MALAWI
Mineral Sector Review
Source of Economic Growth and Development

July 2009

Oil, Gas and Mining Policy Division,
Oil, Gas, Mining and Chemicals Department
Africa Region

Document of the World Bank
Currency Equivalents

1 US Dollar equals 144 Kwacha (MWK)

Weights and Measures

Metric System

Fiscal Year

July 1 – June 31

Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASM</td>
<td>Artisanal and Small Scale Mining</td>
</tr>
<tr>
<td>BGS</td>
<td>British Geological Survey</td>
</tr>
<tr>
<td>EAD</td>
<td>Environmental Affairs Department</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EITI</td>
<td>Extractive Industry Transparency Initiative</td>
</tr>
<tr>
<td>EPZ</td>
<td>Export Processing Zone</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GoM</td>
<td>Government of Malawi</td>
</tr>
<tr>
<td>IPA</td>
<td>Investment Promotion Act</td>
</tr>
<tr>
<td>IRR</td>
<td>Internal Rate of Return</td>
</tr>
<tr>
<td>lb</td>
<td>Pound (by weight)</td>
</tr>
<tr>
<td>MEGS</td>
<td>Malawi Economic Growth Strategy 2004</td>
</tr>
<tr>
<td>MERA</td>
<td>Malawi Energy Regulatory Authority</td>
</tr>
<tr>
<td>MGDS</td>
<td>Malawi Growth and Development Strategy 2006</td>
</tr>
<tr>
<td>MRA</td>
<td>Malawi Revenue Authority</td>
</tr>
<tr>
<td>MTEF</td>
<td>Medium Term Expenditure Framework</td>
</tr>
<tr>
<td>MW</td>
<td>Mega Watt</td>
</tr>
<tr>
<td>NCE</td>
<td>National Council for the Environment</td>
</tr>
<tr>
<td>NGO</td>
<td>Non Governmental Organization</td>
</tr>
<tr>
<td>SADC</td>
<td>Southern African Development Community</td>
</tr>
<tr>
<td>SME</td>
<td>Small and Medium Enterprises</td>
</tr>
<tr>
<td>Oz</td>
<td>Troy ounce</td>
</tr>
<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
</tr>
<tr>
<td>RRT</td>
<td>Resource Rent Tax</td>
</tr>
<tr>
<td>Tonne</td>
<td>Metric ton</td>
</tr>
<tr>
<td>VAT</td>
<td>Value Added Tax</td>
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Report Management

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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</thead>
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<tr>
<td>Vice President</td>
<td>Obiageli Katryn Ezekwesili</td>
</tr>
<tr>
<td>Country Director</td>
<td>Michael Baxter</td>
</tr>
<tr>
<td>Country Manager</td>
<td>Timothy Gilbo</td>
</tr>
<tr>
<td>Sector Manager</td>
<td>Paulo de Sa</td>
</tr>
<tr>
<td>Task Team Leader</td>
<td>Bryan Land (Senior Mining Specialist)</td>
</tr>
<tr>
<td>Task Team</td>
<td>Charles Husband (Consultant)</td>
</tr>
<tr>
<td></td>
<td>Gotthard Walser (Lead Mining Specialist)</td>
</tr>
<tr>
<td></td>
<td>Fernando Loayza (Senior Strategic</td>
</tr>
<tr>
<td></td>
<td>Environmental Assessment Specialist)</td>
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ACKNOWLEDGEMENTS

This report was prepared by a team led at the outset by Charles Husband, then Lead Mining Specialist (COCPO), who subsequently contributed to the report as Consultant upon retirement. The report team comprised Bryan Land, Senior Mining Specialist (COCPO) and later Task Team Leader, Gotthard Walser, Lead Mining Specialist (COCPO) and Fernando Loayza, Senior Strategic Environmental Assessment Specialist (ENV). The team was ably supported by members of the World Bank’s Malawi Country Team and by local consultant Grain Malunga. The report benefited from written comments received from peer reviewers Tim Gilbo, Malawi Country Manager (AFMMW) and Jos Verbeek, Lead Economist (AFTP1) and other World Bank staff.

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EXECUTIVE SUMMARY

This Mineral Sector Review examines the mineral sector as a potential source of growth and development in Malawi. In seeking the World Bank’s assistance the Government of Malawi was particularly interested in confirming the potential for mineral sector growth, identifying which constraints to the development of the sector need to be addressed by the Government and suggesting strategies to foster a positive contribution by the mineral sector to sustainable development and poverty reduction.

Malawi has recently experienced an improvement in its economic fortunes after years of stagnation but remains one of the ten poorest countries in the world. There have been several years of consistent growth and declining inflation, accompanied by debt relief after reaching the HIPC completion point in 2006. This has been accompanied by other signs of robust economic performance, with lending to the private sector and tax receipts both growing. Nonetheless, these economic gains remain vulnerable, with economic wellbeing overly dependent on rain-fed subsistence farming, publicly funded services supported by donors, traditional exports of tobacco, tea and cotton, and high cost imports of fuel and essential goods. Small and shrinking land holdings with declining productivity and falling investment inhibit the growth prospects for the agriculture sector, the mainstay of the Malawi economy. The World Bank’s Country Economic Memorandum, June 2009, observes that while recent export performance has driven growth, there has been a limited response from import substituting sectors, a lack of export diversification and chronic shortages of foreign exchange combined with a widening gap in the parallel exchange market.

Government development strategies in the mid-2000s had established a long term goal of “increasing the contribution of the mineral sector to GDP by at least 10 percent annually” from a base of less than two percent of GDP. This optimism was founded on assessments by the Ministry of Energy and Mines that showed the existence of a favorable geological setting for a range of valuable mineral types and highlighted several mineral deposits that were already partly or fully evaluated which could, under the right conditions, attract investment from the private sector.

The mineral sector has now made its first significant contribution to GDP as a result of the start of uranium mining at Keyelekera in April 2009. Paladin Resources rapidly transformed what had been a non-commercial prospect into a producing mine able to contribute some US$150 million annually to exports. Uranium has not been alone in attracting new attention. Applications for rights to explore for a range of minerals had been rising steadily and, although the commodity price slump in 2008 has impacted on the overall level of exploration activity, there are several mineral prospects that are still being evaluated.

The growth of the mineral sector on a sustainable basis from its present relatively low-base is, however, not assured. If prices for the minerals that Malawi is endowed with remain at reduced levels, will the mineral sector’s present promise simply disappear? To what extent does the present limited and unreliable provision of transport and power infrastructure in the country and in the sub-region impede the development of mineral deposits and can measures be taken to alleviate this situation? If there were to be further mineral sector growth, how well prepared is the Government, the regulatory institutions and various stakeholders for this and might gaps and vulnerabilities in sector management arrangements present risks to sustained mineral sector growth? And, above all, what assurances are there that any further growth of the mineral sector will be managed in a way that will deliver lasting development benefits to the country and
safeguard the environment and communities from some of the sector’s potential hazards? These are the questions that this report attempts to address.

Chapter 1 examines the potential for mineral sector growth in the short, medium and long term and indicates the direct and indirect economic and development benefits that could result. The remaining chapters address constraints that could prevent the mineral sector’s full potential from being realized, especially those that can be addressed by government action, focusing on the development of efficient and effective legal, regulatory and institutional arrangements for managing the mineral sector (Chapter 2); the design of robust mineral revenue generation and management regimes (Chapter 3); and the creation of sound arrangements for the environmental and social management of the mineral sector (Chapter 4). Each chapter concludes with a summary of the main findings and recommendations for action with an indicated timeframe. These are also incorporated in this Executive Summary for easy reference.

This review has been timed to serve as an input to the Government in defining its priorities for mineral sector reform. An earlier version of the report was disseminated to stakeholders and presented at a workshop in Lilongwe in March 2009 to validate its findings and generate discussion around the Government’s mineral sector reform program. Therefore, the final report is based both on the fieldwork undertaken since mid-2007 and the findings of the March 2009 workshop.

The Potential for Mineral Sector Growth

The commissioning of the Keyelekera uranium mine marked a dramatic change in the role of the mineral sector. Keyelekera is Malawi’s only mine of significant scale by international standards. Capital expenditure to launch the project was some US$200 million and at planned output levels and long-term contract prices the operation will generate some US$150 million or more in sales each year. Since the entire output of uranium oxide is exported, the mineral sector is, for the first time, contributing significantly to generation of hard currency and foreign exchange reserves (total exports in 2007 were US$725 million).

Further mineral sector growth will stem from the current portfolio of mineral prospects in Malawi, some of which have been partly or fully evaluated and others that are in the process of being evaluated. In the longer term there is scope to develop a better understanding of the geology and mineralization of Malawi through the re-interpretation of previously acquired data with modern day techniques and selective acquisition of new data through publicly supported geological programs. The report recommends a program to build on recent progress (see Table 1.4).

Limited and unreliable transport and power infrastructure in Malawi and the sub-region poses a serious challenge for companies seeking to commercially develop mineral deposits, though not all mineral prospects are affected equally. Measures that are being taken to provide regional transportation connections to coastal ports in Mozambique and Tanzania should help to reduce Malawi’s remoteness from major markets and lower the costs and risks associated with mineral development. However, considerable improvement to transportation within Malawi will still be needed to take full advantage of improved access to points of export. Power interruption, where Malawi performs particularly poorly, is a particular constraint. For energy-intensive mineral processing operations this is a serious barrier. Poor power provision has been identified by the World Bank’s Country Economic Memorandum, June 2009, as a constraint requiring urgent
action by the Government so that Malawi participates in the Southern African Power Pool via the interconnector and provides conditions favorable to private-sector participation in power supply.

Based on the existing pipeline of mineral prospects and assuming there will be steady improvement in infrastructure provision, it is possible to identify the potential for mine development in the short, medium and long term, as shown in the table below.

**Assessment of the Potential for Mine Development**

<table>
<thead>
<tr>
<th></th>
<th>To 2012</th>
<th>2013 to 2019</th>
<th>From 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mine Expansions</strong></td>
<td>Chimwadzulu Hill gemstones</td>
<td>Salima and Chipoka heavy minerals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kasungu limestone</td>
<td>Mulanje bauxite</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kangankunde Hill monazite</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>New coalfields</td>
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</tr>
<tr>
<td><strong>New Mine Development</strong></td>
<td>Keyelekera uranium</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(already evaluated)</td>
<td>Chemkumbi/Chiripa limestone</td>
<td></td>
<td>Industrial mineral deposits</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Prospects under</strong></td>
<td></td>
<td>Kanyika niobium/uranium</td>
<td>Precious and other metallic</td>
</tr>
<tr>
<td><strong>Investigation</strong></td>
<td></td>
<td></td>
<td>mineral deposits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chimimbe Hill nickel</td>
<td></td>
</tr>
</tbody>
</table>

*Source: World Bank Staff assessment*

- In the **short term**, growth comes from the start up of Paladin’s Keyelekera mine, Nyala Mines’ expanded ruby operation at Chimwadzulu Hill and the opening of new limestone quarries as part of Lafarge’s investment in expanded cement operations.

- Over the **medium term**, and provided the world economic recession is not protracted, there is a reasonable prospect of one or more deposits that have already been evaluated being developed, although in each case certain infrastructure and possibly regulatory barriers would need to be overcome. More promise in the medium term lies Globe Metals’ niobium project at Kanyika which the company hopes to bring into production as early as 2012. So long as exploration programs can be sustained some other prospects, such as Lisungwe’s nickel deposit at Chimimbe Hill, could be progressed to mining.

- In the **long-term**, the potential for mineral sector growth will come from sustaining the pace of exploration work on known mineral occurrences – such as precious and other metallic minerals - and accelerating geological work that will generate new data and ideas for explorers to work with and therefore promote interest in the sector.

**Whereas the focus of this analysis is mainly on potential medium-to-large scale mechanized mining operations artisanal and small scale mining (ASM) has potential to grow by increasing output and producing higher value products, especially cut and polished gemstones.** There is need, however, to better understand this sector by establishing an inventory of resources capable of exploitation and assessing the kinds of lessons from other parts of the world might be applicable in Malawi. Typically, positive development of ASM is realized only in the medium to
long term and depends critically on increased organization of miners and communities, access to capital and more efficient technology.

**Possible Economic and Development Benefits**

*Mineral sector activity has the potential to generate significant direct and indirect economic benefits for Malawi and, if managed wisely, contribute to sustainable development.* The table below shows an estimate of the possible direct economic benefits that could be generated by mine development using the preceding assessment of mine development potential. All estimates are order of magnitude estimates, especially those for the medium and long term.

**Potential Direct Economic Benefit of the Mineral Sector (annual constant US$)**

<table>
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<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Value of Output</strong></td>
<td>$7 million</td>
<td>$250 million (5-6% of GDP)</td>
<td>$400 million</td>
<td>$500-1000 million</td>
</tr>
<tr>
<td><strong>Exported (%)</strong></td>
<td>10%</td>
<td>95% (20-25% of exports)</td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td><strong>Government Revenue</strong></td>
<td>&lt;$250,000</td>
<td>$5 million</td>
<td>$20-$30 million</td>
<td>$50–$100 million</td>
</tr>
</tbody>
</table>

*Source: World Bank Staff estimates*

*There will be several indirect economic benefits of mineral sector development, although they are very much harder to quantify than direct benefits and are highly location and project specific.* Projects that rely heavily on public infrastructure, such as grid electricity and transportation services, will provide a source of regular demand and, in some cases, could support decisions to invest in public infrastructure. The high transport costs associated with importing inputs into mining operations could offer some competitive advantage to local suppliers of less highly specialized items. In the longer run, given a growing demand base, suppliers of mining industry support services could opt to set up in Malawi. The scope for forward linkages, in the form of supplies of mineral products to domestic users, may be limited since the minerals on which future growth is likely to depend, will, for the most part, be exported.

*Mining development will also provide an important opportunity for economic development away from Malawi’s main urban and commercial centers.* Minerals occur in a variety of locations in Malawi, some of which have limited alternative sources of economic activity – examples include Karonga, Rumphi, Kasungu, Mchinji, Salima and Mulanje. Malawi could also play a significant role as a transit country for minerals and other goods being transported from Zambia and the Mozambique interior to ports in Tanzania and Mozambique. This will be a catalyst for mining and industrial development in Malawi and will help integrate Malawi into the regional and global economy.
Development of Efficient and Effective Legal, Regulatory and Institutional Arrangements for Managing the Mineral Sector

The policies, laws and institutions that presently govern the mineral sector in Malawi need significant reform if the sector is to grow sustainably and contribute to economic development and poverty reduction. The highest priority must be given to finalizing the National Mineral Sector Policy which has remained in draft for some years. Malawians need a shared vision of how the development of mining will take place, building on experiences gained from Keyelekera. At the March 2009 Workshop, the Ministry set a goal of completing the National Mineral Sector Policy in September 2009. Having reviewed the present draft policy and participated in the March 2009 Workshop, it is recommended that the final policy document:

- clarify whether or not the State will seek participation in future mining operations and, if so, in what form, on what terms and at what stage (see further below);
- define the role and mandate of the State and its public mining institutions, and make very clear what public institutions will exercise what regulatory roles and the relationships between them;
- indicate how, if at all, decentralization might apply to governance of the mineral sector;
- set out the basic policy principles on which the fiscal regime is designed and describe its major elements;
- specify the environmental obligations of operators consistent with internationally recognized safeguard standards;
- define arrangements to ensure the maximization of local content;
- define arrangements governing provision for community development and benefits sharing, including the roles to be played by different stakeholders; and
- address the rights of women, children and other vulnerable groups that might be impacted adversely by mineral sector development and measures for their protection.

The question of State participation in the mineral sector is perhaps the single biggest one that needs to be decided. At issue is where to define the boundary line between government functions and the private sector. Although the MGDS unambiguously assigns investment in economic activity to the private sector, the Government’s recent stance on taking minority interests in private-sector sponsored mineral projects has been justified on the basis that it a) is revenue neutral and b) provides an ownership interest that provides a limited degree of control and knowledge sharing. The condition of revenue neutrality will, however, be hard to guarantee where revenues from minority shareholding are a function of the uncertain dividend distribution policy of the controlling shareholder. Furthermore, the other benefits of an ownership interest are quite capable of being achieved by employing regulatory mechanisms.

The possible restitution of a state mineral enterprise to serve as a vehicle for public investment in mining ventures carries high risks to public finances which should be avoided. There appears to be support in policy circles for a successor to MIDCOR that would play a role in promoting and helping develop the mineral sector. The precise responsibility that this role would entail is far from clear. If the main role is to invest in mineral projects that do not satisfy foreign investor criteria for investment – a wish frequently voiced - then it will be necessary for the Government to accept the risks inherent in such a role. The types of projects that will not meet private sector investment criteria are likely to be those which are low-quality, small-scale and have limited access to large (export) markets. The value of investing public funds in such risky
ventures has to be measured against the value of uses of such funds, such as in infrastructure, schools and hospitals.

*Malawi’s mining legislation has not kept pace with the rapid modernization of mining codes that has occurred throughout Africa over the past decade.* The Government is committed to undertaking the wholesale review and revision of the Mines and Minerals Act and has begun this task. This exercise will benefit a great deal from the completion of the National Mineral Sector Policy in the coming months. Experience from other countries suggests that, without deep reform, the existing legislative arrangements will come under increasing pressure as more companies seek to explore for and develop minerals in Malawi. This will result in delays and may risk introducing manipulation and at worst corruption to the management of mineral rights. A preliminary assessment of the legislation indicates that the main issues to tackle are the following:

- The existing legislative arrangements for mining rely excessively on the discretionary exercise of ministerial powers. The new law should reduce such discretion to a minimum and where some discretion is retained make its exercise subject to clear criteria and receipt of technical advice.

- Many of the key terms under which a company would operate are subject to bilateral negotiations with the Government. At a minimum there should be a review of the circumstances under which mineral agreements will be used in the future, the scope of such agreements and any particular undertakings in favor of the investor which the government would be permitted to make by means of such agreements. In general the Government is ill equipped to negotiate with large investors and their position in reaching fair and equitable agreements with mining companies would also be strengthened if a model mineral agreement formed part of the mining law.

- The mining legislation makes provision for numerous and, in some cases, redundant licenses. The licensing system is also very general and regulations have not been fully developed to create clarity as to how it is administered. The licensing system should be streamlined, made more transparent arrangements and underpinned by legislation. The functions of the Mineral Rights Office should be strengthened by establishing a GIS-based mineral titles system (“mining cadastre”) to remove the need for manual verification and processing. The role of the Minerals Licensing Committee in advising the Minister on the award of mineral rights should be reviewed. Accountability of this body for the advice it prepares would require that its composition, functions and reporting requirements are regulated by law.

- Weaknesses in the licensing system can also be addressed by strengthening both incentives for mineral right holders to perform work and sanctions for non-performance, to deter companies from hoarding license areas in the interests of speculation. Finally, the Ministry should have an option to seek applications for mineral rights by means of competitive tender when circumstances are suitable.

- To complement mineral sector policy goals on local content, community development and vulnerable groups, appropriate legislative provisions are needed. Because of its age, provisions in mining legislation need to be harmonized with those of the more modern
environmental legislation to give full effect to the objectives of national environmental policy. Indeed, the provisions of many other laws relevant to mining are being tested for the first time by the Keyelekera project and this has demonstrated the need for wider legislative harmonization.

- With respect to artisanal and small scale mining operations changes to the mining legislation should focus on modifying the duration and size of mining claims to enhance the prospects of raising finance and specify generally applicable obligations with respect to environmental compliance at application stage, during conduct of operations and at closure. At the moment these are discretionary and are not harmonized with environmental laws. Another area of weakness to be addressed is the reported disarray in issuing permits at district level for sand and clay winning which has resulted in such activities going on unregulated.

The public mining institutions that govern the sector have been deprived of resources for years and will face considerable difficulties in exercising their mandates as mineral sector activity gathers pace. Lack of resources is compounded by a lack of experience in regulating a sector that has languished for years. For example, the Department of Mines is chronically understaffed - a Ministry study found that only 50 percent of total posts were filled and just 34 percent of professional posts. Moreover, few of those in professional posts were suitably qualified. Significant institutional strengthening of the core agencies engaged in regulating the mineral sector is clearly needed but should be preceded by a sector-wide assessment of management arrangements and needs that takes into account other key government institutions engaged in revenue management and environmental management, not only at national level but at sub-national level as well.

**Recommended actions and a suggested timeframe for implementation are the following:**

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
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<tbody>
<tr>
<td>A</td>
<td>National Mineral Sector Policy</td>
</tr>
<tr>
<td>B</td>
<td>New mining legislation</td>
</tr>
<tr>
<td>C</td>
<td>Sector-wide assessment of management arrangements and needs</td>
</tr>
<tr>
<td>D</td>
<td>Institutional strengthening and capacity building</td>
</tr>
</tbody>
</table>

(A) The September 2009 target for completion of the National Mineral Sector Policy was announced by the Ministry at the March 2009 Workshop. It is understood that the document would then be presented to the Cabinet by the Minister for endorsement.

(B) A review of the Mines and Minerals Act 1981 has commenced, with the assistance of a minerals resources legal consultant engaged by the Ministry. Proposals for a new law and the draft of a Bill will be prepared over the course of the year, with an indicative target of December 2009 set by the Ministry. In conjunction with this exercise supporting regulations and a model minerals agreement are needed to complete the legal and regulatory framework.
Effective implementation of both the sector policy and new mining legislation is going to depend on strengthening the key regulatory institutions. To lay the foundations for a medium to long term program of institutional strengthening and capacity building, it is recommended that a sector-wide assessment take place of all management arrangements and needs in the minerals sector. This assessment should encompass all institutions and agencies, both at national and sub-national levels, which are expected to exercise responsibilities for assuring sound regulation and good governance in the minerals sector (also see complementary recommendation (I) in respect of environmental and social management below). This should include an assessment of the implementation of the National Decentralization Program in mining districts.

The sector-wide assessment will inform the design of a multi-year institutional and capacity building program for which the Government would likely seek support of the donor community. The following is a (non-exhaustive) list of components that would be typical of such a program:

- Further development of geo-data programs and capabilities, as outlined in Table 1.4;
- Establishment of a modern computer-based mineral licensing system (“mining cadastre”) supported by institutional setup, administrative process design, equipment, training and IT systems;
- Strengthening of monitoring, evaluation and enforcement functions within MEM, EAD and other relevant government agencies relating to mineral operations performance and planning (including rehabilitation and closure), mine health and safety, and environmental and social management supported by institutional setup, administrative process design, equipment, training and IT systems;
- Design and implementation of programs of education and skills development in mining-related disciplines to be undertaken by suitable institutions in Malawi and in the sub-region.

The Design of Robust Mineral Revenue Generation and Management Regimes

The development of a productive and profitable mineral sector can be expected to provide a new source of government tax revenues that could be substantial relative to non-mineral revenue sources. It will be important to ensure that Malawi obtains a fair share of mineral rents but, in doing so, it must strike the right balance between inducing investment and generating tax revenue. This calls for a fiscal regime for the mineral sector that takes account of the uncertainty, risks and rewards inherent in minerals operations and recognizes that Malawi, particularly in this early phase of mineral sector development, competes for investment with countries that may offer equal or better investment opportunities within the region.

The Government has made significant progress towards defining a coherent, standardized and globally competitive mining fiscal regime. The components of the fiscal regime and tax rates are broadly consistent with those of other countries at a similar stage of mineral sector development in the region, however, unlike Ghana, Mozambique and Tanzania, the option of additional profits taxation or carried equity provides Malawi with more fiscal flexibility in the face of volatile mineral prices. However, certain aspects of the regime still need to be clarified. In particular:

- Mineral royalty remains an item which is left open to negotiation on a case by case basis, resulting in several different royalty rates co-existing. This system is increasingly at odds with international trends for royalties to be applied on a standardized basis and places an undue burden on those that administer royalty payments. The objective should be to have
a standardized royalty scheme, with rates that are unlikely to deter mineral investment yet sufficient to generate a reasonable revenue flow to the country.

- The introduction of Resource Rent Tax (RRT) was intended to enable the country to capture some of the additional profit that might be generated by an exceptionally rich mineral deposit and/or by operations fortunate to benefit from periods of higher than normal mineral commodity prices. Such windfall taxation was a sensible complement to the imposition of a modest flat-rate royalty and an income tax with quite generous allowances. It is important that the basis for applying the Resource Rent Tax is clarified, with rules made available to guide both tax administrators and taxpayers.

- The Government has cast some doubt on RRT’s place within mining fiscal policy, however, by electing to suspend the tax in favor of state equity participation. The Government needs to make it clear under what circumstances suspension will be the preferred option. In particular, there should be an assurance that any trade-off of tax for equity would be fiscally neutral and would not entail the Government assuming risks that it would not otherwise have assumed. Recent mineral market volatility underlines the high level of risk inherent in deploying public funds to participate in the mineral sector.

**With the amount of revenue that could potentially be generated from the mineral sector, it is necessary that the Government employs robust tax collection measures and adequately equips the revenue agencies to implement them.** Without appropriate safeguards there is a risk of substantial tax leakage, thereby reducing the value of mineral resources to the country, undermining the integrity of the fiscal regime, and breeding public mistrust and opposition to mining. The Malawi Revenue Authority, in particular, has limited experience in assessing mining company tax returns and in conducting the requisite audits.

**Experience in many mineral-rich countries has demonstrated that revenue collection arrangements need to be underpinned by revenue transparency and accountability in order to be effective.** The Extractive Industries Transparency Initiative (EITI) is gaining in international recognition and proving itself to be a valuable mechanism through which revenue collection arrangements can be subjected to scrutiny and assurances given to the public that revenues are being properly accounted for. In May 2009, both Zambia and Mozambique formally joined EITI.

**Both the magnitude and volatility of mineral-based revenues flows must be factored into Government policies for managing public finances in order to avoid dislocation of the economy through the “resource curse”.** An influx of dollar-based mineral exports could generate upward pressure on the exchange rate. The World Bank’s *Country Economic Memorandum, June 2009*, contends that real exchange rate appreciation represents the greatest threat to sustainable economic growth. In the event that mineral sector revenues were to be of such a scale that they exceeded the sustainable rate at which such revenues could be absorbed in the economy, there would be a need to investigate arrangements for building up reserves in a managed fund, though this is unlikely, at least in the short to medium term. Revenue volatility also needs to be recognized and prudence shown in the budgeting and planning, particularly to avoid a high level of dependence on uncertain revenue flows in planning for public capital programs.

**The March 2009 Workshop revealed that the option of mineral revenue allocations is one in which there is a great interest among stakeholders but no clearly defined policy response has been formulated.** The premise for allocating mineral revenues back to mineral-producing areas is to help support decentralized governance structures, given the increased demands for service
delivery that typically arise due to rising expectations and in-migration as a mining activity develops, to ensure that there is a tangible benefit stream for those most impacted by mining and to complement private sector initiatives to support community development in and around mining areas. However, these factors need to be weighed carefully against national equity considerations, risks associated with pre-allocation of revenues, especially if those revenues are volatile and the absorptive capacity of recipient institutions and communities is limited. This is an area where it is recommended that policy options are examined in further depth, drawing on experience from other countries and factoring in the particular fiscal policy environment and social conditions present in Malawi.

**Recommended actions and a suggested timeframe for implementation are the following:**

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E</strong></td>
<td>Complete fiscal regime standardization</td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>Strengthen revenue administration</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>Strengthen revenue transparency and accountability</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>Examine policy options for mineral revenue management and allocation</td>
</tr>
</tbody>
</table>

(E) The Government has moved a long way towards standardizing the mining fiscal regime. Actions that could be taken in the short-term to complete this process would be to define standardized mineral royalties, which can be undertaken as part of the review of the mining legislation. Also, if the Resource Rent Tax is to be employed and enforced in the future, it will be necessary to develop regulations to assist in its implementation, ideally in time for the next Budget Bill for FY10/11, when tax law amendments can be made and regulations issued. On the other hand, the Government may prefer to examine further the range of fiscal instruments, other than Resource Rent Tax, available to vary the share of resource rent it obtains from mineral projects. For this, expert advice on fiscal regime design would be needed.

(F) Since the mineral sector tax base is expanding, notably with the addition of Paladin’s uranium operation, it is crucial that the Government take action to strengthen revenue administration. Key elements in achieving this will be to a) consolidate tax regulations and compliance guidance; b) develop robust tax assessment capability backed up by an effective audit function; c) introduce processes for data sharing and collaboration by revenue agencies; d) equip the revenue agencies with tax models for mines; and e) carry out training and staff development of specialized personnel in the revenue agencies.

(G) Tax administration reform will need to be underpinned by robust transparency arrangements and procedures that will enhance public accountability. It is recommended that the Government examine the benefits that EITI could bring to this process. This typically begins with a scoping study in which stakeholders from government, the industry and civil society are engaged to evaluate their support for EITI participation. Implementation is achieved by publication of revenue reconciliation reports and validation of the EITI process in the country within two years of joining EITI.
(H) It is recommended that the Government examine policy options both for minerals revenue management and allocation. This could involve studies and workshops to draw on international expertise.

**The Creation of Sound Environmental and Social Management of the Sector**

*The existing environmental impact assessment (EIA) framework for managing environmental and social issues in the mineral sector in Malawi conforms in most respects to international good practice.* However, large mining developments can overstretch the limited capacity of this system which suffers from a lack of sector experience, human resources, funding, and inadequate coordination at the planning and implementation level. Notwithstanding, the Kayelekera project showed also an ability of the system to adapt to and fairly address the environmental and social requirements of the modern mineral sector when a constructive interaction among the developers, the government and civil society takes place.

*The existing decentralization process that establishes a bottom-up development planning system appears to have the potential to catalyze sustainable development out of mineral sector growth in villages and districts.* However, it must overcome the reluctance of the central government to devolve responsibilities and budget to the district administrations, which stems from concerns over weak administrative capacity and lack of effective accountability.

*Unless robust environmental and social safeguards can be assured and benefit sharing and mining induced development at the district and village levels promoted by mineral sector reform and implementation of decentralization policies, it is unlikely that a major expansion of mining activities would set Malawi on a sustainable development path.* Moreover, the risk is that social and political conflicts around mining would increase.

*It is recommended that the Government continues the policy dialogue opened by this Mineral Sector Review, the draft mineral policy prepared by the Government and the proposed amendment of the Environment Management Act on the issues affecting the mineral sector.* This would be a key component of a policy dialogue on mining and sustainable development involving key stakeholders from government, particularly sectors closely linked to and affected by mining activities and authorities at the district and village levels; the mining sector itself; civil society and academia; and, development partners. The policy dialogue would be informed by this Mineral Sector Review, the draft mineral policy prepared by the Government and the proposed amendment of the Environment Management Act on the issues affecting the mineral sector.

**Recommended actions and a suggested timeframe for implementation are the following:**

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Strategic Environmental and Social Assessment to complement C</td>
</tr>
<tr>
<td>J</td>
<td>Measures to strengthen EIA process</td>
</tr>
<tr>
<td>K</td>
<td>Measures to complement B on resettlement and compensation</td>
</tr>
<tr>
<td>L</td>
<td>Measures to complement D on sub-national institutions</td>
</tr>
</tbody>
</table>
(I) It is recommended that an environmental and social strategic assessment (SESA) be conducted to incorporate environmental and social considerations in the sector reform process. The SESA could form a component of the sector-wide assessment of all management arrangements and needs in the minerals sector which has been recommended (C) and be performed in the same timeframe. The SESA should include an assessment of the implementation of the National Decentralization Program in mining districts.

(J) It is recommended that the Government consider undertaking the following actions to strengthen the EIA process: (i) Ensure access to environmental and social data on existing and proposed mineral operations; terms of reference, EIA reports and results of monitoring activities should be freely available to the public, and (ii) develop guidelines for and strengthen public consultation processes in EIA to ensure the meaningful participation of weak and vulnerable stakeholders, like women and farmers.

(K) In the context of the review of the mining legislation (Recommendation B), it is suggested that there be a review of all legislation and regulation on human resettlement, compensation and reclamation for mining activities, so that these issues are clearly addressed in line with applicable international standards and best practice.

(L) A multi-year institutional and capacity building program is proposed to take place following completion of a sector-wide assessment of all management arrangements and needs in the minerals sector (Recommendation C). The following environmental and social actions at the sub-national level are likely to have priority:

- Strengthening village and district capacities for environmental and social monitoring in mining regions;
- Strengthening administrative, planning and development capacities of villages and districts in mining regions in line with the current decentralization process;
- Strengthening transparency and accountability of decision makers in mining villages and districts; and
- Establishing mechanisms for distribution of mineral revenues at the district and village levels to strengthen ongoing decentralization processes and to optimize the contribution of mining growth to sustainable development at the local level.

Conclusion

*In conclusion, known mineral prospects are sufficiently promising to suggest the development of at least a modest mineral sector over the next five to ten years that would account for possibly as much as 10% of GDP and a significant share of exports.* Further potential lies in the continuing investigation of Malawi’s geology for which there is a role for both publicly funded programs and “grassroots” exploration by the private sector. While the sector will not compare in scale to the mineral sectors in neighboring Zambia, Mozambique or Tanzania, the impact on the narrowly-based Malawian economy and on prospects for sustainable development could be profound. Mining development will also provide an important opportunity for economic development away from Malawi’s main urban and commercial centers. Malawi could also play a significant role as a transit country for minerals and other goods being transported from Zambia and the Mozambique interior to ports in Tanzania and Mozambique. However, there are serious challenges that must be overcome if the potential of the sector is to be realized in full. These can be illustrated by referring to the four questions posed earlier:
If prices of the minerals that Malawi is endowed with remain at reduced levels, will the mineral sector’s present promise simply disappear? Any sustained period of low mineral commodity prices is likely to slow the pace of minerals exploration for all but the most attractive mineral deposits. The portfolio of mineral deposits that are either evaluated or under investigation is not very big. Potential investors will pay particular attention to the experience of the Paladin uranium operations to determine how attractive Malawi is as an investment destination. Therefore, mineral market conditions present a significant risk to the outlook for minerals sector growth that is largely outside the influence of the Government.

To what extent does the present limited and unreliable provision of transport and power infrastructure in the country and in the sub-region impede the development of mineral deposits and can measures be taken to alleviate this situation? In the absence of measures to address inadequate transport infrastructure provision, the development of deposits of relatively low-value bulk minerals for which transportation cost is a key economic driver will be constrained. Mineral projects for which a high degree of processing takes place at the mine site will also struggle to be developed so long as un-interrupted power supplies cannot be assured. There is a strong case for the Government to prioritize actions and investments to alleviate the infrastructure constraints. Some of these actions will need to be taken at a sub-regional level given the scope for developing important transport corridors and power pools.

If there were to be further mineral sector growth, how well prepared is the Government, the regulatory institutions and various stakeholders for this and might gaps and vulnerabilities in sector management arrangements present risks to sustained mineral sector growth? The Government recognizes that without regulatory reform and capacity building the country will find it difficult to manage the sector effectively and consistently. It is imperative that the Government proceed with deep reform of policy, laws and institutions and embark on programs of capacity building, if sustained mineral sector growth is not to be put at risk. Capacity building requires a medium to long term commitment and the Government will likely call on the donor community to support this effort.

What assurances are there that any further growth of the mineral sector will be managed in a way that will deliver lasting development benefits to the country and safeguard the environment and communities from some of the sector’s potential hazards? Lessons from around the world emphasize that mineral sector growth will need to be managed wisely if it is not to result in economic mismanagement, inequitable sharing of benefits and disregard of the interests of the environment and communities. Economic policies and public financial management will have to be adapted to take into account the potential magnitude and volatility of mineral revenue flows and decide how revenues might be allocated. Mining must be developed to generate sustainable development outcomes, not boom and bust leaving a few winners and many losers. Reforms should also take advantage of the decentralization process to catalyze sustainable development out of mineral sector growth in villages and districts. However, this will require devolution of responsibilities and budget to the district administrations coupled with improved administrative capacity and effective accountability.
Chapter 1

1. MINERAL SECTOR POTENTIAL

1.1 Overview

Malawi is a small landlocked country in the heart of Africa surrounded by Tanzania to the north, Zambia to the north-west and Mozambique to the south. It has a population of 13.6 million people with an area of 118,484 km² straddling the southern end of the Great African Rift Valley. Malawi has not been commonly associated with mining and is largely overshadowed by its neighbors in this respect. In fact the World Bank’s own 1992 study *A Strategy for African Mining* rated Malawi poorly among possible destinations for minerals investment based on a technical assessment. Neither the country nor its immediate neighbors are major centers for consumption of mineral products. Its neighbors are, however, established mineral producing countries and have become important exporters to major international mineral markets.
1.2 Malawi’s mineral industry had been all but ignored after independence in 1964, and until this year had contributed just two percent of GDP at most, and even less in foreign exchange earnings. Previous governments had been indifferent to the potential of the country’s sub-soil natural wealth, preferring instead to promote agriculture—Hastings Banda’s “green gold”. Mineral output was valued at around MK1 billion (US$7.1 million), of which little more than 10 percent was exported. To put things into context, Zambia exported copper worth US$3.4 billion in 2007. Until now, production has been dominated by bituminous coal, gemstones, limestone and quarry stone. Only gemstones are produced primarily for export, a portion of which goes unreported due to smuggling. Production of other minerals is small scale and sporadic. The number of enterprises producing minerals is limited to around twenty. A number of licenses to mine industrial minerals have been issued to operators who have found it difficult to stay in production.

### Table 1.1 Contribution of Mining & Quarrying to GDP

<table>
<thead>
<tr>
<th>Mineral</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP at factor cost(b)</td>
<td>12883</td>
<td>13386</td>
<td>14066</td>
<td>14359</td>
<td>15572</td>
</tr>
<tr>
<td>Mining &amp; Quarrying</td>
<td>124 (1%)</td>
<td>147 (1%)</td>
<td>217 (1.5%)</td>
<td>329 (2.3%)</td>
<td>361 (2.3%)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>5026 (39%)</td>
<td>5323 (40%)</td>
<td>5469 (39%)</td>
<td>4963 (35%)</td>
<td>5547 (36%)</td>
</tr>
</tbody>
</table>

(a) projections  
(b) GDP data MK million at constant 1994 prices

*Source: SADC, Trade, Industry and Investment Review; 2007/08*

1.3 When commissioned early in 2009, the Keyelekera uranium operation became Malawi’s only mine of any significant scale by international standards. This operation alone transforms the mineral sector in Malawi. Capital expenditure to launch the project was some US$200 million and at planned output levels and long-term contract prices the operation will generate some US$150 million or more in sales each year. Since the entire output of uranium oxide is exported, the mineral sector is, for the first time, contributing significantly to generation of hard currency and foreign exchange reserves (total exports in 2007 were US$750 million).

### Table 1.2: Production of Principal Minerals

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (<em>000 metric tons (mt)</em>)</td>
<td>44.2</td>
<td>44.9</td>
<td>51.9</td>
<td>60.4</td>
<td>58.6</td>
<td>57.5</td>
</tr>
<tr>
<td>Gemstones (kg)</td>
<td>2,318</td>
<td>1,620</td>
<td>1,994</td>
<td>2,171</td>
<td>3,710</td>
<td>11,946</td>
</tr>
<tr>
<td>Cement Limestone (*000 mt)</td>
<td>21.8</td>
<td>24.5</td>
<td>28.8</td>
<td>34.2</td>
<td>42.1</td>
<td>46.0</td>
</tr>
<tr>
<td>Agricultural Lime (*000 mt)</td>
<td>20.2</td>
<td>23.8</td>
<td>22.7</td>
<td>21.2</td>
<td>21.0</td>
<td>23.5</td>
</tr>
<tr>
<td>Aggregate (*000 cubic metres)*a</td>
<td>93.3</td>
<td>101.0</td>
<td>110.5</td>
<td>123.9</td>
<td>137.4</td>
<td>312.6</td>
</tr>
</tbody>
</table>

a. excludes artisanal aggregate

*Source: Malawi Department of Mines*

1.4 How well is Malawi positioned to sustain mineral sector growth beyond Keyelekera, taking into consideration the general geological setting, the current knowledge of potentially economic mineralization and the results of work that has been done to evaluate the commercial feasibility of particular deposits? A steady generation of new and competitive mineral projects is the goal that must underlie any long-term strategy for mineral sector growth. In Figure 1.1, this is depicted as a sequence of nine stages from target generation through to determination of the commercial feasibility of mining. The number of targets that must be generated to assure a single feasible mine project depends a great deal on geological setting, type of mineral and prevailing market conditions, however, studies have shown that a ratio of 100:1 is a reasonable approximation.
**Figure 1.1:** The Mineral Resource Triangle

<table>
<thead>
<tr>
<th>Stage</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasibility Project</td>
<td>9</td>
<td></td>
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<tr>
<td>Reserve Definition</td>
<td>8</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Indicated Resources</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inferred Resources</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Targets</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up Targets</td>
<td>4</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified Targets</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Exploration</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target Generation</td>
<td>1</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Source: VSA GeoConsultants*

### 1.2 Geological Setting and Mineralization

1.5 The economic geology of Malawi is set out in detail in Annex I and summarized below. The prospective geology comprises three groups of rocks that include the very old crystalline rocks known as the Malawi Basement Complex, which occupies 85 percent of the land area of the country; overlain by a suite of post-basement sediments and volcanic rocks referred to as the Karoo System; and disrupted by igneous intrusives of the Chilwa Alkaline system, which occur widely in southern Malawi. Sediments occur in narrow belts aligned parallel to the shore of Lake Malawi. Extensive superficial deposits occur on the lowlands, such as lakeshores, Shire Valley and Kasungu-Lilongwe and Mzimba plains. The geology can therefore be broadly grouped into five main lithological units as illustrated in Figure 1.2. Most of the economically significant mineral deposits in Malawi are genetically assigned to these units. Geological structures such as shear zones, faults, joints and folds are also of interest in that they have acted as conduits or in some cases hosts of subsequent mineralization.

1.6 The present understanding of Malawi’s geology and mineral occurrences is based on data acquired and interpreted since the early part of the 20th century. Much of the mapping was done in the 1950s and 60s. The Geological Survey in Zomba is the custodian of this information and provides public access to it (see Box 1.1 below).

1.7 A systematic categorization of the economic potential of Malawi’s mineral resources was first carried out by the Geological Survey in 1973. This divided minerals into three groups ranked by economic potential as shown in Table 1.3. Much of the focus of geological and mineral exploration work since the 1970s has been directed towards Group I and II minerals, however, mineral occurrences with some economic potential have been identified in all three groups, with gold, for example, being the target of several exploration campaigns in recent times.
Box 1.1: Existing Geological Database of Malawi

Geological Maps
- Geological Atlas of Malawi at 1:1,000,000, 1:250,000, 1:100,000 scales covering more than 80% of the country
- Mineral Resources of Malawi at 1:1,000,000

Magnetic Contour Maps
- Maps at 1:50,000; 1:100,000; 1:250,000 scales covering the entire country

Radiometric Contour Maps
- Maps at scales of 1:50,000; 1:100,000; 1:250,000 covering the whole country are available for uranium, potassium and thorium

Electromagnetic Maps
- At 1:100,000 scale covering only part of the country

Airborne Geophysical Interpretation Maps
- At scales of 1:100,000; and 1:250,000 covering the entire country
  These include:
  - Magnetic Susceptibility Colour Plot (MSC)
  - Interpretation Colour Plot (INT)
  - Radiometric Ternary Colour Plot (TCP)

Topographic Maps
- Maps at a scale of 1:50,000 covering the entire country are available

Documentation
- A comprehensive geological library exists in Zomba at the Department of Geological Survey and at the Department of Surveys in Blantyre

Other Reports
- Mineral potential of Malawi series 1-4 (BGS 2009)
- Geological Bulletins (provide information on exploration history)
- Memoirs of the Geological Survey
- Records of the Geological Survey
- Unpublished technical reports
- Annual Reports of the Geological Survey and Department of Mines.

Source: Ministry of Energy and Mines

Figure 1.2: Generalized Geology of Malawi
Table 1.3: Economic Potential of Minerals in Malawi

<table>
<thead>
<tr>
<th>Group I (most potential)</th>
<th>Group II</th>
<th>Group III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phosphates (apatite), bauxite, kaolinitic clays, coal, kyanite, limestones, rare earths (including strontianite and monazite), graphite, sulphides (pyrite and pyrrhotite), titanium minerals, vermiculite, uranium minerals</td>
<td>Barytes, chromite, copper, corundum (includes the gem varieties), nickel, fluorite, mica, nepheline syenite, niobium, gypsum, iron ore, talc, gemstones (agates, garnets, aquamarine, aegerine, smoky quartz, etc), ornamental or dimension stones (sodalite and amazonite among others)</td>
<td>Asbestos, beryl, diatomite, galena, gold, magnesite, manganese minerals, molybdenite, platinoids, semi-precious and tantalum minerals, zinc minerals, zircon</td>
</tr>
</tbody>
</table>

Source: Carter and Bennett, 1973

1.8 There is scope to develop a better understanding of the geology and mineralization of Malawi through the re-interpretation of previously acquired data with modern day techniques and selective acquisition of new data through publicly supported geological programs. Recent work conducted by the British Geological Survey (BGS) on behalf of the Geological Survey Department, demonstrates the value that can be obtained by collating, re-processing and analyzing data acquired in the past. Most parts of the country were mapped before Independence using conventional geological approaches, with limited use of geophysics, geochemistry and remote sensing. Maps are small to medium scale and offer insufficient detail. Often the data presented in different local or regional maps are inconsistent. Though airborne geophysical surveys were conducted in the 1980s over the whole of the country, the 1 km spacing is too coarse to provide the information required to guide further ground investigations or proper interpretation of geological features. Re-mapping parts of the country using a mix of remote sensing and airborne geophysics and ground-based geological and geo-chemical surveying, together with a modern mineral resources assessment, identifying potential deposits types and potential based on modern methodologies, would help to generate a much better understanding of Malawi’s geology and identify new targets for mineral exploration. There is also a need to incorporate the improved understanding that now exists of the geology in neighboring countries, particularly in geological settings that show continuity across borders.

1.9 Modern techniques for storing geo-data in digitized form are needed to optimize its value and provide ready access to users. BGS’ recent program showed how improvements in the way that data is stored and then made accessible to potential investors, employing GIS-based technologies, offers the possibility of improved promotion of mineral exploration opportunities. Some of the value of earlier geological work has been lost through poor filing and storage practices. Digitization of existing records will safeguard them and provide improved access by potential investors. The recent consolidation of existing maps and data to create a digital compilation map at 1:1,000,000 scale (comprising general geological map; geological and mineral occurrence map; Landsat TM False-colour image; Magnetic Anomaly Maps) is a valuable first step towards better presenting Malawi’s mineral opportunities to potential investors. However, in order to properly store the digitized old information, as well as the data generated through the proposed geological program, a modern Geological and Mineral Data Bank needs to be set up. This Data Bank will also facilitate public access to the information (e.g. through a public information data room, and/or an internet interface) as well as the production of demand based thematic maps and reports.

1.10 Aside from the value of geo-science in understanding mineral resources, geo-science is important for land use planning, the management of water and other natural resources, protection of environmentally sensitive areas and risk assessments for seismic and other natural processes. The role of the public institutions engaged in these activities has to be considered carefully as a basis for allocating public funds (see Annex II). This needs to take into account the generation of basic and advanced geo-science skills in academic institutions both in Malawi and the region.
1.11 Table 1.4 indicates the kind of publicly-funded geological programs that could be considered by the Geological Survey to further develop understanding of mineralization and commercial opportunities in Malawi and make such information readily available to potential investors and the public at large.

Table 1.4: Indicative Recommended Geological Programs

| Data Acquisition & Interpretation | • Compilation of available data and integration using remote sensing  
| • Production of a reliable topographical base map  
| • Selective airborne geophysical surveys (magnetometry and spectrometry)  
| • Regional geochemical surveys  
| • Regional geological mapping, including more detailed checking of selected key areas  
| • Regional mineral resources assessment, including checking of key mineral deposits |
| Data Organization & Promotion | • Set up of a GIS-based Geological and Mineral Information Data Bank, including a public information office and an internet interface for dissemination and user access  
| • Complete the digitization of existing records and integration of new data  
| • Production of thematic digital maps and reports  
| • Promotion campaigns, including preparation of dissemination materials, organization of or participation in conferences and workshops etc.. |
| Support Activities | • Geo-science (e.g. mapping, geophysics, environmental assessment) and IT training  
| • IT hardware and software (geological modeling and databases) and associated equipment  
| • Public information  
| • Integration and coordination with land-use planning and environmental management |

1.3 Mineral Exploration and Development

1.12 The economic potential demonstrated for different types of minerals to date has been assessed by reviewing the results of mineral exploration and development work to date. Minerals have been classified as energy minerals, industrial minerals, metallic minerals, precious stones and other minerals. The sources for such information are reports of the Departments of Mines and of Geological Survey used to promote mineral exploration, supplemented by information from companies operating in Malawi. In reviewing the data for this report the World Bank has neither sought to verify the quality of such data nor to certify that mineral reserves information provided in source documents conforms to any of the internationally recognized reserve classification standards. It ought not to be relied upon for purposes of assessing or valuing particular mineral properties.

1.3.1 Energy Minerals

1.13 Uranium: The potential for uranium has been known since the 1970s, however, until recent times market conditions had precluded commercial exploitation. Uranium mineralization occurs primarily in Karoo sandstone in the North Rukuru Basin.

1.14 Uranium oxide ($U_3O_8$) was mined for the first time in Malawi by Paladin Energy at Keyelekera, beginning in April 2009. The operation is based on a mining reserve of 10.46 million
tonnes of ore containing 11,337 tonnes of oxide, which will support seven years of extraction. Production is intended for export to markets where the nuclear industry upgrades “yellowcake” into fuel for nuclear power plant. The availability of substantial inferred resources suggests mining will continue well after this, if supported by suitable market conditions.

1.15 The success at Keyelekera and the positive market conditions for uranium has spurred many companies to try to investigate uranium prospects in this basin and other areas where uranium may be hosted. Nine companies, including Paladin Energy, held exploration licenses to target uranium and other radioactive minerals in 2008. The most advanced prospect is Globe Metals’ Kanyika pyrochlore deposit. However, evaluations completed in June 2008, are based on production of a ferro-niobium product (see section on Niobium). Economic recovery of a uranium oxide as a by-product is yet to be fully evaluated, however, the oxide potentially recoverable is over 100 tonnes annually. A prospect at Ilomba has oxide grades of 511 grams/ton. Other prospects are at relatively early stages of investigation and uranium resource levels are yet to be established.

1.16 **Coal:** Bituminous and sub-bituminous coal, which is found in Karoo sediments both in the north and the south of the country, has been produced in relatively modest quantities for decades. There are presently one major and several minor operating mines (8 licenses to mine coal exist). Production of around 60,000 million tonnes per year is sold mainly to domestic users and a small amount is shipped to Tanzania. Mchenga Coal Mines’ operation in the Livingstonia coalfield, which has been in operation since the 1980s, typically accounts for some three-quarters of national production, exploiting a coal reserve of 1.4 mt. Domestic consumption of coal is some 150,000 mt annually making Malawi a net importer of coal, mainly from Mozambique.

1.17 Five other coal fields exist with estimated measured reserves of 20 mt and considerably larger resource potential. However, much of this is lower quality than being exploited at Livingstonia, with a lower calorific value and higher ash content. A number of other coal-bearing basins are yet to be investigated in any detail. Some thirteen companies hold licenses over coal-bearing areas which are not being exploited.

1.18 **Hydrocarbons:** Some potential for hydrocarbons in sedimentary basins, mainly covered by Lake Malawi, is considered to exist but has not to date been the target of any significant exploration work.

**1.3.2 Industrial Minerals**

1.19 **Limestone:** Calcitic marble, extracted and crushed for use in cement manufacturing and agriculture, is being mined on a growing scale to meet rising domestic demand. There are presently seven licenses issued to quarry limestone. Shayona Cement Company is the main producer, supplying its own needs from deposits at Kasungu which are undergoing expansion. A new cement operation sponsored by Lafarge in Balaka aims to produce high quality hydrated lime and pulverized limestone from deposits at Chemkumbi and Chiripa. Feasibility work is nearing completion. To date production of cement has largely been supplied to domestic users, however, expanded output is designed, in part, to meet export demand growth.

1.20 **Other Industrial Minerals:** There is very limited exploitation of other industrial minerals in Malawi, although deposits of vermiculite, phosphates, graphite, kyanite, glass sands and talc have been identified and either partly or fully evaluated. Production under a number of mining licenses is sporadic and no new deposits are being actively developed at the moment. Pyrite deposits could be exploited to be processed into sulphuric acid – Paladin is investigating the possibility of mining sulphides within Malawi as a source of acid for the Keyelekera operation and Lisungwe Mineral Resources Ltd is evaluating a pyrite deposit in connection with its nickel prospect (see below).
1.3.3 Metallic Minerals

1.21 **Niobium:** Globe Metals & Mining of Australia is evaluating the niobium-rich Kanyika deposit at Kasungu in central Malawi. Resource estimation has demonstrated the availability of an indicated JORC resource of 13.2 million tonnes of ore at 3,600 parts per million of niobium oxide and a substantially larger inferred resource containing high-grade zones that would support at least ten years of mining. Products from on-site processing could include ferro-niobium, plus tantalum, uranium oxide, zircon and other by-products. Preliminary evaluations by Globe indicate a US$150 million outlay to build a mine and processing facilities that could generate US$110-150 million of sales annually over 20 years. Pre-feasibility studies, including mine planning and metallurgical test work, are in progress. The company is targeting production in 2012 upon completion of full feasibility work, financing and product marketing.

1.22 In addition, a number of deposits of pyrochlore, rich in niobium and associated minerals, have been identified and partly evaluated.

1.23 **Bauxite:** A 25.6 million tonne bauxite deposit with a cut-off grade of 30 percent has long been established at Mulanje Mountain, Malawi’s highest point. The feasibility of mining and processing the deposit in an integrated world-scale operation was last examined in the early 1990s, demonstrating that, provided reliable and low-cost power is available, such an investment would probably be economically viable. Other issues that would need to be overcome, however, include availability of suitable transportation to coastal ports and concerns arising from interest in conservation of the site and risk to endemic tree species. An exploration license has been held over the deposit by Gondo Resources of South Africa in recent years and was extended for two years in 2008 on the basis that further feasibility work will be carried out.

1.24 **Nickel:** Geochemical and geophysical surveys have detected several nickel targets. Of these, the most promising is at Chimimbe Hill, where Lisungwe Mineral Resources Ltd is now focusing much of its effort. A limited near-surface drill program has provided sufficient encouragement for a more extensive drilling program (4,000 metres total) which would aim to establish a nickel-chrome resource base for feasibility studies. This work is in progress and the company is also investigating a pyrite deposit that could be the basis for supply of sulphuric acid for processing the nickel ores. The company is investigating a similar deposit at Chimwadzulu Hill, with work likely to resume once right-holding issues have been settled.

1.25 **Precious Metals:** Although there is only limited history of mining for gold and other precious metals in Malawi, interest in the potential shown by geochemical anomalies has been growing. Several exploration licenses are now held for early stage exploration. The most advanced program to date is that of Lisungwe Mineral Resources Ltd over the Balaka gold prospect, however, drilling has yet to take place.
1.26 **Other Metals:** Based on geochemical and geophysical surveys, including a UNDP-sponsored airborne survey in 1985, prospective anomalies have been detected for metals such as copper, tin, molybdenum, chromium and zinc. However, these are the focus of only limited exploration work at the moment and no deposits have been measured to date.

1.3.4 **Precious Stones**

1.27 **Gemstones:** Gemstone mining in Malawi has a long history and is most noted for its high-quality rubies and sapphires. Aquamarine, amethyst, gem tourmaline, smoky and rose quartz, sunstone, heliodor, rhodolite and almandine garnets are among the semi-precious stones mined on a fairly regular basis. Recent gemstone rushes have been centered around blue agate, aquamarine and rhodolite. Operations take place in 14 of Malawi’s 24 Districts but vary in scale and sophistication from Nyala Mines’ mechanized ruby/sapphire operations at Chimwadzulu Hill to pick and shovel operations that occur sporadically. Nyala Mines re-opened the mine in 2008 with an expanded throughput capacity of 1,000 tpd of material, contributing to a sharp increase in recorded national gemstone production.

1.28 Official data records show some 12,000 kg of gemstones being produced in 2008. However, recording of output and exports does not capture stones that are smuggled out of the country.

1.29 For the most part, small scale gemstone miners operate on formal mining claims but employ limited mechanized equipment. Organization of groups of miners, especially among women, has taken place to some extent, encouraged by the Department of Mines, and a Gemstone Association exists. This has provided some access to lapidary know-how and equipment, so that miners can add value to the gemstones they recover. A description of the ASM in Malawi is presented in Box 1.2.

1.30 **Diamonds:** Several areas of Malawi are underlain by kimberlitic rocks. The recent discovery of kimberlite pipes near Mlowe by the Geological Survey has attracted interest of a number of companies and several exploration licences are now held. However, work has yet to progress beyond regional mapping and sampling.

1.3.5 **Other minerals**

1.31 **Heavy Mineral Sands:** Beach sands with high heavy mineral content exist over long stretches of Lake Malawi in the Salima-Chipoka area and along the eastern lake shore.

1.32 The reserves of the beach dune sands in the Salima-Nkhotakota area are placed at 700 million tonnes with an average grade of 5.6% total heavy mineral sands. They contain ilmenite, zircon, rutile, monazite and garnet. Allied Procurement obtained a 25-year license in 2004 to mine a deposit at Chipoka of some 210 million tonnes grading 5.6% heavy minerals. Sands would be dredged and processed to recover ilmenite, rutile, monazite and zircon. Pilot operations were undertaken in 2005 and 2006, however, the company is yet to commit to full-scale mine development.

1.33 Millennium Mining was considering the development of the Makanjila and the Salima heavy mineral sands deposits. The company planned to produce 500,000 tonnes per year of ilmenite from Makanjila and Salima, which would have been smelted at Chipoka. Development of the smelter, which was expected to produce 250,000 t/yr of titanium slag, depended on Millennium’s ability to obtain power supplies from Mozambique (some 140MW). However, the company relinquished its licenses.
Box 1.2: Artisanal and Small Scale Mining in Malawi

A study of ASM in 2001 estimated that some 40,000 Malawians are engaged in the sector. Since activity is in most cases seasonal and periodic gemstone rushes occur, this number has to be treated with some caution. ASM is focused on mining of gemstones, aggregate, limestone (for lime), river and Dambo sands, ceramic clays and salt.

Mining equipment is limited, with a few exceptions, to picks, shovels, hoes and hammers. Some limited blasting occurs to gain access to buried minerals. Lime kilns are used for making lime. Many of these activities are limited to the dry season, especially when individuals are also engaged in growing and harvesting. These operations result in land disturbance, open pits and small adits, accumulations of topsoil and waste rock, waste water and they also risk erosion, particularly of river banks. However, they do not give rise to chemical and other hazardous wastes. Limited rehabilitation takes place. In the case of lime kilns, it is reported that efforts to widen the use of vertical shaft kilns met with limited success – areas surrounding limestone extraction tend to be heavily de-forested, as a result.

Source: Grain Malunga
1.34 **Rare Earths**: BRGM of France assisted the Government to measure a large deposit of monazite and strontianite at Kangankunde Hill in southern Malawi. Drilling and processing test work established reserves of 2.5 million tonnes with 4.2% rare earths content and substantial inferred resources. Licensing of the rights to the deposit, however, became subject to dispute which ended in the High Court. Until the right-holding situation is resolved, the resource is effectively sterilized. Two other deposits of this kind are known to exist.

1.35 **Construction Minerals**: Over twenty quarry operators supply quarry stone for road and building construction. Hundreds of artisanal workers continue to supply aggregate stones within and on the outskirts of urban areas. Much of this activity goes unregulated. Ornamental stones and granitic dimension stones are also quarried, but in insignificant volumes. Several hundreds of tonnes of kaolinitic clays are produced annually and small scale winning of sand and other clay takes place, largely on an unregulated basis.

### 1.4 Potential for Mine Production in the Short to Long-term

1.36 The foregoing review shows that there are already a number of mineral prospects in Malawi that have been partly or fully evaluated and others that are in the process of being evaluated. The mineral resource triangle introduced earlier in this chapter is used in Figure 1.3 to show the present stock of mineral prospects in Malawi. Only some of these are the subject of active exploration programs and these are highlighted in bold – in many other cases reserves were measured some time ago (using standards that would not necessarily conform to today’s internationally recognized codes for resource estimation) and have not attracted recent interest from mining companies.

#### Figure 1.3: Current Stock of Mineral Prospects

<table>
<thead>
<tr>
<th>Stage</th>
<th>Feasibility Project</th>
<th>Reserve Definition</th>
<th>Indicated Resources</th>
<th>Inferred Resources</th>
<th>Advanced Targets</th>
<th>Follow-up Targets</th>
<th>Identified Targets</th>
<th>Regional Exploration</th>
<th>Target Generation</th>
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<td>Chimwadzulu Hill</td>
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<td>Kanyika niobium</td>
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<td>Chimimbe Hill nickel</td>
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<td>Balaka gold, Chimwadzulu Hill nickel, various</td>
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<td>heavy minerals, iron ore, kaolin, graphite, talc,</td>
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<td>glass sands, rare earths deposits, gemstone,</td>
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<td>vermiculite, gold, diamonds, PGMs, tantalum,</td>
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<td>limestone, mica and barytes deposits and mineral</td>
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<td>occurrences</td>
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<td>3</td>
<td>2</td>
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<td>Source: World Bank Staff assessments</td>
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</table>

1.37 Licensing activity in recent years has indicated a growing interest in acquiring exploration rights in Malawi, encouraged by the example set by Paladin in taking a mineral project through to development. Although the present financial hardships in the mineral industry represent a setback, not all exploration programs have been cut back and, in some cases significant progress is still being made. The number of exploration licenses granted in 2006 was just 15. This rose to 65 in 2007 but fell to 32 in 2008. Target minerals include uranium, gold, PGMs, diamonds, coal, heavy mineral sands, nickel, chrome and copper. The latest available map of mineral licenses (March 2009) is shown in Figure 1.4.
Figure 1.4  Mineral License Map as at March 2009

Source: Department of Mines

- Prospecting Licence
- Reconnaissance Licence
- Mining Licence
Infrastructure Hurdles

1.38 Measures that are being taken to rehabilitate regional transportation connections to coastal ports should help to improve Malawi’s access to major markets and lower the cost and risks associated with mining development. The huge coal developments in the neighboring Tete province in Mozambique (by Vale, Riversdale, TATA, ArcelorMittal and others) are most likely to accelerate the development of the Nacala transport corridor which traverses Malawi. The volumes of export coal that can be carried on the Sena rail connection to Beira port and then transshipped to ocean going vessels may reach a limit within a few years. The viability of the Nacala option for export is predicated on rehabilitation of the existing rail infrastructure and development of new port facilities to take advantage of favorable deep harbor berthing. Rail connections through the Nacala corridor, with transit times from Blantyre reported to be 48hrs, offer significantly improved access to export markets for Malawi.

1.39 Other transportation corridors are being investigated, such as that between Mbamba Bay on the eastern shore of Lake Malawi and Mtwara on the Tanzanian coast. The Shire – Zambezi Waterway Project would open a 238km waterborne transport connection between Nsanje at the southern tip of Malawi and Chinde on the Indian Ocean coast in Mozambique for barges and medium-size seaborne vessels. For bulky export-oriented products, such as coal, iron ore, bauxite and mineral sands, the economic advantages of such options are substantial. The full benefits of such potential developments should begin to be felt in the medium to long term.

Table 1.5: Infrastructure Provision in Malawi

<table>
<thead>
<tr>
<th>Transport</th>
<th>Roads</th>
<th>Railways</th>
</tr>
</thead>
<tbody>
<tr>
<td>(sealed 26%; unsealed year round 38%; unsealed seasonal 36%)</td>
<td>15451km</td>
<td>797km (1.067 gauge)</td>
</tr>
<tr>
<td>Distances from Lilongwe</td>
<td>Beira by road: 1108km; by rail 1609 km</td>
<td>Nacala by rail: 1396km</td>
</tr>
<tr>
<td></td>
<td>Dar es Salaam by road: 1594km</td>
<td>Durban by road: 3709km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power</th>
<th>Installed generating capacity</th>
<th>Fuel mix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>305MW</td>
<td>98% hydro; 2% thermal &amp; other</td>
</tr>
<tr>
<td>Transmission</td>
<td>1127km of 132kV</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Resources</th>
<th>Renewable resources</th>
<th>Potable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.3 km³ (2001 CIA Factbook)</td>
<td>54% of population</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communications</th>
<th>Fixed line</th>
<th>Mobile</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>175,209</td>
<td>&gt; 1.4 million</td>
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</tbody>
</table>

1.40 Considerable improvement to transportation within Malawi will still be needed to take full advantage of improved access to points of export. The current state of provision in Malawi means that new mine development may have to drive some of the road and rail infrastructure development needed to operate. This will add to capital and running costs and is an important factor in determining mine feasibility. Only 13 percent of rural roads are tar or asphalt and rural communities are on average 20km from a sealed road (40km in the North). Unsealed roads are impassable by lorry on average two months of the year and impassable by minibus four months of the year (seven months in the North). For the Keyelekera uranium project the existing road from Karonga to Chitipa has been upgraded and in the immediate vicinity of the mine several new roads are being constructed. Mineral prospects at Kanyika and Chimimbe are sufficiently close to major highways as to not present significant locational constraints. However, the added cargo volumes implied by such mines would place pressure on highways that are already in heavy use.
1.41 Even where infrastructure exists, access may not be sufficiently reliable to support mining operations. Power shortages are a case in point. Malawi generates almost 100% of its grid-supplied electrical power through a series of run-of-river hydropower projects on the Shire River, which outflows from Lake Malawi. This renders Malawi very vulnerable to drought-induced power crises and long term climate change impacts. The country has a total installed capacity of around 283MW, although some units are currently out of service for repairs, or will be taken off-line for rehabilitation. Power outages and surges from the public grid inflict severe costs on enterprises, prompting many developers to rely on self-generation. A recent World Bank study examined the power sector in 24 sub-Saharan African countries, including Malawi. At 63 days of power outages in the most recent year for which data is available, Malawi has the worst reliability record of all 24 countries surveyed (the median for the sample is around 30 days). The transmission network supplying some parts of the country, notably northern Malawi, is extremely weak and insecure. The requirement of some industries for reliable power has led to increased interest in independent generation using imported diesel, which harms profitability and has a negative impact on Malawi’s foreign exchange reserves.

1.42 If the Government and the Malawi Electricity Regulatory Authority committed to a substantial and sustained increase in electricity tariffs over a period of 3-4 years to move closer to cost-recovery pricing, this would send the correct signals to prospective independent power producers (IPPs) to mining and industrial developers, and to residential customers, leading to increases in generation and savings from improved energy efficiency. Rehabilitation of Tedzani and Nkula hydro-power stations is under way. Linking Malawi to the Cahora Bassa hydroelectric power station in Mozambique, will give the country access to the Southern Africa Power Pool. The 220kV interconnector with Mozambique will help Malawi to regulate its power supply and balance its power needs throughout the day as the economy grows and will reduce the need for expensive backup diesel generators. Parliamentary approval of the loan under which the interconnector will be installed had yet to given at the time of writing.

1.43 Lafarge Cement is constructing a major cement works supplied by locally quarried limestone. The operation requires adequate and secure power supplies of around 25MW. They may have to build their own power plant or partner with an IPP company, but would prefer to receive power supplies from ESCOM – not least because the supply from ESCOM would be cheaper – diesel generated power costs are of the order of 30 cents/kWh against an ESCOM industrial tariff of just 5 cents/kWh.

1.44 Paladin, faced by uncertain power supply from ESCOM, opted to build its own diesel-generation power plant to deliver 10MW needed in operations at Keyelekera in the far north of the country. Investigations are ongoing of longer-term solutions, given that the uranium resources at Keyelekera could support expanded operations well beyond the current planned mine life if economic circumstances were supportive. This includes the study of possible jatropha cultivation as a feedstock for power generation. Globe’s niobium mining project at Kanyika would call for generating capacity of perhaps 20MW. The power constraint, unless relieved, is likely to be a strong factor working against the development of large scale power-intensive mineral projects, such as the Mulanje bauxite refining and smelting project and the Salima-Chipoka heavy mineral sands projects, which are likely to have power generation needs of some 100-150MW each.

**Mineral Sector Production Outlook**

1.45 Based on the existing pipeline of mineral prospects and assuming there will be steady improvement in infrastructure provision, it is possible to identify the potential for mine development in the short, medium and long term, as shown in the Table 1.6. The short term refers to the three year period to 2012, medium term to the seven year period to 2019 and long-term to the period from 2020 onwards.

1.46 In the short term (2009 – 2012), a significant increase in the scale of the mineral sector will come with the start up of Paladin’s Keyelekera mine. Production began in early 2009 and from 2010 will generate US$150 million or more annually at current uranium long-term contract prices (around $60/lb U₃O₈). The resumption of operations at Chimwadzulu Hill on an expanded scale could generate up to
US$10 million annually in gemstone sales. Limestone and lime production is set to increase, as well, with expansions and the exploitation of the Chemkumbi and Chiripa limestone deposits.

1.47 Over the medium term (2013 – 2019), and provided the world economic recession is not protracted, there is a reasonable prospect of one or more deposits that have already been evaluated being developed, although in each case certain infrastructure and regulatory barriers would need to be overcome. The Salima-Chipoka heavy mineral sands projects have yet to progress beyond their feasibility and pilot test stages and financing has yet to be secured. Aside from technical issues, both would depend on availability of road and rail transport connections to support the operation, as well as power, to underpin their viability. Development of the huge Mulanje bauxite deposits have always hinged on availability of power and transport and would have to overcome significant environmental issues. The Kangankunde project is mired in legal disputes but would otherwise have a good chance of development in the medium term. With growing regional demand for coal, it may be possible to exploit one or more of the coal fields that have been known about for a long time.

1.48 Perhaps more promise in the medium term lies in more recent exploration programs that are showing good results, notably Globe Metals’ niobium project at Kanyika, which the company hopes to bring into production as early as 2012. So long as exploration programs can be sustained some other prospects, such as Lisungwe’s nickel project at Chimimbe Hill, could be progressed to mining within the medium term. Proximity to road and rail transportation is an advantage enjoyed by both the Kanyika and Chimimbe Hill projects. If brought to production, each could generate around $100 million annually in sales.

1.49 In the long-term (beyond 2020), the potential for mineral sector growth will come from advancing the pace of exploration work on known mineral occurrences – such as precious and other metallic minerals - and accelerating geological work that will generate new data and ideas for explorers to work with and therefore promote interest in the sector. There are also known deposits of a number of industrial minerals that could be commercially viable given the right economic conditions and successful product marketing to end-users.

Table 1.6: Assessment of the Potential for Mine Development

<table>
<thead>
<tr>
<th></th>
<th>&lt; 3 years</th>
<th>4 to 10 years</th>
<th>&gt; 11 years</th>
</tr>
</thead>
</table>
| **Mine Expansions** | • Chimwadzulu Hill gemstones  
• Kasungu limestone |              |            |
| **New Mine Development (already evaluated)** | • Keyelekera uranium  
• Chemkumbi/Chiripa limestone | • Salima and Chipoka heavy minerals  
• Mulanje bauxite  
• Kangankunde Hill monazite  
• New coalfields | Industrial mineral deposits |
| **Prospects under Investigation** | • Kanyika niobium/uranium  
• Chimimbe Hill nickel |              |            |

Source: World Bank Staff assessments
Whereas the focus of this analysis is mainly on potential medium-to-large scale mechanized mining operations, artisanal and small scale mining (ASM) has potential to grow by increasing output and producing higher value products, especially cut and polished gemstones. There is need to better understand this sector by establishing an inventory of resources capable of exploitation and assessing their commercial potential. It will be necessary to assess which kinds of lessons form other parts of the world might be applicable to Malawi, given the resource inventory and environment in which they are located. Typically, positive development of ASM is realized only in the medium to long term and depends critically on increased organization of miners and communities, access to capital and more efficient technology.

1.5  Mineral Sector Economic and Development Impacts

Mineral sector activity has the potential to generate significant direct and indirect economic benefits for Malawi and, if managed wisely, contribute to sustainable development. The major direct economic impacts can be measured in terms of contributions to GDP, international trade, foreign exchange, government revenues and, importantly, job creation. A growing mineral sector also has the capacity to contribute to the economy and development indirectly through backward and forward linkages – in terms of demand for inputs into mineral operations and supplies of products that are consumed or put to productive use in Malawi – and contribute to the development of the labor market, technology innovation and capital formation in the country. These, however, are hard to estimate with any degree of accuracy. There have been studies that try to measure the multiplier effect of incomes in the mineral sector but these all show great variability as indicated in Box 1.3. Mineral sector linkages can sometimes extend to the creation of dynamic externalities in areas such as learning, innovation and entrepreneurship. Other indirect impacts include the fostering of infrastructure development that has wider public benefit and contribution to community level development. The benefits arising from the growth of ASM is found mainly in employment and its potential to provide support to rural livelihoods, thereby mitigating the pressures of urban migration.

**Box 1.3: Multiplier Effects of the Minerals Industry**

The multiplier effect is a measure of how much additional income generation takes place when a dollar is spent on a mining project. For example, spending on mine construction represents income to workers, suppliers of goods and services and local government which in turn is spent on consumption of a wide range of goods and services, employment and on paying taxes. Studies to measure the multiplier effect have shown that the effect can be quite pronounced but varies a great deal. Data from such an exercise carried out in South America displayed considerable location-specific variability.

**Estimated Income Multiplier Effects in South American Mines**

<table>
<thead>
<tr>
<th>Mines</th>
<th>Investment</th>
<th>Metal produced</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inti Raymi, Bolivia</td>
<td>$200 million</td>
<td>Gold &amp; silver</td>
<td>2.79</td>
</tr>
<tr>
<td>Yanacocha, Peru</td>
<td>$492 million</td>
<td>Gold</td>
<td>2.53</td>
</tr>
<tr>
<td>Antamina, Peru</td>
<td>$2,296 million</td>
<td>Copper &amp; zinc</td>
<td>1.42</td>
</tr>
<tr>
<td>Escondida, Chile</td>
<td>$2,300 million</td>
<td>Copper</td>
<td>5.7</td>
</tr>
<tr>
<td>Candelaria, Chile</td>
<td>$902 million</td>
<td>Copper</td>
<td>1.76</td>
</tr>
</tbody>
</table>

*Source: McMahon, G. and Remy, F. (2001)*
1.6.1 Direct Economic Impacts

1.52 Table 1.7 shows an estimate of the possible direct economic impacts that could be generated by mine development using the preceding assessment of mineral potential. This includes the value of output based on estimates of mineral deposit size and prevailing mineral prices, the portion of this value that is likely to be exported and Government revenue, based on the current mining fiscal regime. All estimates are order of magnitude estimates, especially those for the medium and long term. The estimates are based on the critical assumption that constraints that may have prevented development to date, such as power, transport and regulatory hurdles have been relieved. There can be no assurance that this will be the case, absent specific government action and other favorable developments.

Table 1.7: Potential Direct Economic Impact of the Mineral Sector (annual constant US$)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of Output</td>
<td>$7 million</td>
<td>$250 million</td>
<td>$400 million</td>
<td>$500-1000 million</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5-6% of GDP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exported (%)</td>
<td>10%</td>
<td>95%</td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20-25% of exports)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Revenue</td>
<td>&lt;$250,000</td>
<td>$5 million</td>
<td>$20-$30 million</td>
<td>$50-$100 million</td>
</tr>
</tbody>
</table>

Source: World Bank Staff estimates

1.53 In the short term, the value of mineral sector output will be boosted by the start of production at Keyelekera. The expansion of gemstone and limestone production should contribute further to mineral sector value, so that it might reach some US$250 million overall. Over the medium term, the addition of one or more medium scale mines would help to expand the sector. Over the longer term, so long as new mines can be brought into production to offset the exhaustion of existing mines, it might be reasonable to project a sector valued at around US$500 million annually but potentially as high as US$1 billion.

1.54 This means that the mineral sector will grow in the short term to account for about 5-6% of GDP (assuming a US$4.5bn economy by 2012). There will be a more marked effect on trade, as Malawi will, for the first time, export the bulk of its mineral products, resulting in mineral exports accounting for some 20-25 percent of total exports (assuming US$1bn of exports by 2012).

1.55 The impact of government revenues is difficult to forecast. Typically when a mine starts up, for the first few years government receipts come principally from royalty. However, once capital has been recovered mines will typically contribute most revenue in the form of taxes on profits. This is why revenue is projected to grow significantly only in the medium term.\textsuperscript{vii}

Contribution to Employment

1.56 Formal employment in the mineral sector is small but growing. In 2007 there were 3,246 jobs recorded by the Department of Mines compared to 2,206 in 2003/04, an increase of nearly 50 percent in four years. Data for 2008 shows a considerable leap to 4,850, largely attributable to the Keyelekera mine, which, at its peak during construction in early 2009, employed some 2,000 personnel, of whom 75 percent were Malawian.

1.57 The numbers engaged in ASM is much harder to define as more fully explained in Box 1.2. The high number of quarry workers included in the Department of Mines employment data includes a large number that operate as artisans (“hand knappers”).
Table 1.8  Formal Employment in the Mineral Sector, 2008

<table>
<thead>
<tr>
<th>Sub-Sector</th>
<th>Workforce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>1110</td>
</tr>
<tr>
<td>Cement Lime</td>
<td>96</td>
</tr>
<tr>
<td>Agricultural Lime</td>
<td>194</td>
</tr>
<tr>
<td>Quarry Aggregate (of which formal)</td>
<td>2030 (435)</td>
</tr>
<tr>
<td>Cement</td>
<td>348</td>
</tr>
<tr>
<td>Gemstones/Mineral specimen.</td>
<td>176</td>
</tr>
<tr>
<td>Ornamental Stones</td>
<td>37</td>
</tr>
<tr>
<td>Clay/Pottery</td>
<td>125</td>
</tr>
<tr>
<td>Terrazzo</td>
<td>196</td>
</tr>
<tr>
<td>Other Industrial Minerals (incl. uranium)</td>
<td>538</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,850</strong></td>
</tr>
</tbody>
</table>

Source: Department of Mines

1.6.2  Indirect Economic Impacts

1.58  There will be several indirect economic benefits of mineral sector development, although they are very much harder to quantify than direct benefits and are highly location and project specific. The measurement of indirect benefits is beyond the scope of this sector review. Projects that rely heavily on public infrastructure, such as grid electricity and transportation services, will provide a source of regular demand while mining operations go on and, in some cases, could support decisions to invest in public infrastructure. The high transport costs associated with importing inputs into mining operations could offer some competitive advantage to local suppliers, thereby fostering local industrial development, particularly for less highly specialized items. Services required at mine sites would generate opportunities for local service providers – typically these include haulage, security, catering and various trades. In the longer run, given a growing demand base, suppliers of mining industry support services could opt to set up in Malawi. This could include suppliers of consumables used in exploration, mineral extraction and processing operations, as well as analytical, design and engineering services. The benefits of such economic linkages can be captured, in part, at the local mining community level, especially if supported by appropriate enterprise development initiatives.

1.59  Forward linkages, in the form of supplies of mineral products to domestic users, already exist in the case of raw materials for the cement industry and coal supplies to industrial users. However, the minerals on which future growth is likely to depend will, for the most part, be exported, since user industries do not exist and are unlikely to be developed in Malawi given an absence of end-use markets and economies of scale.

1.60  Mining development will also provide an important opportunity for economic development away from Malawi’s main urban and commercial centers. Minerals occur in a variety of locations in Malawi, some of which have limited alternative sources of economic activity – examples include Karonga, Rumphi, Kasungu, Mchinji, Salima and Mulanje.

1.61  Finally, Malawi could also play a significant role as a transit country for minerals and other goods being transported from Zambia and the Mozambique interior to ports in Tanzania and Mozambique ((Dar es Salaam, Mtwar, Ncala). This will be a catalyst for mining and industrial development in Malawi and will help integrate Malawi into the regional and global economy.
Chapter 2

2. LEGAL, REGULATORY AND INSTITUTIONAL REFORM

2.1 Overview

2.1 The policies, laws and institutions that presently govern the mineral sector in Malawi need significant reform if the sector is to grow sustainably and contribute to economic development and poverty reduction. The present government recognizes this but has yet to undertake many of the necessary reforms. This section of the report diagnoses areas of weakness in the policies, laws and institutions that govern the mineral sector and suggests measures that would need to be taken to address these. There is great sense of urgency to define the required reforms within Government and among stakeholders, highlighted by legal challenges that were made by some civil society groups in connection with Government approval of the Keyelekera uranium mine project in 2007.\(^{viii}\)

2.2 The highest priority must be given to finalizing the National Mineral Sector Policy which has remained in draft for years. Malawians need a shared vision of how development of mining will take place, building on experiences gained from Keyelekera. At present, the Government’s overriding goals, and the principles it will apply in fostering growth of the mineral sector, are inadequately defined. Consultations on a sector policy have been on going since 2002. In the interim, the Malawi Economic Growth Strategy 2004 (MEGS) and Malawi Growth and Development Strategy 2006 (MGDS) were produced;\(^{x}\) although each defined mining as one sector on which future economic growth would depend and each goes on to identify some important policy objectives, they cannot be regarded as a substitute for a coherent and comprehensive sector policy. Indeed, the MGDS defines the finalization of a National Mineral Sector Policy as one of the main sector goals.

2.3 Malawi’s mining legislation has not kept pace with the rapid modernization of mining codes that has gone on in the African region in the past decade. The Mines and Minerals Act of 1981 is now one of the oldest mining codes in sub-Saharan Africa. Moreover, the Act predates commercial, environmental and other legislation with which mining legislation should be harmonized. The Government is committed to undertaking the wholesale review and revision of the Act and has begun this task. This exercise will benefit a great deal from the completion of the National Mineral Sector Policy in the coming months.

2.4 The institutions that govern the sector have been starved of resources for years and will face considerable difficulties in exercising their mandates as mineral sector activity gathers pace. Lack of resources is compounded by a lack of experience in regulating a sector that has been ignored for years. This problem is especially acute among institutions outside of the core mineral sector agencies, which nonetheless have critical roles to play in assuring that mining development generates benefits, particularly at the community level, and meets minimum environmental and social safeguards (see Chapter 4). The challenges of rectifying this situation will require sustained effort over the medium to long term.

2.2 Mineral Sector Policy

2.5 A Task Force was established in 2002 to formulate policies for the mineral sector, but to date the National Mineral Sector Policy remains in draft form. In its absence the main official statements of the Government’s goals for the sector have been the MEGS 2004 and MGDS 2006. After decades in which the mineral sector had been neglected, these strategies identified this sector as having high growth potential in the medium to long term and offering an opportunity to diversify the economy away from dependence on agriculture.

2.6 The MGDS provides a high level framework for defining national objectives and necessary reforms in the mineral sector. Specific objectives identified in MGDS are:\(^{i}\)
- updating of geological and mineral data acquisition and mapping;
- promoting investment opportunities;
- developing infrastructure and services for mining (electricity, water, roads, telecoms);
- supporting mineral sector skills and technology development;
- developing competitive mining taxation and promoting value addition;
- formalizing and supporting small scale mining, increasing value addition and improving market access;
- improving institutional governance and effectiveness;
- modernizing and harmonizing mining and related legislation;
- enforcing environmental and safety requirements; and
- taking advantage of regional and international mining initiatives and harmonizing policies.

2.7 While the objectives of the MGDS are sound, it is no substitute for a coherent and comprehensive mineral sector policy. The measures needed to achieve the objectives are not spelt out in any detail. Moreover, the MGDS does not address all of the policy issues which one would expect to see addressed in a modern mineral sector policy. The efforts to draft a sector policy since 2002, which include several rounds of stakeholder consultation, have yet to be completed – Cabinet has yet to receive a policy for review and approval. In the intervening period, all stakeholders have gained considerable experience and insight into mineral sector challenges from the Keyelekera project approval process. This has sharpened the understanding and arguably raised the stakes surrounding a number of important policy issues that will need to be addressed in an approved National Mineral Sector Policy.

2.8 At the March 2009 Workshop, the Ministry set a goal of completing the National Mineral Sector Policy in September 2009. Based on a review of the MEGS 2004, MGDS 2006 and the draft sector policy, as well as the discussions that took place at the March 2009 Workshop, the following are the key issues which the Ministry should examine and resolve as it finalizes the sector policy.

2.9 The question of State participation in the mineral sector is perhaps the single biggest one that needs to be decided. At issue is where to define the boundary line between government functions and the private sector. The MGDS asserts that sustainable economic growth will be private-sector led and requires Government to create an enabling environment for investment while focusing its investment on public goods (see Table 2.1).

Table 2.1: Roles Defined in the MGDS

<table>
<thead>
<tr>
<th>Government</th>
<th>Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>The main responsibility of Government shall be to provide public goods and services as well as regulatory framework. These include roads, railways, airports, education, health services, and social services among others. It shall also provide the necessary environment and incentives to promote private sector activities. Government shall safeguard the interests of all Malawians by correcting market failures through policy, legal and regulatory framework reviews.</td>
<td>The main role of the private sector is to invest in both economic and social sectors to generate economic growth and create wealth. In this context, the private sector shall be expected to take up opportunities outlined in the MGDS. The scope of the private sector will be widened to involve them in the provision of other public goods and services through public-private sector partnerships.</td>
</tr>
</tbody>
</table>

Source: MGDS 2006

2.10 However, under Section 31 of the Mines and Minerals Act, the right is reserved for the State to exercise an option to participate in a mining venture on terms specified in an exploration license (or mineral agreement). The provision is open-ended, neither setting an upper limit to the level of participation nor establishing financial principles that would govern participation. Significantly, Government included
equity participation is one of the terms under which the mining license was granted to Paladin for the Kayelekera project in 2007.\textsuperscript{xii} Furthermore, Government arrangements with Nyala Mines regarding the re-opened gemstone operations are reported to have involved a government equity share. There has been no public statement to clarify whether or not the Keyelekera and Nyala cases set a precedent that will be followed in the future for all or only some mining projects. Therefore, the intentions of the Government on State participation in mining ventures are currently ambiguous and clarity is essential.

2.11 The Government’s recent stance on taking minority interests in private-sector sponsored mineral projects is understood to be have been justified on the basis that it a) is revenue neutral and b) provides an ownership interest that provides a limited degree of control and knowledge sharing. This approach is not uncommon in some part of the world, however, there are many ways in which equity participation can be structured (see Annex V). Since, under present arrangements in Malawi, the financial details of any equity participation may be the subject of case-by-case negotiations with investors, it is difficult to evaluate the risks and rewards associated with such participation and to weigh this against the taxes that might be foregone. The condition of revenue neutrality is, moreover, hard to guarantee where revenues from minority shareholding are a function of the uncertain dividend distribution policy of the controlling shareholder. Furthermore, the other benefits of an ownership interest are quite capable of being achieved by employing regulatory mechanisms.

2.12 As noted earlier, the MGDS asserts a lead role for the private sector. Moreover, there is no reference to the role of state-owned enterprises in the body of the strategy. But among the actions included in the implementation annexes of the MGDS for mining, there is a proposal to “create another body like MIDCOR (Mining Investment Development Corporation) and use it as a conduit for public-private partnerships”.\textsuperscript{xiii} References to a state mineral enterprise in the draft Mineral Sector Policy and discussion of such a proposal at the March 2009 Workshop suggests that there is support in policy circles for a successor to MIDCOR that would play a role in promoting and helping develop the mineral sector. The precise responsibility that this role would entail is far from clear.

2.13 The possible restitution of a state mineral enterprise to serve as a vehicle for public investment in mining ventures carries high risks to public finances which should be avoided. If the main role is to invest in mineral projects that do not satisfy foreign investor criteria for investment – a wish frequently voiced - then it will be necessary for the Government to accept the risks inherent in such a role. The types of projects that will not meet private sector investment criteria are likely to be those which are low-quality, small-scale and have limited access to large (export) markets. The value of investing public funds in such risky ventures has to be measured against the value of uses of such funds, such as in infrastructure, schools and hospitals.

2.14 It is important for the mineral sector policy to set out clearly whether or not the State will seek direct participation in future mining operations and, if so, on what terms. If this is to be the case, then it would be important for principles governing the acquisition of participation, percentage interests and financial rights and obligations to be included. If a state-owned enterprise is to be created to hold and control the State’s interests in these operations, it is important that the mineral policy identify its mandate and specific roles, as well as the arrangements under which it will finance participation and how proceeds of participation will be treated. This is a significant aspect of public policy and ought not to be left undefined or ill-defined (also see Paragraph 3.27).

2.15 The mineral sector policy should make very clear which public institutions will exercise what regulatory roles and the relationships between them. The draft policy is silent on the institutional arrangements that are envisaged to regulate the mineral sector, other than a broad reference to the need to improve institutional governance and effectiveness. The policy ought to address governance arrangements, particularly with respect to the exercise of powers to make appointments, take decisions, give advice and conduct duties pursuant to mining legislation.

2.16 Although regulatory decentralization forms an important element of the MGDS, there is no indication of how, if at all, decentralization might apply to mineral sector governance. It is understood that
the decentralization of selected administrative roles is under consideration by the Department of Mines to better address the licensing and regulation of small scale mining operations. More decentralized mineral sector governance arrangements could, for example, also be relevant to work of Geological Survey, the mines inspectorate in the Department of Mines and the environmental monitoring units both within the Department of Mines and in the Environmental Affairs Department.

2.17 A mineral sector policy should set out the basic policy principles on which the fiscal regime is designed and describe its major elements. The MGDS goes no further than setting the goal that the fiscal regime be competitive and provide suitable incentives for encouraging mineral investment and, in particular, value addition. The draft policy addresses elements of the fiscal regime, royalty in particular. The policy need not be detailed but should demonstrate that the Government takes a holistic view of how the sector should be treated in general for fiscal purposes, and value added activities (i.e. further domestic processing of mine products) in particular. This is especially relevant in Malawi, since some aspects of the current fiscal arrangements, as will be discussed in Chapter 3, lack sufficient coherence and clarity.

2.18 Maximizing local content now forms one of the key mineral sector objectives of developing country governments but is surprisingly absent from the MGDS and draft policy. The mineral sector policy needs to state the principles which will be employed to encourage or require mining companies to give preferences in employment and procurement to Malawi citizens and businesses. The objective of this is to ensure that the country maximizes the opportunity to create lasting upstream and downstream economic linkages, particularly through training, employment, business development and downstream mineral processing.

2.19 Community development in mining-affected areas has emerged as a key area of mineral sector policy, however, as with local content, this receives little attention in the MGDS and draft policy. It is important that the sector policy give recognition to and assign priority to consultative processes and forums in which communities can engage. This would cover issues such as social impact assessment, land-use planning and preparing for mine rehabilitation and closure. The rights of women, children and other vulnerable groups that might be impacted by mineral sector development ought also to be addressed in mineral sector policy. This includes, in particular, the rights of those resettled, voluntarily or involuntarily, and associated obligations of the Government and the investor.

Table 2.2: Other Significant Legislation Affecting Mineral Operations

<table>
<thead>
<tr>
<th>Type of Legislation</th>
<th>Law or Statutory Instrument</th>
<th>Type of Legislation</th>
<th>Law or Statutory Instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Occupational Safety, Welfare and Health Act 1997</td>
<td>Fiscal and Commercial</td>
<td>Companies Act</td>
</tr>
<tr>
<td></td>
<td>Employment Act, Workers Compensation Act</td>
<td></td>
<td>Investment Promotion Act 1991</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Taxation Act</td>
</tr>
<tr>
<td>Environmental</td>
<td>Environmental Management Act 1996</td>
<td>Land</td>
<td>Customs and Excise Act</td>
</tr>
<tr>
<td></td>
<td>Water Works Act 1997</td>
<td></td>
<td>Exchange Control Act</td>
</tr>
<tr>
<td></td>
<td>Forestry Act</td>
<td></td>
<td>Land (Amendment) Act Land Acquisition Act 2004</td>
</tr>
<tr>
<td></td>
<td>Fisheries Conservation and Management Act 1997</td>
<td></td>
<td>Registered Land Act</td>
</tr>
<tr>
<td></td>
<td>National Parks and Wildlife Act</td>
<td></td>
<td>Customary Land Act</td>
</tr>
</tbody>
</table>

2.3 Mining Legislation

2.20 Malawi’s mining legislation has lagged the rapid modernization of mining codes that has gone on throughout the region in the past decade. The Mines and Minerals Act 1981 is now one of the oldest mining codes in sub-Saharan Africa. For example, the mining codes of its neighbors have all been revised
within the last decade (Tanzania 1998; Mozambique 2002; Zambia 2008). Moreover, it predates much of the commercial, environmental and other legislation with which mining legislation should be harmonized (Table 2.2).

**Box 2.1: Summary of Existing Minerals Legislation in Malawi**

The legislative scheme for minerals in Malawi is based on a conventional common law model widely used in Commonwealth African countries in the 1970s and 1980s. The *Mines and Minerals Act 1981* (the Mines Act) has the following principal features:

- It governs the exploration for and exploitation of all minerals other than petroleum, water and soil.
- It vests minerals in the President on behalf of the people of Malawi.
- It repealed its predecessor and all regulations made under that Act, except the Mines (Safety) Regulations.
- Exploration for and exploitation of minerals must take place under a license provided for in the Act, except where industrial and building materials are recovered:
  - by the holder of customary land in accordance with custom;
  - by private landowners and public officials for construction purposes; or
  - where mineral operations are carried out by an authorized public body (e.g. Geological Survey).
- The Minister grants and may cancel reconnaissance, exclusive prospecting and mining licenses.
- Licenses have surface boundaries and extend vertically (i.e. there is no lateral subdivision of the subsoil), are time-bound and relate only to specified minerals.
- The Act allows Regulations to be issued by the Minister in terms of the Act which would apply generally or only in particular cases. Eleven such regulations have been issued. Regulations do not need to be enacted nor presented for Parliamentary review under Malawi Law.
- The Act allows a mineral agreement to be made by the Minister (on behalf of the Republic) with a company regarding the terms under which any operations under a license will be undertaken. The agreement must be consistent with the Act (it may not override the Act) but its scope is otherwise left open. A mineral agreement does not need to be enacted or presented for Parliamentary review under Malawi Law. There is no model mineral agreement. Only one mineral agreement has been entered into, that between Paladin and the Government of February 22, 2007 for the mining of uranium at Kayelekera.
- The Minister makes the statutory appointment of the Commissioner of Mines who administers the Act and issues and cancels non-exclusive prospecting licenses and claims.
- The Minister can also authorize a District Commissioner to issue mineral permits (non-exclusive rights for surface mining).
- The Act governs royalty, license rents and fees but otherwise has no provisions that relate to the mining fiscal regime (e.g. taxes, duties, withholding).
- The Act provides that an exploration license may contain a condition that the Republic may opt to acquire an interest in any mining venture resulting from exploration.
- The President can decide that land be compulsorily acquired for mineral development purposes under the Land Acquisition Act. The President’s consent is required for mineral operations on land set aside for a public purpose.
- The consent of a lawful occupier is not required except in relation to land under cultivation and buildings, subject to override of the Minister. Compensation for damage and disturbance is due as agreed or otherwise determined by the Commissioner.
2.21 A summary of the Act is shown in Box 2.1. A preliminary assessment indicates that there are many issues requiring attention and some areas of acute weakness. Experience from other countries suggests that, without deep reform, the existing arrangements will come under increasing stress as more companies seek to explore for and develop minerals in Malawi. This will result in delays and may risk introducing manipulation and, worse still, corruption to the management of mineral rights. This would, in turn, constrain the growth of the sector and prevent the country from realizing its economic diversification and development goals. In the following paragraphs, some of the main areas of legislative weakness are identified and possible measures to address this are suggested.

2.22 The existing legislative arrangements for mining in Malawi place excessive reliance upon the discretionary exercise of ministerial powers. The Act empowers the Minister to (i) attach conditions to licenses as he sees fit, (ii) waive or vary many of the provision of the Act, if considered appropriate, (iii) implement many important aspects of the Act by issuing regulations that are not subject to parliamentary approval and (iv) have the final say on matters in dispute without further appeal.

2.23 The discretions are vested in the Minister alone, do not require him/her to act on or seek advice and do not set out the grounds on which decisions should be made. In this regard, the Act is unusual, especially compared with most modern mining legislation. Modern mining legislation limits the scope for discretionary powers and, where some discretion is required, makes the exercise of such discretion subject to clear criteria and, often, subject to advice from a statutory body – typically a mining advisory council – qualified for the purpose. The exercise of discretion is also typically time bound and decisions taken are open to review by an aggrieved party via an independent review procedure.

2.24 Under present mineral sector arrangements many of the key terms under which a company would operate are open to bilateral negotiation with the Government. Such latitude for negotiation exists because of provisions in both the mining and fiscal legislation that give wide discretion to the authorities in setting precise terms and conditions. Section 10 of the Mines and Minerals Act authorizes the Minister, on behalf of the Government, to enter into a mining agreement. In the case of the Kayelekera agreement with Paladin, almost all significant matters that needed to be regulated, including elements of the fiscal regime, were addressed in the agreement. Its terms had to be negotiated one by one. There was no model mineral agreement to serve as a starting point and guide for the negotiations. There is no assurance that the terms of any future mineral agreement would be the same. As things stand, it is possible that, in the future, the government would have to monitor and enforce substantially different legal and fiscal arrangements for each mining project for which an agreement was negotiated.

2.25 There should be a review of the circumstances under which mineral agreements will be used in the future, the scope of such agreements and any particular undertakings in favor of the investor which the Government would be permitted to make by means of such agreements. This would, for example, clarify whether investors will enjoy the benefit of contract stabilization. These principles would need to be set out in the mining law itself.

2.26 In general, governments are ill equipped to negotiate with large international investors and their position in reaching fair and equitable agreements with mining companies would be strengthened if a model mineral agreement formed part of the mining law. Many governments have found it convenient to issue a model agreement as a regulation under the principal law or as a schedule of the law. That way, any departures from the model in the terms negotiated with a company are more easily highlighted and made subject to scrutiny of the legislature.

2.27 The Act makes provision for numerous and, in some cases, redundant licenses. There are effectively three different licensing regimes contained in the Act: (i) general purpose licenses through reconnaissance, prospecting and mining phases issued by the Minister; (ii) licenses for small scale prospecting and mining operations issued by the Commissioner; and (iii) licenses for prescribed minerals (mainly construction minerals) issued at District level. Separate licenses are also issued for dealing in
reserved minerals (precious minerals and stones) and for exporting minerals. The system could be rationalized to ease the administrative burden and provide the types of rights for which there is likely to be most demand. It is noted, for example, that very few reconnaissance licenses are ever applied for or issued (just one in 2008).

2.28 The licensing system set out in the Act is very general and regulations have not been fully developed to create clarity as to how it is administered. A source of particular concern is the lack of legislative provision for prioritizing license applications. Curiously, a regulation requiring strict priority on a “first come, first served” basis, was issued to address applications for mining claims (small one-year rights) but not for any other type of license. Under the “first come, first serve” system, applications for the same area or mineral deposit are dealt with in the strict order in which they are registered in a public register, such that the second in line can only be considered if the first has been reviewed and rejected. In the absence of such rules and transparent processes, there is a risk that multiple applications could be entertained with out the knowledge of the respective applicants thereby undermining the integrity of the system.

2.29 The licensing system would benefit more generally from more streamlined and transparent arrangements underpinned by legislation. According to information from the Department of Mines the administration of licensing is prone to inefficiency and delay. This is partly because it relies upon a number of steps in which paper records are passed from hand to hand and calls for review and decision meetings that occur infrequently and/or irregularly (see Box 2.2). Manual verification of eligibility to areas of land that may already be subject to rights or restrictions is one source of delay and dispute. Lacking transparency, the system may also be open to manipulation. Streamlining and adding transparency to the process would complement the suggested measures to reduce discretion.

2.30 The functions of the Mineral Rights Office would be strengthened by establishing an automated GIS rules-based mineral titles system (“minerals cadastre”) which would largely remove the need for manual verification and processing. Cadastral systems draw together all the data needed to determine an award of mineral rights at the time of application and data related to compliance which is relevant after award and at time of renewing rights. Such systems can facilitate a more decentralized approach to managing the application and granting of mineral rights through networked or web-based systems. Zambia is completing an exercise in computerizing its mineral titles system, while Tanzania and Mozambique’s systems have been in place for several years already.

Box 2.2: Procedure for Dealing with the Application and Granting of Mineral Licenses

In Malawi the application and granting of mineral licenses is managed by the Commissioner of Mines and involves the following manual steps:

- License application submitted to the Mineral Rights Office
- Application fee paid
- Application date stamped
- File opened
- File, including application, reviewed by Head of Mineral Rights Office against a checklist of information requirements
- Manual checking of coordinates of application area
- File copied to Commissioner and to Minerals Licensing Committee (MLC)
- Commissioner reviews file in preparation for meeting of the MLC
- File reviewed at meeting of the MLC (monthly at best)
- MLC may ask Commissioner to seek information and explanations from the applicant before making any determination
- MLC advises the Minister whether or not to grant the application
2.31 In addition to strengthening the legislative basis of licensing procedures and instituting a mineral cadastral system, as suggested above, it may be necessary to review the role of the Minerals Licensing Committee which, as shown in Box 2.2, advises the Minister on the award of mineral rights. This body, comprised of officials representing several government ministries, is not provided for in the current mining legislation. It was created, by administrative instrument, to facilitate inter-governmental deliberation in framing advice to the Minister. At the very least, accountability of this body for the advice it prepares would require that its composition, functions and reporting requirements are regulated by law.

2.32 Weaknesses in the licensing system can also be addressed by strengthening both incentives for mineral right holders to perform and sanctions for non-performance. In modern mining laws incentives to perform are created by imposing obligations to relinquish a portion of the area held after investigating its potential mineral value. This is often combined with or substituted for by holding fees payable each year that escalate over time. Together or separately, such measures can reduce the incentive to hold onto areas without carrying out exploration work, thereby deterring companies from hoarding license areas in the interests of speculation. The system of work and expenditure obligations in the Mines and Minerals Act is undermined by the lack of standards by which to measure performance and therefore enforce compliance. The system of financial penalties is undermined by their negligible monetary value.

2.33 The Ministry should be mandated, or have at least have an option, to seek applications for mineral rights by means of competitive tender where such deposits have been sufficiently delineated to warrant such an approach. The present Act makes no provision for this. The legislation should prescribe the conditions under which a call for bids would be made, how such a call should be made and the manner in which competing bids would be examined and an award made to the winning bidder.

2.34 To complement policies that should form part of the mineral policy to address local content, community development and vulnerable groups, there would be a need for appropriate legislative provisions. These would, for example, require companies, when applying for mineral rights to make proposals which upon the grant of rights become conditions of performance.

2.35 Because of its age, there is an urgent need to harmonize provisions in mining legislation with those of more modern environmental legislation to give full effect to the objectives of national environmental policy. Malawi’s environmental laws conform to norms used widely in Africa and elsewhere nowadays, in which environmental management is a responsibility that cuts across all productive sectors. Activities that are authorized under sector-specific laws, such as the Mines Act, nonetheless, have to obtain environmental permits through a process of environmental impact assessment and certification. In the absence of reform, inconsistencies between the two bodies of legislation and overlapping functions of the relevant regulatory institutions may delay minerals exploration and mining operations and undermine the effective monitoring and enforcement of important environmental safeguards. These issues are explored in more detail in Chapter 4.

2.36 A feature of the Malawi mineral sector is that there is greater experience of applying the provisions of the Mines Act to small scale gemstone and industrial mineral mining than to large scale mining operations. Although some illegal activity is conducted, it appears that small scale mining mostly takes place under formal licenses issued under the Act. The authorities therefore have fairly good information of where operations take place and are, in principle, able to carry out regulatory supervision of this sector. In practice, however, the authorities have acute lack of capacity to provide effective regulatory supervision (see below). With respect to changes to the mining legislation, the focus might be on modifying the duration and size of mining claims to offer better prospects of raising finance and specifying generally applicable obligations with respect to environmental compliance at application stage, during conduct of operations and at closure - at the moment these are discretionary and not harmonized with environmental laws. Another area of weakness to be addressed is the reported disarray in issuing permits at district level for sand and clay winning which has resulted in these activities going on unregulated.
2.4 Regulatory Institutions

2.37 The principal public mining institutions responsible for managing and regulating the sector are located within the Ministry of Energy and Mines. These include:

- The office of the Commissioner of Mines (including the Mineral Rights Office), responsible to help administer the Minerals Act and the management of the application and granting of mineral licenses;
- The Department of Mines that promotes mineral development, occupational health and mine safety, and sector reporting and monitoring; and
- The Department of Geological Survey that undertakes and disseminates basic geological mapping and mineral exploration to promote investment and mineral development by the private sector.

Figure 2.1: Structure of Public Mining Institutions

2.38 The Commissioner is appointed by the Minister under statutory powers to assist the Minister to administer the Act and for this purpose can exercise a range of statutory powers. This includes administration of licensing and of minerals royalty and other payments under the Act. Payments are deposited into the Consolidated Account at the Ministry of Finance. The Commissioner is supported by a small staff located at the Ministry HQ. A post of Deputy Commissioner has been created to help in the administration of statutory duties. Although a statutory appointee, the post of Commissioner falls within the civil service structure and is subject to its rules.

2.39 The Department of Mines combines several technical and regulatory functions necessary for promoting development of mineral resources, monitoring mineral operations and assisting the Minister and Commissioner to perform their functions. The Department has a Director, who reports to the Principal Secretary of the Ministry. The Department is composed of four Divisions with associated functions shown in parentheses:

- Mineral Development and Planning (processing of licenses; promoting development of mineral resources; collecting data and reporting on sector activity; conducting economic and technical evaluations).
- Mining Inspectorate (monitoring and enforcing compliance with mine health, safety and environmental regulations and explosives legislation).
- Minerals Research and Laboratory Services (assays; trial beneficiation and pilot test studies; sampling for environmental monitoring).
- Administration and Accounting (collection of mineral royalties and fees).

2.40 The Department of Mines is chronically understaffed. A Ministry Study in 2002 found that only 50 percent of total posts were filled and just 34 percent of professional posts. Moreover, few of those in professional posts were suitably qualified. Another challenge faced by the Department was the large numbers of staff either in the most vulnerable age group for HIV/AIDS infection or nearing retirement. In December 2007 the Mining Inspectorate had five mines inspectors in post and only one vehicle between them.

2.41 The Department has substantial equipment needs on top of inadequate office space. Without a significant upgrade the laboratory is only capable of conducting a limited range of work. Equipment purchases were last made in the early 1990s. Much of the ore preparation equipment no longer works and equipment for trial beneficiation is suited only to a limited range of test-work. The Department recognizes that the laboratory is only ever likely to be of use to local developers of industrial mineral and gemstone operations. However, in its current state, the laboratory cannot even meet this objective.

2.42 The Department has responsibility for much of the day-to-day monitoring and enforcement of environmental compliance. Mines inspectors, are assigned this responsibility, which is in addition to the conventional work of mines inspectors and must be coordinated with officers of the Environmental Affairs Department, whose authority over environmental issues derives from separate environmental legislation (see fuller discussion of this issue in Chapter 4). The laboratory is not equipped to provide the technical services which rigorous environmental testing would require.

2.43 The Department of Geological Survey is responsible for basic geological mapping, mineral exploration and promoting mineral resources development. DGS maintains a geological data base that includes various types of geological and geochemical maps for public use (see Box 1.1). It has the following units:
- Geological Mapping and Mineral Exploration
- Geochemical Laboratory
- Cartography (map making)
- Lapidary (thin rock sections, cutting and polishing)
- Library
- Computer Services

2.44 The staff establishment of DGS comprises 22 posts for geologists of which 8 are in post, very few of whom possess advanced qualifications and work experience. A proposal for institutional strengthening has been prepared by the Ministry but has yet to obtain approval of the Office of the President and Cabinet.

2.45 Significant institutional strengthening of the core agencies engaged in regulating the mineral sector is clearly needed but should be preceded by a sector-wide assessment of management arrangement that takes into account other key government institutions engaged in revenue management and environmental management. It is important to establish a clear assignment of roles and responsibilities around which resourcing decisions can be made and optimized. As noted earlier, this should form part of the mineral sector policy.
2.46 Programs for capacity building need to be developed that take account of the short- medium and long term imperatives facing Malawi. The immediate challenge will be to attract and retain staff to fill vacant posts, while recognizing that a portion of these, once in post, will need to undergo significant training. Over the medium to long term, capacity building is dependent on the generation of a sufficient supply of graduates in disciplines relevant to mining. This will require the development of educational programs at existing and new academic institutions in Malawi, and within the region, to meet future demands.

2.47 The personnel within the regulatory institutions cannot fulfill their mandates without equipment and facilities necessary to execute a variety of technical tasks. Such is the depletion of resources at the present time that there needs to be significant procurement of equipment and systems to allow effective monitoring and inspection of mineral operations to take place. Without this, compliance with regulatory requirements is dependent entirely on the good sense and corporate social responsibility shown by individual operators. Institutions that are properly equipped and employ modern techniques in carrying out their mandates are also more likely to be able to attract and retain talented staff.

2.5 Key Issues and Recommendations

2.48 The policies, laws and institutions that presently govern the mineral sector in Malawi need significant reform if the sector is to grow sustainably and contribute to economic development and poverty reduction.

2.49 The highest priority must be given to finalizing a National Mineral Sector Policy which has remained in draft for years. Malawians need a shared vision of how development of mining will take place, building on experiences gained form Keyelekera. The MGDS provides a high level framework for defining national objectives and necessary reforms in the mineral sector. While the objectives of the MGDS are sound, it is no substitute for a coherent and comprehensive mineral sector policy. The draft which the Ministry of Energy and Mines prepared by consultative process beginning in 2002 provides a basis for a coherent and comprehensive mineral sector policy. At the March 2009 Workshop, the Ministry set a goal of completing the National Mineral Sector Policy in September 2009. Having reviewed the present draft policy and participated in the March 2009 Workshop, it is recommended that the final policy document:

- clarify whether or not the State will seek participation in future mining operations and, if so, in what form, on what terms and at what stage (see further below);
- define the role and mandate of the State and its public mining institutions, and make very clear what public institutions will exercise what regulatory roles and the relationships between them;
- indicate how, if at all, decentralization might apply to governance of the mineral sector;
- set out the basic policy principles on which the fiscal regime is designed and describe its major elements;
- specify the environmental obligations of operators consistent with internationally recognized safeguard standards;
- define arrangements to ensure the maximization of local content;
- define arrangements governing provision for community development and benefits sharing, including the roles to be played by different stakeholders; and
- address the rights of women, children and other vulnerable groups that might be impacted adversely by mineral sector development and measures for their protection.

2.50 The question of State participation in the mineral sector is perhaps the single biggest one that needs to be decided. At issue is where to define the boundary line between government functions and the private sector. Although the MGDS unambiguously assigns investment in economic activity to the private sector, the Government’s recent stance on taking minority interests in private-sector sponsored mineral
projects has been justified on the basis that it a) is revenue neutral and b) provides an ownership interest that provides a limited degree of control and knowledge sharing. Since, under present arrangements, the financial details of any equity participation may be the subject of case-by-case negotiations with investors, it is difficult to evaluate the risks and rewards associated with such participation and to weigh this against the taxes that might be foregone. The condition of revenue neutrality is, moreover, hard to guarantee where revenues from minority shareholding are a function of the uncertain dividend distribution policy of the controlling shareholder. Furthermore, the other benefits of an ownership interest are quite capable of being achieved by employing regulatory mechanisms.

2.51 The possible restitution of a state mineral enterprise to serve as a vehicle for public investment in mining ventures carries high risks to public finances which should be avoided. References to a state mineral enterprise in the draft Mineral Sector Policy and discussion of such a proposal at the March 2009 Workshop suggests that there is support in policy circles for a successor to MIDCOR that would play a role in promoting and helping develop the mineral sector. The precise responsibility that this role would entail is far from clear. If the main role is to invest in mineral projects that do not satisfy foreign investor criteria for investment – a wish frequently voiced - then it will be necessary for the Government to accept the risks inherent in such a role. The types of projects that will not meet private sector investment criteria are likely to be those which are low-quality, small-scale and have limited access to large (export) markets. The value of investing public funds in such risky ventures has to be measured against the value of uses of such funds, such as in infrastructure, schools and hospitals.

2.52 Malawi’s mining legislation has not kept pace with the rapid modernization of mining codes that has occurred throughout Africa over the past decade. The Government is committed to undertaking the wholesale review and revision of the Mines and Minerals Act and has begun this task. This exercise will benefit a great deal from the completion of the National Mineral Sector Policy in the coming months. Experience from other countries suggests that, without deep reform, the existing arrangements will come under increasing stress as more companies seek to explore for and develop minerals in Malawi. This will result in delays and may risk introducing manipulation and at worst corruption to the management of mineral rights. A preliminary assessment of the legislation indicates that the main issues to tackle are the following:

- The existing legislative arrangements for mining rely excessively on the discretionary exercise of ministerial powers. The new law should reduce such discretion to a minimum and where some discretion is retained make its exercise subject to clear criteria and receipt of technical advice.

- Many of the key terms under which a company would operate are subject to bilateral negotiations with the Government. At a minimum there should be a review of the circumstances under which mineral agreements will be used in the future, the scope of such agreements and any particular undertakings in favor of the investor which the government would be permitted to make by means of such agreements. In general the Government is ill equipped to negotiate with large investors and their position in reaching fair and equitable agreements with mining companies would also be strengthened if a model mineral agreement formed part of the mining law.

- The mining legislation makes provision for numerous and, in some cases, redundant licenses. The licensing system is also very general and regulations have not been fully developed to create clarity as to how it is administered. The licensing system should be streamlined, made more transparent arrangements and underpinned by legislation. The functions of the Mineral Rights Office should be strengthened by establishing a GIS-based mineral titles system (“mining cadastre”) to remove the need for manual verification and processing. The role of the Minerals Licensing Committee in advising the Minister on the award of mineral rights should be reviewed. Accountability of this body for the advice it prepares would require that its composition, functions and reporting requirements are regulated by law.
• Weaknesses in the licensing system can also be addressed by strengthening both incentives for mineral right holders to perform work and sanctions for non-performance, to deter companies from hoarding license areas in the interests of speculation. Finally, the Ministry should have an option to seek applications for mineral rights by means of competitive tender when circumstances are suitable.

• To complement mineral sector policy goals on local content, community development and vulnerable groups, appropriate legislative provisions are needed. Because of its age, provisions in mining legislation need to be harmonized with those of the more modern environmental legislation to give full effect to the objectives of national environmental policy. Indeed, the provisions of many other laws relevant to mining are being tested for the first time by the Keyelekera project and this has demonstrated the need for wider legislative harmonization.

• With respect to artisanal and small scale mining operations changes to the mining legislation should focus on modifying the duration and size of mining claims to enhance the prospects of raising finance and specify generally applicable obligations with respect to environmental compliance at application stage, during conduct of operations and at closure. At the moment these are discretionary and are not harmonized with environmental laws. Another area of weakness to be addressed is the reported disarray in issuing permits at district level for sand and clay winning which has resulted in such activities going on unregulated.

2.53 The public institutions that govern the sector have been starved of resources for years and will face considerable difficulties in exercising their mandates as mineral sector activity gathers pace. Lack of resources is compounded by a lack of experience in regulating a sector that has languished for years. For example, the Department of Mines is chronically understaffed - a Ministry study found that only 50 percent of total posts were filled and just 34 percent of professional posts. Moreover, few of those in professional posts were suitably qualified. Significant institutional strengthening of the core agencies engaged in regulating the mineral sector is clearly needed but should be preceded by a sector-wide assessment of management arrangement that takes into account other key government institutions engaged in revenue management and environmental management, not only at national level but at sub-national level as well.

2.54 A summary of recommended actions and a suggested timeframe for implementation is set out in Table 2.3 and detailed below it:

Table 2.3: Summary of Recommendations

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
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<tbody>
<tr>
<td>A National Mineral Sector Policy</td>
<td>By September 2009</td>
</tr>
<tr>
<td>B New mining legislation</td>
<td>By December 2009</td>
</tr>
<tr>
<td>C Sector-wide assessment of management</td>
<td>By June 2010</td>
</tr>
<tr>
<td>arrangements and needs</td>
<td></td>
</tr>
<tr>
<td>D Institutional strengthening and</td>
<td>2010 – 2012</td>
</tr>
<tr>
<td>capacity building</td>
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(A) The September 2009 target for completion of the National Mineral Sector Policy was announced by the Ministry at the March 2009 Workshop. It is understood that the document would then be presented to the Cabinet by the Minister for endorsement.
A review of the Mines and Minerals Act 1981 has commenced, with the assistance of a minerals resources legal consultant engaged by the Ministry. Proposals for a new law and the draft of a Bill will be prepared over the course of the year, with an indicative target of December 2009 set by the Ministry. In conjunction with this exercise supporting regulations and a model minerals agreement are needed to complete the legal and regulatory framework.

Effective implementation of both the sector policy and new mining legislation is going to depend on strengthening the key regulatory institutions. To lay the foundations for a medium to long term program of institutional strengthening and capacity building, it is recommended that a sector-wide assessment take place of all management arrangements and needs in the minerals sector. This assessment should encompass all institutions and agencies, both at national and sub-national levels, which are expected to exercise responsibilities for assuring sound regulation and good governance in the minerals sector (also see complementary recommendation (I) in respect of environmental and social management below). This should include an assessment of the implementation of the National Decentralization Program in mining districts.

The sector-wide assessment will inform the design of a multi-year institutional and capacity building program for which the Government would likely seek support of the donor community. The following is a (non-exhaustive) list of components that would be typical of such a program:

- Further development of geo-data programs and capabilities, as outlined in Table 1.4;
- Establishment of a modern computer-based mineral licensing system (“mining cadastre”) supported by institutional setup, administrative process design, equipment, training and IT systems;
- Strengthening of monitoring, evaluation and enforcement functions within MEM, EAD and other relevant government agencies relating to mineral operations performance and planning (including rehabilitation and closure), mine health and safety, and environmental and social management supported by institutional setup, administrative process design, equipment, training and IT systems;
- Design and implementation of programs of education and skills development in mining-related disciplines to be undertaken by suitable institutions in Malawi and in the sub-region.
Chapter 3

3. MINERAL REVENUE GENERATION AND MANAGEMENT

3.1 Overview

3.1 The development of a productive and profitable mineral sector can be expected to provide a new source of government tax revenues that could be substantial relative to non-mineral revenue sources. This section of the report assesses the fiscal arrangements under which mineral revenues are generated and managed. In particular, it identifies issues that need to be addressed to ensure that Malawi obtains a fair share of mineral rents and manages the revenues wisely.

3.2 Malawi must strike the right balance between inducing investment and generating tax revenue. This calls for a fiscal regime for the mineral sector that takes account of the uncertainty, risks and rewards inherent in minerals operations and recognizes that Malawi, particularly in this early phase of mineral sector development, competes for investment with countries that may offer equal or better investment opportunities. The report examines the current fiscal regime for mining and compares it with other regimes both in the region and in other countries at a similar stage of mineral sector development.

3.3 Measures need to be taken to assure that the government is actually able to collect and account for the taxes that are due to it under the mining fiscal regime. The collection of taxes from the mineral sector can be a major challenge to the tax authorities, unless equipped with the capacity and know-how to address the complex issues that typically arise in mining transactions. The risks of underpayment can also be addressed by being able to account for revenues being paid and received. This has the added benefit of being able to demonstrate that the country and its people are obtaining benefits from mining development. Some measures that can be used to strengthen collection and provide transparency are suggested.

3.4 Without prudent management, significant mineral revenue flows have the potential to de-stabilize economic management and affect the performance of the mineral and non-mineral based sectors of the economy. At its worst, reliance on mineral revenues has worked against balanced and sustainable economic development and fueled political and social conflict. The government should regard revenue management as an essential element of its mineral sector development policies. References are made to policies and instruments that have been employed in a variety of mineral-rich countries to avert the “resource curse”.

3.2 The Current Fiscal Regime for Mining

3.5 The Government has made significant progress to define a coherent and standardized mining fiscal regime, but certain aspects of the regime still need to be clarified. A review conducted by the Government in 2005, with the support of the IMF, resulted in the simplification and standardization of income tax arrangements for mining under the Taxation Act by means of amendment in 2006. Further, at the time of writing, the Government had introduced comprehensive import duty and VAT exemption on capital items that would benefit several productive sectors, among them mining. The review and modification of mineral royalty arrangements still needs to take place, however, and there are some important aspects of the fiscal regime that still remain unclear.

3.6 The taxation of mining business profits have been greatly simplified and standardized compared to previous arrangements. The Taxation Act now specifies a rate of 30 percent on mining profits for companies incorporated in Malawi and 35 percent for those operating through a branch. The opportunity to obtain tax holidays or reduced tax rates has therefore been removed. This is balanced, on the other hand, by significant tax relief for the costs of developing a mine; there is an immediate write-off of all mining-related expenses, in place of the earlier arrangement under which capital expenditures were depreciated.
over a number of years. These arrangements benefit from their clarity and standardization, and should be more capable of effective administration.

3.7 In addition to income tax, the Taxation Act imposes a Resource Rent Tax (RRT) to capture a portion of the resource rents that arise in the exploitation of mineral resources. Since 2006, the Taxation Act imposes a tax of 10 percent on the after-tax profits of a mining business, when a company’s rate of return from a mining project exceeds 20 percent. The rationale for RRT, and taxes of its kind, is to provide the fiscal regime with the built-in flexibility to capture resource rent. This will result in enhanced revenues in times of price-related windfalls and/or from exceptionally high-quality projects. In times of economic hardship or in the case of marginally profitable projects, the tax would not be paid. Such flexibility tends to reduce the need for periodic re-negotiation of fiscal terms and can lend stability to the relationship between investor and government. As such, the Government was well-advised to adopt a measure of this kind.

3.8 It is important, however, that the basis for applying the RRT is clarified, with rules made available to guide both tax administrators and taxpayers. Detailed provisions are needed to define the tax base (presumably a mine project), any allowances made for expenditures outside the tax base and method of deriving a rate of return. The authorities will need to consider how well placed they are to administer RRT effectively and the skills and resources necessary to assure compliance.

3.9 The goal of fiscal flexibility which RRT is intended to achieve can, to some extent, be met by tax instruments other than RRT. These include adaptations of conventional flat-rate mineral royalty so that the rate at which it is paid varies as a function of profitability. Ghana, for example, has employed a sliding scale royalty linked to profit ratios for a number of years. Another possibility is the adaptation of conventional income tax so that the rate at which it is paid varies as a function of profitability. Botswana and Namibia, and more recently Zambia, have employed the type of variable rate profits tax used for decades in South Africa for its gold mines, in which the income tax rate varies between a base rate and a ceiling rate as a function of the ratio of taxable income to gross revenue. While each of these alternatives have in common a requirement that the tax authorities are able to verify both revenues and costs, in most respects the methodology for imposing these adaptations of royalty and income tax is more straightforward than that for RRT, in which distinct data and calculation requirements apply.

3.10 The Taxation Act also imposes withholding taxes on dividends, interest, payments to subcontractors etc. This is an area in which, owing to the discretions that still remain available to the Minister for Finance and the impact of Double Taxation Treaties with several countries, on inconsistent bases, different businesses are likely to attract different tax treatment. In this respect, the Act treats mining businesses and non-mining businesses alike.

3.11 At the time of writing, the Government was increasing the number of items of a capital nature on which import duty is zero-rated, thereby benefitting mineral operations. Consumables and spares remain, for the most part, dutiable, typically attracting rates of 10 to 15 percent. In certain cases, duty exemption is available upon application by individual enterprises or by qualifying under a tax incentive scheme, such as that provided for under the EPZ Act. Excise duty applies notably to fuels used to generate power and run vehicles and to the vehicles themselves.

3.12 Recent amendments to the Value Added Tax legislation relieve companies operating in a number of sectors, including mining, from input VAT. This will remove operations that produce for export (which are zero-rated) from their reliance on a VAT rebate system to claim back input VAT payments. Problems with the administration of the rebate system can result in an unrelieved input VAT burden being carried until the refund is available. This can impose a considerable fiscal burden pending the availability of rebates.

3.13 Royalty and other payments regulated by mining legislation have yet to be reformed. The Mines and Minerals Act requires payments of mineral royalty, annual license holding payments and a range of administrative fees. The latter two levies, which are insignificant in revenue terms, can be ignored for purposes of this discussion of the fiscal regime.
3.14 Mineral royalty remains an item which is left open to negotiation on a case-by-case basis, resulting in several different royalty rates co-existing. The obligation to pay mineral royalty is established by the Mines and Minerals Act but the rate at which it is paid is left to be defined either by regulation or, as has invariably been the case where large scale mining is concerned, by negotiation with the investor. This happened with Keyelekera, resulting in agreement with Paladin to pay royalty at a rate of 1.5 percent on gross sales value initially and 3 percent starting in the fourth year of production. By comparison, the relevant regulation specifies a rate of 5 percent gross sales value for radioactive minerals. In other cases, royalty has been paid at unit rates — MK per tonne of production — or, in one instance, as a periodic payment linked neither to the volume or value of production. This ad hoc system is increasingly at odds with international trends for royalties to be applied on a standardized basis and places an undue burden on those that administer royalty payments. The objective should be to present a standardized royalty scheme, with rates that are unlikely to deter mineral investment yet sufficient to generate a reasonable revenue flow to the country.

3.15 Although the fiscal regime for mining has been greatly standardized, the continuing existence of a number of tax incentive schemes on the statute book, including the Export Processing Zones Act, the Export Incentives Act and the Investment Promotion Act creates uncertainty. The Government rejected an initial application by Paladin to qualify the Keyelekera uranium mine for Export Processing Zone (EPZ) status under the Export Processing Zones Act. Paladin was therefore denied an opportunity to obtain the tax-free status that an EPZ certificate confers. It is understood, however, that this status has not always been denied to mining operations or to certain parts of mining operations (e.g., minerals processing). If the Government intends to have a single generally applicable fiscal regime for mining, then it follows that mining projects should not qualify for tax concessions through granting of EPZ status. An amendment to the Taxation Act has, in fact, effectively closed off the opportunity to obtain a tax holiday even if EPZ status were to be granted, even though it still remains open to the EPZ authority to issue EPZ status to mining operations. The Investment Promotion Act, by itself, does not grant tax incentives but does set out incentives under other legislation which a company registering an investment under the Act should be entitled to. However, with changes in relevant tax legislation in recent years, several of the IPAs provisions have become redundant.

3.16 Notwithstanding the aforementioned arrangements with respect to Income Tax and Resource Rent Tax, in the context of the then ongoing negotiations with Paladin, it was agreed that the Government would forgo Resource Rent Tax and a portion of Income Tax in exchange for an opportunity to acquire a 15 percent equity interest in the mining operation. The arrangement to implement this trade-off employed powers available under the Malawi Revenue Authority Act for the Minister of Finance, on the advice of the Board of the Malawi Revenue Authority, to forgo tax revenue in exchange for equity of equivalent or superior economic value. It is important for the Government to clarify its intentions on the possible future use of this arrangement. In particular, there will need to be sufficient assurance that the trade-off of tax for equity would be in fact be fiscally neutral and would not entail the Government assuming risks that it would not otherwise have assumed (this point was also made in Chapter 2 in the discussion of State participation).

3.17 Based on the foregoing analysis, the fiscal regime that would apply to a mining operation under current legislation is summarized in Table 3.1. This summary forms the basis for the comparison with other countries presented in the next section of the report.
Table 3.1: Summary of the Mining Fiscal Regime in Malawi

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Fixed/Negotiable</th>
<th>Rate</th>
<th>Other Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Royalty</td>
<td>Royalty regulations can be overridden by negotiation</td>
<td>Rates specified in the regulations are:</td>
<td>Valuation basis in regulations is gross sales value less transport costs to point of sale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 5% generally or 10% for exports of rough uncut precious and semi-precious stones; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 7% for exports of unprocessed industrial minerals</td>
<td></td>
</tr>
<tr>
<td>Income Tax</td>
<td>Fixed</td>
<td>30%</td>
<td>100% write-off of all eligible mining expenditures; loss carry forward permitted</td>
</tr>
<tr>
<td>Resource Rent Tax</td>
<td>Fixed</td>
<td>10% when return exceeds 20%</td>
<td>Base and method of determination is unspecified</td>
</tr>
<tr>
<td>Dividend Withholding</td>
<td>Fixed</td>
<td>Rate varies</td>
<td></td>
</tr>
<tr>
<td>Import Duty</td>
<td>Fixed</td>
<td>Varies by item in the Tariff Book</td>
<td></td>
</tr>
<tr>
<td>VAT</td>
<td>Fixed</td>
<td>16.5%</td>
<td>Exemption for range of capital items</td>
</tr>
<tr>
<td>State Equity</td>
<td>Negotiable</td>
<td>No legislated level</td>
<td></td>
</tr>
</tbody>
</table>

3.3 Competitiveness of the Fiscal Regime for Mining

3.18 The mining fiscal regime that applies to future mining operations will need to be designed to assure Malawi’s global competitiveness. As a general principle, a mining fiscal regime cannot move too far out of line with that of countries with similar mineral deposits (with due regard to local conditions). Some of the key factors that determine competitiveness are:

- The **overall tax burden** under a variety of economic circumstances, compared with other countries – taxation can be progressive, giving the government a greater share of more profitable projects, or regressive, assuring the government a high fiscal take even when projects are less profitable, though this will tend to deter investment in marginal mines. A progressive fiscal regime will tend to rely on the taxation of profits rather than production (or turnover), with measures to increase the tax rate as a function of profits actually achieved. A regressive fiscal regime will tend to rely on the taxation of production (or turnover) and have no mechanisms for adjusting the level of taxes as profitability changes.

- The **impact of tax at certain points in the project life cycle** - taxation can be front-end loaded, in favor of the government or offer tax relief early on, in favor of the investor. A front-end loaded regime will tend to rely on input taxes on pre-production operations and once income is generated allow only a slow rate of cost recovery through depreciation, enabling the government to receive taxes early on in the life of a mine. A back-end loaded regime will tend to offer exemption from input taxes and once income is generated allow a rapid rate of cost recovery through accelerated depreciation and related tax allowances, thereby delaying government receipt of taxes.
• The **clarity and perceived stability of the fiscal regime** over the duration of a mining project will affect the risk-adjusted returns that an investor might seek. One implication of this is that a low burden tax regime coupled with lack of clarity and instability may be no more favorable to an investor than a highly clear and stable regime that imposes a higher tax burden.

3.19 While broad global comparisons are useful in determining competitiveness, special attention should be placed on countries which offer similar opportunities and risks, having regard to minerals prospectivity and the maturity of the mineral sector. Suitable benchmark countries, for example, might include those that have largely unexploited mineral potential but have demonstrated an ability to attract new investment in the recent past. Account would also have to be taken of the relatively significant costs associated with transporting products to markets because of Malawi’s location and limited infrastructure in places where many of the mineral deposits are located.

3.20 For purposes of this study, selected comparative information is presented in Annex V on the fiscal terms of a number of comparator countries accompanied by some observations on global trends. The information presented in the annex covers taxes on production that generate revenue to the government irrespective of the profitability of the mine; taxes on profits; input taxes on pre-production operations, which inflate the cost base of mining projects, thereby affecting investment returns; and equity participation by the government. Any follow up work on designing the fiscal regime for mining in Malawi should include more in depth examination of the impacts of fiscal measures on the cash flows of the investor and the government, focusing, in particular, on rates of return, effective tax rates and levels of government take. Such analysis is beyond the scope of the present review.

3.21 The royalty scheme set out in current Malawian minerals legislation is broadly consistent with those in the region and among peer countries, except that its provisions may be over-ridden by negotiation. This is a feature that is found in few other countries and should be removed. The objective should be to present a standardized royalty scheme, with rates that are unlikely to deter mineral investment yet sufficient to generate a reasonable revenue flow to the country.

3.22 The arrangements that Malawi now has in place for taxing mining profits are consistent with best international practice in terms of the tax rate, which is well inside the typical range, and provisions for accelerated depreciation of mine capital. In Malawi’s case, the decision to opt for full expensing of capital expenditures puts Malawi among the more generous countries but this is consistent with the country’s wish to encourage investment in a sector that is still in its infancy. This puts Malawi in the same category as Tanzania, which elected to adopt a similar approach in the late-1990s.

3.23 The introduction of Resource Rent Tax was intended to enable the country to capture some of the additional profit that might be generated by an exceptionally rich mineral deposit and/or by operations fortunate to benefit from periods of higher than normal mineral commodity prices. Such windfall taxation was a sensible complement to the imposition of a modest flat-rate royalty and an income tax with quite generous allowances; RRT is one of several tax instruments that can be used to build flexibility into a mineral fiscal regime and there may be merit in evaluating RRT against other alternatives, since it has yet to be implemented. Indeed, the Government has cast some doubt upon its place within mining fiscal policy, by electing to forego RRT in favor of state equity participation.

3.24 The relationship between royalty, income tax and resource rent tax as sources of government fiscal revenue is as follows. For a project that generates little or no profit, royalty is the main source of revenue and represents a significant fiscal burden because it is, in effect, an additional cost of operations. When profits are made and capital has been recovered income tax becomes the principal source of revenue, since 30 percent of net profits (with royalty allowed as a deduction) are taxed. The 10 percent RRT provides an additional revenue source, levied on after-tax profits, but only for a mine project that has exceeded the specified 20 percent rate of return on capital.
3.25 The components of the fiscal regime and tax rates are broadly consistent with those of other countries at a similar stage of mineral sector development in the region, however, unlike Ghana, Mozambique and Tanzania, the option of additional profits taxation or carried equity provides Malawi with more fiscal flexibility in the face of volatile mineral prices. Comparative data is shown for a selection of countries in Table 3.2 – a more detailed table with comparative data for 14 countries can be found in Annex V.

**Table 3.2 Mining Fiscal Regimes in Selected Countries**

<table>
<thead>
<tr>
<th>Country</th>
<th>Fiscal Regime Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malawi</td>
<td>Negotiable royalty; 30% tax rate with 100% depreciation; 10% additional profits tax or negotiable carried equity</td>
</tr>
<tr>
<td>Ghana</td>
<td>3 - 6% royalty; 35% tax rate with 25% depreciation; no additional profits tax or carried equity</td>
</tr>
<tr>
<td>Mozambique</td>
<td>Negotiable royalty; 32% tax rate with 25% depreciation; no additional profits tax or carried equity</td>
</tr>
<tr>
<td>Tanzania</td>
<td>3% royalty; 30% tax rate with 100% depreciation; no additional profits tax or carried equity</td>
</tr>
<tr>
<td>Zambia</td>
<td>3% royalty; 30% basic tax rate rising to 42% with 100% depreciation; no carried equity</td>
</tr>
</tbody>
</table>

3.26 The Government’s efforts to reduce the burden of input taxes on a number of key sectors important to economic diversification is necessary and will be a welcome development in the mining industry.

3.27 The Government’s policy stance on state equity is one on which greater clarity is required to understand the circumstances under which this will be treated as a preferred option over other ways of securing financial benefits of mining. Since, under present arrangements, the financial details of any equity participation may be the subject of case-by-case negotiations with investors, it is difficult to evaluate the risks and rewards associated with such participation and to weigh this against the taxes that might be foregone. For example, would the government assume obligations to fund all or any share of expenses associated with mineral ventures. It is understood that the exercise of an equity option is intended to place the state in no worse a position financially than it would otherwise have been in. While this is a sensible approach, it is difficult to verify that this will indeed always be the case, without an understanding the terms negotiated. The condition of revenue neutrality is, moreover, hard to guarantee where revenues from minority shareholding are a function of the uncertain dividend distribution policy of the controlling shareholder. Recent mineral market volatility underlines the high level of risk inherent in deploying public funds to participate in the mineral sector.

### 3.4 Revenue Collection and Transparency

3.28 With the amount of revenue that could potentially be generated from the mineral sector through the fiscal regime, it is necessary that the Government employs robust tax collection measures and adequately equips the revenue agencies to implement them. Without appropriate safeguards there is a risk of substantial tax leakage, thereby reducing the value of mineral resources to the country, undermining the integrity of the fiscal regime, and breeding public mistrust and opposition to mining.

3.29 The challenges of verifying the volumes and values of mineral products and classifying and auditing costs that are deductible for royalty and tax purposes are significant for a tax administration with no experience of large-scale operations by international mining companies. Where more than one point of tax assessment and collection exists, the specialized know-how and capacity has to be built in several institutions and procedures established to assure harmonization of revenue collection functions.
3.30 In Malawi, taxation is controlled centrally, with only limited power to levy taxes at sub-national level. It is understood that some measure of fiscal devolution is under consideration as part of the decentralization goals set out in the MGDS, but examination of these plans are beyond the scope of this study. Local taxes, certainly for the moment, do not feature prominently among the taxes that a mining business will face.

3.31 Very nearly all tax revenue generated by the mineral sector will therefore flow to the central revenue collecting authorities. These are the Malawi Revenue Authority (MRA) with respect to taxes levied under the Taxation Act and the Customs and Excise Act and the Commissioner of Mines (on behalf of the Republic of Malawi) with respect to mineral royalty and license fees. These in turn are deposited at the Treasury to form part of the consolidated public accounts.

3.32 MRA has set up a large tax payers unit, which would handle most mining taxpayers. This unit has limited experience in assessing mining company tax returns, more especially those of international mining companies, and in conducting the requisite audits. The main challenges this unit will face are to verify the volumes and values of mineral product sales and to classify and verify expenditures that are deductible for tax purposes. Moreover, there is little or no know-how on how to apply generally accepted international tax principles on matters such as allocation of overhead expenses, thin capitalization and transfer pricing in the particular context of mining.

3.33 Tax legislation needs to include clear and consistent definitions that will be employed in assessing taxes due, particularly where classes of expenditure are concerned. The definitions presently applied to “mining” in the Mines and Minerals Act and Taxation Act are not consistent. The royalty provisions defined by regulation under the Mines and Minerals Act are inadequate to provide sufficient safeguards against transfer pricing and misrepresentation of selling costs. The provisions that deal with allowances and capital depreciation in the Taxation Act are sufficiently vague to permit a wide range of interpretations as to how expenditures should be stated and classified. In the case of Resource Rent Tax, the necessary provisions are entirely absent.

3.34 The problem of unclear and inconsistent definitions in Malawi’s tax legislation is compounded by the discretions conferred on the authorities to negotiate not only rates of royalty but, conceivably, the methods by which royalties are assessed. In the context of the Keyelekera negotiations, detailed royalty assessment provisions were elaborated in the minerals agreement. While such pragmatism might have been called for in the circumstances, there is no reason why this approach should have to be used for future mining operations, so long as the legislation is well defined. To the extent that the legislation confers discretion on the tax authorities in the way that taxes are assessed, there may be a need to develop practice notes, that can be issued by the Tax Commissioner to guide the work of tax administrators and to assist taxpayers prepare returns on a consistent basis.
3.35 Clearly defined taxation powers and rules and capacity to administer these are alone not sufficient to assure robust revenue collection - experience in many mineral-rich countries has demonstrated that revenue collection arrangements need to be underpinned by revenue transparency and accountability in order to be effective. This calls for regular reporting of revenue receipts coupled with scrutiny by public bodies that can hold the revenue collection authorities to account.

3.36 The Extractive Industries Transparency Initiative (EITI) is gaining in international recognition and proving itself to be a valuable mechanism through which revenue collection arrangements can be subjected to scrutiny and assurances given to the public that revenues are being properly accounted for. Countries and companies who participate in the initiative are required to regularly submit records of mineral sector payments made and received for independent verification and reconciliation. In May 2009, both Zambia and Mozambique formally joined EITI.

3.5 Revenue Management

3.37 Both the magnitude and volatility of mineral-based revenues flows must be factored into Government policies for managing public finances in order to avoid dislocation of the economy through the “resource curse”. The Government would need to undertake scenario analyses and stress tests on alternative mineral-related revenue projections and associated fiscally sustainable spending plans within its medium-term expenditure framework. There is a vast literature addressing this issue and a growing body of practical experience in employing policies and measures to combat the resource curse (see Annex IV).

3.38 The Government will have to guard, in particular, against the pressures that will be placed on the Kwacha as US dollar balances generated in the mining sector are converted in the local currency, thereby bidding up its rate. If this were unchecked, there would be a risk that other productive sectors in the economy, such as tobacco, would be put at a competitive disadvantage in export markets. The World Bank’s Country Economic Memorandum, June 2009, contends that real exchange rate appreciation represents the greatest threat to sustainable economic growth.

Box 3.1: Extractive Industries Transparency Initiative (EITI)

The EITI sets a global standard for companies to publish what they pay and for governments to disclose what they receive. The EITI is a coalition of governments, companies, civil society groups, investors and international organizations. The EITI has a robust yet flexible methodology that ensures a global standard is maintained throughout the different implementing countries. The EITI Board and the international Secretariat are the guardians of that methodology. Implementation itself, however, is the responsibility of individual countries.

Benefits for implementing countries include an improved investment climate by providing a clear signal to investors and the international financial institutions that the government is committed to greater transparency. EITI also assists in strengthening accountability and good governance, as well as promoting greater economic and political stability. This, in turn, can contribute to the prevention of conflict based around the oil, mining and gas sectors.

Benefits to companies and investors centre on mitigating political and reputational risks. Political instability caused by opaque governance is a clear threat to investments. In extractive industries, where investments are capital intensive and dependent on long-term stability to generate returns, reducing such instability is beneficial. Transparency of payments made to a government can also help to demonstrate the contribution that their investment makes to a country.

Benefits to civil society come from increasing the amount of information in the public domain about those revenues that governments manage on behalf of citizens, thereby making governments more accountable.

Source: EITI Secretariat www.eititransparency.org
3.39 In the event that mineral sector revenues were to be of such a scale that they exceeded the sustainable rate at which such revenues could be absorbed in the economy, there would be a need to investigate arrangements for building up reserves in a managed fund, though this is unlikely, at least in the short to medium term. This could serve the purposes of managing current savings and safeguarding a portion of mineral derived wealth for future generations. There are many examples of sovereign wealth funds that have been instituted by countries that have consistently generated large revenue surpluses from exploitation of natural resources. In Zambia, revenue windfalls had been expected from the mineral sector following recent tax changes in 2008. The additional mining revenue arising from those changes are saved in a separate Mining Resource Account at the Bank of Zambia. Starting in 2009, it was the intention that net inflows to the Mining Resource Account would be based on the medium-term expenditure framework, though the mineral price slump has seen tax payments fall this year. All revenues, including those channeled through this account, and expenditures will be fully integrated into the annual budget and fiscal accounts.

3.40 The March 2009 Workshop revealed that the option of mineral revenue allocations is one in which there is a great interest among stakeholders but no clearly defined policy response has been formulated. There is no system in Malawi for allocating mineral-based revenues other than through appropriations from the consolidated public accounts. The allocation of public monies through the central budget caters for the needs of competing claimants at the national and sub-national level. Sub-national authorities rely upon appropriations from the central budget and this will apply whether or not the authority is one that is impacted by the presence of mining within its jurisdiction.

3.41 The premise for allocating mineral revenues back to mineral-producing areas is to help support decentralized governance structures, given the increased demands for service delivery that typically arise due to rising expectations and in-migration as a mining activity develops, to ensure that there is a tangible benefit stream for those most impacted by mining and to complement private sector initiatives to support community development in and around mining areas. However, these factors need to be weighed carefully against national equity considerations, risks associated with pre-allocation of revenues, especially if those revenues are volatile and the absorptive capacity of recipient institutions and communities. This is an area where it is recommended that policy options are examined in further depth, drawing on experience from other countries and factoring in the particular fiscal policy environment and social conditions present in Malawi. Some international experience with revenue sharing is summarized in Box 3.2.

3.42 If the Government were to modify existing arrangement and move to a system of revenue sharing there would be a need to monitor the use of funds that are channeled back to mining areas in order to ensure that districts and local assemblies delivered increased quality and quantity of social programs and service delivery. This would involve establishing a collaborative and effective working relationship between Ministry of Finance staff and local government officials.
Box 3.2: Revenue Sharing in Mineral-Rich Countries

Revenue sharing refers to arrangements under which mineral revenues collected by the central government are allocated by prior agreement to mining areas. The experiences of different countries with such arrangements tend to be shaped by the capacity of sub-national authorities and communities themselves to plan and use wisely the revenues allocated to them, the timing and uncertainty of the flow of funds and distributional issues that arise among potential recipients.

Examples from Indonesia, Peru and Ghana can help to illustrate country experiences with revenue sharing.

**Indonesia**: Under legislation of 1999 80 percent of mineral royalties are transferred to the sub-national level – 64 percent to the regencies and 16 percent to the provincial government. This system has been introduced in the context of a significant program of administrative decentralization. Eight of Indonesia’s 26 provinces benefit from these allocations, which has given some concerns about the long-term differential economic trends this may create between mineral-rich and mineral-poor provinces.

**Peru**: The country has employed mineral revenue sharing for many years, known as the “Canon Minero”. Under it 50 per cent of corporation tax receipts from mining companies are allocated to sub-national authorities at regional, provincial and district level. Separately, the royalty tax, introduced in 2005, is payable to sub-national entities on the following basis: 20 percent to district municipalities (of which half is then allocated to communities); 20 percent to provincial municipalities; 15 percent to regional governments; and 5 percent to national universities in the region. These arrangements have meant that for some municipalities mineral revenues are the largest single revenue source. With this comes the inherent risks of revenue volatility. This has given rise to concerns that the apparatus of government at regional and district level cannot adequately plan, budget and spend the money flowing in.

**Ghana**: In this case 20 percent of mineral royalties are paid into the Minerals Development Fund at the national level and it is from the fund that allocations are made both at national and sub-national levels. The mandate of the fund is “to compensate for any detrimental effects mining might have in their areas of operation and to support development of the local communities”. In fact, transfers from the fund are made half to national regulatory agencies to top up their annual budget appropriations and the other half to the traditional authorities - “stools” and councils - to be allocated to district and municipal assemblies and local communities. Concerns have arisen around the limited transparency and accountability of this system of allocations and the high degree of revenue volatility that is experienced which records show even exceeds that of the mineral royalty payments first received.

*Source: Information on the three country cases is summarized from Minerals Taxation Regimes: A review of issues and challenges in their design and application, ICMM, February 2009*
3.6 Key Issues and Recommendations

3.43 The development of a productive and profitable mineral sector can be expected to provide a new source of government tax revenues that could be substantial relative to non-mineral revenue sources. It will be important to ensure that Malawi obtains a fair share of mineral rents but in doing so it must strike the right balance between inducing investment and generating tax revenue. This calls for a fiscal regime for the mineral sector that takes account of the uncertainty, risks and rewards inherent in minerals operations and recognizes that Malawi, particularly in this early phase of mineral sector development, competes for investment with countries that may offer equal or better investment opportunities within the region.

3.44 The Government has made significant progress to define a coherent, standardized and globally competitive mining fiscal regime. The components of the fiscal regime and tax rates are broadly consistent with those of other countries at a similar stage of mineral sector development in the region, however, unlike Ghana, Mozambique and Tanzania, the option of additional profits taxation or carried equity provides Malawi with more fiscal flexibility in the face of volatile mineral prices. However, certain aspects of the regime still need to be clarified. In particular:

- Mineral royalty remains an item which is left open to negotiation on a case by case basis, resulting in several different royalty rates co-existing. This system is increasingly at odds with international trends for royalties to be applied on a standardized basis and places an undue burden on those that administer royalty payments. The objective should be to have a standardized royalty scheme, with rates that are unlikely to deter mineral investment yet sufficient to generate a reasonable revenue flow to the country.

- The introduction of Resource Rent Tax (RRT) was intended to enable the country to capture some of the additional profit that might be generated by an exceptionally rich mineral deposit and/or by operations fortunate to benefit from periods of higher than normal mineral commodity prices. Such windfall taxation was a sensible complement to the imposition of a modest flat-rate royalty and an income tax with quite generous allowances. It is important that the basis for applying the Resource Rent Tax is clarified, with rules made available to guide both tax administrators and taxpayers.

- The Government has cast some doubt on RRT’s place within mining fiscal policy, however, by electing to suspend the tax in favor of state equity participation. The Government needs to make it clear under what circumstances suspension will be the preferred option. In particular, there should be an assurance that any trade-off of tax for equity would be fiscally neutral and would not entail the Government assuming risks that it would not otherwise have assumed. Recent mineral market volatility underlines the high level of risk inherent in deploying public funds to participate in the mineral sector.

3.45 With the amount of revenue that could potentially be generated from the mineral sector through the fiscal regime, it is necessary that the Government employs robust tax collection measures and adequately equips the revenue agencies to implement them. Without appropriate safeguards there is a risk of substantial tax leakage, thereby reducing the value of mineral resources to the country, undermining the integrity of the fiscal regime and breeding public mistrust and opposition to mining.

3.46 Mining taxation is the responsibility of the Malawi Revenue Authority (MRA) with respect to taxes levied under the Taxation Act and the Customs and Excise Act and the Commissioner of Mines (on behalf of the Republic of Malawi) with respect to mineral royalty and license fees. MRA, in particular, has limited experience in assessing mining company tax returns, more especially those of international mining companies, and in conducting the requisite audits. The main challenges this unit will face are to verify the volumes and values of mineral product sales and to classify and verify expenditures that are deductible for tax purposes. Moreover, there is little or no know-how on how to apply generally accepted international
tax principles on matters such as allocation of overhead expenses, thin capitalization and transfer pricing in the particular context of mining.

3.47 Tax legislation needs to include clear and consistent definitions that will be employed in assessing taxes due, particularly where classes of expenditure are concerned. The problem of unclear and inconsistent definitions in Malawi’s tax legislation is compounded by the discretions conferred on the authorities to negotiate not only rates of royalty but, conceivably, the methods by which royalties are assessed.

3.48 Clearly defined taxation powers and rules and capacity to administer these are alone not sufficient to assure robust revenue collection - experience in many mineral-rich countries has demonstrated that these arrangements need to be underpinned by revenue transparency and accountability in order to be effective. The Extractive Industries Transparency Initiative (EITI) is gaining in international recognition and proving itself to be a valuable mechanism through which revenue collection arrangements can be subjected to scrutiny and assurances given to the public that revenues are being properly accounted for. In May 2009, both Zambia and Mozambique formally joined EITI.

3.49 Both the magnitude and volatility of mineral-based revenues flows must be factored into Government policies for managing public finances in order to avoid dislocation of the economy through the “resource curse”. An influx of dollar-based mineral exports could generate upward pressure on the exchange rate. The World Bank’s Country Economic Memorandum, June 2009, contends that real exchange rate appreciation represents the greatest threat to sustainable economic growth. In the event that mineral sector revenues were to be of such a scale that they exceeded the sustainable rate at which such revenues could be absorbed in the economy, there would be a need to investigate arrangements for building up reserves in a managed fund, though this is unlikely, at least in the short to medium term. Revenue volatility also needs to be recognized and prudence shown in the budgeting and planning, particularly to avoid a high level of dependence on uncertain revenue flows in planning for public capital programs.

3.50 The March 2009 Workshop revealed that the option of mineral revenue allocations is one in which there is a great interest among stakeholders but no clearly defined policy response has been formulated. The premise for allocating mineral revenues back to mineral-producing areas is to help support decentralized governance structures, given the increased demands for service delivery that typically arise due to rising expectations and in-migration as a mining activity develops, to ensure that there is a tangible benefit stream for those most impacted by mining and to complement private sector initiatives to support community development in and around mining areas. However, these factors need to be weighed carefully against national equity considerations, risks associated with pre-allocation of revenues, especially if those revenues are volatile and the absorptive capacity of recipient institutions and communities is limited. This is an area where it is recommended that policy options are examined in further depth, drawing on experience from other countries and factoring in the particular fiscal policy environment and social conditions present in Malawi.
3.51 A summary of recommended actions and a suggested timeframe for implementation is set out in Table 3.3 and detailed below it:

Table 3.3: Summary of Recommendations

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>E Complete fiscal regime standardization</td>
<td>By FY10/11 Budget</td>
</tr>
<tr>
<td>F Examine policy options for minerals revenue management and allocation</td>
<td>By FY10/11 Budget</td>
</tr>
<tr>
<td>G Strengthen revenue administration</td>
<td>2010 - 2012</td>
</tr>
<tr>
<td>H Strengthen revenue transparency and accountability</td>
<td>2010 - 2012</td>
</tr>
</tbody>
</table>

(E) The Government has moved a long way towards standardizing the mining fiscal regime. Actions that could be taken in the short-term to complete this process would be to define standardized mineral royalties, which can be undertaken as part of the review of the mining legislation. Also, if the Resource Rent Tax is to be employed and enforced in the future, it will be necessary to develop regulations to assist in its implementation, ideally in time for the next Budget Bill for FY10/11, when tax law amendments can be made and regulations issued. On the other hand, the Government may prefer to examine further the range of fiscal instruments, other than Resource Rent Tax, available to vary the share of resource rent it obtains from mineral projects. For this, expert advice on fiscal regime design would be needed.

(F) Since the mineral sector tax base is expanding, notably with the addition of Paladin’s uranium operation, it is crucial that the Government take action to strengthen revenue administration. Key elements in achieving this will be to a) consolidate tax regulations and compliance guidance; b) develop robust tax assessment capability backed up by an effective audit function; c) introduce processes for data sharing and collaboration by revenue agencies; d) equip the revenue agencies with tax models for mines; and e) carry out training and staff development of specialized personnel in the revenue agencies.

(G) Tax administration reform will need to be underpinned by robust transparency arrangements and procedures that will enhance public accountability. It is recommended that the Government examine the benefits that EITI could bring to this process. This typically begins with a scoping study in which stakeholders from government, the industry and civil society are engaged to evaluate their support for EITI participation. Implementation is achieved by publication of revenue reconciliation reports and validation of the EITI process in the country within two years of joining EITI.

(H) It is recommended that the Government examine policy options both for minerals revenue management and allocation. This could involve studies and workshops to draw on international expertise.
Chapter 4

4. ENVIRONMENTAL AND SOCIAL MANAGEMENT OF THE MINERAL SECTOR

4.1 Overview

4.1 The existing framework for managing environmental and social issues in the mineral sector in Malawi conforms in most respects to international good practice. Environmental impact assessment (EIA) is the cornerstone for environmental and social management of industrial and mining activities in Malawi. The EIA system was established in 1996 by the Environment Management Act. The “Guidelines for Environmental Impact Assessment in Malawi (1997)” and the “Environmental Impact Assessment Guidelines for Mining Projects (2002)” have completed the Malawian EIA regulatory framework. Social issues are included in the EIA. Consequently, the Environmental Affairs Department (EAD) has also competence for regulating the management of social impacts in development projects. In practice, however, civil society organizations have expressed dissatisfaction with the quality and depth of the assessment and management of social impacts within the EIA process. xxiv

4.2 Developers of exploration and mining projects have to submit an initial environmental assessment known as a project brief that may lead to the requirement of an EIA study. xxv An approved EIA study comprises an environmental management plan which is incorporated into the exploration or mining license (see below). It is expected that social considerations to benefit local communities would be incorporated in the EIA study following good corporate social responsibility practices. Because of limited experience with EIAs for the mineral sector in Malawi, these expectations are mainly based on the experience of the Kayelekera uranium project (see Box 4.1) which is sponsored by a foreign publicly listed mining company. The domestic industry has neither the legal obligation nor corporate practice to employ global standards of good practice.

4.3 Although the Mines and Minerals Act predates the environmental legislation, its provisions on environmental protection do not appear to have generated difficulties in implementing the EIA framework. The Act states that in granting mineral rights the Minister should consider the need to conserve natural resources in or on the land over which mineral rights are sought. This gives the Minister the power to integrate environmental conditions in mineral rights, including the requirement to lodge a security for the performance of rehabilitation of explored or mined areas. It is in the application of this mandate that licensees for minerals prospecting and exploration prepare a mitigation and rehabilitation plan for their activities which is included in their license. Importantly, these requirements respect and do not appear to have given rise to conflicts with the obligations that arise under an EIA approval. Mining activity, from mine construction to mine closure are covered by the EIA process. Notwithstanding this, there would be merit in better harmonizing the provisions of future mining legislation with environmental legislation to remove any potential conflict or contradiction between them. xxvi
While issues of access to and compensation in respect of water and land resources are integrated into the EIA framework, standards applied to resettlement are less protective to vulnerable stakeholders than the World Bank’s safeguard policy on involuntary resettlement. Access to land and water are regulated by several Acts xxvii and compensation to landowners and water holder rights are required to be included in the EIA. This provides the EIA process with the necessary cohesiveness and comprehensiveness that is needed in the management of key environmental, social and natural resource issues. However, the regulatory framework for resettlement in Malawi, specifically with respect to involuntary resettlement, requires only compensation for land, livelihoods and infrastructure. There is no obligation to compensate resettled people for the land lost with land of similar quality and productivity as well as for welfare losses. Moreover, those holding land informally or illegally are not entitled to any type of compensation. This is less protective to vulnerable stakeholders than the World Bank’s safeguard policy on involuntary resettlement which includes these requirements and cover land users lacking formal land rights. In Malawi, mining activities are conferred the status of activities of national interest. Therefore, ultimately miners have the right to expropriate landowners or establish easements.

4.5 The complexity of land tenure systems in Malawi demands careful consideration of the potential environmental and social risks associated with obtaining access to land for mining purposes, particularly under a significant expansion of mineral sector activities. Customary land tenure systems under control of traditional authorities (chiefs) coexist with private land. Customary land can also be converted into private land (see Box 4.2). This situation could lead to abuse of weak stakeholders as has happened in other African countries like Sierra Leone. Not only have traditional authorities a final say on land and compensation issues for their communities but they are also the de facto intermediaries in any potential

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**Box 4.1: The Kayelekera Uranium Project**

The Kayelekera mining project of Paladin Africa Limited would mine uranium oxide in Karonga (northern Malawi). The current mine plan is based on extracting 35 million tonnes of ore over seven years to obtain 23,320 tonnes of oxide. The mine is located within the catchment area of a river that flows directly into Lake Malawi, the third largest freshwater lake in Africa.

After initial resistance to the project due to lack of inclusion of civil society and untimely release of information on the project and its potential environmental impacts, this large scale project is leading to new practices on environmental and social management in Malawi. Rather than originating in the existing environmental regulatory framework, the good environmental and social practices stem from both the commitment of its managers to good environmental and social performance and the relentless demand for sound environmental and social management of several CSOs and NGOs grouped in the Civil Society Mining Forum. The Forum launched a legal action against the government that approved the project’s EIA study to seek a court ruling on the compliance with legal, social, economic and environmental requirements of the Kayelekera project.

The Government, Paladin (Africa) Ltd and several NGOs agreed an out-of-court settlement which includes, among other things, the commitment of US$ 10 million from Paladin as part of its social responsibility plan to upgrade water supply facilities in Karonga (US$ 8.2 million approx.) and to establish a community development trust fund (US$ 1.8 million approx.). Since then the company has adopted a proactive policy to involve the community in development and environmental management initiatives to enhance development opportunities and quality of life, particularly for the most vulnerable, like women. As stated by the head of the project: "its aim is to create a model village in the context of Malawi.”

relationship between mining companies and communities to obtain access to jobs and opportunities for income generating activities, such as the provision of goods and services to mining companies.

<table>
<thead>
<tr>
<th>Box 4.2: Conversion of Customary Land into Private Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customary land can be converted for any purpose into private land following the steps below:</td>
</tr>
<tr>
<td>- Identification of a land plot.</td>
</tr>
<tr>
<td>- The traditional authority (chief) is consulted. The land petition includes all that is on the land. Negotiations start between the petitioner and the traditional authority.</td>
</tr>
<tr>
<td>- Acceptance by the Chief of the petition. The Chief may consult other members of the village through the leadership of their village headman during the negotiation of the agreement.</td>
</tr>
<tr>
<td>- The piece of land is surveyed and demarcated.</td>
</tr>
<tr>
<td>- The conditions agreed are registered in a special form that is signed by the Chief and the petitioner.</td>
</tr>
<tr>
<td>- The petition is reviewed by the District Development Committee</td>
</tr>
<tr>
<td>- The District Development Committee submits the petition to the Minister of Lands who issues the land title or leasehold</td>
</tr>
</tbody>
</table>

4.6 Conflicts between miners and others on the use of water have to date not arisen, however, the Department of Water is constrained in its ability to monitor water quality due to lack of human resources and adequate laboratories. Water can be used or abstracted for mining activities, provided that after utilization water is devolved to its natural stream with the same quality. Malawi has adopted SADC standards for drinking and other use of waters, as well as for effluent standards. Applications to divert or abstract water are considered by the Water Resources Board which can issue a license that will include the discharge and quality conditions that the license holder should abide by. If mining activities expand significantly, water trans-boundary impacts may become an issue. Lake Malawi, which is also shared by Tanzania and Mozambique, would be the ultimate receivers of any pollutants discharged by the mining industry into Malawi’s watercourses.

4.2 Institutional and Governance factors affecting the Effectiveness of Environmental and Social Management

4.7 Although Malawi’s environmental legal and regulatory framework follows good international practice, in practice, environmental and social management is constrained by an acute lack of capacity. Unless this situation is addressed, a significant expansion of the mineral sector, would result in wider risk of environmental degradation and an increase in social conflicts and social marginalization. While many multinational mining companies have environmental and social sustainable practices that would conform to good international practice, this is not true of all foreign owned mining companies, and domestic mining companies would not necessarily have had the experience necessary to conform to such standards of practice.

4.8 The effectiveness of the EIA system is hampered by limited specialized human resources that have almost no experience in dealing with medium and large scale mining operations. In the EAD, for example, two specialists have supervision responsibilities for all 28 districts in Malawi across all sectors. The nine district officers who are in post lack resources to effectively monitor environmental performance of industrial and mining activities. EAD considers that it has largely been able to fulfill its supervision and monitoring responsibilities, however, its limited capacity would likely be overwhelmed if mining activities expanded significantly in the future. Moreover, follow-up and monitoring activities compete for the staff time with other activities like evaluating EIA reports. Currently, EAD is undergoing a functional review to
address mainly the human resource constraints that may impair its effectiveness. It is necessary to include in the review a sound understanding of the potential challenges posed by the expansion of the minerals sector. District administrations also suffer from acute constraints of qualified personnel and technical and financial resources.

4.9 Funding available to the EAD to review EIA studies and monitor environmental management plans is very limited. EAD relies largely on revenues from EIA fees. Project developers pay EIA fees equivalent to 0.03 percent of the total project cost, with an upper limit of MK3 million and a minimum fee of MK50 thousand. These resources are reportedly insufficient to cover the needs of an effective EIA system which, as said before, lacks adequate laboratories, equipment, vehicles and resources in general. At the end of May 2008, the fund had less than MK0.5 million available or an equivalent to US$3,500 approximately.

4.10 In practice, environmental monitoring of mining activities has become a responsibility of the Department of Mines. Mines inspectors inspect about ten mining operations each quarter. There are five inspectors at headquarters and four officers at regional level with supervision and monitoring responsibilities. Insufficient equipment, vehicles and analytical capacities of existing laboratories further constrain the effectiveness of the Department of Mines for enforcing the EIA system in the mining sector.

4.11 As environmental and social issues cut across several sectors, inter-institutional coordination is critical for the effectiveness of environmental and social management but is, for the most part, inadequate. Evaluating inter-institutional coordination is strongly recommended as an in-depth analysis of this important aspect of environmental management in the mining sector was beyond the scope of this review. Nevertheless, some preliminary findings can be reported at this more generic level of analysis. Critical weaknesses appear to exist in the following areas:

- inter-sectoral planning and policy implementation;
- coordination between central, district and village administrations; and
- the relationship between public institutions and civil society organizations.

4.12 Coordination which exists at the policy level is not matched sufficiently at the planning and implementation level. On environmental matters the main coordinating entity is the National Council for the Environment (NCE) that is advised by the Technical Committee on Environment (TCE). According to those interviewed, the NCE coordinates quite well across sectors on policy issues but cross sector coordination for planning and implementation is largely absent. This gap would be only partially closed by the TCE during the EIA review of projects. Moreover, lack of coordination would have resulted in conflicting sector mandates. For example, the same area of land could be gazetted for forestry or water purposes leading to conflicts among users. Water protection and land use regulations often collide as water and land authorities are vested with similar and, therefore, potentially conflicting planning powers.

4.13 A common framework for natural resources management, therefore, seems to be lacking which is aggravated by the fact that NCE is not part of the planning system. While there is not yet a clear understanding of how this situation may affect sustainable mining sector development, the risks of natural resource degradation due to an expansion of mining activities would be significant. On top of that, public health officers have neither training nor adequate experience in mining health issues. For example, there are no policies to prevent sexually transmitted diseases in districts where mining activities are increasing. The need for a policy, planning and inter-sector dialogue and coordination on mining was a consistent demand among the government officers consulted and the discussions at the Minerals Sector Review Workshop.

4.14 The decentralization arrangements envisaged by national policy have yet to advance very far, with significant jurisdictional and resource issues yet to be resolved. The Environment Management Act, for example, establishes a two tier system for environmental management. Environmental policy and planning are the responsibility of the national government while local planning, supervision and monitoring rest on the District Development Committees and District Environment Officers. However, as said before, in
reality supervision and monitoring of mining activities is mainly undertaken by the Department of Mines. Indeed, EAD has prepared amending legislation which would give sector agencies the leading role on environmental management. It is expected also that the amended Act would decentralize the EIA process, although it is not yet clear how different responsibilities would be allocated to national, district and sector authorities. It is also unclear how potential conflict of interest would be addressed and, more importantly, how human and financial resources for environmental management would be distributed and prioritized among these different levels. Amendments to the Environmental Management Act were reviewed by the Cabinet and had been under consideration by the Parliament. If enacted, EAD would become an autonomous agency.

4.15 Another concern refers to the uncertain participation of and sometimes contentious relations with civil society in environmental and social management. After decades of dictatorship and government centralism, involvement of civil society in policy and development planning appears to be silently but forcefully resisted by civil servants. Public consultation in EIA usually takes place when the draft EIA is close to completion. Although by law EIA reports should be in the public domain, in practice this information is not readily accessible to individuals or CSOs. This situation has already affected negatively the relationship between public sector institutions and civil society in the Kayelekera uranium project, forcing civil society organizations to seek a court ruling and establish a working relationship directly with the project developer (see Box 4.1 above). Instead of a constructive trilateral dialogue comprising the government, civil society and project developers (see Box 4.3), bilateral relationships between the public sector and the project developer, on the one hand, and civil society/local community and the project developer, on the other hand, might be developing.

4.3 Local Planning and Development

4.16 Expectations of advancing the implementation of the ongoing decentralization of development planning in villages and districts in order to achieve greater benefits from mineral exploitation are on the rise. The crux of the matter on mineral induced development seems to be how to deepen the existing decentralization process without compromising the contribution of minerals exploitation to national development. Again, while fully addressing this critical issue goes beyond the scope of this review, preliminary findings point to the need to strengthen existing village and district institutions for promoting development. The good news is perhaps that in Malawi there is no need to start from scratch and that mineral sector development may open an opportunity to make progress in this area. Yet, a word of caution is appropriate before fully embracing the notion of strengthening village and district institutions since a sufficient understanding of cultural, political, and political economy constraints shaping the existing decentralization process is still lacking.

4.17 The adoption of the Local Government Act (1998) to implement the National Decentralization Policy established, at least on paper, a bottom-up development planning system of the type that has been used successfully in some other countries to promote local development (see Box 4.4). The National Decentralization Program decentralizes Malawi into forty local authorities namely, 4 city assemblies, 8 town assemblies and 28 district assemblies. The assemblies have an executive counterpart, the District Development Committee, which in cities and towns is lead by a Chief Executive and in districts by the District Commissioners. Development planning starts at the village level. Village Development Committees have the mandate to develop project proposals, manage approved projects, recruit contractors and mobilize local resources for project implementation. Project proposals are evaluated and approved by the District Development Committee. Approved projects are supported by the District Development Fund that receives resources from the Intergovernmental Transfer System following criteria based on population and other demographic factors prevailing in an area, such as literacy, mortality, morbidity, etc. In addition to the support received from their District Development Funds, villages would likely contribute land and labor to development projects.
The mining sector in PNG is a major contributor to GDP and exports. Modern large-scale mining development commenced in Papua New Guinea prior to independence. Early mining developments were characterized by agreements struck between a few relevant national government agencies and the developer. Later, the environmental and social local impacts of these developments became increasingly apparent. As a result, the involvement of all levels of government and the affected landowners in mining development has progressively become an integral part of major mining project development in PNG.

In November 1988, a Cabinet decision instituted a process of consultation between the national government, the provincial government, and local landowners over the distribution of benefits from mineral resource development, which soon came to be known as the Development Forum. The Development Forum evolved over time into a participatory approach to decision-making and revenue distribution involving government, company, and local community representatives. To date, the Development Forum has functioned well and has been instrumental in achieving a higher level of participation by local communities. It has also secured a greater level of community support for mine development.

The forum has two principal functions. The first is as a venue for the sharing of information on the project from the developer and the State with the landowners on the nature, scope and impacts of the project. The second is to establish how the benefits derived from the project are to be shared by the various stakeholders, which are then recorded in a series of project-specific development agreements. It also commits the parties to an ongoing consultation process where development related issues could be discussed and resolved as they arise. The initial consultative process and the establishment of the various agreements take place prior to final approvals for the mining project being granted.


Mining companies have traditionally supported local communities’ aspirations for development through establishing project foundations, trusts or the like. These have evolved from institutions that used to define what is best for the communities to more open institutions with greater sensitivity to the needs of communities to accumulate social capital as a prerequisite for development. Nowadays, such bodies place a strong emphasis on training communities to increase their skills for community development. They help communities to organize themselves, to negotiate with both companies and central governments, and to take advantage of the opportunities offered by the mining operations such as employment, development of infrastructure, provision of goods and services to the mine, etc.

For example, the Inti Raymi Foundation (IRF) established by a large scale gold project in Bolivia illustrates well this process. An independent assessment of the effectiveness of IRF’s interventions showed that the greatest development benefits were achieved when projects were identified, prepared and implemented by the communities. The greater the sustainability of development projects, the better organized were the communities to identify development priorities, to contribute usually in-kind to their implementation and to involve not only the foundation but government development agencies in their funding. A strategic contribution of IRF to this process was strengthening communities’ capacity to identify and manage development projects.

Source: Based on Loayza et al. (2001)
4.18 The devolution of sector development planning and with it some budgetary responsibilities has encountered resistance at the central government level. The National Decentralization Program established sector devolution plans under which public sector agencies at the national level have to devolve responsibilities to District Development Committees and the corresponding budget to the District Development Funds. Devolution is called into question because District and Village Development Committees would not have systems in place to control expenditures properly. It is claimed that they have a serious deficit of administrative capacity and lack effective accountability. This also seems to be the main reason why the Government objects redistributing totally or partially mining royalties to the areas/districts where mineral deposits are located.

4.19 The current uncertainty that surrounds decentralization presents a challenge for mineral sector development which will have to be addressed carefully if the potential for mining to promote sustainable development at the district and village levels is not to be significantly impaired. Currently, the devolution plan for the mineral sector is limited to aspects related with managing ASM. These are mainly subsistence economic activities with very limited potential to generate profits or create a significant demand for goods and services. It is the devolution of aspects of the management of large and medium scale mining that is most likely to be critical in assuring that mining makes a positive contribution to development at the district and village levels over the long term. This would include consideration of redistributing partially mining fiscal revenues to District Development Funds in mining districts.

4.4 Key Issues and Recommendations

4.20 The existing environmental impact assessment (EIA) framework for managing environmental and social issues in the mineral sector in Malawi conforms in most respects to international good practice. However, the Keyelekera project showed that large mining developments can stretch the limited capacity of this system. The weaknesses originate in the institutional, governance and cultural context in which it is implemented. Not surprisingly, it also showed an ability of the system to adapt to and fairly address the environmental and social requirements of the modern mineral sector when constructive interaction among the developers, the government and civil society takes place. Nevertheless, were a significant expansion of the mineral sector to take place, Malawi’s environmental and social management system, which has an acute lack of sector experience, human resources and funding and suffers from inadequate coordination at the planning and implementation level, would be overwhelmed and environmentally and socially sustainable mineral sector growth thereby put in jeopardy.

4.21 The existing decentralization process that establishes a bottom-up development planning system appears to have the potential to catalyze sustainable development out of mineral sector growth in villages and districts. However, it must overcome the reluctance of the central government to devolve responsibilities and budget to the district administrations, which stems from concerns over weak administrative capacity and lack of effective accountability.

4.22 The major risk posed by the present situation is that, unless robust environmental and social safeguards can be assured and benefit sharing and mining induced development at the district and village levels promoted by mineral sector reform, it is unlikely that a major expansion of mining activities would set Malawi on a sustainable development path. Moreover, the risk is that social and political conflicts around mining would increase.

4.23 It is recommended that the Government identify, in a participatory way, the environmental and social priorities for mining growth to drive sustainable development in Malawi. This would be a key component of a policy dialogue on mining and sustainable development involving key stakeholders from government, particularly sectors closely linked to and affected by mining activities and authorities at the district and village levels; the mining sector itself; civil society and academia; and, development partners. The policy dialogue would be informed by this Mineral Sector Review, the draft mineral policy prepared
by the Government and the proposed amendment of the Environment Management Act on the issues affecting the mineral sector.

4.24 A summary of recommended actions and a suggested timeframe for implementation is set out in Table 4.1 and detailed below it:

Table 4.1: Summary of Recommendations

<table>
<thead>
<tr>
<th>Action</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Strategic Environmental and Social Assessment to complement C</td>
<td>By June 2010</td>
</tr>
<tr>
<td>J Measures to strengthen EIA process</td>
<td>By June 2010</td>
</tr>
<tr>
<td>K Measures to complement B on resettlement and compensation</td>
<td>By December 2009</td>
</tr>
<tr>
<td>L Measures to complement D on sub-national institutions</td>
<td>2010 – 2012</td>
</tr>
</tbody>
</table>

(I) It is recommended that an environmental and social strategic assessment (SESA) be conducted to incorporate environmental and social considerations in the sector reform process. The SESA could form a component of the sector-wide assessment of all management arrangements and needs in the minerals sector which has been recommended (C) and be performed in the same timeframe. The SESA should include an assessment of the implementation of the National Decentralization Program in mining districts.

(J) It is recommended that the Government consider undertaking the following actions to strengthen the EIA process: (i) Ensure access to environmental and social data on existing and proposed mineral operations; terms of reference, EIA reports and results of monitoring activities should be freely available to the public and (ii) develop guidelines for and strengthen public consultation processes in EIA to ensure the meaningful participation of weak and vulnerable stakeholders, like women and farmers.

(K) In the context of the review of the mining legislation (Recommendation B), it is suggested that there be a review of all legislation and regulation on human resettlement, compensation and reclamation for mining activities, so that these issues are clearly addressed in line with applicable international standards and best practice.

(L) A multi-year institutional and capacity building program is proposed to take place following completion of a sector-wide assessment of all management arrangements and needs in the minerals sector (Recommendation C). The following environmental and social actions at the sub-national level are likely to have priority:

- Strengthening village and district capacities for environmental and social monitoring in mining regions;
- Strengthening administrative, planning and development capacities of villages and districts in mining regions in line with the current decentralization process;
- Strengthening transparency and accountability of decision makers in mining villages and districts; and
- Establishing mechanisms for distribution of mineral revenues at the district and village levels to strengthen ongoing decentralization processes and to optimize the contribution of mining growth to sustainable development at the local level.
Annex I. Geology of Malawi

(The following is an extract from Ministry of Energy, Mines and Natural Resources, Mineral Potential of Malawi: Opportunities for Mineral Investment, September 2006)

A large proportion of Malawi is underlain by very old crystalline rocks of Precambrian to Lower Palaeozoic age commonly known as the Malawi Basement. At various places in the north and south of the country, the Basement Complex is overlain unconformably by sedimentary and subordinate volcanic rocks of Permo-Triassic age referred to as the Karoo System. Intrusive rocks of Upper Jurassic to Lower Cretaceous age known as the Chilwa Alkaline Province occur widely in southern Malawi. Upper Jurassic to Tertiary sediments occur in narrow belts aligned parallel to the shore of Lake Malawi. Extensive Quaternary superficial deposits occur extensively on the lowlands such as lakeshores, Shire Valley and Kasungu-Lilongwe and Mzimba plains. Figure 1 shows the generalized geology.

The geological history of Malawi is that of a Precambrian Mobile Belt, overlain by Permo-Triassic sediments, cut by Mesozoic igneous intrusions, and disrupted by Cenozoic rift faulting which led to the formation of the Malawi Rift. The geology of the country can hence be broadly grouped into five main lithological units: the Basement Complex; the Karoo; Chilwa Alkaline Province; Upper Jurassic to Cretaceous and; Tertiary to Quaternary.

Most of the economically significant mineral deposits in Malawi are genetically assigned to these units. Geological structures such as shear zones, faults, joints and folds are also of interest in that they have acted as conduits or in some cases hosts of mineralisation.

The Malawi Basement Complex

A large proportion of Malawi is underlain by very old crystalline rocks commonly known as the Basement Complex of Pre Karoo age. The Basement Complex constitutes a wide variety of metamorphic rocks of sedimentary and igneous origin formed between Early Precambrian to Early Palaeozoic. They have been
subdivided into northern and southern associations. The boundary between these associations has been taken at the Chimaliro Fault, which forms the southern boundary of the high-grade rocks of the Champhira Dome. Separate from the Basement Complex are two groups of psammites and pelites of probable Proterozoic age. These are the Mchinji Group in Central Malawi and the Mafingi Group to the North.

The northern associations include two main groups of rocks, the Jembia River Granulites to the south and the Misuku Gneisses to the North. The Misuku gneisses are further divided into two units, the Chambo and the Songwe gneisses. The region lies at the junction of the Ubendian, Irumide and Mozambique orogenic Belts. The Ubendian deformation (pre – 1800 Ma) produced the dominant southeasterly structural trend and it was accompanied by granite intrusions. A subsequent Irumide deformation (1100 Ma) resulted in some weak North trending structures.

The intrusion of the Songwe Syenite Complex (655 Ma) occurred during the initial Mozambique deformation. This caused a realignment of many of the Irumide structures and it also generated folds whose geometry was controlled by preexisting Ubendian structural trend. The Mozambique folding was also associated with movement along several shear zones including the Mugeshe Shear zone, which forms a tectonic junction between the Songwe and the Chambo gneisses.

In the southern associations, gneisses and schists with amphibolite facies mineral assemblages predominate but banded, two-proxene granulites and gneisses underlie large areas to the north and south of Blantyre, around Dedza, east of Lilongwe and along the Mozambique border northwest of Mangochi.

The majority of rocks in the area are considered to be metamorphosed sediments but several phases of orthogneisses are recognized and linked to the stages of orogeny. These orthogneisses are: Linthipe metabanothosite and minor basic and ultrabasic intrusions; Dzalanyama granite and small bodies of nepheline syenite, Dedza Perthitic complex and Lake Malawi Granite Province.

The Karoo system
Karoo sediments overlie unconormably the crystalline gneisses and associated igneous bodies. They crop out in Rumphi, Karonga and Chitipa districts in the north and in Chikwawa and Nsanje districts in the South of Malawi.

In the northern part of Malawi the Karoo System strata are preserved in a number of basins and down faulted troughs. The rocks are assigned to the Dwyka, Ecca and lower Beaufort Series (Permo-Triassic age). The rocks consist of basal beds that occur mainly as conglomerates and sandstones, carbonaceous shales and coal seams. The Karoo succession in the north is completed by development of thick mudstones, marls and grits that are also of the lower Beaufort age.

In the south the Karoo differs from that in the north in that deposition is believed to have commenced later and continued longer. As a result, the sedimentary phases of Stormberg are overlain more widely by mudstones, sandstones and thin coal assigned to the upper Eca Series. These rocks are succeeded by thick development of grits, sandstones and shales. The shales grade into calcareous sandstones, marls and siltstones. All these rocks are referred to the Beaufort Series. Grits and arkoses constitute the lower part of the Stormberg Series succession. These give way upwards to sandstones which become increasingly red in colour and are followed by red sandy marls interbedded with mudstones. The deposition of the Stormberg Series sediments was brought to a close by faulting and onset of a major episode of volcanism.

Major faulting during Jurassic initiated the eruption of a series of basaltic lava flows, the majority being of fissure type formed under terrestrial conditions. The flows contain occasional thin bands of tuff and sandstone. The basalts are mostly holocrystalline rocks formed largely of augite and labradorite.

Dolerite dykes and sills associated with the Stormberg Vulcanicity show affinities with the basalts and they form major swarms in the Basement Complex of parts of southern Malawi. They have a general NE-SW trend and they are particulary prominent to the south of Blantyre.
**Chilwa Alkaline Province**
The Chilwa Alkaline Province is recognised in southern Malawi. It consists of a number of syeno-granitic and nepheline syenite plutons, carbonatite and agglomerate vents, and dyke swarms intruded during the Mesozoic igneous activity of Early Jurassic to Late Cretaceous. In the northern part of the country, equivalent Mesozoic intrusive activity includes kimberlitic breccia cutting sedimentary Karoo rocks in the Livingstonia coalfield, and numerous dolerite dykes, diorite and pyroxenite intrusions.

**Upper Jurassic to Cretaceous**
Sedimentary rocks of upper Jurassic and Cretaceous age crop out in the north of Malawi and near the Mozambique border to the southwest of Blantyre.

In the north, the beds consist of friable sandstones, sandy marls and clays. The dinosaur remains occur more frequently in sandstone units of the succession. The beds rest unconformably on the Basement Complex and locally on the Karoo formations. They are confined to elongate rifts that are parallel to the lakeshore and the Malawi Rift Valley and wedges of Basement Complex rocks separate them from each other. The dinosaur beds are overlain by a variety of Tertiary and younger deposits but their precise age remains uncertain.

In southern Malawi, the Lupata Series comprises of a sequence of pebble conglomerates, coarse sandstones, sandy shales and marls. These rocks unconformably overlie the Karoo formations.

**Tertiary**
Tertiary rocks occur as lacustrine deposits in narrow belts aligned parallel to the shores of Lake Malawi in the North. They consist of a variety of clastic rocks, subdivided into Sungwa beds (grits and sandstones), Timbiri beds (clays, grits, sands and gravels) and Chiwondo beds (calcareous marls, silts, sands, shelly limestone). The sedimentary rocks are mainly buff coloured and they rest unconformably on the Dinosaur beds and the Basement Complex.

The tertiary is also associated with volcanic rocks of probable Pleistocene age that occur over a small area along the Tanzania border.

**Quaternary**
Various superficial deposits cover large tracts of the Lake Malawi littoral, the Shire valley and the Lilongwe, Kasungu and Mzimba Plains. Lacustrine and colluvial deposits are particularly well developed along the shores of Lake Malawi and around Lake Malombe and Lake Chirwa. Colluvial deposits and residual soils cover extensive areas in the west of the country, such as the plains around Lilongwe.

**The Malawi Rift**
The Malawi rift is part the Western Branch of the East African Rift System. It extends for about 800km from Rungwe in southern Tanzania to the middle of Shire Valley in southern Malawi. The rift structures extend further south by the Shire trough in Malawi and Urema graben in Mozambique. The Malawi rift is largely occupied by Lake Malawi with an average elevation of 474m and width of 40-90km. Lake Malawi overflows southwards into Shire River which flows into Zambezi. The Rift is composed of curvilinear N-S trending boundary faults which define half grabens and horsts, step faults with riftward tilted blocks rising to between 1200m to 2500m above sea level and monoclinal structures. Individual half grabens are separated from each other by accommodation zones which are complex structural highs made up of oblique-slip transfer faults, ramps and monoclines. Further south in the Shire Valley, the Rift trend changes from N-S to NW-SE at about latitude 16°S and continues with this trend into Urema graben in Mozambique.

The Malawi Rift is largely non-volcanic. Hotsprings are located at various places along the Rift. Sediments of over 3km in thickness have been estimated in the Lake Malawi graben and Lower Shire Valley. The Rift is seismically active.
Annex II. Why is Geo-Science Important?

Why do governments spend scarce public funds on geological cartography and earth science mapping? Are such activities really essential to overall economic development? Is geological mapping an activity which is better undertaken at less risk by the private sector? The answer in most countries is that an understanding of the geology and mineral potential in the national territory is indeed an essential prerequisite for the rational development of these resources and economic development. But, there is an optimum division of responsibilities for conducting such research. The public sector concentrates on regional and thematic mapping while the private mining companies concentrate on detailed exploration and evaluation of ore-bodies.

The main objective for geological mapping funded by the government is to achieve an understanding of the geology and resources of a region. This understanding is useful for a number of applications. Geological maps are an essential set of data which, when integrated into a GIS system (geographical information system), can be an essential tool for land use planning and for communities to decide on the rational use of valuable resources. The maps are also used to identify environmentally sensitive and bio-diverse zones, for investigation of water resources, and for detection of areas susceptible to seismic events. They are useful to identify industrial and construction materials important to society, such as clay for bricks, limestone for cement, salt for domestic and industrial consumption. And, of course, the regional and thematic geological maps produced by the government help orient the detailed exploration by private companies for metallic and non-metallic minerals and thereby lessen the risk and cost of this exploration to the company.

Geological maps prepared with government funds present in a visual form different types of scientific data. Maps made from satellite photography and images allow not only coverage of large areas but also real-time analysis of data. Geophysical information collected by aircraft flown at low altitude with sophisticated sensing instruments show main tectonic and structural features which is important to find deposits under the surface. Thematic maps depict regional geology and the distribution of elements which are important for prospecting for mineral deposits. Geology, like any science, is a rapidly evolving discipline. Geological maps tend to reflect the geological thinking and the theories in use at the time when they were produced. It is thus important that the government funds geological surveys to make use of the appropriate technologies and methodologies.

The quality standards and coverage of geological maps vary from one country to the next depending on the resources and time allocated to the task. Developed countries are often mapped in great detail and quality, at a scale of 1:50,000 or 1:25,000 covering the whole country. This level of detailed coverage is neither feasible nor cost effective in most developing countries. In these countries regional maps are produced in 1:100,000 or 1:200,000 scale and then compiled into larger scale maps covering the whole country. It has become more frequent that governments fund thematic regional surveys in order to attract the interest of international mining companies. In Australia, for instance, the government of New South Wales undertook a large scale geophysical survey which resulted in the discovery and development by private companies of at least two new mineral deposits. An important factor in the government’s ability to attract private sector investment is to make the maps available to interested parties at nominal cost. The maps should be available in digital form, on DVD or available through the internet. In many countries geological maps are mostly available in paper copy only, which greatly reduces their accessibility and utility to companies. Also, promotion of the geological knowledge at international conferences and industry meetings is important. In this context it is important that the future users of geological data can obtain them easily and for a comparatively low price.
Annex III. Classification of Mineral Reserves and Resources

UNITED NATIONS INTERNATIONAL FRAMEWORK CLASSIFICATION FOR RESERVES/RESOURCES
Solid Fuels and Mineral Commodities

<table>
<thead>
<tr>
<th>UN International Framework</th>
<th>Detailed Exploration</th>
<th>General Exploration</th>
<th>Prospecting</th>
<th>Reconnaissance</th>
</tr>
</thead>
<tbody>
<tr>
<td>National System</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feasibility Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and/or Mining Report</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Proved</td>
<td></td>
<td>(1 1 2)</td>
<td>(1 1 3)</td>
<td></td>
</tr>
<tr>
<td>Feasibility Mining Report</td>
<td></td>
<td>(2 1 2)</td>
<td>(2 1 3)</td>
<td></td>
</tr>
<tr>
<td>Prefeasibility Study</td>
<td></td>
<td>(2 2 3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Geological Study</td>
<td></td>
<td>(3 3 1)</td>
<td>(3 3 2)</td>
<td>(3 3 3)</td>
</tr>
</tbody>
</table>

Economic Viability Categories:
1 = economic
2 = potentially economic
3 = Geological Resource (belongs to the reserve and potentially economically extractable resource)
Annex IV. Indirect Economic Impacts of Mining

Indirect Impacts on Economic Growth

An increase in mining output can impact on economic growth indirectly through affecting production factors accumulation, total factor productivity growth or both. This indirect impact will result from the quantity and quality of fiscal expenditures (fiscal mechanism), the ability to acquire goods and services more efficiently produced abroad (trade mechanism), or the multiplier effects that expending income has in the economy (the income mechanism).

- **The Fiscal Mechanism.** Mining activities are taxed like any economic activity. Moreover, in addition to the ordinary taxes applied to economic activities such as the income tax, mining is usually burdened with royalties or other taxes due to the sovereignty of the state over mineral resources, the need to compensate society for minerals resources depletion or both. Thus, an increase in mining output increases also fiscal revenues. Further, a significant increase in mining production in a developing country dependent on mining, as will be discussed below, results in a major increase in exports that in turn leads to the expansion of imports. This causes an additional increase in fiscal revenues due to the duties paid for the increase in imports. For example, in six out of a sample of ten countries that experienced commodities related booms during 1976-78, the cumulative rise in imports was greater than the increase in exports.\(^1\) In a country like Mongolia, where fiscal revenues from mining and imports are significant, an important expansion of its mining output would result in a large increase in fiscal revenues.

The additional fiscal revenues arising from the mining expansion can be used to increase public investment. For example, if health services and education are increased or improved, labor accumulates as well as poverty is reduced. In addition, fiscal revenues can be used for building infrastructure such as roads, for rural electrification and so on, increasing the economy’s stock of capital. Indirectly, private investment can also increase if the additional fiscal revenues are used to reduce the domestic public debt, thereby crowding in the private sector in the financial markets. Even it is possible that productivity growth could take place, if the additional resources were used in such a way as to improve a country’s intangible assets i.e., implementing reforms to enhance the judiciary system. In summary, well-managed fiscal revenues arising from a significant increase in mining output can result in production factors accumulation and productivity growth, hence in economic growth in the medium and long term.

- **The Trade Mechanism.** In small highly dependent mining economies like Mongolia, a large expansion in mining production results in a significant enlargement of exports as mineral and metals are largely sold in international markets. The increase in exports provides additional foreign currency to increase imports of goods and services required for increasing in quantity and quality\(^2\) man-made capital. This expansion in exports and in the economy’s capital stock usually will take place through an appreciation of the exchange rate, which, if moderated, will not harm the international competitiveness of the agriculture and manufacturing industry. An increase in foreign currency will also facilitate the acquisition of expertise and technology from abroad, therefore, improving productivity.\(^3\) Thus, provided that the economy has an enabling investment environment, an increase in exports due to a

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\(^1\) McMahon (1997) cites the study on “The Economics Effects of Windfall Gains in Export Earnings, 1975-1978” by Jeffrey Davis. The countries included in the study were Burundi, Cameroon, Colombia, El Salvador, Ethiopia, Haiti, Ivory Coast, Kenya, Rwanda, and Uganda.

\(^2\) Capital goods for new investments or for replacement of depreciated machinery and equipment will frequently embody new or more advanced technology.

\(^3\) For some economists a significant increase in mineral production may only lead to a less significant increase in a country’s ability to import due to mining is a capital-intensive industry. Mining requires large imports of equipment, machinery and intermediate inputs, freeing only a rather small amount of foreign currency for the remaining economic activities. See for example Eggert, R. (2002)
significant increase in mineral production will favor growth through capital accumulation and productivity growth.

- **The Income Mechanism.** An increase in mining production augments income of the mining companies involved in the output expansion and their subcontractors and employees. The increase in income of the subcontractors and employees will be spent in goods and services, which will become the income of a second round of suppliers and their subcontractors and employees. In turn, this effect will reach new rounds of suppliers, subcontractors and workers, multiplying the income generated in the expansion of the mining production along the interconnected chain of goods and services in the economy. Depending on the degree of prevalence of unemployment or underemployment, this income multiplier-effect could be quite significant at least at a regional level. Therefore, in the short-term if an economy has significant amounts of unemployment or underemployment, this mechanism will foster growth by reducing idle labor and capital.

In the medium and long-term, the multiplication of income due to an increase of mining production will likely result in labor and capital accumulation, hence in economic growth. This is because, on the one hand, due to the income multiplier-effect a larger capital stock to satisfy a multiplied demand for goods and services will be required. On the other hand, if the increase in mining production originates in medium and large-scale operations, human capital will accumulate in two ways. First, the mining operations themselves need to qualify their human resources at all levels, and in many cases the human resources of their contractors as well. Second, wages paid in these types of operations are usually higher than in the rest of the economy. This induces better-paid employees to invest part of their additional income in the education of their children to a higher level than themselves, therefore, increasing the accumulation of labor. For example, a gold mining operation in Bolivia trained workers in programs of equalization, professionalism and specialization. In the same mine, it was also identified that an average worker is frugal and saves and invests around 40 percent of its income, being a priority that their children get a university degree. Accordingly, a significant increase in mining output in a country like Malawi, where mining could be a major industry, may foster growth by inducing the accumulation of capital and labor and productivity growth. This process operates indirectly through the fiscal, trade and income mechanisms.

**Policy Effects on Mining Growth**

It is very tempting to estimate a quantitative relationship between the increase in mining output and growth. As we are dealing with an indirect relationship, such an attempt can be frustrated by contradictory evidence as in two identical economies the results would differ, even to the extent of being opposed to each other, as long as the fiscal, trade and investment promotional policies and institutions differ in those countries. This explains why the evidence on the impact of mining on growth is divergent and contradictory but also why the general consensus is that although minerals have the potential to contribute significantly to growth, governments and their policies for managing mineral wealth will ultimately define whether this potential is fulfilled or lost.

To avoid squandering this opportunity, a number of key issues will need to be considered by Malawi’s economic and fiscal authorities. These include the absorptive capacity of the economy and the policies required to overcome its constraints efficiently; the country’s investment environment and the competence required to manage the windfall.

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4 Loayza F. et al (2001)
5 Auty and Evans (1994) found that whether mineral economies performed better or worse than non-mineral economies depends on the period of analysis and the grouping of countries. Davis (1998) identified five comprehensive studies, which illustrate how difficult, even dangerous, it is to generalize about the relationship between mineral abundance and economic growth. Sachs and Warner (1995) for some 100 developing countries found that the rate of growth is inversely related to natural-resource intensity. Later, however, Sachs and Warner (1999) found the missing policy link as their study shows that natural resource intensity is negatively associated with both the quality of legal and government institutions in a country and the degree to which and economy is open to international trade.
6 McMahon, G. (1997) using a multiple case study, which comprised four countries that received a major positive resource shock – Botswana, Colombia, Trinidad and Tobago and Nigeria –, demonstrates that mineral abundance could be a curse or a blessing depending on the countries’ policies to manage the windfall.
of its institutions, mainly those relating to the management of the increased revenues such as the fiscal and financial institutional framework; and the variations of the real exchange rate vis-à-vis variations of growth in the export indicators of the non-traditional export sectors. The objective will be to avoid the implementation of policies or programs that could lead to fiscal unsustainability, unproductive investments, rent seeking behavior, and “dutch disease” effects.

- **Fiscal and Debt Unsustainability.** A large increase in fiscal revenues due to a significant increase in mining output requires sound criteria for public investment and expenditure to translate in production factor accumulation and productivity growth. The risk is that the government could fall prey of an expansive fiscal policy leading to excess in investments and social welfare programs, which saddle the government with recurrent costs beyond its medium-term financial capacity. Loans for financing the consequent fiscal deficit could not only worsen the government’s fiscal position but also compromise its debt sustainability. Over time as the fiscal position deteriorates, the government would resort to an inorganic expansion of the monetary base leading to high inflation and macroeconomic and political instability, as was seen during the 80’s across Latin America and Africa and, in particular, in mining economies such as Bolivia and Peru. The result is that the growth experienced during the boom cannot be sustained as public investments are not adequately operated and maintained and unemployment is increased.

- In response to a substantial increase in fiscal revenues from a mining boom, the single most detrimental policy that a government may pursue is the creation or expansion of state owned enterprises. As in the cases of Nigeria, and Trinidad and Tobago “not only did these failed undertakings eat up substantial portions of the boom, they left a legacy of debt and losses in the post-boom years, adding substantially to the fiscal deficits of the countries.” Eventually, revenues from mining drop, subsidies to other sectors can no longer be paid, and protection becomes too expensive. Then, these sectors exposed to fierce competition are forced to contract, leading to slower or even negative growth rates of the economy overall. In Bolivia during the 70’s, when tin prices reached their highest historical levels, the state mining company COMIBOL embarked in an ambitious R&D and investment program on flotation and volatilization technologies to increase tin recovery rates while the large international mining companies were pursuing a strategy of reducing costs by developing large scale ore deposits. During the first half of the 80’s tin prices dropped by 70 percent rendering uneconomical the large investments carried out by COMIBOL, which became a major source of the Bolivian famous hyperinflation. This illustrates that inadequate investment policies result in ineffective capital accumulation, productivity decline and, therefore, in the drop or slowing down of growth.

- **Rent Seeking Behavior.** When government institutions are weak, an increase in fiscal revenues originated in a larger mining output may further affect growth due to rent seeking and patronage would permeate into the government agenda. Growth is impaired because although public investment increases, its productivity drops. Corruption usually reduces the quality of infrastructure, which increases the cost of doing business for both the government and the private sector and thus leads to lower output and growth. Due to some relation found between mineral countries and government ineffectiveness and corruption, some authors consider that mineral wealth weaken the state as its traditional functions give way to redistribute revenue. However, there is broader agreement that the lack of good governance is the main explaining factor instead of mining wealth. Without good governance, a rapid increase of fiscal revenues originated in natural resources

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8 Weber-Fahr, M (2002)
9 Jordan R. & A. Warhurst (1992)
10 Tanzi, V & H, Davoodi (1998) contends that corruption increases the number of capital projects undertaken and tends to enlarge their size and complexity. The result is that some public investment can end reducing a country’s growth because, even though the share of public investment in GDP may have risen, the average productivity of that investment has dropped.
11 See for example Ross, M (2001) and Snider, L (1996)
windfalls or aid flows will likely be associated with a decline in the quality of expenditure and lack of transparency and accountability in the use of these resources.

- **Absorptive capacity constraints.** Even without the existence of corruption or rent seeking behavior, a large increase in mining fiscal revenues could lead to unproductive public and private investments mainly due to absorptive capacity constraints in the economy such as weaknesses in public expenditure and financial management, weaknesses in policies determining the broad investment climate, infrastructure bottlenecks and so on. Under these circumstances, public investments in projects with very low or even negative social returns could be carried out. In absence of profitable alternatives in which invest the additional income, private investments would run to the real estate market leading to construction booms and real estate speculation, which will eat up most of the windfall. According to the World Bank’s experience, several low-income countries suffer from absorptive capacity constraints and their administrative and management capacity can be overwhelmed by a large increase in income and revenues.

Unproductive investment booms can have strong historical foundations and have been a typical trap for developing countries eager to diversify their economies. “First, from approximately 1955 to 1980 industrialization via import substitution dominated development thinking. When the booms took place, many of the resource abundant countries were trying to diversify away from a reliance on primary production to a more modern industrial economy, with manufacturing as the dominant sector. Resource booms allowed the government to accelerate the process of import substitution far beyond the absorption capacity of the economy. Second, countries following import substitution strategies generally had repressed financial systems in order to direct credit to the priority sectors and prevent capital outflows. When the boom took place, there were few profitable investment options that the private sector could do with its part of the windfall. Thus, a large part of the private sector windfall was either transferred to the government via high implicit taxes on domestic financial instruments or spent on durable consumer goods and construction projects... Third, for many countries that previously were not following import substitution policies, or had very limited programs, the boom windfall was an irresistible temptation to change course. The end result was similar to, and often worse, than that suffered by countries that had long been on the import substitution path... Fourth, political pressure on the government to spread investment across all of the regions of the country or to support failing industries was often an important factor behind the perverse investment booms.”

- **Dutch Disease.** A significant increase in mineral production might also impact on growth affecting the competitiveness of the non-minerals export industry, notably the manufacturing industry. Due to the mining output expansion, input factors, especially labor, will move towards the mining industry. The adjustment takes place generally through an increase in wages. Such contraction or slowing down in the rate of growth of the manufacturing industry may affect growth because the manufacturing industry is considered to have greater dynamic externalities and learning effects than mining. Thus, an expansion of mining at the expense of the manufacturing industry negatively impinges on productivity growth. The intensity of this effect will depend, however, on the level of unemployment since the mining production expansion can occur tapping idle labor. Currently, for the Mongolian economy this type of effect is of minor importance as like many low-income developing countries Mongolia has idle capacity to utilize for expanding mining production, if required.

- In addition, the economy could experience losses in productivity growth when the mining expansion causes an appreciation of the exchange rate due to the greater supply of foreign currency. This is because the appreciation of the exchange rate impairs the competitiveness of the manufacturing industry as imports become more competitive while, at the same time, exports are less competitive. Such a situation, however, is conditioned by the way the additional income or revenues from mining are managed. If, for example, the additional mining revenues are largely invested in improving the

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15 This effect is commonly known in the literature as Dutch Disease.
quality of labor i.e. through better health and education services, and infrastructure, the decline in productivity growth can be compensated in the medium-term. Moreover, because of the large productivity gap between industrialized and low-income developing countries, it is possible that a low-income developing country could experience a sustainable real appreciation of its currency if low-cost productivity increases were achieved\textsuperscript{16}. Thus, as long as the additional revenues from the mining expansion are used to unlock low-cost productivity gains, an appreciation of the exchange rate will affect neither the manufacturing sector nor economic growth\textsuperscript{17}.

In summary, a significant increase in fiscal revenues due to a major increase in mining output can be mismanaged affecting growth in the medium and long-term through low or negative capital accumulation and the decline or insufficient growth of productivity. Capital accumulation and productivity growth are impaired by unproductive investments, especially in SOEs, and the creation of an adverse investment environment towards the end of the mining boom. Unproductive investments may arise from rent seeking behavior, corruption and a constrained absorption capability that is not balanced with access to financial options outside the domestic economy. An adverse investment environment is the consequence of the macroeconomic disequilibria that follows the end of a mismanaged mining boom, the unproductive investments’ low or negative returns, the fiscal and sometimes debt unsustainability in which the economy becomes trapped. The factors underlying this process do not originate in the expansion of the mining production itself but on the flawed policy and institutional framework established for managing this opportunity.

\textsuperscript{16} “A real appreciation of the exchange rate does not necessarily have to signal a problem… For this reason, in parallel with the analysis of movements in the real exchange rate, IMF staff also monitor various growth and export indicators, in particular for the non-traditional export sectors (see for example page 17 of the recent Mozambique staff report, IMF Staff Country Report no.02/140)” (IMF Staff Note, p:7)

\textsuperscript{17} Dutch disease effects have been recently the focus of empirical analysis due to increased aid flows to low-income developing countries such as Burkina Faso, Cote d’Ivoire, Malawi and Sri Lanka. The conclusion is that in the medium-term Dutch Disease effects will be determined by the scale of the additional resources received by the recipient country but more importantly by how these additional resources are used and how the supply side of the economy responds to these different uses. See IMF Staff Note (2003), World Bank Guidance Note (2003), DFID (2002). McMahon (1997), in the aforementioned study of four natural resource dependent economies that were subject to major positive resource shocks in the 70’s and 80’s, did not find signs of Dutch Disease. However, in Nigeria and Trinidad and Tobago, which mismanaged the booms, the agricultural sector was devastated.
Annex V. Comparison of International Mining Fiscal Regimes

Taxes on Production

Taxes on mineral production are a feature of most mining fiscal regimes, however, there has been a trend towards reducing the burden of production taxes and a commensurate increase in reliance upon taxes on profits. The popularity of production taxes, of which mineral royalty is the most widely used, can be attributed to two principal factors. First, taxes on production generate revenues for government that are not dependent on the profitability of mining operations. Therefore, revenues are received from the moment that production begins to deplete the mineral resource. Such taxes amount to a guarantee of some financial return to the country for the exploitation of its finite mineral endowment. Second, a tax on production is relatively easy to assess and to collect, compared with taxes that depend on calculation of profit. On the other hand, taxes on production impose a direct cost on mining operations. Even though such taxes will typically be set off against taxes on profits, production taxes will generally deter the mining of marginal deposits and can result in reduced mine life.

Taxes on production, for the most part, are not open to negotiation and there is now a high degree of uniformity between countries in tax rates. Generally, such taxes are fixed in mining legislation with limited or no scope for negotiation or waiver. Tax/royalty rates typically fall within a range of between 3–5 percent on a gross value basis for metallic and energy minerals. In a number of cases a higher rate applies to precious minerals, generally, and to diamonds, in particular. These patterns are not restricted to Africa and can be found more widely around the world. Some countries impose a higher rate on the mineral content of the sale of un-processed mineral products than on the sale of processed minerals, to encourage minerals processing prior to export. In a few cases, royalty is imposed at rates that vary on a sliding scale, with higher rates being triggered on the basis of mineral prices or of profitability. The starting rates of royalty (the guaranteed minimum), in these cases, tend to be in the same range as for flat-rate royalties.

Taxes on Profits

Mining businesses are normally subject to taxes on profits, just as any other business, however, special arrangements typically apply with respect to tax rates, allowances and consolidation. This reflects government policies to capture mineral rents and to recognize some of the unique features of mining investment. Where mining businesses are subject to general purpose income tax, the applicable rate of tax is commonly the standard rate applied in the country. There is considerable global uniformity in these rates.

In recognition of the highly capital intensive nature of mining operations and the relatively short income-generating lives of mining assets, special provisions typically allow depreciation to be accelerated or to be uplifted. This has the effect of delaying the time at which taxes on mining profits begin to be paid. Like Malawi, a number of countries have greatly simplified their systems of mining taxation, and added to their generosity, by allowing the full expensing (100% write-off) of all eligible mining expenditures. Another feature commonly found is a right to carry forward tax losses indefinitely, which will also contribute to delaying the time at which taxes on profits are paid.

There are several approaches used to capture a higher share of mining profits from projects that enjoy a windfall. Zambia recently introduced a variable rate tax that is used by some others in the region to vary the tax rate based on the profit margin achieved in the tax year. This is based on a scheme first introduced in South Africa for gold. Malawi has introduced a system of additional profits tax (APT) that is based on cumulative project profitability, which has its roots in resource rent taxes used first in Papua New Guinea in the 1970s and then adopted in a few other countries (Ghana, Solomon Islands). APT and other windfall taxes had fallen out of favor in the long period of low mineral commodity prices that ended four or five years ago. It is for this reason that many countries have no instrument for capturing windfalls, including, for example, both Tanzania and Mozambique.
**Input taxes on Mining Operations**

Input taxes can impose a significant unrelieved tax burden on mineral operations and, for that reason, some governments offer tax relief through exemptions and rebates. Because of the highly specialized nature of mineral operations, they typically have high import content. Import duties may weigh heavily on project costs. Duties paid at the exploration and construction stage remain unrelieved pending the start of production – rebates, for example on temporary imports at the exploration stage, or exemptions for mining-specific inputs, are among the measures often provided. In the case of VAT, which has wide application nowadays, mineral operations that export output face the problem that their outputs are zero-rated but their inputs are not. While this imbalance would ordinarily be resolved by the receipt of offsetting rebates from the VAT authorities, the rebate system in many countries is insufficiently developed to provide an assurance of timely and dependable rebates. As a consequence, some governments provide a VAT exemption for mining inputs instead.

**State Equity**

A few governments require state equity participation in mineral projects undertaken by the private sector. The motivation for doing so varies, as does the manner in which participation takes place. Government objectives are rarely only to benefit financially and include such goals as to assert influence over foreign-owned ventures, obtain know-how and experience and to implement employment and other economic and social policies. Typically, equity requirements apply only to ventures that are large scale and/or foreign-owned. Equity may apply through all stages of mineral operations, though more typically it applies only at the development stage when the government can exercise an option not to participate.

The prevailing approach is not to seek control of mining ventures, in recognition of the important role that private sector funding and expertise plays in bringing mineral projects into development. Most common is an equity interest well short of a controlling interest, in a range of between 5 – 20 percent. A critical aspect of equity participation is its financial basis and, in this respect, there are many different approaches used. These range between participation on market (or near market) terms, without concession with respect to liabilities taken on, to “free” equity, in which the state participates in profits but not in costs or any associated project liabilities. Any form of participation in which the state assumes liabilities that are not in proportion to its interest in profits, is an implicit tax viewed from the perspective of an investor. Some governments may treat equity as an option to be used in lieu of taxes. In other cases, equity on concessional terms simply represents an additional layer of tax.
## Annex V. Comparison of International Mining Fiscal Regimes

<table>
<thead>
<tr>
<th></th>
<th>Malawi</th>
<th>Botswana</th>
<th>Mozambique</th>
<th>Namibia</th>
<th>South Africa</th>
<th>Tanzania</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rate</strong></td>
<td>Negotiable (5% in regulations)</td>
<td>3% generally; 5% precious metals &amp; coal; 10% precious stones</td>
<td>Negotiable within defined range: 3–8% generally and 10–12% for diamonds</td>
<td>5% generally; 3% for uranium; 10% for precious stones</td>
<td>None (proposed scheme from 2009 has rates of 1 – 6% depending on mineral)</td>
<td>3% generally; 5% for diamonds; 3% for coal; 0% on building materials &amp; cut &amp; polished stones Netback value; mine mouth for coal</td>
</tr>
<tr>
<td><strong>Base</strong></td>
<td>Gross sales less transport expenses</td>
<td>Sale value at mine</td>
<td>Sale value at mine</td>
<td>Gross sales</td>
<td>Gross sales</td>
<td>Proposed 5% export levy on rough diamonds</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Taxes on Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>30%</td>
<td>32%</td>
<td>Variable rate with base rate of 35%</td>
<td>29% or for gold mining a variable tax with a base of 35% (Y = (175 + X)) where X is ratio of taxable income to gross income</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Minimum tax</strong></td>
<td>None</td>
<td>None</td>
<td>25% SL or life of mine for some assets</td>
<td>33.3% SL</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Depreciation</strong></td>
<td>100% of all eligible expenses</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>Indefinite</td>
<td>Indefinite</td>
</tr>
<tr>
<td><strong>Loss carry forward</strong></td>
<td>Indefinite</td>
<td>Indefinite</td>
<td>Indefinite</td>
<td>Indefinite</td>
<td>Indefinite</td>
<td>Indefinite</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Additional Taxes on Profits</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>None</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Sub-National Taxes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input Taxes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Import Duty</strong></td>
<td>Mainly zero-rated</td>
<td>Zero-rated</td>
<td>Zero-rated</td>
<td>Zero-rated</td>
<td>Zero rated during exploration and first year of production; thereafter &lt;5%</td>
<td>Exempt (20%)</td>
</tr>
<tr>
<td><strong>VAT / Sales Tax</strong></td>
<td>16.5%</td>
<td>10%</td>
<td>17%</td>
<td>15%</td>
<td>14%</td>
<td>Exempt (20%)</td>
</tr>
<tr>
<td><strong>State Equity</strong></td>
<td>Negotiable – minority equity interest may be acquired in lieu of taxes</td>
<td>Diamonds only</td>
<td>None</td>
<td>Diamonds only</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Country</td>
<td>Zambia</td>
<td>Australia (Western Australia)</td>
<td>Canada (Ontario)</td>
<td>Chile</td>
<td>China</td>
<td>Indonesia</td>
</tr>
<tr>
<td>------------------</td>
<td>--------</td>
<td>-------------------------------</td>
<td>------------------</td>
<td>-------</td>
<td>-------</td>
<td>-----------</td>
</tr>
<tr>
<td><strong>Taxes on Production</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Rate             | 3%     |                               | 10% of taxable profit |       | 0.5% to 4% of gross value depending on metal | <2000kg: US$225 per kg  
|                  |        |                               | Exemption for first C$500,000 of profits |       |       | >2000kg: US$235 per kg (Gold) |
| Base             | Gross  |                               | 30% SL (100% for assets acquired before production); 15% of mining assets SL; 100% of processing, pre-production development and exploration expenses |       |       |           |
| Others           | 15% on exports of copper concentrates |                               |                  |       |       |           |
| **Taxes on Profits** |        |                               |                  |       |       |           |
| Tax rate         | Variable rate 30% base rate; up to 45% at profit margin  
|                  | >8%    |                               | 28%+4% surtax: 29.12% |       | 17% plus 35% on distribution. Credit available for 17% | 30%  
| Minimum tax      |        |                               | 0.225% of net assets  
|                  |        |                               | (4% surtax is creditable) |       | 12.5% SL for mine and processing buildings; 33.3% for mine and processing equipment; 16.7% for preproduction expenses | 30%  
| Depreciation     | 100% expensing |                               | 100% deduction for assets acquired before start of production; otherwise 25% DB  
|                  |        |                               | 3 year carry back,  
|                  |        |                               | 7 year carry forward |       | 5 year  
| Loss carry forward | Limited | Accelerated deduction for certain transport facilities, and immediate deduction for site rehabilitation costs. | Resource allowance of 25% of resource profits, in lieu of deduction of provincial tax |       | 5 years | 8 years  
<p>| Other            | None (Windfall tax abolished in April 2009; 25 percent when $2.50/lb P* &lt; $3.00/lb; 50 percent when $3.00/lb P* &lt; $3.50/lb; and 75 percent when P* = $3.50/lb, where P* is the international price of copper) | None | None | None | Mine with more than a ten year life may be eligible for a tax holiday |
| <strong>Additional Taxes on Profits</strong> |        |                               |                  |       |       |           |
| Tax rate         | None   |                               | 11% of taxable income |       | None | 3% of taxable income |
| Import Duty      |         |                               | Input Taxes      |       |       | None |
| VAT / Sales Tax  | 16%    |                               | 5%               |       | 6% of CIF | 10% |
|                  | None   |                               | State Equity     |       | 19% | 17% |
|                  | None   |                               | None             |       | None | None |
|                  | None   |                               | None             |       | None | None |</p>
<table>
<thead>
<tr>
<th></th>
<th>Mexico</th>
<th>Peru</th>
<th>PNG</th>
<th>Ghana</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rate</strong></td>
<td>None</td>
<td>1% on sales &lt;$60mn; 2% on sales from $60-120mn; 3% on sales &gt;$120mn</td>
<td>Taxes on Production</td>
<td>3 - 6%</td>
</tr>
<tr>
<td></td>
<td>Base Others</td>
<td>Royalty: 2% NSR</td>
<td>Mining levy: based on statutory formula</td>
<td>Gross</td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>None</td>
<td>30%</td>
<td>Taxes on Profits</td>
<td>25%</td>
</tr>
<tr>
<td>Minimum tax</td>
<td>35% (5% deferral)</td>
<td>0.2% of net assets at end of 1998 year. (Creditable against income tax.)</td>
<td>30% for resident; 40 for non-resident</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.8% of gross assets (income tax can be carried back 3 years and forward 10 years)</td>
<td>3% SL on mine and processing buildings; 20% on mine equipment; 25% on processing equipment; 100% or 3 yrs for pre-production development; 100% or UOP for exploration expenses</td>
<td>10% SL for mine and processing building; var% for mine and processing equipment; 20% for pre-production expenses</td>
<td>80% in Yr 1 then 50% DB</td>
</tr>
<tr>
<td>Depreciation</td>
<td>5% SL on mine and processing buildings; 12% on mine equipment; 6% on processing equipment; 10% on preproduction expenses</td>
<td>3% SL on mine and processing buildings; 20% on mine equipment; 25% on processing equipment; 100% or 3 yrs for pre-production development; 100% or UOP for exploration expenses</td>
<td>10% SL for mine and processing building; var% for mine and processing equipment; 20% for pre-production expenses</td>
<td>80% in Yr 1 then 50% DB</td>
</tr>
<tr>
<td>Loss carry forward</td>
<td>10 years</td>
<td>4 years, as from first profitable year 8% workers profit share calculated on net income before tax Special approval available for additional 4 year loss carry forward</td>
<td>7 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Additional Taxes on</td>
<td>10% profit sharing to employees</td>
<td>None</td>
<td>10 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Profits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tax rate</strong></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Import Duty</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>VAT / Sales Tax</td>
<td>15%</td>
<td>19%</td>
<td>10%</td>
<td>exempt</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
<td>30% working interest</td>
<td>None</td>
</tr>
<tr>
<td>State Equity</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Sub-National Taxes</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Input Taxes</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>exempt</td>
</tr>
<tr>
<td>State Equity</td>
<td>None</td>
<td>None</td>
<td>30% working interest</td>
<td>None</td>
</tr>
</tbody>
</table>
Annex VI.
Malawi Mineral Sector Review: Stakeholder Workshop
(March 17-18, 2009)

1. Overview of the workshop
A one and half day stakeholder workshop for Malawi Mineral Sector Review was held from March 17 to 18 at the Malawi Institute of Management (MIM). The workshop was organized by the Ministry of Energy and Mines (MEM) to provide a forum for stakeholder engagement while formulating a mineral sector policy and defining the reforms needed to implement the policy. The purpose of the workshop was to discuss mineral sector policy, reforms and donor support based on the draft Mines and Minerals Policy prepared by MEM and the findings of the Mineral Sector Review-Discussion Draft, January 2009 prepared by the Bank.

On Day 2 of the workshop, participants were organized into three breakout groups. Participants were randomly assigned to one of the three breakout groups. The following topics were discussed:

- Group 1: What are the main institutional constraints and adjustments required for Malawi to develop its mineral potential?
- Group 2: What are the main legal and regulatory constraints and adjustments required for Malawi to develop its mineral potential promoting sustainable development?
- Group 3: What are the main revenue distribution, environmental and social conditions required for mining to become a driver of sustainable development for Malawi?

2. Summaries of breakout group discussion
Below are the summaries and conclusions derived of the discussion.

**Group 1: What are the main institutional constraints and adjustments required for Malawi to develop its mineral potential?**

1. Institutions that support Malawi’s mineral development are:
   - Department of Energy
   - Geological Survey
   - Malawi Revenue Authority (MRA)
   - Department of Environment
   - University
   - Mining Investment and Development Corporation (MIDCOR)
   - Chamber of Mines
   - Department of Mines
   - Department of Occupational Safety and Health
   - *Malawi Energy Regulatory Authority (MERA)*

2. Common constraints among these institutions
   - Human resources
3. Required policies and programs for adjustment
- Recruitment and training of staff and structured training programs.
- Develop data management policy
- Modern equipment
- Adequate funding
  - From taxation, i.e. Royalties.

**SPECIFIC CONSTRAINTS AND ADJUSTMENT REQUIRED FOR EACH INSTITUTION**

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Constraints</th>
<th>Adjustment required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Energy</td>
<td>Lack of generation capacity</td>
<td>Interconnection</td>
</tr>
<tr>
<td></td>
<td>Lack of transmission capacity</td>
<td>Increased local generation capacity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expansion of transmission lines</td>
</tr>
<tr>
<td>Geological survey</td>
<td>Lack of modern survey</td>
<td>Implement new systematic survey</td>
</tr>
<tr>
<td>Dept. of Mines</td>
<td>Mineral licensing system</td>
<td>Implement new system</td>
</tr>
<tr>
<td>MRA¹</td>
<td>Transparency</td>
<td>Transparency communication</td>
</tr>
<tr>
<td>University</td>
<td>Shortage of graduates/lecturers</td>
<td>Capacity of lecturers</td>
</tr>
<tr>
<td></td>
<td>Skill level</td>
<td></td>
</tr>
<tr>
<td>MIDCOR²</td>
<td></td>
<td>Revived</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Checks and balances</td>
</tr>
<tr>
<td>Chamber of Mines</td>
<td>Dormant</td>
<td>Revived</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Encompass international and local private companies</td>
</tr>
</tbody>
</table>

1. Malawi Revenue Authority
2. Mining Investment and Development Corporation
Group 2: What are the main legal and regulatory constraints and adjustments required for Malawi to develop its mineral potential promoting sustainable development?

- What are the main legal and regulatory constraints for Malawi to develop its mineral potential and what adjustments are required?
  1. Licensing system review
     a. Length of term – Need justification for extension after 7 years and renewals, “use it or lose it”
     b. Role of licensing committee
        i. Need for research on centralized vs. decentralized systems
        ii. Independent regulatory authority required that will report to the Minister
        iii. License issued by Minister on recommendation from licensing committee within regulatory body.
     c. Relationship between small scale vs. large scale miners.
        i. Policy to address conflict of interests.
  2. Fiscal issues including local participation
     a. Duty exemptions
        i. Exemption from duty on specialized mining equipment.
        ii. Setting a mechanism to ensure that communication on duty free status is available to MRS and all stakeholders.
     b. Foreign exchange issues
        i. Note: foreign payments delays are a bottleneck to operators.
     c. Equity
        i. Government to trade tax for equity. The Ministry of Finance and the Dept. of Mines could work out the modalities.
  3. Legal issues
     a. Standards
        i. Develop national standards in line with international standards.
        ii. Accreditation – role of Malawi Bureau of Standards (MBS)
     b. Harmonization of legislation
        i. Prevent gaps and conflicts, cross referencing
        ii. Relationship between mining and environmental legislation.
     c. Employment issues
        i. Temporary employment permits (TEPS)
        ii. Committee to be established to put mechanisms in place for Human Resource Development and TEPS.
        iii. Human rights.
     d. Others
        i. Beneficiation and value addition
        ii. Availability and price of geological data
        iii. Export licensing
        iv. Monitoring and
        v. Explanation to populations to manage expectations.

Group 3: What are the main revenue distribution, environmental and social conditions required for mining to become a driver of sustainable development for Malawi?

Main revenue distributions
1. Royalties → Local
   → District
   → National
2. Mechanism for Royalty distribution
3. Institutions
   a. Ministry of Energy and Mines
   b. Environment affairs
4. What % of royalties?
5. Transparency – EITI
   a. Revenue distribution
6. Nigeria
   a. Example: local communities
      i. Danger of dependence on one revenue stream → need insurance mechanism

Environmental conditions
1. Direct involvement of community plus other stakeholders from exploration
2. Capacity building of local people on environmental issues and rights (legislation).
3. Clear obligations of companies
4. Change the Mines and Mining Act, link to the Environment Management Act (EMA) →
   Public awareness and scoping.
5. Kayelekera Uranium project and civil society
   a. Lessons learned
      → Avoid similar situations
   a. Incentives for good practice
7. Independent monitoring body
8. Funding of monitoring
9. Capacity building of institutions
   a. Technical expertise
10. Autonomy of Environment Affairs Department (EAD)
11. Coordinated effort to environmental compliance with international standards.

Social conditions
1. Including local community in Sustainability Impact Assessment (SIA)
2. Social Impact Assessment as part of the legal framework
3. Trustees of fund should help assess social issues.
   a. Cash circulation
   b. Cultural institutions
   c. Build skills
4. Government to have social impact mitigation measures.
5. Post-mine infrastructure to be used by community
6. Improvement of support infrastructure to be used by local community.

3. Results – Important issues for Mineral Sector in Malawi
Many issues were raised during the breakout group discussion and summaries of conclusions from
each group were presented by a chair of the group. The priorities were selected by the chair of the
group and participants were invited to vote which issue is the most important. Each person had 4
votes and he/she could distribute their votes anyway they wanted. For example, one can cast all 4
votes in one single issue, or can distribute votes among any issues of his/her choice. The result of the voting is summarized in the table below.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Total votes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonization of legislation and development of standards</td>
<td>26</td>
</tr>
<tr>
<td>Recruitment and training of staff including university</td>
<td>25</td>
</tr>
<tr>
<td>Capacity building of related institutions (EAD, Mines, Geology, etc.)</td>
<td>18</td>
</tr>
<tr>
<td>Licensing system review</td>
<td>16</td>
</tr>
<tr>
<td>Up-to-date survey</td>
<td>16</td>
</tr>
<tr>
<td>Modern ‘fit-for-purpose’ equipment</td>
<td>15</td>
</tr>
<tr>
<td>Transparency of revenue (EITI)</td>
<td>11</td>
</tr>
<tr>
<td>Revision of the mining fiscal regime</td>
<td>10</td>
</tr>
<tr>
<td>Data management and release of information</td>
<td>10</td>
</tr>
<tr>
<td>Government social impact mitigation schemes</td>
<td>6</td>
</tr>
<tr>
<td>Royalty distribution</td>
<td>4</td>
</tr>
<tr>
<td>Revive – mining chamber and MIDCOR</td>
<td>2</td>
</tr>
<tr>
<td>Support infrastructure to be used by communities</td>
<td>1</td>
</tr>
<tr>
<td>Community involvement and education from exploration phase</td>
<td>0</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


Lisungwe plc, Annual Report 2007

Globe Metals & Mining, Press Release 30 June 2008

Malunga, G., Malawi Mineral Sector Review commissioned by World Bank, June 2008


IIED, Small Scale Mining and Sustainable Development in the SADC Region, August 2001
End Notes

1 The study examined Sub-Saharan African countries and classified these into five groups (A to E) based on a technical assessment of mineral potential. Malawi was rated E together with a group comprising Benin, Cameroon, Chad, Congo, Guinea Bissau, Liberia, Mauritania, Niger, Senegal, Sierra Leone, Somalia, Swaziland, Togo and Uganda.

2 This is based on the Bankable Feasibility Study that uses a uranium price of US$60/lb and 3.3 mn lb of contained uranium per annum.

3 Gold was mined from 1906 to 1940 in small quantities.

4 The numbers refer to exclusive exploration licenses (EPLs) and excludes license renewals. Records from June 2007 show that 80 EPLs were being held in total.

5 Interest in the Mulanje bauxite deposit was generated as long ago as the late 1960s by the prospect of harnessing power from the Cahora Bassa hydroelectric plant and using the Zambezi waterways to transport output to the coast.


7 The royalty payable on uranium oxide by Paladin is at 1.5 percent of gross sales, less some deductions, over the first three years of output. Thereafter, the royalty rate rises to 3 percent of gross sales, less some deductions.

8 The Government declared its intention to review the Mines and Minerals Act as one among the commitments made to parties connected with the settlement of a court action brought by an alliance of NGOs against the Government seeking to challenge approval of the Kayelekera mine project.

9 The MGDS sets out the Government’s priorities to 2011 and longer term development goals. It adopted the growth priorities identified in the earlier MEGS.

10 The Ministry has established the Mining Licensing Committee to review license applications and advise the Minister. However, it acts on the basis of administrative procedure rather than statutory powers (see Paragraph 2.xx). This gives rise to uncertainty as to the basis of its powers and the obligations placed upon the Minister and Commissioner to act on its recommendations. Another issue is whether it is able to perform its functions efficiently. It is understood that it can be difficult to convene meetings of the MLC.

11 The Department is located separately from the Ministry HQ in a complex of former workshops. The Department had, by the end of 2007, managed to locate and open small offices in each of Malawi’s three regions, in order to address needs at the regional level.

12 Before amendment in June 2006 the generally applicable tax rate applied to mining businesses but mining expenditures of a capital nature (exploration, feasibility, construction and replacement capital) qualified for depreciation over five years on a straight-line basis (20 percent per annum), although the Minister could vary these arrangements by regulation. Furthermore, the effective tax rate could be reduced by the availability of deductions against gross incomes for exporters of non-traditional goods (which would include mining) and a special allowance for international transportation costs borne by the taxpayer.

13 Such stability will tend to be associated with a reduced perception of risk which, other things being equal, would result in an investor requiring a lower rate of return.

14 In the case of Kayelekera, customs duty and VAT exemption is provided in respect of all equipment, consumables and materials imported for use in the mining operations for the first ten years of production.

15 Tax incentives under an EPZ include a zero rate of corporate income tax and exemption from customs and excise duties. EPZ certificates are issued for five years and are renewable indefinitely for two years at a time.

16 The interest equity carries with it a right to 15 percent of the dividends declared by the mining company. This interest carries with it the obligation to meet 15 percent of the costs of operations, as of the date of acquisition, with no obligation relating to cost incurred prior to this date.

17 In accordance with this arrangement, Paladin is exempted from Resource Rent Tax and is subject to an income tax rate of 27.5 percent, rather than 30 percent.

18 In order to generate such comparative measures, the fiscal regimes of selected countries can be applied to a single hypothetical mine using a computer-based model. This allows impacts of the fiscal regime to be isolated from other factors that affect the economic performance of mines such as reserves, production rates and costs.
There are a number of minor levies collected by other bodies such as the Petroleum Control Commission and the National Roads Authority.

At the Minerals Sector Review Workshop held on March 17, 2009, the need for establishing social impact assessment (SIA) in parallel to EIA was suggested. Good practice, however, suggests strengthening the social assessment component within the EIA rather than creating another permitting process for mineral projects.

Mining is among the activities for which EIA is mandatory in the Guidelines for Environmental Impact Assessment.

The Minerals Sector Review Workshop recommended harmonizing the mining and environmental legislation, keeping environmental regulations only under the Environmental Management Act and not in the Mines and Minerals Act.

The following Acts, for example, refer to access to land and land compensation: the Land Act (1967), Land Acquisition Act, Customary Land Development Act, Register Land Act, Adjudication of Titles Act, Local Land Board Act and Deeds Registration Act.

In practice, many countries reserve the power to defer or waive royalty in conditions of economic hardship, when the alternative might be to face the premature closure of a mine. In some cases, such as in Tanzania, the circumstances under which such waiver can be offered is carefully defined in the mining code, so as to prevent its arbitrary or discriminatory use.