agreement, and many miners probably would, the base rate is 29%.

**Table 12. Income Tax Rates Applied to Mining Projects in Selected Jurisdictions**

Country	Corporate income tax rate
Argentina	35%
Bolivia	25% (a surtax may also apply in some cases)
Burkina Faso	35% (0.5% of previous year turnover is the minimum tax)
Canada (Newfoundland)	federal: effectively 29.12% including 4% surtax provincial: 14%
Chile	15% (two elective regimes are available)
China	33% (30% to central gov't., 3% to provincial gov't.)
Ghana	35%
Greenland	35%
Indonesia	30% (previous COWS range from 22½ - 48%)
Ivory Coast	35%
Kazakhstan	30% (excess profits tax may apply)
Mexico	35%
P.N.G.	35% for large (SML) mines, 25% for most other mines
<b>Peru</b>	27% (29% for taxpayer with stabilization agreement)
Poland	2000, 30%; 2000-2001, 28%; 2003, 24%; 2004+, 22
South Africa	30% for other than gold; formula > 30% for gold mines
Sweden	28%
Tanzania	30%
USA-Arizona	progressive based on income (profit level)
Uzbekistan	33%
W. Australia	2000/2001, 34; 2001+, 30%
Zimbabwe	35%

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition 2000

## Recommendation on Income Tax

Peru's income tax rate of 27% is lower than most nations. However, because Peru also levies a 4.1% tax on remitted profits, the effective rate for most foreign mining companies would be about 30% which is in-line with the rate imposed by many nations. It is recommended that the current income tax rate be retained.

### 7.2.1 Depreciation

In most of the surveyed nations, tax policy is mainly implemented through manipulation of the tax base rather than through the tax rate. The tax rate is commonly uniform for all tax-payers, or for all tax payers at a given level of profit. The most common form of tax-base incentive for mining is accelerated depreciation. Most nations provide the mining industry with some sort of accelerated depreciation (see Table 13). Peru uses a form of accelerated depreciation for most mine equipment (20% straight-line method).

**Table 13. Depreciation Applied to Typical Mining Equipment in Selected Jurisdictions**

Country	Accelerated method available for some capital equipment (Yes or No)	Example
Argentina	Yes	3 yr straight-line
Bolivia	Yes	8 yr straight-line
Burkina Faso	Yes	useful life minus one year
Canada	Yes	variety of options: up to 100% in yr incurred for new mine or 25% declining pool balance
Chile	Yes	3 yr straight-line
China	Yes	10 years
Ghana	Yes	75% in 1 <sup>st</sup> yr, then 50% declining balance
Greenland	Yes	the company may decide the rate and period
Indonesia	Yes	10 yr straight-line or 20% declining balance
Ivory Coast	Yes	method of acceleration depends on life of equipment
Kazakhstan	Yes	25% declining balance method
Mexico	No	
P.N.G.	Yes	150% declining balance over 7 years
<b>Peru</b>	Yes	5 yrs straight-line (20%)
Philippines	Yes	twice the normal straight-line rate
Poland	Yes	5 yrs straight-line (20%)
South Africa	Yes	expensed in 1 <sup>st</sup> year of production
Sweden	Yes	5 yrs straight-line (20%)
Tanzania	Yes	12.5% straight-line
USA-Arizona	No	
Uzbekistan	No	8% straight-line
W. Australia	Yes	prime cost or diminishing value methods (usually less than effective life)
Zimbabwe	Yes	expensed in year incurred or 1 <sup>st</sup> year of production

Source: derived from derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition

Until recently Peru provided a form of accelerated depreciation on mine buildings at a rate of 20% (straight-line). After tax reform, this was lengthened to a 3% depreciation rate which is in-line with depreciation periods allowed by many other nations.

Unlike most industries, when a mine closes its buildings usually have no future function, i.e., no market value. Thus, mines whose duration is less than the depreciable life of their buildings will never be able to fully depreciate these buildings. For this reason, some nations allow a shorter depreciation period, or an alternative depreciation method (such as life of the mine). This effect is clearly evident in Table 14 where the impact of 3% versus a 20% depreciation rate is appreciable for the short-lived Au mine but less an impact on the longer-lived Cu mine.

**Table 14. Tax Sensitivity to Building Depreciation Rates**

<b>Loss Carry Forward Time Limit</b>	<b>Effective Tax Rate</b>	<b>Investor IRR</b>	<b>Government Revenue: All Taxes &amp; Fees</b>
<b>Copper Model:</b>			
3% rate (current system)	47%	11.7%	US\$471million
20% rate	46%	11.9%	US\$461million
<b>Gold Model:</b>			
3% rate (current system)	43%	14.7%	US\$76million
20% rate	41%	15.2%	US\$72million

### **Recommendation on Depreciation**

The concept of depreciation is that a taxpayer should be able to over the life of a piece of physical plant (equipment or building) be able to deduct the full cost of that plant. In most countries, governments provide an acceleration of depreciation for mine equipment as an incentive. Peru does provide for accelerated depreciation of mine equipment. Some countries allow for accelerated depreciation of buildings based on the rationale that unlike most other commercial buildings, a mine building will have no value after mine closure. Thus, mines with a life span less than the normal depreciation rate for commercial buildings will not be able to deduct the full cost. In Peru, the current depreciation for buildings is 3% which yields a depreciation period of over 33 years (longer than the life of most mines). It is recommended that previous system of 20% depreciation be reinstated, or that the depreciation be based on the established life of the mine.

### **7.2.2 Loss Carry Forward**

One of the most common tax incentives is to allow taxpayers the ability to carry forward losses from one year to offset taxable income in future years. For capital-intensive industries, like mining, and for industries exceptionally prone to commodity price fluctuation, like mining, loss carry forward is an important issue. Peru has an exceptionally short loss carry forward time limit--4 years. Table 15 shows year 2000 loss carry forward time limits for a selection of nations. Of the 23 nations for which

the Author had data, all but one had a longer time limit than Peru.

**Table 15. Loss Carry Forward/Back Policy in Selected Jurisdictions**

Country	Loss carry forward available?	Time limit (yrs)	Loss carry-back available?	Time limit (yrs)
Argentina	Yes	5	No	-
Bolivia	Yes	none	No	-
Burkina Faso	Yes	5	No	-
Canada (Ont)	Yes	7	Yes	3
Chile	Yes	none	Yes	none
China	Yes	5	No	-
Ghana	Yes	none	No	-
Greenland	Yes	none	Yes	5
Indonesia	Yes	8	No	-
Ivory Coast	Yes	5	No	-
Kazakhstan	Yes	7	No	-
Mexico	Yes	10	Yes	none
P.N.G.	Yes	7	No	-
<b>Peru</b>	Yes	<b>4</b>	No	-
Philippines	Yes	5	No	-
Poland	Yes	5	No	-
South Africa	Yes	none	No	-
Sweden	Yes	none	No	-
Tanzania	Yes	none	No	-
USA-Arizona	Yes	15	Yes	3
Uzbekistan	No	-	No	-
W. Australia	Yes	none	No	-
Zimbabwe	Yes	none	No	-

Table 16 shows the effect of lengthening the loss carry forward time limit.

**Table 16. Tax Sensitivity to Loss Carry Forward Time Limit**

Loss Carry Forward Time Limit	Effective Tax Rate	Investor IRR	Government Revenue: All Taxes & Fees
<b>Copper Model:</b>			
4 years (current system)	47%	11.7%	US\$471million
5 years	45%	12.1%	US\$451million
7 years	45%	12.1%	US\$450million
No time limit	45%	12.1%	US\$450million
<b>Gold Model:</b>			
4 years (current system)	43%	14.7%	US\$76million
5 years	43%	14.7%	US\$76million
7 years	43%	14.7%	US\$76million
No time limit	43%	14.7%	US\$76million

## Recommendation on Loss Carry Forward Time Limit

The loss carry forward time limit in Peru is 4 years, which is one of the shortest, if not the shortest of any major mining country. While this period is adequate for most small, short-lived mines, it is not conducive to attracting investment for larger mines. It is recommended that loss carry forward time limit be extended to at least 5 years, or preferably, that no time limit be imposed.

### 7.2.3 Deductibility of Reclamation and Closure Costs

Of increasing concern to governments is the issue of mine reclamation and closure. These costs are primarily incurred by the miner late in the project at a time when production is falling off or nil. Thus, companies cannot recover the costs involved with closure unless the tax system is adjusted to take these into account while cash flows are still being generated. It is in the government's interest to see that the company does plan and set aside funds for this activity, for at the end of the mine life, funds will not be generated and a failed company could result in the need for the government to ultimately fund this activity. One way to encourage companies to fund closure is to require an annual set-aside over the life of the mine and to allow this set aside as a tax deduction.

Currently Peru does not have such a provision.

Table 17 indicates the effect of a requirement for a company to receive a deduction for such costs as spread equally over the life of the mine.

**Table 17. Tax Sensitivity to Annual Allowed Closure Deduction Over the Mine Life**

Closure Deduction	Effective Tax Rate	Investor IRR	Government Revenue: All Taxes & Fees
<b>Copper Model:</b>			
No deduction (current system)	47%	11.7%	US\$471million
Annual life of mine deduction	46%	11.8%	US\$463million
<b>Gold Model:</b>			
No deduction (current system)	43%	14.7%	US\$76million
Annual life of mine deduction	42%	15.1%	US\$73million

### Recommendation on Reclamation/Closure Costs

During the last year(s) of a mine substantial closure costs will be incurred. Because production revenues will have ceased or been reduced, the company may receive no useable tax deduction for these important and essential costs of business. It is recommended that the tax system be modified so that money irrevocably set aside for this purpose (there are any number of ways to do this) may be deducted straight line as amortization over the productive life of the mine.

#### **7.2.4 Deductibility of Investment in Communities and Infrastructure**

There is intense interest by many stakeholders in furthering the concept of sustainable development. One way to foster this is to invest in communities impacted by mining so that when the mine closes, the affected communities will be able to carry-on with social and alternative economic activities. Thus, infrastructure and investments made in the community during the mine life can be important.

The current Peruvian tax system recognizes the importance of mine contributions to local communities and allows a deduction for such expenditures. Deductions are only allowed if the expenditure is approved and companies have found it extremely difficult to get such approval from the relevant ministries.

#### **Recommendation on Deductibility of Investment in Communities and Infrastructure**

The current practice of allowing government approved miner paid for investment in communities and infrastructure to be tax deductible should be continued. However, the current system of approval does not work well, if at all, and needs reform. Such approval authority should vest in a single ministry, not with the ministry responsible for that particular type of infrastructure. The relevant law should also state that if the ministry does not give its approval for such tax status for the proposed investment within a reasonable time period, say 60 days, the request will be deemed to have been approved.

#### **7.2.5 Reinvestment Provision (hypothetical)**

Until recently Peru offered mining investors an incentive to increase the company's production. The company was not subject to pay income tax on the profits it invested so as to increase the company's production, provided these profits were reinvested in accordance with an investment program approved by the mining authority. The period of validity was for four years, but could be extended for another three. However, the benefit was capped at 80% of the total profits, with the balance subject to income tax. This benefit was eliminated under recent tax reform.

A reinvestment incentive such as this is very, very uncommon globally. Most government's use the "penalty" approach to encourage reinvestment rather than the "incentive" approach, i.e., they impose foreign dividend withholding tax.

To assess the impact of such an incentive, the copper mine model was modified to allow for a 4 year phased 20% mine capacity expansion commencing in the 8<sup>th</sup> year after production commenced. The cost was assumed to be \$80 million for the expansion. It was assumed that the 80% profit exemption cap is applicable. The economic measures for the expanded project were assessed with and without the tax incentive to determine its affect on government revenue and company rate of return. The results are shown in Table 18.

**Table 18. Tax Sensitivity to Reinvestment Allowance**

<b>Scenario</b>	<b>Effective Tax Rate</b>	<b>Investor IRR</b>	<b>Government Revenue: All Taxes &amp; Fees</b>
<b>Copper Model:</b>			
20% expansion, no reinvestment allowance (current system)	46%	12.1%	US\$533million
20% expansion, 80% reinvestment allowance	44%	12.5%	US\$506million

One policy question that can be posed when assessing a proposed tax incentive is whether or not the incentive (which will lead to a short term tax decrease) will lead to increased tax revenues over the long run. There are two ways to look at this: 1) will government returns from an individual project be increased over the life of the project, and 2) will government revenues increase because other potential investors will invest that would not have invested had there been no incentive. With regard to (1), for this particular mine model, the government will end up with less revenue. Even though there will be more metal sold over the life of mine and various taxes will be applied to those sales, the additional revenue does not equal the amount of revenue lost in the 4 tax incentive years. With regard to (2), it is doubtful that such an incentive would attract new investors. In practice, the incentive might further reduce government revenues if companies purposefully under-build initial capacity in order to take advantage of the liberal capacity increase allowance in later years.

### **Recommendation on Reinvestment Allowance**

The decision to eliminate the reinvestment tax allowance should not be reversed.

### **7.3 Royalties**

Over the past century, there has been a trend to de-emphasize tax systems based on royalties and to instead implement systems that rely on tax mechanisms that are based on “ability to pay”, i.e., profit-based taxes. Some nations have eliminated mineral royalties entirely, while others have reduced their importance. Table 19 provides a list of nations surveyed and whether or not they use mineral royalties as a means of raising mineral sector fiscal revenues. Roughly 40% of the nations surveyed no longer impose any type of royalty type tax on mines.

Peru does not impose a traditional royalty type tax.

**Table 19. Presence of Mineral Royalty Tax Systems in Selected Jurisdictions**

Country	Mineral royalty type tax on most minerals?
Argentina	Yes
Bolivia	Yes
Burkina Faso	Yes
Canada (Ontario)	No
Chile	No
China	Yes
Ghana	Yes
Greenland	No
Indonesia	Yes
Ivory Coast	Yes
Kazakhstan	Yes
Mexico	No
P.N.G.	Yes
Philippines	Yes
<b>Peru</b>	No
Poland	Yes
South Africa	No
Sweden	No
Tanzania	Yes
USA	No (no federal tax, some states impose severance tax on minerals mined in some designated lands)
Uzbekistan	Yes
W. Australia	Yes
Zimbabwe	No

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition 2000

It has been suggested by some that Peru implement a royalty tax as a means by which to generate additional revenue. One of the simpler forms of royalty is a tax-deductible gross sales revenue *ad valorem* tax. The impact of such a tax has been assessed on the model mines and the results are shown in Table 20.

**Table 20. Tax System Sensitivity to a Royalty Tax**

Royalty Tax on Gross Sales Revenue	Effective Tax Rate	Investor IRR	Government Revenue: All Taxes & Fees
<b>Copper Model:</b>			
0% (current)	47%	11.7%	US\$471million
1%	49%	11.3%	US\$493million
2%	51%	11.0%	US\$516million
2.5%	52%	10.8%	US\$527million
3%	53%	10.6%	US\$538million
<b>Gold Model:</b>			
0% (current)	43%	14.7%	US\$76million
1%	47%	13.9%	US\$82million
2%	51%	13.0%	US\$88million
2.5%	53%	12.5%	US\$92million
3%	54%	12.1%	US\$95million

Companies in any sector, including mining, prefer taxes based on profits rather than taxes charged irrespective of the taxpayer's profit or loss. Peru already imposes substantial input taxes (import duty, IGV). Governments often like to impose a balance of profit-based taxes with some that are not based on profits. Purely profit based fiscal systems are more sensitive to rises and falls in commodity prices and thus, taxes on inputs and outputs can lessen revenue fluctuation, or at least provide a minimum tax revenue in years when a mine does not produce a profit.

In addition, a royalty tax is assessed only in years during which there are commercial sales. In contrast, an input tax, such as import duty, is mainly collected during the project start-up before there is any mine income. Companies would much prefer to pay taxes after during years when production has commenced rather than during construction. The effect of eliminating import duty but assessing a royalty tax is shown in Table 23 in the next section.

### **Recommendation on Royalties**

Peru does not presently impose a royalty tax. It is recommended that a reasonable royalty be imposed but that import duty be eliminated by exemption or zero-rating. Peru currently has substantial input type taxes (import duty and IGV) and most companies view such taxes as less attractive than taxes based on profits or outputs. If Peru does impose a royalty tax, it is recommended that: (a) it be based on gross mineral sales revenues, (b) the rate not exceed 3%, (c) the rate be uniform for all mineral types, and (d) import duty be effectively eliminated.

## **7.4 Import and Export Duties**

Mining is capital intensive and utilizes specialized equipment that is usually imported. This means that an import duty on equipment has a direct impact on project economics in the project's early years. Project feasibility studies calculate various projections of profitability, such as discounted rate of return, and such measures are very sensitive to large costs in the early years of a project. Even modest levels of equipment import duties can sink a marginal project. Competition for mineral sector investment worldwide is fierce, and many countries have either eliminated import duties on mine equipment or have found ways to exempt projects or their equipment from such duties.

Table 21 lists typical import and export duties in a cross-section of mining nations around the world. As can be seen in the table, most of the sample nations impose no or low duty, and those with higher duty usually have some means of exempting mines.

**Table 21. Typical Import Duties on Mine Equipment**

Country	Typical import duty	
Argentina	none*	*1% control fee applies
Bolivia	5%	
Burkina Faso	11%*	*exploitation period only
Canada	0.5%	
Chile	10%*	*deferred and amortized
China	none	
Ghana	exempt*	*during development
Greenland	none	
Indonesia	none	
Ivory Coast	0.75%	
Kazakhstan	none	
Mexico	35%*	*exempt during construction
P.N.G.	none	
<b>Peru</b>	12%*	*depreciated
Poland	9%	
South Africa	none	
Sweden	none*	*1% control fee
Tanzania	none	
USA-Arizona	rates vary	
Uzbekistan	exempt*	*mines usually exempt
W. Australia	5%	
Zimbabwe	5%	

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition 2000

Peru does impose substantial import duties and the rates vary according to the item. However, import duty is allowed as a depreciable deduction against income subject to income tax. Many nations have moved to a system of Value Added Taxes that to some extent replaces traditional import/export tariff schemes.

Governments and taxpayers alike generally have a preference for tax systems that are efficient; i.e., simpler systems are preferable to complicated systems. The current import duty system as applied to mining could be simplified. Since a taxpayer may depreciate import duty at the appropriate rate, profitable taxpayers eventually recoup a portion, but not all, import duty paid (it is allowed as a deduction not as a tax credit-if allowed as a tax credit, full recovery would be possible). The imposition of customs duty carries with it substantial burdens and costs for government in terms of the manpower and time required for tax collection. Most countries are in the process of reducing import duties to values of zero or close thereto. Many nations find that over time, corrupt practices can creep into customs services, particularly where import duties are levied.

The effect of eliminating import duty, as illustrated by the model base metals mine and gold mine, is shown in Table 22.

**Table 22. Tax System Sensitivity to Import Duty**

<b>Representative Mining Equipment Import Duty Rate</b>	<b>Effective Tax Rate</b>	<b>Investor IRR</b>	<b>Government Revenue: All Taxes &amp; Fees</b>
<b>Copper Model:</b>			
15%	48%	11.2%	US\$484million
12% (current)	47%	11.7%	US\$471million
5%	44%	12.9%	US\$438million
0%	41%	13.9%	US\$413million
<b>Gold Model:</b>			
15%	45%	14.1%	US\$78million
12% (current)	43%	14.7%	US\$76million
5%	40%	16.3%	US\$69million
0%	37%	17.5%	US\$65million

The table clearly indicates that the impact of import duty is high on both government and taxpayer.

### **Recommendation on Import Duty**

Import duty is mainly paid during the construction of a mine when there are no cash flows. Thus, companies view such an input tax very negatively. Most nations have exempted mines from import duty during construction or zero-rated most mine type equipment. It is recommended that Peru follow the lead of most other nations and eliminate import duty through either an exemption or if duty category lists are sufficiently detailed to isolate most mining equipment, by zero rating such categories. However, if this recommendation is adopted, a royalty tax of 1 to 3%, preferably 2%, should be imposed on gross mineral sales revenues.

The combined effect of eliminating import duty and adding a royalty tax are shown in table 23.

**Table 23. Tax Sensitivity to Eliminating Import Duty and Imposing a Royalty**

<b>Scenario</b>	<b>Effective Tax Rate</b>	<b>Investor IRR</b>	<b>Government Revenue: All Taxes &amp; Fees</b>
<b>Copper Model:</b>			
12% import duty, 0% royalty (current system)	47%	11.7%	US\$471million
0% import duty, 1% royalty	43%	13.5%	US\$436million
0% import duty, 2% royalty	46%	13.1%	US\$460million
0% import duty, 2.5% royalty	47%	12.8%	US\$472million
0% import duty, 3% royalty	48%	12.6%	US\$484million
<b>Gold Model:</b>			
12% import duty, 0% royalty (current system)	43%	14.7%	US\$76million
0% import duty, 1% royalty	41%	16.6%	US\$71million
0% import duty, 2% royalty	45%	15.6%	US\$78million
0% import duty, 2.5% royalty	46%	15.2%	US\$86million
0% import duty, 3% royalty	48%	14.7%	US\$84million

## **7.5 Value Added (Goods and Services) Tax - IGV**

This type of tax, called a goods and services tax in some jurisdictions, is becoming more common worldwide. In nations where such a tax is in use, it is commonly applied to most purchases, both in terms of capital goods as well as services. Because it is a “consumer” tax and export minerals must compete globally, almost all mineral exporting nations have chosen to negate the impact of the tax in one way or another on both export mineral sales and equipment purchases. The means to achieve this negation vary widely and involve varying degrees of complexity and government administration. The simplest form of negation is an outright exemption for qualifying projects. More complex schemes involve rebates, crediting, refunds, deferrals, and a host of other mechanisms. While many nations exempt or negate the effect of VAT on projects that export, many do apply VAT to mining projects that serve domestic markets. Table 24 lists a selection of tax jurisdictions and whether or not they assess VAT. It also indicates whether some sort of relief from VAT is available to mines for purchased equipment.

Peru levies an 18 IGV (goods and services tax) on goods and services purchased (export sales are exempt). It must be paid on goods and services, but in the case where a mine exports its outputs, it can be credited against Income Tax up to a limit of 18% of such sales of exported minerals.

**Table 24. VAT on Imported Goods and Services in Selected Jurisdictions**

Country	VAT on goods and services paid for by a mineral enterprise	Mechanism* to negate or offset VAT on goods and services if mine production is exported
Argentina	yes	yes
Bolivia	yes	yes
Burkina Faso	yes	yes
Canada	yes	yes
Chile	yes	yes
China	exempt	-
Ghana	exempt	-
Greenland	none	-
Indonesia	yes	yes
Ivory Coast	yes	none
Kazakhstan	yes	yes
Mexico	yes	yes
P.N.G.	yes	yes
Peru	yes	yes
Poland	yes	yes
South Africa	yes	yes
Sweden	yes	yes
Tanzania	exempt	-
USA-Arizona	none	-
Uzbekistan	exempt	-
W. Australia	yes	yes
Zimbabwe	none	-

\*credits, refunds, exemptions, drawback or deferral available to at least some types of mines for at least some types of purchases

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition 2000

### **Recommendation on IGV**

The current system of IGV as applied to mining should remain unchanged.

## 7.6 Dividend Withholding Tax

Many nations impose a dividend withholding tax. The tax can be appreciable with rates up to and exceeding 30 percent. Table 25 lists rates for a number of countries. The general rates described in the table must be used with some caution. Although many governments define a high dividend withholding tax rate, perhaps with the objective of promoting reinvestment or providing national mining companies with an advantage over foreign firms, they often enter into bilateral investment treaties (or dual tax treaties) that lower or eliminate such taxes for companies headquartered in key trading partner countries.

Peru does not have a dividend withholding tax named that but does levy a 4.1% tax on net profits remitted. This would be considered a form of withholding tax by most investors.

**Table 25. Dividend Withholding and Similar Taxes in Selected Jurisdictions**

Country	Dividend Withholding Tax Rate*
Argentina	0% (35% on the excess of the accumulated taxable net income)
Bolivia	12.5%
Burkina Faso	12.5%
Canada	25%
Chile	35% (but 15% income tax is credited against the W/H tax)
China	none
Ghana	10% (mines usually exempt by negotiated agreement)
Greenland	35%
Indonesia	20%
Ivory Coast	12%
Kazakhstan	15%
Mexico	35%
P.N.G.	17%
<b>Peru</b>	4.1% (assessed as an additional income tax rate on remitted dividends)
Poland	20%
South Africa	12.5% (Secondary Tax on Companies is levied on dividend basis)
Sweden	none
Tanzania	10%
USA	30%
Uzbekistan	15%
W. Australia	30% (in practice 0% through dividend "franking")
Zimbabwe	20% (credited against the income tax)

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition, 2000

Note: the rate given in the table is the non-treaty general rate. Many nations, but not Peru, have a host of bilateral investment or tax treaties that may reduce this rate for investors from countries entering into such a treaty.

## 7.7 Foreign Loan Interest Withholding Tax and Deductibility

Many nations levy a withholding tax on interest payments made by mines to foreign lenders. Table 26 provides year 2000 (Peru 2002) information on loan interest withholding tax for the surveyed countries. While governments often chose to levy a foreign interest payment withholding tax, perhaps to encourage and strengthen local lending, the effect of this tax is lessened somewhat by the common practice of allowing interest payments to be deducted (but not usually credited) for the purpose of determining income subject to the income tax.

**Table 26. Loan Interest Withholding Tax in Selected Jurisdictions**

Country	Loan interest withholding tax* (%)
Argentina	15.05% 35% on intercompany loans
Bolivia	12.5%
Burkina Faso	12.5%
Canada (Ont)	25% note: local finance available
Chile	4% when loan is granted by foreign bank; 35% otherwise
China	none
Ghana	10% may be exempted by negotiated agreement
Greenland	none
Indonesia	20%
Ivory Coast	18%
Kazakhstan	15%
Mexico	15%
P.N.G.	none
<b>Peru</b>	4.99 when loan is granted by a foreign, non tax haven bank; otherwise 30% (intercompany loans)
Philippines	15%
Poland	20%
South Africa	none
Sweden	none
Tanzania	none
USA-Arizona	30% (note: local finance available)
Uzbekistan	15%
W. Australia	10%
Zimbabwe	10% (may be used as an income tax credit)

Source: derived from Global Mining Taxation Comparative Study, 2<sup>nd</sup> edition, 2000

\*where rates are given they refer to the general rate. Many nations have bilateral investment treaties that greatly lower the rate or eliminate it for loans originating in the treaty country.

In Peru, interest paid on debt is allowed as a deduction against taxable income. In some nations, including Peru, there is a concern about the debt to equity ratio. This stems from two main policy concerns. First, governments have historically liked to see the company take an equity stake, versus 100% financing, because it demonstrates to some a greater commitment to the project. Secondly, if a loan interest withholding tax applies, the amount of withholding tax will be affected as will be the income tax.

To assess the sensitivity of the current Peruvian tax system on mines, the debt to equity ratio was varied in both the base metal and gold mine models. Table 27 indicates that the system is almost neutral with respect to debt to equity ratio. Although one might expect the government tax take to increase with debt (from increased interest withholding tax) this is partially offset by a lowering of income tax because the loan interest withholding tax is tax deductible (within limits).

**Table 27. Tax System Sensitivity to Debt Equity Ratio**

<b>Debt to Equity</b>	<b>Effective Tax Rate (%)</b>	<b>System Effect</b>
<b>Copper Model:</b>		
0/100	45%	Almost Neutral
50/50	46%	
60/40 (basecase)	47%	
80/20	47%	
<b>Gold Model:</b>		
0/100	42%	Almost Neutral
50/50	43%	
60/40 (basecase)	43%	
80/20	44%	

### **Recommendation on Loan Interest Withholding Tax**

There is a trend for nations with substantial levels of foreign investment to enter into bilateral double taxation agreements or bilateral investment treaties with countries where such investment originates. Peru has not done so. A chief attribute of such treaties is to reduce the normal statutory rates for withholding taxes. Thus, while the current Peruvian statutory withholding rate on loan interest appears low relative to statutory rates in other nations, it is more in line with treaty rates. It is recommended that withholding tax on loan interest remain at its present level.

Table 28 shows bilateral tax treaty status between some mineral producing countries and some capital exporting nations. As can be seen, Peru has been less keen to enter into such treaties than some other nations with which it competes for capital.

**Table 28. Bilateral Double Taxation Treaty Status Between Selected Countries (2000)**

		Mining Capital Exporting Countries							Mining Capital Importing Countries						
		Australia	Canada	France	Japan	South Africa	Sweden	U.S.A.	Argentina	Chile	Ghana	Indonesia	PNG	Peru	Philippines
Mining Capital Exporting Countries	Australia	-	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	N	Y
	Canada	Y	-	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y
	France	Y	Y	-	Y	Y	Y	Y	Y	N	Y	Y	N	N	Y
	Japan	Y	Y	Y	-	Y	Y	Y	N	N	N	Y	N	N	Y
	South Africa	Y	Y	Y	Y	-	Y	Y	N	N	N	Y	N	N	N
	Sweden	Y	Y	Y	Y	Y	-	Y	Y	N	N	Y	N	Y	Y
	U.S.A.	Y	Y	Y	Y	Y	Y	-	Y	N	N	Y	N	N	Y
Mining Capital Importing Countries	Argentina	Y	Y	Y	N	N	Y	Y	-	Y	N	N	N	N	N
	Chile	N	Y	N	N	N	N	N	Y	-	N	N	N	N	N
	Ghana	N	N	Y	N	N	N	N	N	N	-	N	N	N	N
	Indonesia	Y	Y	Y	Y	Y	Y	Y	N	N	N	-	N	N	Y
	PNG	Y	Y	N	N	N	N	N	N	N	N	N	-	N	N
	Peru	N	N	N	N	N	Y	N	N	N	N	N	N	-	N
	Philippines	Y	Y	Y	Y	N	Y	Y	N	N	N	Y	N	N	-

Y – bilateral tax treaty reported to the International Bureau of Fiscal Documentation

N – bilateral tax treaty not reported to IBFD

source: J. Otto (2000). Derived from information reported by the International Bureau of Fiscal Documentation and national sources

## **7.8 Worker Profit Share**

In Peru, companies that pay taxes also must pay a worker profit share. The origins of this type of assessment, which all companies would consider a form of taxation although its beneficiaries are not the government, date to the years when many countries in Latin America were experimenting with socialist systems and had state-owned mines. Many nations adopted schemes whereby workers were entitled to a share of profits.

Since then, most nations have ended their experiments with business-oriented socialism and have privatized the mines and eliminated direct worker profit sharing.

In Peru, the worker profit share originally was to be paid to workers at the mine. However, as time went by modern mining methods resulted in ever larger mines, but utilizing modern mining practices, the number of workers relative to profits was small. Thus, today, a portion of net income after taxes is set aside for two purposes: 1) to reward workers subject to a cap of 16 x salary, and 2) to make available a fund for training and similar purposes to benefit workers in the industry. The monies paid for (2) are disbursed by a special board. Such disbursements are in principle for the benefit of workers, and not for example the general education of children.

In discussions with the Ministry of Labor, it was estimated that this system was probably about 80 to 90% efficient. In discussions with industry, there was very, very great skepticism that much of the collected funds, other than the multiple of salary, ever benefited mine workers. Books of account were not made available to the Author. One question that arises, is the extent to which corrupt practices could be established in a system such as this. The answer to this is unknown as the details regarding accountability, audit and so forth were not available to the Author.

Each industry is subject to paying the worker profit share. The percentage of net income after tax that is subject to this "tax" varies from industry to industry, generally from 5 to 8%. Miners pay at the top rate of 8%.

Such a "tax" is not creditable as a tax in some jurisdictions, such as the USA, and this means that companies in such jurisdictions will be doubly taxed. This is a major distinctive to investors.

This tax is the single largest tax that distinguishes Peru's fiscal system from the global mining taxation norm. Elimination of this tax would move Peru from a mid-position in the tax ranking to a position that while not quite as liberal as Chile's and Argentina's, begins to approach their tax level competitiveness.

### **Recommendation on Worker Profit Share**

The worker profit share should be abolished for all sectors, or strictly limited to some multiple of salaries. This is what most other Latin American nations have done. If the government desires to distribute tax revenues to a certain segment of society or for a certain purpose, it should do so through normal tax allocation mechanisms that

disburse the income tax. If abolishment is not possible, or reduction to just a multiple of salaries, two other options should be considered: 1) reducing the 8% assessment rate to 5%, or 2) allowing the "tax" to be used as a credit, rather than a deduction, against income tax.

The impact of this recommendation is shown in Table 29.

**Table 29. Tax System Sensitivity to Worker Profit Share**

Scenario	Effective Tax Rate	Investor IRR	Government Revenue: All Taxes & Fees*
<b>Copper Model:</b>			
0%	42%	12.1%	US\$425million
5% & deductible	45%	11.9%	US\$454million
8% & deductible (current)	47%	11.7%	US\$471million
5% & creditable	43%	12.1%	US\$427million
8% & creditable	43%	12.1%	US\$429million
<b>Gold Model:</b>			
0%	39%	15.3%	US\$69million
5% & deductible	42%	15.0%	US\$73million
8% (current)	43%	14.7%	US\$76million
5% & creditable	40%	15.2%	US\$70million
8% & creditable	41%	15.1%	US\$71million

\*includes worker profit share which companies consider a form of tax

## 7.9 Tax Distribution

There is no function of government more controversial than tax distribution. It is the primary way by which power is distributed in modern society.

Governments have many options regarding the distribution of taxes. The option chosen by many developing nations is that all tax revenues flow to central government and are then distributed according to the budgeting process. The area in which a mine is located does not receive any particular preference except as results from budget decisions.

In nations where political subdivisions (states, provinces, canons, ...) are strong the statutory process is often used to allocate the budgeting process. For example, certain types of taxes or percentages of taxes are to flow to prescribed levels of government. For example, in many nations royalty tax is reserved for the major political subdivision in which the mine is located.

There are a variety of policy options. One option is to distribute revenue collections by allocating taxing power--some taxes to be collected by central government, some by local government. In allocating tax collection power, care must be taken to take into account two main factors 1) limitations that may arise from constitutional constraints, and 2) the capability of local government to effectively collect the tax.

Another option is for taxes to be collected by central government but then as required

by statutory allocation, to remit the required amount to local government. Central government is often better equipped for the tax collection (and auditing) function than is local government. However, there is a danger that irrespective of what the statute says, that local government will not receive its due. For this reason, mining companies almost always prefer to pay the intended parties directly rather than rely on an internal remittance system.

Local governments usually prefer to receive taxes directly from the taxpayer than relying on remittance from central government. In addition, they have a preference for input/output types of taxes rather than profit-based taxes. The reason for this is quite understandable. A large mine can have a very large impact on local government spending ability. Government will tend to prefer a system where revenues are more stable rather than less. Because a local government may be highly reliant on one or two large mines, budgeting will be very, very difficult if taxes are profit based. A central government with its more dispersed tax base is better able to avoid the revenue fluctuation problem.

In Peru, there is an allocation of a portion of income tax back to the canon where the mine is located. In addition, the validity tax (a minor tax) also flows to the local government. In the first instance, the percentage is generous, 50%. Because this tax is profit-based, it will fluctuate greatly from year to year making local budgeting difficult. In years when no profits are made, and no income tax remitted, it can be expected that substantial local ill-will may develop toward the mine, and toward central government as expectations will over time be based on years with good profits.

### **Recommendation on Tax Distribution**

The Peruvian distribution of mine income tax back to the mine area (canon) is more generous than in most nations. However, because the tax is profit-based, local expectations will be disappointed in low or no profit years which may lead to discord between the local people and the mine, and between local government and central government. To reduce such discord, it is recommended that the tax deduction scheme for local development deductions be implemented effectively, and should a royalty scheme be implemented, that such royalty flow to the canon with the income tax retained fully by the central government.

## 8. Summary

Based on the analysis of the model mines, the tax system in Peru imposes a competitive level of taxation when compared to most nations Peru competes with for mining investment. While Peru is not the lowest taxing nation, it is within the lowest 50% of 23 taxing nations for which the Author has data.

Balancing the fiscal needs and priorities of national and investor entities is politically challenging. For any one mine, the revenue pie is finite, and any portion allocated to one party will diminish that going to another. The analysis here indicates that the portion allocated to the investor would be considered reasonable by most international mining companies.

The current tax system provides a good balance between investor needs and government needs.

Although the current system would be considered as fair by most international mining companies, there is room for improvement. Such improvement could result in a more efficient tax system and one that would further attract foreign investors while not necessarily substantially affecting government revenues.

The recommendations are listed below:

### **Recommendation on Tax Stabilization**

Companies find tax stabilization very attractive and Peru's stabilization agreements are an incentive to investors. It is recommended that the disadvantages of such agreements, sector discrimination and administrative burden, are more than offset by a) the increased tax base that may be created in the future by higher levels of investment and b) the higher levels of tax paid based on the 2% premium. Investors would probably be willing to pay a higher premium for tax stability. **It is recommended that tax stabilization agreements be retained but that the premium for all future such agreements be raised to 5%.**

### **Recommendation on Income Tax**

Peru's income tax rate of 27% is lower than most nations. However, because Peru also levies a 4.1% tax on remitted profits, the effective rate for most foreign mining companies would be about 30% which is in-line with the rate imposed by many nations. **It is recommended that the current income tax rate be retained.**

### **Recommendation on Depreciation**

The concept of depreciation is that a taxpayer should be able to over the life of a piece of physical plant (equipment or building) be able to deduct the full cost of that plant. In most countries, governments provide an acceleration of depreciation for mine equipment as an incentive. Peru does provide for accelerated

depreciation of mine equipment. Some countries allow for accelerated depreciation of buildings based on the rationale that unlike most other commercial buildings, a mine building will have no value after mine closure. Thus, mines with a life span less than the normal depreciation rate for commercial buildings will not be able to deduct the full cost. In Peru, the current depreciation for buildings is 3% which yields a depreciation period of over 33 years (longer than the life of most mines). It is recommended that previous system of 20% depreciation be reinstated, or that the depreciation be based on the established life of the mine.

### **Recommendation on Loss Carry Forward Time Limit**

The loss carry forward time limit in Peru is 4 years, which is one of the shortest, if not the shortest of any major mining country. While this period is adequate for most small, short-lived mines, it is not conducive to attracting investment for larger mines. **It is recommended that loss carry forward time limit be extended to at least 5 years, or preferably, that no time limit be imposed.**

### **Recommendation on Reclamation/Closure Costs**

During the last year(s) of a mine substantial closure costs will be incurred. Because production revenues will have ceased or been reduced, the company may receive no useable tax deduction for these important and essential costs of business. **It is recommended that the tax system be modified so that money irrevocably set aside for this reclamation and closure purposes (there are any number of ways to do this) may be deducted straight line as amortization over the productive life of the mine.**

### **Recommendation on Deductibility of Investment in Communities and Infrastructure**

The current practice of allowing government approved miner paid for investment in communities and infrastructure to be tax deductible should be continued. However, the current system of approval does not work well, if at all, and needs reform. **It is recommended that such approval authority should vest in a single ministry, not with the ministry responsible for that particular type of infrastructure. The relevant law should also state that if the ministry does not give its approval for such tax status for the proposed investment within a reasonable time period, say 60 days, the request will be deemed to have been approved.**

### **Recommendation on Reinvestment Allowance**

The decision to eliminate the reinvestment tax allowance should not be reversed.

### **Recommendation on Royalties**

Peru does not presently impose a royalty tax. It is recommended that a reasonable royalty be imposed but that import duty be eliminated by exemption or zero-rating. Peru currently has substantial input type taxes (import duty and IGV)

and most companies view such taxes as less attractive than taxes based on profits. **If Peru does impose a royalty tax, it is recommended that: (a) it be based on gross mineral sales revenues, (b) the rate not exceed 3%, (c) the rate be uniform for all mineral types, and (d) import duty be effectively eliminated.**

### **Recommendation on Import Duty**

Import duty is mainly paid during the construction of a mine when there are no cash flows. Thus, companies view such an input tax very negatively. Most nations have exempted mines from import duty during construction or zero-rated most mine type equipment. **It is recommended that Peru follow the lead of most other nations and eliminate import duty through either an exemption or if duty category lists are sufficiently detailed to isolate most mining equipment, by zero rating such categories. However, if this recommendation is adopted, a royalty tax of 1 to 3%, preferably 2%, should be imposed on gross mineral sales revenues.**

### **Recommendation on IGTV**

**The current system of IGTV as applied to mining should remain unchanged.**

### **Recommendation on Loan Interest Withholding Tax**

There is a trend for nations with substantial levels of foreign investment to enter into bilateral double taxation agreements or bilateral investment treaties with countries where such investment originates. Peru has not done so. A chief attribute of such treaties is to reduce the normal statutory rates for withholding taxes. Thus, while the current Peruvian statutory withholding rate on loan interest appears low relative to statutory rates in other nations, it is more in line with treaty rates. **It is recommended that withholding tax on loan interest remain at its present level.**

### **Recommendation on Worker Profit Share**

**The worker profit share should be abolished for all sectors, or strictly limited to some multiple of salaries.** This is what most other Latin American nations have done. If the government desires to distribute tax revenues to a certain segment of society or for a certain purpose, it should do so through normal tax allocation mechanisms that disburse general tax revenues. **If abolishment is not possible, or reduction to just a multiple of salaries, two other options should be considered: 1) reducing the 8% assessment rate to 5%, and 2) allowing the "tax" to be used as a credit, rather than a deduction, against income tax.**

**Appendix 1.**

**Peru - Copper Mine: Current Tax Regime**

**COPPER CASH FLOWS:**

**PERU (All Values in US \$)**

Year	0	1	2	3	4	5	6
Production (Cu, lbs / Year)	0	0	90,000,000	130,000,000	130,000,000	130,000,000	130,000,000
Selling Price, (Cu, \$ / lb)	-	-	\$1.13	\$1.16	\$1.18	\$1.21	\$1.24
Operating Cost, (Cu, \$ / lb)	\$0.00	\$0.45	\$0.46	\$0.48	\$0.49	\$0.51	\$0.52
Gross Revenue	0	0	101,475,000	150,239,375	153,995,359	157,845,243	161,791,374
- Operating Expense	0	0	-41,715,000	-62,062,650	-63,924,530	-65,842,265	-67,817,533
Operating Earnings	0	0	59,760,000	88,176,725	90,070,830	92,002,978	93,973,841
- Depreciation (Equip & Import Duty, 20% SL)	0	0	-76,608,000	-78,810,938	-81,079,963	-83,417,060	-85,824,269
- Depreciation (Buildings, 3% SL)	0	0	-1,276,800	-1,313,516	-1,351,333	-1,390,284	-1,430,404
- Amortization (Feas & develop, 3 yrs SL)	0	0	-25,000,000	-25,000,000	-25,000,000	0	0
- Amortization (Exploration, life of mine SL)	0	0	-263,158	-263,158	-263,158	-263,158	-263,158
- Accrued Interest (8.0%)	0	-3,360,000	-14,307,266	-18,445,056	-14,510,801	-10,261,805	-5,672,890
- Validity Fee	-7,500	-7,500	-7,500	-7,500	-7,500	-7,500	-7,500
- Worker's Share of Net Income (8%)	0	0	0	0	0	0	0
- W/H Tax on Interest (4.99%)	0	-167,664	-713,933	-920,408	-724,089	-512,064	-283,077
Taxable Before Loss Forward	-7,500	-3,535,164	-58,416,657	-36,583,850	-32,866,014	-3,848,893	492,542
- Loss Forward Deduction	0	-7,500	-3,542,664	-61,959,321	-98,543,171	-131,401,684	-131,715,414
Taxable Income	-7,500	-3,542,664	-61,959,321	-98,543,171	-131,409,184	-135,250,578	-131,222,872
Income Taxes (27%) Before IGV Tax Credit	0	0	0	0	0	0	0
Max IGV Credit/Refund (18% sales)	0	0	18,265,500	27,043,088	27,719,165	28,412,144	29,122,447
IGV Income Tax Credit Taken	0	0	0	0	0	0	0
- Income Tax (27%) After IGV Tax Credit	0	0	0	0	0	0	0
Net Income Before IGV Refund	-7,500	-3,542,664	-61,959,321	-98,543,171	-131,409,184	-135,250,578	-131,222,872
+ IGV Govt Directly Refunded to Company	0	0	0	25,076,179	25,058,321	0	0
Net Income	-7,500	-3,542,664	-61,959,321	-73,466,992	-106,350,863	-135,250,578	-131,222,872
+ Depreciation (Equip & Import Duty)	0	0	76,608,000	78,810,938	81,079,963	83,417,060	85,824,269
+ Depreciation (Buildings)	0	0	1,276,800	1,313,516	1,351,333	1,390,284	1,430,404
+ Amortization (Feas & Development)	0	0	25,000,000	25,000,000	25,000,000	0	0
+ Amortization (Exploration)	0	0	263,158	263,158	263,158	263,158	263,158
+ Loss Forward Deduction	0	7,500	3,542,664	61,959,321	98,543,171	131,401,684	131,715,414
- Expenditures:							
Depreciable Equipment	-50,000,000	-200,000,000	-130,000,000	-10,927,270	-11,255,088	-11,592,741	-11,940,523
Depreciable Buildings	0	0	0	0	0	0	0
Feasibility & Development	-40,000,000	-35,000,000	0	0	0	0	0
Exploration	-5,000,000	0	0	0	0	0	0
Working Capital Cost	0	-5,000,000	-10,000,000	-450,000	-463,500	-477,405	-491,727
+ Borrowed Money Inflow	42,000,000	144,000,000	84,000,000	0	0	0	0
- Principal Payments	0	-7,159,171	-32,277,634	-49,178,187	-53,112,442	-57,361,438	-51,431,181
- Tax on Net Income (4.1%)	0	0	0	0	0	0	0
IGV (18%)	-9,000,000	-36,000,000	-23,400,000	-1,966,909	-2,025,916	-2,086,693	-2,149,294
-IGV offset	0	0	18,265,500	1,966,909	2,025,916	2,086,693	2,149,294
- IGV payable after offset	-9,000,000	-36,000,000	-5,134,500	0	0	0	0
- Import Duties (Equipment, 12.0%)	-6,000,000	-24,000,000	-15,600,000	-1,311,272	-1,350,611	-1,391,129	-1,432,863
Project Cash Flow	-68,007,500	-166,694,335	-64,280,833	32,013,210	33,705,121	10,398,897	22,714,079

Net Present Value	-6,574,591
Rate of Return	11.7%

**Effective Tax & Cash Flow Calculations**

Year	0	1	2	3	4	5	6
Gross Revenue	0	0	101,475,000	150,239,375	153,995,359	157,845,243	161,791,374
- Operating Expense	0	0	-41,715,000	-62,062,650	-63,924,530	-65,842,265	-67,817,533
- Capital Costs	-95,000,000	-240,000,000	-140,000,000	-11,377,270	-11,718,588	-12,070,146	-12,432,250
- Borrowed \$ / Principal & Interest	42,000,000	133,480,829	37,415,099	-67,623,243	-67,623,243	-67,623,243	-57,104,072
Effective Before-Tax Cash Flow	-53,000,000	-106,519,171	-42,824,901	9,176,212	10,728,999	12,309,589	24,437,519
Total Taxes Paid	-15,007,500	-60,175,164	-21,455,933	-2,239,181	-2,082,200	-1,910,693	-1,723,440
+ IGV refund	0	0	0	25,076,179	25,058,321	0	0
- Effective Total Taxes Paid	-15,007,500	-60,175,164	-21,455,933	22,836,998	22,976,122	-1,910,693	-1,723,440
Cash Flow	-68,007,500	-166,694,335	-64,280,833	32,013,210	33,705,121	10,398,897	22,714,079

**COPPER CASH FLOWS:**

Year	7	8	9	10	11	12	13
Production (Cu, lbs / Year)	130,000,000	130,000,000	130,000,000	130,000,000	130,000,000	130,000,000	130,000,000
Selling Price, (Cu, \$ / lb)	\$1.28	\$1.31	\$1.34	\$1.37	\$1.41	\$1.44	\$1.48
Operating Cost, (Cu, \$ / lb)	\$0.54	\$0.55	\$0.57	\$0.59	\$0.60	\$0.62	\$0.64
Gross Revenue	165,836,159	169,982,063	174,231,614	178,587,405	183,052,090	187,628,392	192,319,102
- Operating Expense	-69,852,059	-71,947,621	-74,106,050	-76,329,231	-78,619,108	-80,977,681	-83,407,012
Operating Earnings	95,984,099	98,034,442	100,125,565	102,258,173	104,432,982	106,650,711	108,912,090
- Depreciation (Equip & Import Duty., 20% SL)	-11,695,695	-12,046,566	-12,407,963	-12,780,202	-13,163,608	-13,558,516	-13,965,272
- Depreciation (Buildings, 3% SL)	-1,471,728	-1,514,292	-1,558,132	-1,603,288	-1,649,798	-1,697,704	-1,747,046
- Amortization (Feas & develop, 3 yrs SL)	0	0	0	0	0	0	0
- Amortization (Exploration, life of mine SL)	-263,158	-263,158	-263,158	-263,158	-263,158	-263,158	-263,158
- Accrued Interest (8.0%)	-1,558,396	0	0	0	0	0	0
- Validity Fee	-7,500	-7,500	-7,500	-7,500	-7,500	-7,500	-7,500
- Worker's Share of Net Income (8%)	0	-608,888	-5,064,307	-4,908,038	-5,022,970	-5,123,965	-5,227,702
- W/H Tax on Interest (4.89%)	-77,764	0	0	0	0	0	0
Taxable Before Loss Forward	80,909,859	83,594,038	80,824,505	82,695,988	84,325,948	85,999,868	87,701,412
- Loss Forward Deduction	-73,298,757	0	0	0	0	0	0
Taxable Income	7,611,101	83,594,038	80,824,505	82,695,988	84,325,948	85,999,868	87,701,412
Income Taxes (27%) Before IGV Tax Credit	-2,054,997	-22,570,390	-21,822,616	-22,327,917	-22,768,006	-23,219,964	-23,679,381
Max IGV Credit/Refund (18% sales)	29,850,509	30,596,771	31,361,691	32,145,733	32,949,376	33,773,111	34,617,438
IGV Income Tax Credit Taken	2,054,997	2,280,186	2,348,592	2,419,049	2,491,621	2,566,370	2,643,361
- Income Tax (27%) After IGV Tax Credit	0	-20,290,204	-19,474,025	-19,908,867	-20,276,385	-20,653,595	-21,036,021
Net Income Before IGV Refund	7,611,101	63,303,834	61,350,480	62,787,120	64,049,563	65,346,273	66,665,392
+ IGV Govt Directly Refunded to Company	0	0	0	0	0	0	0
Net Income	7,611,101	63,303,834	61,350,480	62,787,120	64,049,563	65,346,273	66,665,392
+ Depreciation (Equip & Import Duty)	11,695,695	12,046,566	12,407,963	12,780,202	13,163,608	13,558,516	13,965,272
+ Depreciation (Buildings)	1,471,728	1,514,292	1,558,132	1,603,288	1,649,798	1,697,704	1,747,046
+ Amortization (Feas & Development)	0	0	0	0	0	0	0
+ Amortization (Exploration)	263,158	263,158	263,158	263,158	263,158	263,158	263,158
+ Loss Forward Deduction	73,298,757	0	0	0	0	0	0
- Expenditures:							
Depreciable Equipment	-12,298,739	-12,667,701	-13,047,732	-13,439,164	-13,842,339	-14,257,609	-14,685,337
Depreciable Buildings	0	0	0	0	0	0	0
Feasibility & Development	0	0	0	0	0	0	0
Exploration	0	0	0	0	0	0	0
Working Capital Cost	-506,479	-521,673	-537,324	-553,443	-570,047	-587,148	-604,762
+ Borrowed Money Inflow	0	0	0	0	0	0	0
- Principal Payments	-19,479,946	0	0	0	0	0	0
- Tax on Net Income (4.1%)	-312,055	-2,595,457	-2,515,370	-2,574,272	-2,626,032	-2,679,197	-2,733,281
IGV (18%)	-2,213,773	-2,280,186	-2,348,592	-2,419,049	-2,491,621	-2,566,370	-2,643,361
-IGV offset	158,776	0	0	0	0	0	0
- IGV payable after offset	-2,054,997	-2,280,186	-2,348,592	-2,419,049	-2,491,621	-2,566,370	-2,643,361
- Import Duties (Equipment, 12.0%)	-1,475,849	-1,520,124	-1,565,728	-1,612,700	-1,661,081	-1,710,913	-1,762,240
Project Cash Flow	58,212,375	57,542,708	55,564,989	56,835,140	57,935,008	59,064,414	60,211,886

**Effective Tax & Cash Flow Calculations**

Year	7	8	9	10	11	12	13
Gross Revenue	165,836,159	169,982,063	174,231,614	178,587,405	183,052,090	187,628,392	192,319,102
- Operating Expense	-69,852,059	-71,947,621	-74,106,050	-76,329,231	-78,619,108	-80,977,681	-83,407,012
- Capital Costs	-12,805,218	-13,189,374	-13,585,055	-13,992,607	-14,412,385	-14,844,757	-15,290,100
- Borrowed \$ / Principal & Interest	-21,038,342	0	0	0	0	0	0
Effective Before-Tax Cash Flow	62,140,540	84,845,067	86,540,509	88,265,566	90,020,596	91,805,954	93,621,990
Total Taxes Paid	-3,928,165	-27,302,360	-30,975,521	-31,430,427	-32,085,588	-32,741,540	-33,410,105
+ IGV refund	0	0	0	0	0	0	0
- Effective Total Taxes Paid	-3,928,165	-27,302,360	-30,975,521	-31,430,427	-32,085,588	-32,741,540	-33,410,105
Cash Flow	58,212,375	57,542,708	55,564,989	56,835,140	57,935,008	59,064,414	60,211,886

**COPPER CASH FLOWS:**

Year	14	15	16	17	18	19
Production (Cu, lbs / Year)	130,000,000	130,000,000	130,000,000	130,000,000	130,000,000	130,000,000
Selling Price, (Cu, \$ / lb)	\$1.52	\$1.55	\$1.59	\$1.63	\$1.67	\$1.72
Operating Cost, (Cu, \$ / lb)	\$0.66	\$0.68	\$0.70	\$0.72	\$0.74	\$0.77
Gross Revenue	197,127,079	202,055,256	207,106,638	212,284,304	217,591,411	223,031,197
- Operating Expense	-85,909,222	-88,486,499	-91,141,094	-93,875,327	-96,691,586	-99,592,334
Operating Earnings	111,217,857	113,568,757	115,965,544	118,408,977	120,899,825	123,438,863
- Depreciation (Equip & Import Duty, 20% SL)	-14,384,230	-14,815,757	-15,260,229	-15,718,036	-16,189,577	-14,907,730
- Depreciation (Buildings, 3% SL)	-1,797,869	-1,850,217	-1,904,135	-1,959,671	-2,016,873	-2,046,331
- Amortization (Feas & develop, 3 yrs SL)	0	0	0	0	0	0
- Amortization (Exploration, life of mine SL)	-263,158	-263,158	-263,158	-263,158	-263,158	-263,158
- Accrued Interest (8.0%)	0	0	0	0	0	0
- Validity Fee	-7,500	-7,500	-7,500	-7,500	-7,500	-7,500
- Worker's Share of Net Income (8%)	-5,333,231	-5,440,634	-5,549,930	-5,661,144	-5,774,299	-5,889,418
- W/H Tax on Interest (4.99%)	0	0	0	0	0	0
Taxable Before Loss Forward	89,431,869	91,191,492	92,980,591	94,799,468	96,648,418	100,324,725
- Loss Forward Deduction	0	0	0	0	0	0
Taxable Income	89,431,869	91,191,492	92,980,591	94,799,468	96,648,418	100,324,725
Income Taxes (27%) Before IGV Tax Credit	-24,146,605	-24,621,703	-25,104,760	-25,595,856	-26,095,073	-27,087,676
Max IGV Credit/Refund (18% sales)	35,482,874	36,369,946	37,279,195	38,211,175	39,166,454	40,145,615
IGV Income Tax Credit Taken	2,722,662	2,804,341	2,888,472	2,975,126	3,064,380	1,578,155
- Income Tax (27%) After IGV Tax Credit	-21,423,943	-21,817,361	-22,216,288	-22,620,731	-23,030,693	-25,509,520
Net Income Before IGV Refund	68,007,926	69,374,130	70,764,303	72,178,737	73,617,725	74,815,205
+ IGV Govt Directly Refunded to Company	0	0	0	0	0	0
Net Income	68,007,926	69,374,130	70,764,303	72,178,737	73,617,725	74,815,205
+ Depreciation (Equip & Import Duty)	14,384,230	14,815,757	15,260,229	15,718,036	16,189,577	14,907,730
+ Depreciation (Buildings)	1,797,869	1,850,217	1,904,135	1,959,671	2,016,873	2,046,331
+ Amortization (Feas & Development)	0	0	0	0	0	0
+ Amortization (Exploration)	263,158	263,158	263,158	263,158	263,158	263,158
+ Loss Forward Deduction	0	0	0	0	0	0
- Expenditures:						
Depreciable Equipment	-15,125,897	-15,579,674	-16,047,064	-16,528,476	-17,024,331	-8,767,530
Depreciable Buildings	0	0	0	0	0	0
Feasibility & Development	0	0	0	0	0	0
Exploration	0	0	0	0	0	0
Working Capital Cost	-622,905	-641,592	-660,840	-680,665	-701,085	-722,118
+ Borrowed Money Inflow	0	0	0	0	0	0
- Principal Payments	0	0	0	0	0	0
- Tax on Net Income (4.1%)	-2,788,325	-2,844,339	-2,901,336	-2,959,328	-3,018,327	-3,067,423
IGV (18%)	-2,722,662	-2,804,341	-2,888,472	-2,975,126	-3,064,380	-1,578,155
-IGV offset	0	0	0	0	0	0
- IGV payable after offset	-2,722,662	-2,804,341	-2,888,472	-2,975,126	-3,064,380	-1,578,155
- Import Duties (Equipment, 12.0%)	-1,815,108	-1,869,561	-1,925,648	-1,983,417	-2,042,920	-1,052,104
Project Cash Flow	61,378,286	62,563,754	63,768,465	64,992,589	66,236,291	76,845,094

**Effective Tax & Cash Flow Calculations**

Year	14	15	16	17	18	19
Gross Revenue	197,127,079	202,055,256	207,106,638	212,284,304	217,591,411	223,031,197
- Operating Expense	-85,909,222	-88,486,499	-91,141,094	-93,875,327	-96,691,586	-99,592,334
- Capital Costs	-15,748,802	-16,221,267	-16,707,905	-17,209,142	-17,725,416	-9,489,648
- Borrowed \$ / Principal & Interest	0	0	0	0	0	0
Effective Before-Tax Cash Flow	95,469,055	97,347,491	99,257,639	101,199,835	103,174,409	113,949,214
Total Taxes Paid	-34,090,769	-34,783,737	-35,489,174	-36,207,246	-36,938,118	-37,104,121
+ IGV refund	0	0	0	0	0	0
- Effective Total Taxes Paid	-34,090,769	-34,783,737	-35,489,174	-36,207,246	-36,938,118	-37,104,121
Cash Flow	61,378,286	62,563,754	63,768,465	64,992,589	66,236,291	76,845,094

**COPPER CASH FLOWS:**

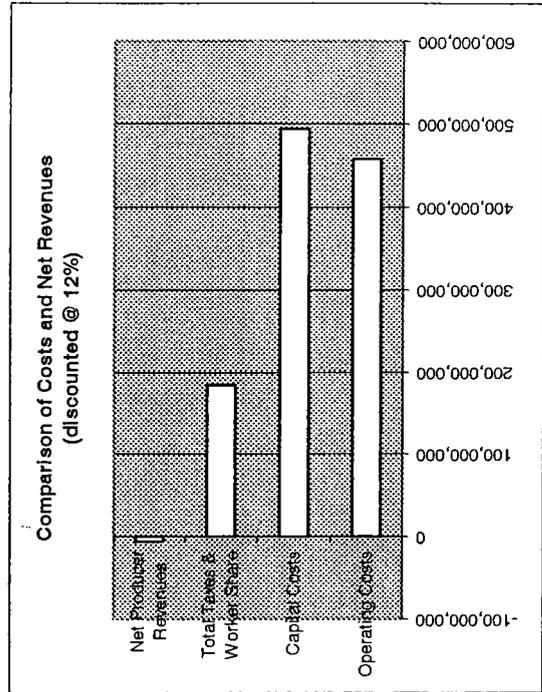
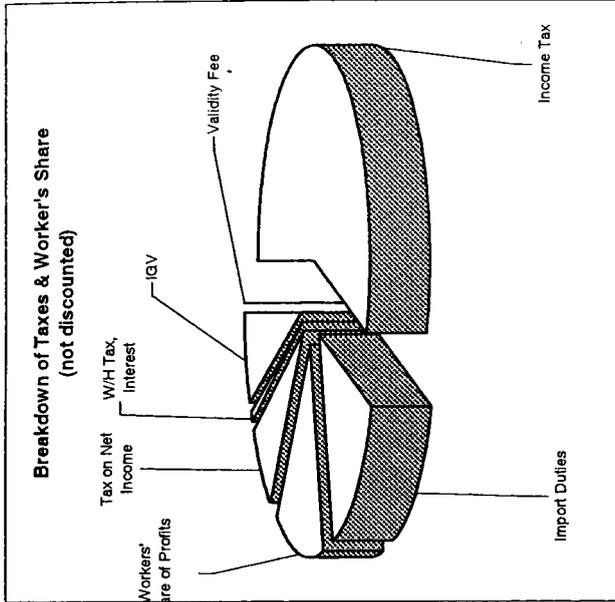
Year	20	Cumulative	
Production (Cu, lbs / Year)	60,000,000	2,360,000,000	
Selling Price, (Cu, \$ / lb)	\$1.76		
Operating Cost, (Cu, \$ / lb)	\$0.79		
Gross Revenue	105,510,912	3,341,689,974	
- Operating Expense	-72,344,663	-1,464,641,467	
Operating Earnings	33,166,249	1,877,048,507	
- Depreciation (Equip & Import Duty, 20% SL)	-11,766,868	-598,400,479	
- Depreciation (Buildings, 3% SL)	-2,046,331	-31,625,752	
- Amortization (Feas & develop, 3 yrs SL)	0	-75,000,000	
- Amortization (Exploration, life of mine SL)	-263,158	-5,000,000	
- Accrued Interest (8.0%)	0	-68,116,214	
- Validity Fee	-7,500	-157,500	
- Worker's Share of Net Income (8%)	-5,985,216	-65,589,743	
- W/H Tax on Interest (4.95%)	0	-3,398,999	
Taxable Before Loss Forward	13,097,175	1,029,759,820	
- Loss Forward Deduction	0	-500,468,511	
Taxable Income	13,097,175	529,291,309	
Income Taxes (27%) Before IGV Tax Credit	-3,536,237	-294,631,182	
Max IGV Credit/Refund (18% sales)	18,991,964		
IGV Income Tax Credit Taken	0	32,837,311	
- Income Tax (27%) After IGV Tax Credit	-3,536,237	-261,793,871	
Net Income Before IGV Refund	9,560,938	267,497,438	
+ IGV Govt Directly Refunded to Company	0	50,134,500	82,971,811
Net Income	9,560,938	317,631,938	
+ Depreciation (Equip & Import Duty)	11,766,868	598,400,479	
+ Depreciation (Buildings)	2,046,331	31,625,752	
+ Amortization (Feas & Development)	0	75,000,000	
+ Amortization (Exploration)	263,158	5,000,000	
+ Loss Forward Deduction	0	500,468,511	
- Expenditures:		0	
Depreciable Equipment	0	-609,027,215	
Depreciable Buildings	0	0	
Feasibility & Development	0	-75,000,000	
Exploration	0	-5,000,000	
Working Capital Cost	24,792,714	0	
+ Borrowed Money Inflow	0	270,000,000	
- Principal Payments	0	-270,000,000	
- Tax on Net Income (4.1%)	-391,998	-34,006,742	
IGV (18%)	0	-109,624,899	
-IGV offset	0	26,653,088	
- IGV payable after offset	0	-82,971,811	
- Import Duties (Equipment, 12.0%)	0	-73,083,266	
Project Cash Flow	48,038,011	649,037,647	566,065,836

**Effective Tax & Cash Flow Calculations**

Year	20	Cumulative	Discounted
Gross Revenue	105,510,912	3,341,689,974	\$1,073,171,020
- Operating Expense	-72,344,663	-1,464,641,467	-\$458,151,561
- Capital Costs	24,792,714	-689,027,215	-\$493,821,533
- Borrowed \$ / Principal & Interest	0	-68,116,214	\$23,079,097
Effective Before-Tax Cash Flow	57,958,963	1,119,905,079	\$144,277,022
Total Taxes Paid	-9,920,952	-521,001,932	-\$184,625,358
+ IGV refund	0	50,134,500	\$33,773,745
- Effective Total Taxes Paid	-9,920,952	-470,867,432	-\$150,851,613
Cash Flow	48,038,011	649,037,647	-\$6,574,591

## Summary of Taxes Paid, Copper, Peru

<b>Breakdown of Cumulative Taxes</b>	<b>Total Value</b>	<b>% of Gross</b>	<b>% of Tax</b>
Gross Revenue	3,341,689,974		
- W/H Tax on Interest (4.99%)	-3,398,999	0.1%	0.7%
- IGV after offset and refund (18%)	-32,837,311	1.0%	7.0%
- Import Duties (Equipment, 12.0%)	-73,083,266	2.2%	15.5%
- Worker's Share of Net Income (8%)	-65,589,743	2.0%	13.9%
- Validity Fee	-157,500	0.0%	0.0%
- Tax on Net Income (4.1%)	-34,006,742	1.0%	7.2%
- Income Tax (27%) After IGV Tax Credit	-261,793,871	7.8%	55.6%
= Total Taxes Paid	-470,867,432	14.1%	100.0%
Discounted Gross Revenue @ 12%	1,073,171,020		
Discounted Total Taxes Paid @ 12%	-\$150,851,613		



<b>Breakdown of Gross Income (discounted @ 12%)</b>	<b>Present Value</b>	<b>% of Gross</b>
Mineral Sales Revenue	1,073,171,020	
+ Loan Differential	23,079,097	
+ Investor's loss	6,574,591	
= Gross income	1,102,824,708	
- Operating Costs	-458,151,561	41.5%
- Capital Expenditures	-493,821,533	44.8%
- Total Taxes	-184,825,358	16.7%
= Investor's profit	n.a.	0.0%
		103.1%

<b>Measures of Project Economics</b>	<b>Value</b>	<b>% of Gross</b>
IRR on Before-Tax Cash Flows	18.8%	
IRR on After-Tax Cash Flows	11.7%	
NPV of Before-Tax Project Cash Flows @ 12%	144,277,022	
NPV of After-Tax Project Cash Flows @ 12%	-\$6,574,591	
Effective Tax Rate (discounted @ 12%)	-150,851,613	104.6%
Effective Tax Rate (not discounted)	-470,867,432	46.5%

Appendix 2.

Peru - Gold Mine Mine: Current Tax Regime

**GOLD CASH FLOWS:**

**PERU (All Values in US \$)**

Year	0	1	2	3	4	5	6
Production (Au, Ounces / Year)	0	0	150,000	300,000	300,000	300,000	300,000
Selling Price, (Au, \$ / Ounce)	0	\$361.00	\$370.03	\$379.28	\$388.76	\$398.48	\$408.44
Operating Cost, (Au, \$ / Ounce)	0	\$210.00	\$216.30	\$222.79	\$229.47	\$236.36	\$243.45
Gross Revenue	0	0	55,503,750	113,782,688	116,627,255	119,542,936	122,531,509
- Operating Expense	0	0	-32,445,000	-66,836,700	-68,841,801	-70,907,055	-73,034,267
Operating Earnings	0	0	23,058,750	46,945,988	47,785,454	48,635,881	49,497,243
- Depreciation (Equip., 5 yrs SL)	0	0	-18,144,000	-19,245,469	-20,379,982	-21,548,530	-22,752,135
- Depreciation (Buildings, 20 ys SL)	0	0	-302,400	-320,758	-339,666	-359,142	-379,202
- Amortization (Feas & Develop, 3 yrs SL)	0	0	-16,666,667	-16,666,667	-16,666,667	0	0
- Amortization (exploration, life of mine SL)	0	0	-555,556	-555,556	-555,556	-555,556	-555,556
- Accrued Interest (a.0%)	0	-1,440,000	-4,794,543	-5,595,806	-4,360,403	-3,026,168	-1,585,194
- Validity Fee	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000	-3,000
- Worker's Share of Net Income (8%)	0	0	0	0	0	0	-864,279
- W/H Tax on Interest (4.99%)	0	-71,856	-239,248	-279,231	-217,584	-151,006	-79,101
Taxable income before loss forward	-3,000	-1,514,856	-17,646,663	4,279,502	5,262,597	22,992,480	23,278,776
- Loss Forward Deduction	0	-3,000	-1,517,856	-19,164,519	-14,885,016	-9,622,420	0
Taxable Income	-3,000	-1,517,856	-19,164,519	-14,885,016	-9,622,420	13,370,060	23,278,776
Income Taxes (27%) Before IGVT Tax Credit	0	0	0	0	0	-3,609,916	-6,285,270
Max IGVT Credit/Refund (18% sales)	0	0	9,990,675	20,480,884	20,992,906	21,517,728	22,055,672
IGVT Income Tax Credit Taken	0	0	0	0	0	1,043,347	1,074,647
- Income Tax (27%) After IGVT Tax Credit	0	0	0	0	0	-2,566,570	-5,210,623
Net Income Before IGVT Refund	-3,000	-1,517,856	-19,164,519	-14,885,016	-9,622,420	10,803,491	18,068,154
+ IGVT Govt Directly Refunded to Company	0	0	4,590,675	6,209,325	0	0	0
Net Income	-3,000	-1,517,856	-14,573,844	-8,675,691	-9,622,420	10,803,491	18,068,154
+ Depreciation (equipment)	0	0	18,144,000	19,245,469	20,379,982	21,548,530	22,752,135
+ Depreciation (buildings)	0	0	302,400	320,758	339,666	359,142	379,202
+ Amortization (Feas & Development)	0	0	16,666,667	16,666,667	16,666,667	0	0
+ Amortization (Exploration)	0	0	555,556	555,556	555,556	555,556	555,556
+ Loss Forward Deduction	0	3,000	1,517,856	19,164,519	14,885,016	9,622,420	0
- Expenditures:							
Depreciable Equipment & Buildings	-10,000,000	-50,000,000	-30,000,000	-5,463,635	-5,627,544	-5,796,370	-5,970,261
Feasibility & Development	-30,000,000	-20,000,000	0	0	0	0	0
Exploration	-5,000,000	0	0	0	0	0	0
Working Capital Cost	0	-5,000,000	-5,000,000	-300,000	-309,000	-318,270	-327,818
+ Borrowed Money Inflow	18,000,000	45,000,000	21,000,000	0	0	0	0
- Principal Payments	0	-3,068,216	-10,984,214	-15,442,537	-16,677,940	-18,012,175	-14,944,932
- Tax on Net Income (4.1%)	0	0	0	0	0	-442,943	-740,794
IGVT (18%)	-1,800,000	-9,000,000	-5,400,000	-983,454	-1,012,958	-1,043,347	-1,074,647
- IGVT offset	0	0	5,400,000	983,454	1,012,958	0	0
- IGVT payable after offset	-1,800,000	-9,000,000	0	0	0	-1,043,347	-1,074,647
- Import Duties (Equipment, 12.0%)	-1,200,000	-6,000,000	-3,600,000	-655,636	-675,305	-695,564	-716,431
Project Cash Flow	-30,003,000	-49,583,072	-5,971,579	25,415,468	19,914,678	16,580,469	17,980,161

Net Present Value	10,760,389
Rate of Return	14.7%

**Effective Tax & Cash Flow Calculations**

Year	0	1	2	3	4	5	6
Gross Revenue	0	0	55,503,750	113,782,688	116,627,255	119,542,936	122,531,509
- Operating Expense	0	0	-32,445,000	-66,836,700	-68,841,801	-70,907,055	-73,034,267
- Capital Costs	-45,000,000	-75,000,000	-35,000,000	-5,763,635	-5,936,544	-6,114,640	-6,298,080
- Borrowed \$ / Principal & Interest	18,000,000	40,491,784	5,221,243	-21,038,342	-21,038,342	-21,038,342	-16,530,126
Effective Before-Tax Cash Flow	-27,000,000	-34,508,216	-6,720,007	20,144,010	20,810,567	21,482,898	26,669,037
Total Taxes Paid	-3,003,000	-15,074,856	-3,842,248	-937,867	-895,889	-4,902,430	-8,688,876
+ IGVT refund	0	0	4,590,675	6,209,325	0	0	0
+ Effective Total Taxes Paid	-3,003,000	-15,074,856	748,427	5,271,458	-895,889	-4,902,430	-8,688,876
Cash Flow	-30,003,000	-49,583,072	-5,971,579	25,415,468	19,914,678	16,580,469	17,980,161

**GOLD CASH FLOWS:**

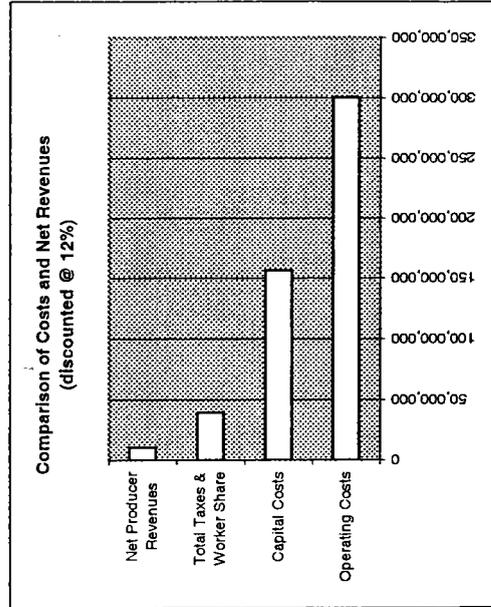
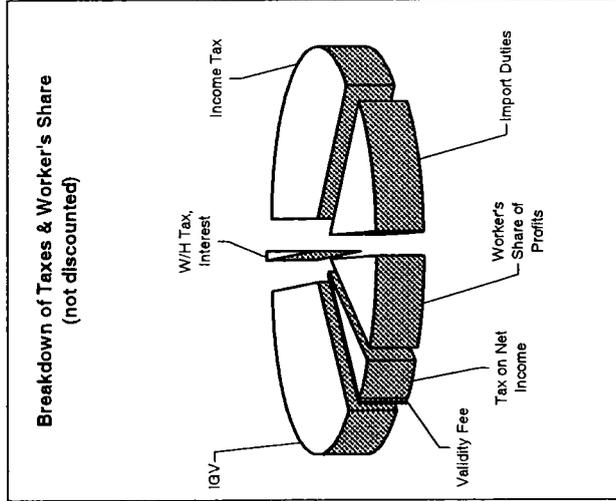
Year	7	8	9	10	Cumulative	
Production (Au, Ounces / Year)	300,000	300,000	300,000	100,000	2,350,000	
Selling Price, (Au, \$ / Ounce)	\$418.65	\$429.12	\$439.84	\$450.84		
<b>Operating Cost, (Au, \$ / Ounce)</b>	<b>\$250.75</b>	<b>\$258.27</b>	<b>\$266.02</b>	<b>\$274.00</b>		
Gross Revenue	125,594,797	128,734,667	131,953,034	45,083,953	959,354,589	
- Operating Expense	-75,225,295	-77,482,054	-79,806,515	-37,400,237	-581,978,923	
Operating Earnings	50,369,503	51,252,614	52,146,519	7,683,716	377,375,666	
- Depreciation (Equip., 5 yrs SL)	-5,847,848	-5,767,902	-5,159,474	-3,990,926	-122,836,264	
- Depreciation (Buildings, 20 yrs SL)	-399,864	-416,890	-425,658	-425,658	-3,369,237	
- Amortization (Feas & Develop, 3 yrs SL)	0	0	0	0	-50,000,000	
- Amortization (exploration, life of mine SL)	-555,556	-555,556	-555,556	-555,556	-5,000,000	
- Accrued Interest (8.0%)	-389,599	0	0	0	-21,191,711	
- Validity Fee	-3,000	-3,000	-3,000	-3,000	-33,000	
- Worker's Share of Net Income (8%)	-1,445,452	-2,524,342	-2,524,886	-2,576,690	-9,935,648	
- W/H Tax on Interest (4.99%)	-19,441	0	0	0	-1,057,466	
Taxable Income before loss forward	41,708,743	41,984,925	43,477,946	131,888	163,952,339	
- Loss Forward Deduction	0	0	0	0	-45,192,810	
Taxable Income	41,708,743	41,984,925	43,477,946	131,888	118,759,528	
Income Taxes (27%) Before IGV Tax Credit	-11,261,361	-11,335,930	-11,739,045	-35,610	-44,267,132	
Max IGV Credit/Refund (18% sales)	22,607,063	23,172,240	23,751,546	8,115,112		
IGV Income Tax Credit Taken	1,106,886	912,074	469,718	0	4,606,673	
- Income Tax (27%) After IGV Tax Credit	-10,154,474	-10,423,855	-11,269,327	-35,610	-39,660,459	
Net Income Before IGV Refund	31,554,269	31,561,070	32,208,619	96,278	79,099,070	
+ IGV Govt Directly Refunded to Company	0	0	0	0	10,800,000	15,406,673
Net Income	31,554,269	31,561,070	32,208,619	96,278	89,899,070	
+ Depreciation (equipment)	5,847,848	5,767,902	5,159,474	3,990,926	122,836,264	
+ Depreciation (buildings)	399,864	416,890	425,658	425,658	3,369,237	
+ Amortization (Feas & Development)	0	0	0	0	50,000,000	
+ Amortization (Exploration)	555,556	555,556	555,556	555,556	5,000,000	
+ Loss Forward Deduction	0	0	0	0	45,192,810	
- Expenditures:						
Depreciable Equipment & Buildings	-6,149,369	-5,067,080	-2,609,546	0	-126,683,807	
Feasibility & Development	0	0	0	0	-50,000,000	
Exploration	0	0	0	0	-5,000,000	
Working Capital Cost	-337,653	-347,782	-358,216	12,298,739	0	
+ Borrowed Money Inflow	0	0	0	0	84,000,000	
- Principal Payments	-4,869,987	0	0	0	-84,000,000	
- Tax on Net Income (4.1%)	-1,293,725	-1,294,004	-1,320,553	-3,947	-5,095,967	
IGV (18%)	-1,106,886	-912,074	-469,718	0	-22,803,085	
- IGV offset	0	0	0	0	7,396,412	
- IGV payable after offset	-1,106,886	-912,074	-469,718	0	-15,406,673	
- Import Duties (Equipment, 12.0%)	-737,924	-608,050	-313,146	0	-15,202,057	
Project Cash Flow	23,861,992	30,072,426	33,278,127	17,363,208	98,908,878	98,908,878

**Effective Tax & Cash Flow Calculations**

Year	7	8	9	10	Cumulative	Discounted
Gross Revenue	125,594,797	128,734,667	131,953,034	45,083,953	959,354,589	\$500,170,290
- Operating Expense	-75,225,295	-77,482,054	-79,806,515	-37,400,237	-581,978,923	-\$300,566,917
- Capital Costs	-6,487,022	-5,414,863	-2,967,762	12,298,739	-181,683,807	-\$156,633,420
- Borrowed \$ / Principal & Interest	-5,259,586	0	0	0	-21,191,711	\$7,279,232
Effective Before-Tax Cash Flow	38,622,895	45,837,751	49,178,757	19,982,455	174,500,148	\$50,249,186
Total Taxes Paid	-14,760,903	-15,765,325	-15,900,630	-2,619,247	-86,391,270	-\$47,568,130
+ IGV refund	0	0	0	0	10,800,000	\$8,079,333
+ Effective Total Taxes Paid	-14,760,903	-15,765,325	-15,900,630	-2,619,247	-75,591,270	-\$39,488,798
Cash Flow	23,861,992	30,072,426	33,278,127	17,363,208	98,908,878	\$10,760,389

## Summary of Taxes Paid, Gold, Peru

Breakdown of Cumulative Taxes	Total Value	% of Gross	% of Tax
Gross Revenue	959,354,589		
- W/H Tax on Interest (4.99%)	-1,057,466	0.1%	1.4%
- IGV after offset and refund (18%)	-4,606,873	0.5%	6.1%
- Import Duties (Equipment, 12.0%)	-15,202,057	1.6%	20.1%
- Worker's Share of Net Income (8%)	-9,935,648	1.0%	13.1%
- Validity Fee	-33,000	0.0%	0.0%
- Tax on Net Income (4.1%)	-5,095,987	0.5%	6.7%
- Income Tax (27%) After IGV Tax Credit	-39,660,459	4.1%	52.5%
= Total Taxes Paid	-75,591,270	7.9%	100.0%
Discounted Gross Revenue @ 12%	500,170,290	100.0%	
Discounted Total Taxes Paid @ 12%	-\$39,488,798	7.9%	



Breakdown of Gross Income (discounted @ 12%)	Present Value	% of Gross
Mineral Sales Revenue	500,170,290	
+ Loan Differential	7,279,232	
+ Investor's loss	n.a.	
= Gross income	507,449,523	59.2%
- Operating Costs	-300,566,917	30.9%
- Capital Expenditures	-156,633,420	7.8%
- Total Taxes	-39,488,798	2.1%
= Investor's profit	10,760,389	100.0%

Measures of Project Economics	Value	% of Gross
IRR on Before-Tax Cash Flows		24.4%
IRR on After-Tax Cash Flows		14.7%
NPV of Before-Tax Project Cash Flows @ 12%	50,249,186	
NPV of After-Tax Project Cash Flows @ 12%	\$10,760,389	
Effective Tax Rate (discounted @ 12%)	-39,488,798	78.6%
Effective Tax Rate (not discounted)	-75,591,270	43.3%