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Ministry of Mines
Federal Democratic Republic of Ethiopia

WORLD BANK GROUP

STRATEGIC ASSESSMENT OF THE ETHIOPIAN MINERAL SECTOR

FINAL REPORT

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FOREWORD

Ethiopia Mineral Sector Assessment | July 2014

Can Ethiopia's mineral resources be used for growth and transformation?

Ethiopia's mining sector shows strong potential for long term development. Although large scale mining has up to now been minimal, several large projects are in development. In addition, the country has geological potential for the discovery of new, sizeable mineral deposits. Ethiopia also has an extensive and unique artisanal mining sector, which makes it an important source of job creation, in addition to its potential as an important source of foreign currency and government revenue. If effectively managed, the mining sector can play a transformative role for social and economic development of Ethiopia. Mining is an export-oriented sector that satisfies increasing demand from industrial production, agriculture and high-tech sectors, and have the potential to create local linkages for social and economic development.

This report is the first comprehensive assessment of the Ethiopian Mining Sector. It examines the sector's primary opportunities and challenges for growth and transformation, while also providing an initial analysis of policy options for Ethiopian decision makers. Building on their political commitment to this sector, the Government of Ethiopia (GoE) needs to develop a broad vision for realizing its potential including socio-economic benefits. The interests of an array of stakeholders need to be balanced and social, environmental, and economic impacts have to be managed. In addition to GoE's facilitating and leading role, the report highlights the need for two important steps to be taken:

- the collection and marketing of high-quality geological/geophysical data to clearly identify Ethiopia's mining potential, and
- the establishment of an effective mineral management system and institutions to ensure the development of a responsible mining sector.

A broad-based group of stakeholders, including regional governments, large-scale companies, artisanal miners and communities were consulted throughout this report's preparation. The Ethiopia Ministry of Mines, the World Bank Group, and funding partners would like to acknowledge and thank all of them for their commitment and important contributions to the study.

This report is only a first step in an expanding process of dialogue and collaboration. We look forward to engaging with public and private sector partners to advance the discussion and accelerate action to realize the benefits of the extractive industries for all Ethiopians.

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ACRONYMS AND ABBREVIATIONS

AAS	Atomic Absorption Spectroscopy
AAU	Addis Ababa University
AICD	Africa Infrastructure Country Diagnostic
AMD	Acid Mine Drainage
AMV	African Mining Vision
ASM	Artisanal and Small Scale Mining
ATA	Agricultural Transformation Agency
CASM	Communities and Small-Scale Mining
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
DFAT	Department of Foreign Affairs and Trade, Australia
DFATD	Canadian Department of Foreign Affairs, Trade and Development
DfID	Department for International Development
EDF	European Development Fund
EEPCO	Ethiopian Electric Power Corporation
EFAP	Ethiopian Forestry Action Program
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
EPA	Environmental Protection Authority
FDI	Foreign Direct Investment
GoE	Government of Ethiopia
GSE	Geological Survey of Ethiopia
GTP	Growth and Transformation Plan
IBA	Important Bird Areas
ICMM	International Council on Mining and Metals
ICP-OES	Inductively Coupled Plasma - Optical Emission Spectroscopy
ICTZ	Inter-tropical Convergence Zone
IFC	International Finance Corporation
JSDF	Japanese Social Development Fund
MoFED	Ministry of Finance and Economic Development
MMA	Model Mining Agreement
MoM	Ministry of Mines
NGO	Non-Governmental Organisation
NPFA	National Priority Forest Area
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PPA	Power Purchase Agreement
PPP	Public Private Partnership
SAMS	Strategic Assessment of Mineral Sector
SGAB	Swedish Geological AB
Sida	Swedish International Development Cooperation Agency
SNNP	Southern Nations, Nationalities and People's Region
SYSMIN	System of Stabilization of Export Earnings from Mining Products
TVET	Technical and Vocational Education and Training
XRF	X-ray Fluorescence

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EXECUTIVE SUMMARY

Introduction

1. This report provides a review of the Ethiopian mining sector, and assesses its potential to contribute to sustainable economic growth and development. It further provides recommendations for the initiatives and actions that will be required for such development to take place, and identifies the risk and opportunities that this entails. The need for this type of strategic analysis follows from the Government of Ethiopia's (GoE) ambition to, as part of the Growth and Transformation Plan (GTP), develop the mining sector to become a main pillar of the economy.

2. The basis for the review is provided in the form of two main analyses: (i) an analysis of the geological and mineralogical potential of Ethiopia to support mining projects; and (ii) a scenario based modelling and analysis, based on mining sector data and associated forecasts, of the revenues that may be generated through the development of already existing mines and mining activities, as well as identified and promising mineral related projects in a 20 year perspective. These scenarios are then considered in terms of their implications for a range of issues that relate to sustainable development, such as: economic and social impacts; environmental concerns; institutional development; infrastructure needs and requirements; legislative development; financial and fiscal concerns etc.

3. The report was produced in the period May 2013 to March 2014. It was commissioned by the World Bank and its partners (IFC, DFATD, the Australian Government and DfID) with the aim to assist the GoE in its efforts to develop the mining sector. Thus, the report has been produced in close cooperation with staff at the Ethiopian Ministry of Mines (MoM). Its findings are mostly based on desktop reviews of existing documents, on a large number of meetings and interviews with affected and interested stakeholders and also on some field work performed in the southern and western parts of the country. Regular oversight and feedback has been provided by representatives from the World Bank and its partners.

The current state of the Ethiopian mineral sector

4. **Placer gold has been mined in Ethiopia for more than 2000 years, but a significant large scale mining sector has not yet developed.** Artisanal mining is extensive and primarily focussed on gold. The gold is mined mostly from alluvial deposits in the Proterozoic terrains in the south, west and north of the country (see map below), and is being mined by numerous artisanal and small scale miners (ASM). In the south, there is also a small state owned mine called Adola, where alluvial gold has been mined for over half a century. There is considerable gem mining, and some 90% by value of this derives from opal mining at one locality in the North Wollo Zone. Concerning the large scale sector, there is only one operating mine in Ethiopia, Midroc's Lega Dembi gold mine, ranked number 170 in the world in terms of value of production in 2012. A fairly mature gold project at Tulu Kapi, which has IFC involvement, was on hold during the second half of 2013 but changes in ownership and additional financing has now allowed for exploration activities to continue. The state-owned Kenticha tantalum mine is a sizeable project, however production was on hold in 2013, as the state attempts to privatize the mine.

5. **Ethiopia is also endowed with a range of industrial minerals deposits.** Cement raw materials and dimension stone are mined at a small industrial scale, while other industrial minerals are or have been mined at a smaller, often artisanal, scale. Most encouragingly for sector development, there is a large scale project for potash (Allana Potash), which has IFC involvement, and which is expected to start production by mid to late 2017. The current plan for the Allana mine is to produce 1 Mt/year during a life of mine of some 24 years, and to employ some 800 people.

6. **Despite the fact that large scale mining is still virtually non-existent, Ethiopia does have the geological potential for the discovery of new and sizeable economic deposits.** The areas which are identified as being promising are the Proterozoic basement areas in the north, west and south of the country, and they are geographically rather extensive compared to prospective areas in many other African countries. Exploration activities in these areas have increased over the last couple of years while they are still at a relatively modest level. In addition, the potash occurrences in the Danakil depression in northeastern part of the Rift Valley are sizeable and can support large scale production, as evident from Allana Potash's project.

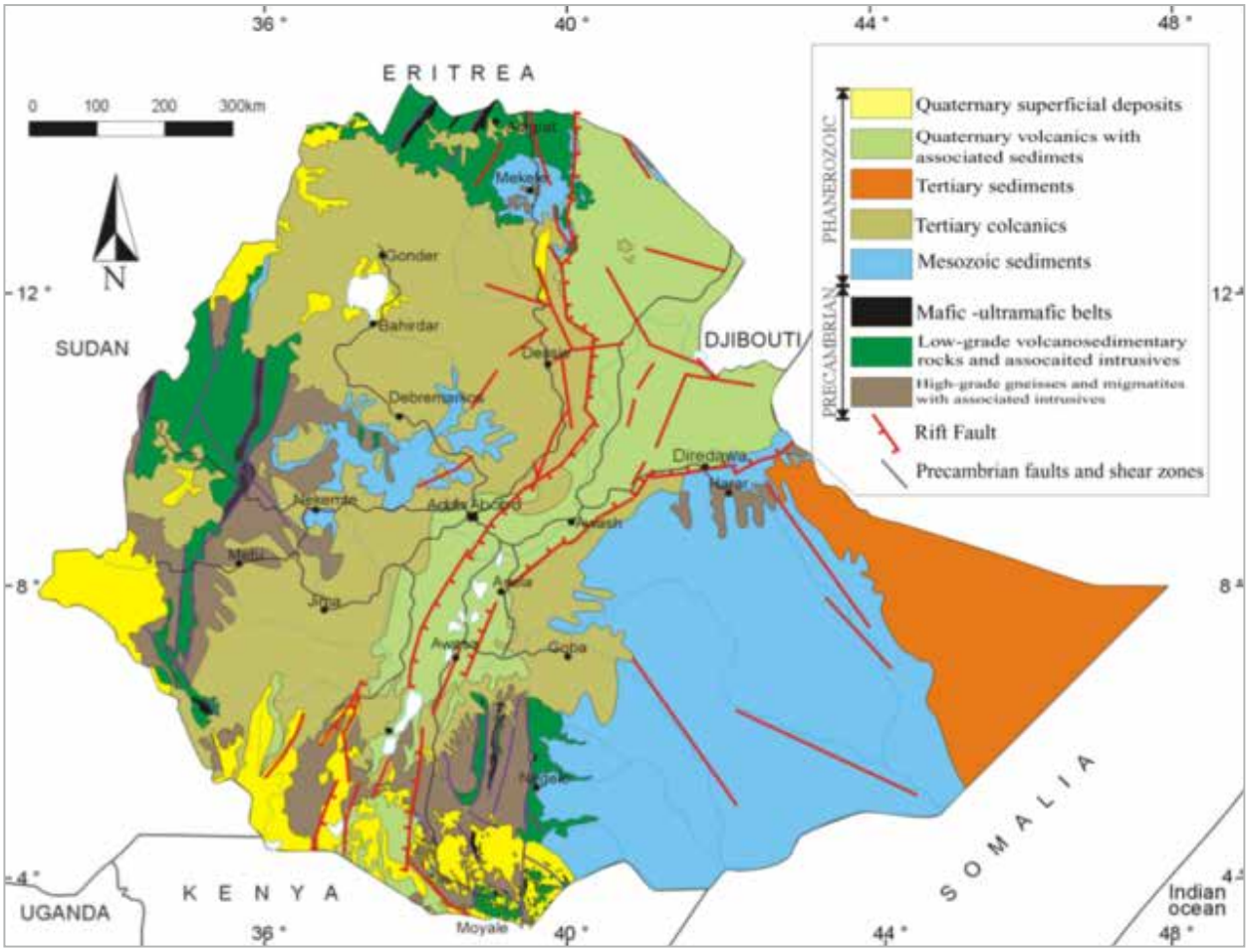


Figure i. Geological map showing Proterozoic terrains, the oldest rocks in Ethiopia, in dark green, black and grey. These areas are prospective for a variety of metallic minerals.

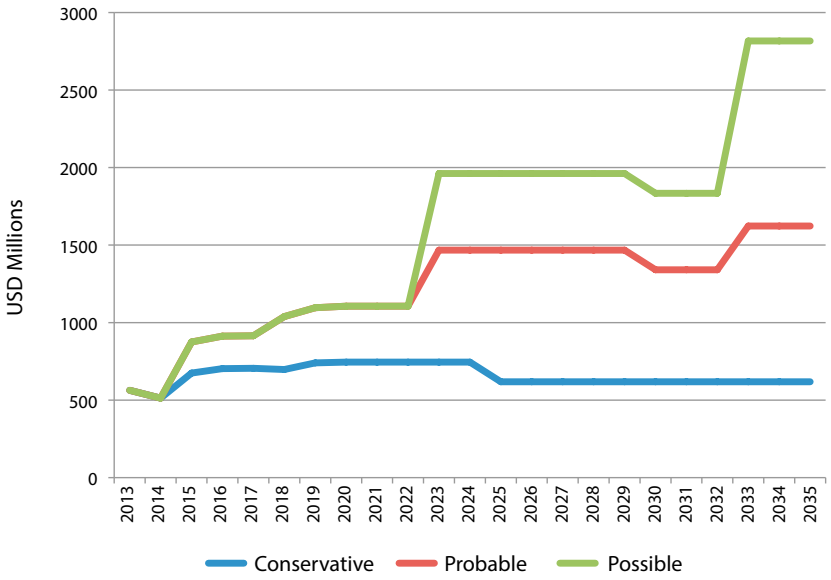
Potential mining development

7. **In the fiscal year 2011/2012, the Ethiopian mining sector contributed about 1.5% to GDP (tot. USD 32 billion).** The sector accounted for USD 618 million (19%) of the country's exports, with gold making up close to 100% of the mining sector exports. In comparison, agriculture contributed 46.4%, industry 10.5% and manufacturing 3.6% to GDP and the largest export commodity, coffee, generated USD 833 million (26%) in export revenues.

8. **Based on an assessment of Ethiopia's geological endowment, the current status of the exploration industry, and general success rates in exploration globally, this report presents three scenarios for future development of the sector (graph below).** Given the fifteen to twenty years that will be needed for the mineral sector in Ethiopia to generate critical mass, the economic potential from the sector is clearly difficult to predict. However, three scenarios, conservative, possible and probable, are generated, and these are concerned with gold, potash, tantalum and copper (these being the commodities primarily explored now).

9. **In a probable scenario, it is proposed that the mineral sector could generate revenue up to USD 1.5 billion by 2024 and in an optimistic scenario some USD 2 million.** In the probable scenario, the revenue corresponds to about 70% of the current export value of gold in Tanzania (USD 2.2 in 2012), an emerging mining economy dominated by gold production. In Ghana, which has a long mining history where gold accounts for more than 90% of the total mined value, gold exports were worth almost USD 5 billion in 2012.

10. In 2012, total sales from the mining sector in Africa where valued at USD 120 billion (this does not include mining for industrial minerals), representing nearly 10% of the continent's Gross Product. In Africa, metal mining and coal mining are about the same magnitude in terms of value. Among the metals, gold, copper and iron ore make up more than half of the value. If one assumes that the geology of Ethiopia is as prospective as the African "average", then these numbers would imply that the present day economic potential for the development of the Ethiopian mining sector would be to achieve an annual turnover of nearly USD 5 billion (with Ethiopia covering 1,227,127 km²; 4% of Africa's surface).



Conservative: Due to the many possible risks facing mineral sector investment, exploration in Ethiopia is not intensified.

Probable: Only small increase in mining, primarily due to the currently low number of advanced projects and rather low intensity of exploration.

Possible: Will require strong intensification of exploration activities.

Figure ii. Estimated total sales revenues based on mining development scenarios for gold, copper, tantalum and potash.

11. Through corporate income tax and royalty payments the scenarios (graph above) give that the State can gain between USD 100 and USD 500 million by 2024. Further, direct employment from the mining sector can range from 1400 to 8000, depending on which scenario is fulfilled.

Table i. Estimation of economic impact (corporate tax and royalties) and employment based on development scenarios for gold, copper, tantalum and potash mining.

Economic Impact (USD million)	2013	2018	2024	2030	2035
Conservative	54	99	104	64	64
Probable	54	201	322	282	372
Possible	54	201	480	440	738
Direct Employment Potential (Number)					
Conservative	<1300	<1400	<1400	<400	<400
Probable	<1301	<3000	<4300	<3400	<5900
Possible	<1302	<3001	<8000	<7000	<10,000

Considerations for sector development and sustainability

12. **Ethiopia aims to build and develop an essentially new economic sector--- the large-scale mineral sector. The lead times from exploration to a large-scale mine being commissioned are long (often 10-15 years), and thus, a similarly long-term perspective is necessary when supporting and managing the sector.** The current policy framework envisions the mineral sector to be the 'back bone' of the industry by 2020-2023, with an increase in the contribution to the GDP from the current 1.1% to 10%, and a 10-fold increase in its contribution to foreign currency earnings. The rapid development envisioned in the policy framework may not be realized (cp. development scenarios above), and the development of the mineral sector could benefit from adopting a longer term view based on a slower growth rate. A slower growth rate can, in some ways, be viewed as being positive as it provides time for needed governance structures to develop which, in turn, will make it more likely that the sector develops in a sustainable manner. A long term view needs, in general, to be based on the sector's particular characteristics such as the inherent geological and financial uncertainties, the industry's cyclical nature, and technical requirements for advanced exploration.

13. **The draft Mining Policy, which is currently under review, is comprehensive in its scope and provides a good basis for the future development of the sector and its contribution to wider sustainable economic development.** The scope of the policy is broad, requiring a wide range of governmental institutions to be involved in the further revision of the policy, in the formulation of more detailed policy actions, and in its implementation.

14. **A policy and legal framework which clearly defines the role of the state - when other than regulatory – is important for the orderly and successful development of any mineral sector.** Furthermore, it is beneficial to both investment and governance that this role is clearly communicated to stakeholders and investors and that it is reflected in all actions that relate to state involvement in the sector. The Ethiopian policy environment explicitly envisions mineral sector development to be driven by private sector investment and recent attempts to privatize state-owned mines lends support to this intention. At the same time, the policy and legal framework does provide for state involvement in mining, 'by itself or in partnership with private investors'. The Ethiopian government could consider the lessons learned from elsewhere, and develop and implement policies that are in line with the wealth of experiences than exist with regards to state involvement in mining. There are examples of partly or fully state-owned mining companies successfully coexisting with the private sector. Such successes are generally based on long histories and significant contributions from the respective companies to national development, but also on clear policies and rules for how such companies should be managed and run, as well as the transparent implementation of these rules.

15. **In a mineral sector driven by the private sector, investments in exploration are mainly made on the basis of geological prospectivity.** In the absence of recent "success stories" (apart from Allana Potash in the case of the industrial minerals sector) and with limited geological/geophysical data pertinent to exploration, the collection of new high-quality data, and the subsequent marketing of these data through a long term strategy for investment promotion assume vital importance. The fact that investors are mainly drawn by geological prospectivity is exemplified by large investments being made in countries with what is regarded as unstable and/or comparatively less attractive mining regulatory regimes. Given the large capital that is needed to start any sizeable modern mine, the investment needed will by necessity have to come from international sources and companies.

16. **The existence of a modern and well-functioning Mining Cadastre and Registry System and clear rules for the award of licenses are key features for the promotion of investments in the mining sector.** Potential investors are more likely to invest in a country where the mining cadastre is of a high quality and transparent nature. Not only is it important that the Mining Law itself guarantee this security of licenses and tenure, but the administration of the Law needs to be transparent, decisive and efficient. A number of provisions in the 2010 Mining Proclamation have resulted in rules, which negate the policy objective of a legal regime that is attractive to investors and that can be perceived as contradictory. Thus, different articles provide for: (i) the dealing with exploration license applications in order of receipt (which may be understood to imply a 'first-come-first-served' system); (ii) priority to be determined by the authorities on the basis of the companies' technical and financial abilities, according to defined criteria - a directive that became effective in October 2013 provides for the collection and assessment of exploration license applications on a monthly basis; (iii) disregard of applications altogether, and the subsequent bidding for the area in question. The process and criteria involved in competitive bidding are not yet established. There is currently a considerable back-log in the assessment of exploration license applications, while the intention is to assess these on a monthly basis. This may in part be due to efforts to discourage speculative applications and/or companies that do not have the necessary know-how or resources. It is however also clear that there exist some critical capacity constraints that prevent the licensing authority to assess applications on time. In addition to the above, there have been cases when the state does not relinquish ground in case of companies not conforming to legal requirements or when a company leaves an area for other reasons, and the area then becomes reserves for potential bidding. In all, there may exist, consequently, scope for biased or compromised handling of exploration licensing.

17. **A computerized mining cadastre system was commissioned in 2011, but since then, it has partly fallen into disuse, and during part of 2013 it has not been functioning.** The reasons for the partial non-functioning of the existing system is partly reported to be due to software problems, and the absence of a budget to perform necessary updates and perform "bug fixes", and partly due to the governments change in policies with regards to how licences for mining and exploration should be awarded.

18. **A clear legal framework is important both to attract investors and to facilitate regulation of the industry.** The key legislation governing the mineral sector is the Mining Operations Proclamation No. 678 / 2010, and a recent (2013) amendment to the proclamation, while the regulation that is currently in use was drafted pursuant to the old mining proclamation from 1994. There is also a Model Mining Agreement (MMA) that was drafted pursuant to the old mining proclamation. In practice, exploration license holders must negotiate and enter into a Mining Agreement with the Government to get granted a large-scale mining license and the MMA establishes terms in a rather general manner, without elaborating much on important financial, environmental and community aspects and leaving a few provisions open for negotiation. Thus, drafting of new regulations to provide further effect to the new mining proclamation and revising the MMA to make it consistent with the new mining proclamation will make the legal framework more complete. A comprehensive revision of the MMA, in the light of new laws and regulations, incoming transparency requirements and sustainable development commitments, would also make it a useful tool for coordinating the work of different regulatory agencies with a role in mining.

19. **Governmental involvement the mineral sector is centred to MoM and the Geological Survey of Ethiopia (GSE) with other institutions having rather weak knowledge about, and little involvement in mineral sector governance and development.** While considerable competence exists in particular among many MoM and GSE long-term employees, the overall capacity at MoM and GSE for proper promotion, supervision and regulation of the sector is limited. The main reasons for this include the historically non-existent large scale mining sector, which has not provided the opportunity for consistent capacity development; the high number of staff at MoM and the GSE (totally 1,500 according to the structural plans with current number of employees being about 900), of which the majority are working in administration or support processes rather than core process; a high turnover of staff and a decrease in the number of long-term experienced staff, prevents consistent capacity building, and which is related to civil sector salaries being significantly lower than those offered by the private sector, and; non-flexible budgeting and procurement procedures, which in particular hamper work at the drilling and laboratory units of the GSE. Important areas affected include mainly the provision of geological information; mineral rights administration and regulation; environmental and social regulation (which was recently transferred from the EPA to MoM), and; mining contract negotiations. Institutional restructuring, to facilitate increased salaries and more efficient processes, and capacity building plans could be considered.

20. **The regional states, following the general organizational set-up of the Ethiopian state, have a governmental structure related to mining that parallels the federal level structure.** This structure extends down to the zone, woreda and kebele sub-regional levels. Some types of mineral licenses, and associated regulation, are under control of the regions, and woredas are significantly involved in ASM management. Lack of capacity is also an issue at the regional and sub-regional levels of governance and the degree and success of coordination between federal, regional and sub-regional levels seem to vary.

21. **The development of local skills is important for job creation as well as to attract investors and it is possible that the industry may require between a few hundred and possibly up to a couple of thousand skilled staff over the next 5-10 years.** Human resources with skills of direct relevance to mineral sector work are to a large degree lacking in Ethiopia. Furthermore, the quality of higher education specialized towards exploration, mining and mineral processing is low as there is a serious lack of qualified teachers and technical resources at educational institutions. While the development of mining related training at TVET institutions is part of the government's strategy, there are as yet no curricula developed. As a result, many exploration companies source skilled staff from outside Ethiopia. Even though mining is not labour intensive, compared to for example the manufacturing industry, the presence of a local skilled work force is important in attracting investment and the presence of well-trained nationals will ensure that the larger scale mining projects do not turn into "enclave economies", where expatriate workers fly in and out to conduct the specialised work required.

22. **Ethiopia has a sizeable ASM sector for gold, although its exact size and characteristics remain poorly understood. The priority here is therefore to provide a better understanding of the sector, and to tailor measures that enable the sector to be better managed and controlled.** ASM activities are seen as a possible vehicle for industrial development, and may be an important livelihood for what are usually rural communities who have limited alternative economic opportunities. It also constitutes a sizeable source of employment, with the MoM estimating that up to 1 million people may to some extent be involved in ASM activities. ASM gold mining is a significant economic sector in Ethiopia but it is, however, also associated with some troublesome characteristics, that include informality (not being legal), social and environmental impacts, and that these activities may hinder the development of large scale mining operations. The MoM is heavily involved in

attempting to better organise and develop the sector, and to make it part of the formal economy. With regards to the gold sector, the National Bank of Ethiopia has been implementing a programme where gold is bought from ASM miners at a 5% increment to the prevailing gold price. This mechanism has been successful and in 2013 a total of around 8 ton of gold was reported to have bought this way. However, findings from fieldwork performed the present project suggest that the productivity of the ASM gold miners is rather low, and that much of the gold produced is sold not to the National Bank but through illicit channels. It is further clear that there are occurrences of land use conflict, most commonly with farmers but perhaps most importantly, with larger scale exploration projects and mines. The latter may constitute a significant deterrent for future investments in the Ethiopian mining sector. There exists a need to perform proper baseline studies, so that a better understanding of the sector can be obtained which, in turn, can form the basis for informed policy and management decisions.

23. **Gender inequalities are apparent in many areas of the Ethiopian mineral sector, and related education.** Thus, the number of men employed by the currently active exploration and mining companies far exceeds the number of women. Concerning ASM, the male population in most ASM areas commonly exceeds that of female widely, their respective duties often differ, and surveys further suggest that a man earns nearly twice of what is being earned by a woman. At universities, although the exact figure is not known, less than 30% (possibly much lower) of the students pursuing mining related education are female, and only 5% of the academic staff teaching mineral sector related subjects are female. For TVETs, while there is no data for mineral sector professionals training, in 2010/2011 46% of all the students enrolled at TVET institutions were female. Among TVET trainers, however, only some 16-17% were female. At MoM, 40% of the staff are women and the gender distribution varies with different units/directorates having 14% to 100% female staff. Several senior and executive positions have been or are held by women.

24. **Ethiopia is a diverse country, with a long and unique history and with numerous cultures and languages existing side by side. It is also a very rich country in terms of biodiversity and natural heritage.** Fortuitously, the geologically most prospective areas do not intersect with areas that are either very densely populated, nor where there are a significant amount of protected or otherwise unique areas. However, some areas of potential conflict exist, and these need to be acknowledged and managed. If not, mining itself may well loose the support of local communities, as well as attract opposition from both national and international organisations. In terms of environmental legislation, there is only the EIA Proclamation and a few general provisions of the Mining Proclamation. Thus, the legislation is quite general in nature, and governance could benefit from the development of further, more detailed regulations, as well as guidelines to support both the authorities and the industry. With existing legislation providing rather significant room for interpretation, the requirement for companies to be proactive, and to behave responsibly is paramount. This, in turn, means that efforts to encourage companies to undertake serious and well thought out corporate social responsibility (CSR) related activities are important. In this line, further work to develop a more comprehensive MMA, than the one in existence could be useful. Also, impacted communities' ability to understand and "monitor" mining and exploration activities need to be strengthened.

25. There are land use related conflicts and/or disagreements in mining areas; examples include trespassing of ASM miners onto large scale projects at Adola and Tulu Kapi, and conflict between farmers and exploration activities at Lega Dembi. As all land is essentially controlled by the provincial states, one may conclude that such issues should be fairly readily handled and resolved. However, to achieve such resolutions, there needs to exist clarity on how land may be allocated to mining projects, and this is not always the case. For example, there are examples where provincial state policy on agriculture, is not in line with Federal state policy on mining with the result that it is unclear which activity may take precedence.

26. There are a range of forestry and wildlife areas protected by law, but in many of these, mining and exploration may be allowed if deemed to be a priority by the State. It is unclear under what circumstances these activities may be allowed, which causes overall uncertainty and also the risk that an adventurous exploration company undertakes work in areas where other stakeholders may see this to be unacceptable, which in turn may affect the reputation of the whole sector.

27. **The GoE's direct incomes that relate to mineral project stem from equity participation, (mining) income tax and royalties.** The MMA provides for the acquisition of a participation interest by the Government without a cost, which is also part of the recent amendment to the 2010 Mining Proclamation where the State is given a 5% share (free carry) in all large and small-scale mining projects with the possibility to negotiate additional equity participation by agreement. At present, the income tax for large-scale mining which is fixed and set at the federal level was recently lowered from 35% to 25% (payable to the federal state), while the regional states have the mandate to set the income tax for small-scale mining at the regional level, so there is no fixed rate for small-scale mining. Royalties are calculated in ad valorem basis and are charged at 7% for precious minerals, 5% for metallic minerals and 4% for industrial minerals. The royalty rate is rather similar to other African countries whereas the corporate tax rate and the percentage of equity participation is lower than what is the case in many African mining countries.

28. The current export revenue from the mineral sector is small due to the limited size of the sector, although still important for Ethiopia and a source of foreign exchange (7-10% of total in the last few years). There is no special fund for collecting, saving or investing mineral related revenues. Such a fund would be useful if there was a sudden "surge of capital" related to mining, and where arguments could be made that such revenues would risk causing "dutch disease" (inflation, appreciation of domestic currency, out competition of other sectors etc.) or where one argues that the incomes are so large that these should also be shared with future generations.

29. In the legislation, there is a revenue sharing mechanism in place, where 60 percent of the royalties collected from large scale operations are allocated to the federal government and the remained is allocated to the provincial state where the mine in question is located. Similarly, for small scale mines, 60 per cent of the royalties remain in the state where the mine is located, whereas 40 percent is allocated to the federal government.

30. **Ethiopia applied for Extractive Industries Transparency Initiative (EITI) candidacy for the second time in October 2013, the first application was declined due to controversies over the country's civil society legislation.** Achieving EITI candidate status would be conducive to curtailing possible corruption in the sector, as well as send a positive signal to foreign investors and local stakeholders. The legislation related to CSO/NGO remains the main stumbling block in achieving fully compliant EITI status and it would possibly need to be reviewed if EITI compliant status is to be achieved.

31. **The links from mining to the manufacturing sector and to beneficiation of minerals are rather limited as a direct result of the paucity of sizeable projects.** The current state of economic linkages between the mineral sector and the rest of the economy are strongest for the cement sector. Once potash production starts, linkages to the agricultural sector are expected to develop (through provision of fertiliser). The linkages between the Lega Dembi operation as well as the larger exploration projects (Allana Potash and Nyota Minerals' Tulu-Kapi project) with the rest of the economy being rather weak, as the current capacity of the domestic firms to provide inputs and services for international mining firms' remains limited. It is clear that fiscal, consumption and production linkages from the mining sector can be further developed, with both the industrial sector as well as the economy at large.

32. While the rather ambitious policy targets (paragraph 9) may not be met in the next decade, the sector development that is achieved should be supported by comprehensive work on establishing value chains. This is in order to gain the economic benefits of forward and backward linkages. With regards to industrial minerals mining, detailed studies of market requirements coupled with studies of mineral specifications are required for the sector to grow and linkages to develop further. Mining for industrial minerals does often not attract nearly as much interest as precious minerals mining. However, the industrial minerals sector is sizeable and, in addition, absolutely vital for the economy of all countries. The industrial mining sector of Ethiopia could develop significantly, given due consideration from, and encouragement by, the MoM.

33. **In terms of infrastructure, surface transport is the most critical with regards to supporting the realization of Ethiopia's minerals development potential.** At this time, there is no alignment of railway lines and/or phasing that coincide with priority mineral sector developments, which is unsurprising given the small size of the mining sector and the fact that locations of future mines are unknown. The Government of Ethiopia is planning the development of a new, modern, state of the art, standard gauge railway network with the objective of accelerating the growth of the economy as a whole as opposed to being driven by demand from a specific economic sector or major customer(s). It is unclear whether the projected traffic volumes underlying proposals for the development of the rail network are based in any way on a consideration of potential minerals commodity traffic. Clarifications and further work in this regard are needed, and assumptions also need to be made regarding the possible requirements of such transport. The current size of the mining sector does not presently warrant large spending on infrastructure specific to the sector, except for the specific case of Allana Potash. The logistical needs that will emerge in ten to fifteen years from now and therefore need to be considered in future transport (particularly road and railways) planning.

34. The ports of Djibouti and Tadjourah in Djibouti are the main conduit of imports of material for the mining sector and will also serve as the main port for potash exports. While consideration may ordinarily be given to other potential points of export (such as Asseb and Massawa in Eritrea or Berbera in Somalia) regional geo-politics and the lack of surface transport linkages connecting them to demand centres within Ethiopia renders such considerations less relevant at the present time.

35. For energy infrastructure, the state is focusing on interconnection and power exports, the successful completion and commissioning of the Gilgel Gibe III and Grand Renaissance Dam projects and associated transmission network infrastructure. Given the scale of proposed or current power generation projects, it would appear likely that there will exist sufficient capacity to meet the early-stage requirements of a developing minerals sector.

36. There have been no public private partnerships in the infrastructure sector, and there are no known plans of this to happen in the near future. So far, infrastructure investments have been funded by the State, including projects awarded to China and Turkish firms. However, currently, a public private partnership proclamation is being drafted by the government, which might suggest that new developments within this sphere can be expected.

37. **In planning for future mining development, a 'Resource Corridor' approach should be considered.** It is still too early to identify the exact geographic areas in which such could be developed but it appears likely to include the areas which we have identified as being geologically prospective, and their connections with suitable ports (Djibouti). Importantly, the resource corridor approach encompasses not only infrastructure and manufacturing capacity in mining areas, but also the development of institutional capacity (both regulatory and monitoring), the development of civil society organisation capacity to effectively engage with mining companies as well as local skill development and employment. A first possibility to start thinking and planning in accordance with this corridor approach is provided by the Allana Potash project, which will provide significant opportunities for building up associated infrastructure, service industry and regulatory capacity.

Summary of recommendations

38. **The report concludes with recommendations (Chapter 13) for a range of initiatives that can support the positive development of the Ethiopian mining sector.** As significant support to the Ethiopian mining sector is being planned through the Australian Government, DFATD, DfID, World Bank and Chinese initiatives, the work that is identified must be carefully coordinated with regards to who does what, and to avoid any duplications of efforts. Recommendations are provided for actions to be initiated in the short (6-12 months), medium (12-36 months) and long term (>36 months) perspective. As gender inequalities occur across different areas of the mineral sector and related education, gender aspects need to be considered and mainstreamed into all relevant sector development activities, while particular focus in this respect should be placed on education for mineral sector professionals, the ASM sector, and impacts from mining development that is specific to women.

39. In the short term, actions are proposed to be initiated that address issues that are presently constraining the mining sector. These include: (i) the establishment of a clear policy direction (as well as associated laws and regulations) regarding the conditions under which licenses for exploration and mining should be granted; (ii) addressing organizational and capacity building needs at the MoM; (iii) given limited supervising capacity on part of the authorities, efforts to encourage mining companies to be proactive, and plan and implement programmes ensuring that projects indeed contribute to sustainable development (i.e. CSR); (iv) increased provision of information on the geological prospectiveness of Ethiopia, using existing data and knowledge; (v) support to Ethiopia in achieving EITI compliance status, to prepare for increasing stakeholder demand for information and to further develop its public relations capacity; (vi) development of mineral revenue sharing mechanisms, and; (vii) baseline work to better understand the nature and complexity of the ASM sector, in order for the authorities be better able to support the development of this sector.

40. In the medium term, initiatives that will underpin the further development of the sector are proposed. Such initiatives include: (i) the gathering of new geological data, including the dissemination of such data; (ii) efforts to ensure that local professionals exist (both male and female) that can take on the jobs and opportunities that modern exploration and mining projects will provide. (iii) capacity development within targeted NGOs/CSOs and/or traditional organisations with regards to what mining is and what may be expected from mining led development; such work would, in turn, mean that these communities are better able to assist the authorities in the monitoring and control of mining operations, and; (iv) research and development in the area of industrial minerals mining and linkages to the domestic industry.

41. In the longer term, and in step with the development of a larger, more substantial mining sector, the authorities are recommended to plan holistically to ensure that maximum benefits can be derived from the sector. Approaches of importance include "resource corridors", the encouragement of "linkages", and in the longer term, ensure that beneficiation of raw materials is done domestically, to the degree that is economically efficient. Lastly, once urgent developmental needs are met, then a sovereign wealth fund may be considered which, if well managed, would contribute to prudent economic growth, and to ensuring that incomes from the sector are fairly, and transparently distributed also to coming generations.

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የሪፖርቱ ማጠቃለያ ሐሳብ

መግቢያ

1. ይህ ሪፖርት የኢትዮጵያ ማዕድን ዘርፍን ይዳስሳል። ዘርፉ ያለው እምቅ አቅም ለዘላቂ የኢኮኖሚ ዕድገትና ልማት የሚኖረውን አስተዋፅኦ ይመለከታል፡ ከዚህ በተጨማሪም፣ ዘላቂ የኢኮኖሚ ዕድገትና ልማት በማምጣት ረገድ ምን ዓይነት እንቅስቃሴ እና ዕርምጃ መወሰድ እንዳለበት አማራጭ ሐሳብ ያቀርባል። ያሉትን ተግዳሮቶችና ዕድሎችም ይጠቁማል፡፡ ይህንን ዳሰሳ እና ትንተና ማዘጋጀት ያስፈለገው ከኢትዮጵያ መንግሥት የልማት ፍላጎት እንዲሁም ከእድገትና ትራንስፎርሜሽን ዕቅዱ (GTP) ውስጥ ከተካተቱት የልማት ምሰሶች አንዱ የማዕድን ልማት ዘርፍ በመሆኑ ነው፡፡

2. ይህ ሪፖርት በሁለት የትንተና ሐሳቦች ላይ መሰረት ያደርጋል፡፡ (ሀ) የከርሰ ምድር (ጂኦሎጂ) እና የማዕድን (ሚኒራሎጂ) ጥናቶችን መሠረት በማድረግ የኢትዮጵያ የማዕድን ልማት ዘርፍ ፕሮጀክቶችን መደገፍ እና (ለ) ሁኔታዎችን መሠረት ያደረገ ሞዴላዊ ትንተና ሁለተኛው የዚሁ ሪፖርት የትንተና መሠረት ሲሆን የማዕድን ዘርፍ መረጃዎችንና ከዘርፉ ሊገኝ ይችላል በሚል ከተገመቱ ገቢዎች በአሁኑ ወቅት ከዘርፉ የሚገኝ የገቢ አቅምን እንዲሁም በቀጣዮቹ 20 ዓመታት ከዘርፉና ከዘርፉ ጋር ግንኙነት ሊኖራቸው የሚችሉ ፕሮጀክቶችን በመለየት ጥቅማቸውን ይተነትናል፡፡ እነዚህ ሁኔታዎች ከተለያዩ ተግዳሮቶችና መልካም አጋጣሚዎች ጋር የሚኖራቸው ቁርኝት ለምሳሌ፣ ኢኮኖሚያዊ፣ ማኅበራዊና አካባቢያዊ ተጽዕኖዎች፣ አስፈላጊ የሆኑ ተቋሞችን በመመስረት ረገድ፣ ልማቱ የሚጠይቃቸው ወይም አስፈላጊ የሆኑ የመሰረተ ልማት ዝርጋታዎችን እንዲሁም የሕግ፣ የፋይናንስና የበጀት ማዕቀፎችንና የመሳሰሉትን በመዳሰስ ይተነትናል፡፡

3. ይህ ጥናት እ.ኤ.አ. ግንቦት 2013 እስከ መጋቢት 2014 ባለው ጊዜ ውስጥ ነው የተዘጋጀው፡፡ ጥናቱ እንዲዘጋጅ ያደረጉት የዓለም ባንክና አጋሮቹ፤ አለም አቀፍ የፋይናንስ ኮርፖሬሽን (IFC)፣ የካናዳ የውጭ ንግድና ልማት ተቋም (DFATD)፣ የአውስትራሊያ መንግሥት እና የእንግሊዝ ዓለም አቀፍ ልማት (DfID) ናቸው። አላማውም የኢትዮጵያ መንግሥትን በማዕድን ልማት ዘርፍ መደገፍ ነው፡፡ በመሆኑም ሪፖርቱ የተሰራውና የተዘጋጀው ከኢትዮጵያ ማዕድን ሚኒስቴር የሥራ ኃላፊዎች ጋር በመቀናጀትና በመተባበር ነው፡፡ የሪፖርቱ ግኝቶች በአብዛኛው የተሰሩ ስራዎችን፣ ዶክመንቶችን (Desktop review) በመመልከት፣ የተለያዩ ስብሰባዎችንና የማዕድን ልማት ከሚመለከታቸው የመስኩ ባለሙያዎች ጋር ቃለ መጠይቅ በማድረግ እንዲሁም የመስክ ጉብኝቶችን በተወሰኑ የደቡብና የምዕራብ የአገሪቱ ክፍሎች ላይ በማድረግ ነው፡፡ መደበኛ የሆነ ክትትልና አስተያየት በዓለም ባንክና በአጋሮቹ ተደርጎበታል፡፡

የኢትዮጵያ የማዕድን ዘርፍ ወቅታዊ ሁኔታዎች

4. በኢትዮጵያ ላለፉት 2000 ዓመታት በባህላዊ መንገድ የደለል (Placer) ወርቅ የማውጣት ሥራ ተግባራዊ ሲደረግ የቆየ ቢሆንም ከፍተኛ የማዕድን ልማት እስካሁን የለም፡፡ ልማዳዊ የማዕድን ሥራ በስፋት በተለይም በወርቅ ማምረት መስክ ይስተዋላል፡፡ ወርቅ የማውጣት ሥራ በአብዛኛው በደላላማ የፕሮቴሮዞይክ (Proterozoic) የሆኑ የአገሪቱ የደቡብ፣ የምዕራብ እና የሰሜን አካባቢዎች ሲሆን፣ (ካርታውን ከታች ይመልከቱ) የሚከናወነውም ቁጥራቸው በርካታ በሆኑ በባህላዊ መንገድ በሚያመርቱ እና አነስተኛ አምራቾች ነው። በደቡብ አካባቢ በመንግሥት የተቋቋመ አዶላ የተባለ አነስተኛ የማዕድን ማምረቻ ላለፉት 50 ዓመታት በደለላማ ቦታ ላይ ወርቅ ያመርታል፡፡ ጌጣጌጥ ድንጋዮችም በስፋት የሚመረቱ ሲሆን፣ ከነዚህ ጌጣጌጥ ድንጋዮች 90 በመቶ የሚመረቱት ከአፓል ማዕድን ነው። ይህም የሚመረተው በሰሜን ወሎ ዞን ነው፡፡ በከፍተኛ ደረጃ የሚያመርቱ ኩባንያዎችን በተመለከተ በኢትዮጵያ የሚገኘው አንድ ኩባንያ ብቻ ነው፡፡ ይኸውም ሚድሮክ ለገደንቢ የተባለው ኩባንያ ሲሆን በዓለም የወርቅ ማዕድን በማምረት 170ኛ ደረጃን እ.ኤ.አ በ2012 አግኝቷል፡፡ የተሻለ የሚባል የወርቅ ማዕድን ፕሮጀክት በቱሉ ካሮ አካባቢ በዓለም አቀፉ የገንዘብ ኮርፖሬሽን (IFC) ድጋፍ ተጀምሮ ነበር፡፡ ከ2013 ሁለተኛ አጋማሽ በኋላ ግን ተቋርጧል፡፡ ነገር ግን የፕሮጀክቱ ባለቤት ለውጥ ከተደረገ እንዲሁም ተጨማሪ ኢንቨስትመንት ካገኘ በኋላ በአሁኑ ወቅት በጥሩ ደረጃ ላይ ይገኛል፡፡ በመንግሥት ባለቤትነት ሥር የሚገኘው ቀንቲቻ የታንታለም ማዕድን ትልቅ ፕሮጀክት ነው፡፡ ነገር ግን የኢትዮጵያ መንግሥት ኩባንያውን ወደግል ለማዞር በማሰቡ በ2013 ፕሮጀክቱ ተቋርጦ ነበር፡፡

5. ከወርቅና ከላይ ከተገለፁት በተጨማሪ ኢትዮጵያ በኢንዱስትሪ ማዕድኖች በተፈጥሮ የታደለች አገር ናት፡፡ የሲሚንቶ ምርት ጥሬ ግብዓቶችና የማዕዘን ድንጋዮች በአነስተኛ ኢንዱስትሪዎች ይመረታሉ፡፡ ሌሎች የኢንዱስትሪ ማዕድኖች ደግሞ በጥቃቅን እና አነስተኛ ድርጅቶች በልማዳዊ አሰራር ይመረታሉ፡፡ በጣም ዘርፉን ሊያበረታታ በሚችል ሁኔታ የሚጠቀሰው ከፍተኛ የፖታሽ ክምችት (አላና ፖታሽ) ነው፡፡ የአላና ፖታሽ ክምችት ለማልማት IFC አስተዋጽኦ እያደረገ ሲሆን በ2015 ወደምርት ይገባል ተብሎ ይጠበቃል፡፡ አሁን ባለው እቅድ መሠረት ከአላና ፖታሽ በዓመት ነ ሚሊዮን ቶን ለተከታታይ 24 ዓመታት ማምረትና በፕሮጀክቱም 800 ሠራተኞች መቅጠር እንደሚቻል ይታመናል፡፡

6. ምንም እንኳን ከፍተኛ ማዕድን አምራቾች በኢትዮጵያ ባይኖሩም የአገሪቱ ከርሰ ምድራዊ ሁኔታዎች እምቅ የሆኑ አዳዲስ የማዕድን ሀብቶች ሊገኙ እንደሚችል ያመለክታል፡፡ ከነዚህ አዳዲስ የማዕድን ክምችት እንደያዙ ከሚገመቱት አካባቢዎች መካከል ተስፋ ሰጪ የሆኑት የፕሮቴሮዞይክ (Proterozoic) ተፋሰስ አካባቢዎች ማለትም የሰሜን፣ የምዕራብና ደቡብ የአገሪቱ ክፍሎች ሲሆኑ በእነዚህ አካባቢዎች ይኖራል ተብሎ የሚገመተው የማዕድን መጠን በሌሎች የአፍሪካ አገሮች ከሚገኙ የማዕድን አካባቢዎች የላቀ መሆኑን ከአካባቢዎቹ መልከዓ ምድራዊ ሁኔታ መገንዘብ ይቻላል፡ ፡ በእነዚህ አካባቢዎች የሚደረግ የማዕድን ፍለጋ በተለይ ባለፉት ጥቂት አስርት ዓመታት እየጨመረ ቢመጣም አሁንም ቢሆን በአንጻራዊ መልኩ

በመካከለኛ ደረጃ ላይ ነው የሚገኘው፡፡ በተጨማሪም በሰሜን ምሥራቅ የታላቁ ስምጥ ሸለቆ አካል በሆነው ደንከል አካባቢ የፖታሽ ክምችት መገኘቱ ግዙፍ የማዕድን ልማትን ያመጣል ተብሎ ይጠበቃል፡፡ ለዚህም ማሳያው የአላና ፖታሽ ፕሮጀክት አንዱ ነው፡፡

ከርሰ ምድራዊ ካርታው ላይ ፕሮቴሮዞይክ አካባቢዎች፣ ረጅም ዕድሜ ያላቸው ድንጋዮች በኢትዮጵያ በጥቁር አረንጓዴ፣ ጥቁርና ግራጫ ተመልክተዋል፡ : የተመለከቱት አካባቢዎች አዋጭና የተለያዩ የብረት ማዕድኖች (ሜታሊክ ሚኒራልስ) መኖራቸውን ያሳያል፡፡

እምቅ የማዕድን ልማት

7. የኢትዮጵያ ማዕድን ዘርፍ እ.ኤ.አ በ2011/2012 የበጀት ዓመት ለአገሪቱ አጠቃላይ ምርት (GDP) 1.5 በመቶ አበርክቷል፡፡ በአጠቃላይ 32 ቢሊዮን የአሜሪካ ዶላር ያወጣ ከነበረው የአገሪቱ አጠቃላይ ምርት በተጠቀሰው ዓመት የነበረው የማዕድን ዘርፍ አስተዋጽኦ 618 ሚሊዮን ዶላር ወይም ከአገሪቱ የወጪ ንግድ ገቢ 19 በመቶ ያህሉን ነው፡፡ ከዚህ የማዕድን ወጪ ንግድ የወርቅ ማዕድን ከሞላ ጎደል 100% አስተዋጽኦ አድርጓል፡፡ በአንጻሩ ግብርና ከአገሪቱ አጠቃላይ ምርት 46.4 በመቶ፣ ኢንዱስትሪ 10.5 በመቶ እና ማኑፋክቸሪንግ 3.6 በመቶ ድርሻ አላቸው፡፡ ከዚህ ውስጥ ሰፊው የኤክስፖርት ምርት ቡና ሲሆን 833 ሚሊዮን ዶላር ወይም ከአጠቃላይ የኤክስፖርት ገቢው 26 በመቶ ድርሻ ነበረው፡፡

8. የኢትዮጵያ ከርሰ ምድራዊ ሀብትን መሠረት ባደረገ ትንተና፣ አሁን ያለውን ወቅታዊ የማዕድን ፍለጋ ሁኔታ እንዲሁም አጠቃላይ የማዕድን ፍለጋ ዓለም አቀፍ የግኝት ውጤት ምጣኔን መሠረት በማድረግ ይህ ሪፖርት ሦስት ሁናቴዎችን (scenarios) ለወደፊት የዘርፉ ልማት ያቀርባል (ግራፉን ከታች ይመልከቱ)፡፡ የማዕድን ልማትን በኢትዮጵያ በስፋት ለማካሄድ የሚያስፈልገውን ከ15 እስከ 20 ዓመት ከግምት ውስጥ በማስገባት ከዘርፉ የሚገኘውን እምቅ የኢኮኖሚ ጥቅም ለመተንበይ አስቸጋሪ ነው፡፡ ያም ሆኖ የሦስቱ ሁናቴዎች አስቸጋሪ መሆን፣ እድል ያለው (Probable) እና ሊሆን የሚችል (Possible) መለኪያዎች ተመርጠውለት በአሁኑ ወቅት በቅድሚያ ሊመረቱ የሚችሉትን ወርቅ፣ ፖታሽ፣ ታንታለምና መዳብ ለመመልከት ተሞክሯል፡፡

9. የመሆን ዕድል (Probable) በሚለው የመለኪያ መስፈርት ውስጥ ከተጠቀሱት የማዕድን አይነቶች እስከ 1.5 ቢሊዮን ዶላር በ2024 ማግኘት እንደሚቻል ተገምቷል፡፡ በተስፋ ሰጪ (optimistic) መለኪያ ደግሞ 2 ቢሊዮን ዶላር ገቢ ሊገኝ ይችላል፡፡ በዚህ የመሆን ዕድል የመለኪያ መስፈርት ውስጥ ሊገኝ የሚችለው ገቢ ታዳጊ የማዕድን ኢኮኖሚ እየነነባች ከምትገኘው ታንዛኒያ በአሁኑ ወቅት ከወርቅ ኤክስፖርት የምታገኘውን 70 በመቶ (2.2 ቢሊዮን ዶላር በ2012) ይሆናል፡፡ ረዥም የማዕድን ማምረት ታሪክ ያላት ጋና 90 በመቶ የሚሆነውን የማዕድን ገቢ ከሚያስገኝላት ወርቅ በ2012 ወደ 5 ቢሊዮን ዶላር የሚጠጋ ገቢ ከዚሁ ማዕድን ወጪ ንግድ አግኝታለች፡፡

10. በ2012 አጠቃላይ የአፍሪካ አገራት የማዕድን ዘርፍ ገቢ 120 ቢሊዮን ዶላር ነበር (ይህ ገቢ የኢንዱስትሪ ማዕድኖችን ገቢ አይጨምርም)፡፡ ይህም ከአህጉሪቱ አጠቃላይ ምርት 20 በመቶ ይሆናል፡፡ በአፍሪካ አገራት የብረት እና የድንጋይ ከሰል ማዕድናትን በማውጣት ረገድ በመጠን እኩል ናቸው፡ : ከብረት ማዕድኖች መካከል ወርቅ፣ መዳብ እና 'አይረን አር' (Iron ore) ከብረት አንፃር በመጠን ደረጃ ከግማሽ በላይ የዋጋ ድርሻ አላቸው፡፡

የኢትዮጵያ ከርሰ ምድራዊ ሁኔታ እንደ ሌሎች አፍሪካ አገሮች አዋጭ ነው በሚል ግምት አማካኝ ገቢው ቢሰላ የኢትዮጵያ ኢኮኖሚ ከማዕድን ዘርፍ እምቅ የልማት ሀብት 5 ቢሊዮን ዶላር ገቢ በዓመት ማግኘት ይቻላል፡፡ (የኢትዮጵያ ስፋት 1,227,127 ካሬ ኪሎ ሜትር ወይም 4 በመቶ የአፍሪካ መልካ ምድርን ያህላል)

11. ከላይ በተመለከቱት ሁናቴዎች ሊገኙ የሚችሉ ገቢዎችን በንግድ የገቢ ግብር እና በሮያልቲ ክፍያ በማስላት አገሪቱ ከ100 እስከ 500 ሚሊዮን ዶላር ገቢ እስከ 2024 ማግኘት ትችላለች፡፡ በተጨማሪም የማዕድን ልማት ዘርፍ ከ400 እስከ 8000 ቀጥታ የስራ እድል መፍጠር ይቻላል፡፡

በተቀመጡት የልማት ሁናቴዎች ከወርቅ፣ ከመዳብ ታንታለምና ፖታሽ ማዕድናት ልማት ሊገኝ የሚችል ኢኮኖሚያዊ ጥቅም

ቀጣይነት ላለው ልማት ምን መደረግ አለበት

12. ኢትዮጵያ ወሳኝ የሆነ አዲስ የኢኮኖሚ ዘርፍ መፍጠር ትፈልጋለች፡፡ ከነዚህም መካከል ሰፋፊ የማዕድን ልማት አንዱ ነው፡፡ ከማዕድን ፍለጋ እስከ ግዙፍ የማዕድን ማውጣት ስራ ለማከናወን ቀዳሚ ከንውኖች የሚካሄዱበት ጊዜ ረዥም ነው (ከ10 እስከ 15 ዓመታትን ይፈጃል)፡፡ አሁን ባለው የአገሪቱ የፖሊሲ ማዕቀፍ የማዕድን ዘርፍ ከ2020-2023 ድረስ የአገሪቱ የኢንዱስትሪ ዘርፍ የጀርባ አጥንት እንዲሆን ታቅዷል፡፡ ይህም ማለት አሁን የማዕድን ዘርፍ ለአጠቃላይ የአገር ውስጥ ምርት ከሚያበረክተው የ1.1 በመቶ ወደ 10 በመቶ እንዲያድግ፣ በውጭ ምንዛሬ ረገድም አሁን ከሚያመነጨው የውጭ ምንዛሬ በ10 እጥፍ እንዲያደግ ይፈለጋል፡፡ ከላይ በተቀመጡት መለኪያ ሁናቴዎች አንጻር ሲታይ አገሪቱ ያለመችው ፈጣን የኢኮኖሚ ዕድገት ላይሳካ ይችላል፡፡ በመሆኑም የማዕድን ዘርፍ ልማት ጠቃሚ ውጤት ሊያመጣ የሚችለው በመለስተኛ የዕድገት አቅጣጫ የረዥም ጊዜ እቅድ ሲቀረጽ ነው፡፡

ዝቅተኛ የዕድገት ምጣኔ አንዳንዴ በመልካም ጎኑ መታየት አለበት፤ ምክንያቱም አስፈላጊ የሆነ አስተዳደርን ለማዋቀር ጊዜ ይሰጣል፡፡ በመሆኑም የማዕድን ዘርፍ ዘላቂ በሆነ መልኩ እንዲለማ ያደርጋል፡፡ የረዥም ጊዜ እቅድ ለማዘጋጀት በአጠቃላይ በዘርፉ የተለየ ባህሪ ማለትም ተፈጥሯዊ የሆነ ከርሰ ምድራዊ ተለዋዋጭ ባህሪ፣ ለልማቱ የሚያስፈልገው የፋይናንስ አቅርቦት ተለዋዋጭነት፣ የማዕድን ኢንዱስትሪው ኡደታዊ ባህሪው (Cyclical Nature) እና ዘመናዊ የማዕድን ፍለጋን ለማከናወን የሚያስፈልጉ ቴክኒካዊ መስፈርቶችን ማየትን ይጠይቃል፡፡

13. በአሁኑ ወቅት እየተጨነ ያለው ረቂቅ የማዕድን ፖሊሲ ሰፊና ሁሉን የሚዳስስ በመሆኑ የዘርፉን የወደፊት ዕድገት እንዲሁም ዘርፉ ለቀጣይ ዘላቂ የኢኮኖሚ ልማት የሚኖረውን አስተዋጽኦ በሚመለከት ጥሩ መሠረት አስቀምጧል፡፡ ፖሊሲው ወሰነ ሰፊ ሲሆን ለቀጣይ መሻሻልም የበርካታ የመንግሥት ተቋማትን ተሳትፎ የሚጠይቅ ነው፡፡ ለፖሊሲው ማስፈፀሚያ እና ተግባራዊነቱም የተቋማቱን ተሳትፎ የሚጠይቅ ነው፡፡

14. ከቁጥጥር ባሻገር የመንግሥትን ሚና በግልጽ ያስቀመጠ ፖሊሲና የሕግ ማዕቀፍ ደረጃውን የጠበቀና ውጤታማ ለሆነ ማንኛውም የማዕድን ዘርፍ አስፈላጊ ነው፡፡ በተጨማሪም የመንግሥትን ሚና በሚመለከት ለባለድርሻ አካላትና ለኢንቨስተሮች ግልጽ መረጃ ለመስጠት ያስችላል፡፡ በዘርፉ ማንኛውም የመንግሥት እርምጃ የሚንፀባረቅ ይሆናል፡፡ የኢትዮጵያ ፖሊሲ ድባብ የማዕድን ዘርፍ ልማት በግል ዘርፍ እንዲለማ የታለመ መሆኑን በግልጽ ያሳያል፡፡ በቅርቡ በመንግሥት ተይዞ የነበረ የማዕድን ልማትን ወደ ግል ለማዘዋወር የተደረገው ጥረት የዚህ ምስክር ነው፡፡ በሌላ በኩል ፖሊሲውና የሕግ ማዕቀፉ በዘርፉ መንግሥት ተሳትፎ እንዲኖረው ዕድል ይሰጣል፡፡ በራሱ አልያም ከግሉ ዘርፍ ጋር አጋር በመሆን፡፡ የኢትዮጵያ መንግሥት ከሌሎች መልካም ተሞክሮ ግንዛቤ ሊወስድ ይችላል፡፡ ከመንግሥት የዘርፉ ተሳትፎ ባሻገር ካለፈው ልምድ ጋር አብሮ የሚራመድ ፖሊሲ ሊያወጣና ሊያስፈጽም ይችላል፡፡ በከፊል ወይም ሙሉ ለሙሉ በመንግሥት የተያዙና ስኬታማ ሆነው ከግሉ ዘርፍ ጋር ጎን ለጎን የሚሄዱና

ውጤታማ የሆኑ ድርጅቶችን ልምድ የሚያሳይ ምሳሌ አለ፡፡ የዚህ አይነቱ እሴትና ውጤታማነት በአጠቃላይ መሠረት የሚያደርገው የረዥም ጊዜ ታሪክና የሚመለከታቸው ድርጅቶች ለአገራዊ ልማት የሚያበረክቱት ጉልህ አስተዋጽኦ ላይ ነው፡፡ በርግጥ እነዚህ ድርጅቶች እንዴት መመራት እንዳለባቸው የሚያሳዩ ግልጽ ፖሊሲዎችና ሕጎች መኖር የእነሱም ተፈጻሚነት ሌላው ነገር ነው፡፡

15. የግሉ ዘርፍ በሚመራው የማዕድን ዘርፍ የማዕድን ፍለጋ በዋነኛነት የሚደረገው ከርሰ ምድራዊ ጥናት አዋጭነትን መሠረት አድርጎ ነው፡፡ የቅርብ ጊዜው የስኬት ዜና ባልነበረበት (ከአላና ፖታሽ የኢንዱስትሪ ማዕድን ውጭ) እና ጂኦሎጂካል/ጆኦፊዚካል መረጃ ውስን በሆነበት የማዕድን ፍለጋ አዲስና ደረጃውን የጠበቀ መረጃ ማሰባሰብና ለዘላቂ ኢንቨስትመንት ማስተዋወቅ የሚሆን ተከታታይ የመረጃ አቅርቦት ጠቀሜታ ወሳኝ ይሆናል፡፡

16 ዘመናዊና በሚገባ የሚያገለግል የማዕድን ካዳስትር፣ የምዝገባ ሥርዓትና ፈቃድን የሚመለከቱ ግልጽ ሕጎች መኖር በማዕድን ዘርፍ የሚደረግ የኢንቨስትመንት ማስተዋወቅ ዓይነተኛ መገለጫዎች ናቸው፡፡ አቅም ያላቸው ኢንቨስተሮች ከፍተኛ ጥራትና ግልጽነት ያለው የማዕድን ካዳስትር ባለበት አገር ኢንቨስት የማድረግ ፍላጎት ይኖራቸዋል፡፡ የማዕድን ሕጉ ፈቃድ ማግኘትንና የፈቃድ ይዞታን የሚያረጋግጥ ብቻም ሳይሆን የሕጉ አስተዳደር ራሱ ግልፅ፣ ወሳኝና ውጤታማ መሆን አለበት፡፡ የ2002 የማዕድን አዋጅ ድንጋጌዎች ኢንቨስተሮችን የሚስቡውንና የፖሊሲውን አላማ የሚቃረኑ ሆነው ሊታዩ የሚችሉ መመርያዎች እንዲወጡ ምክንያት ሆነዋል፡፡ ስለዚህም የተለያዩ አንቀጾች እንደሚደነግጉት (ሀ) የፍለጋ ፈቃድ ጥያቄ የሚስተናገደው እንደአመጣጡ ነው፡፡ (ይህ ምናልባትም ቀድሞ የመጣ ቀድሞ ይስተናገዳል በሚል ከግንዛቤ ሊገባ ይችላል፡፡) (ለ) የድርጅቶች ቴክኒካዊና የገንዘብ አቅምን መሠረት አድርገው ተቋማት ቅድሚያ ትኩረት ሊያገኙ ይችላሉ፡፡ በግልጽ በተቀመጠ መሥፈርት መሠረት ጥቅምት 2006 ጀምሮ ተግባራዊ የሆነው መመሪያ በየወሩ የፈቃድ ማመልከቻ እንደሚሰበሰብና ጉዳዩን እንደሚያይ ያስቀምጣል፡፡ (ሐ) የማመልከቻውን በአጠቃላይ ውድቅ መሆንና በጥያቄ ውስጥ ያለ ቦታን በተደጋጋሚ መጫረት ተወዳዳሪ የሚበዛበት ጨረታ ሒደትና የተሳትፎ መስፈርት አልተቀመጡም፡፡ በአሁኑ ወቅት የፍለጋ ፈቃድ ማመልከቻዎችን በመገምገም ረገድ ከፍ ያለ ክምችት ይታያል፡፡ መነሻ ላይ የነበረው ሐሳብ ግን ማመልከቻዎቹን በየወሩ ለማየት ነበር፡፡ ይህ የሆነው በከፊል ማዕድን ይገኝባቸዋል ተብለው የሚታሰቡ ቦታዎችን ለመያዝ ብቻ ተብለው የሚቀርቡ ማመልከቻዎችን እና/ወይም አስፈላጊ እውቀትና ግብዓት የሌላቸውን ድርጅቶችን ለመግታት ታስቦ ሊሆን ይሆናል፡፡ ቢሆንም ግን ማመልከቻዎችን በየጊዜው ላለመገምገም ጉዳዩ የሚመለከተው የመንግሥት ተቋም ከባድ የአቅም ተግዳሮት እንዳለበት ግልጽ ነው፡፡ ከላይ ከተገለፀው በተጨማሪ መንግሥት በማዕድን ልማት ላይ የተሰማሩ ኩባንያዎች ሕጋዊ ግዴታቸውን ሳይወጡ ሲቀሩ ወይም በተለያዩ ምክንያቶች ኩባንያዎች የማዕድን ልማት አካባቢውን ጥለው ሲሄዱ ፈቃዳቸውን የማይሰርዝ መሆኑን የሚገልጹ አንዳንድ ማሳያዎች አሉ፡፡ በአጠቃላይ ከዚህ መረዳት የሚቻለው አድሎአዊ የሆነ የማዕድን ፍለጋ ፈቃድ አያያዝ ሥርዓት ሊኖር ይችላል ማለት ነው፡፡

17. ኮምፒዩተራይዝድ የማዕድን ልማት ካዳስተር በ2003 ቢዘረጋም ከዚያ ጊዜ ጀምሮ በከፊል ጥቅም ላይ ሳይውል የቀረ ሲሆን ከ2006 በኋላ ደግሞ በጭራሽ ሥራውን አቁሟል፡፡ የካዳስተር ሥርዓቱ በከፊል ሥራ ለማቆሙ የተሰጠው ምክንያት በአንድ በኩል የሶፍትዌር ችግርና እንዲሁም አስፈላጊውን የሶፍትዌር ማሻሻልና ሶፍትዌሩን ለመጥለፍ የሚያስችሉ ከፍተቶችን ለማስተካከል የሚያስፈልገው በጀት አለመኖር፣ በተወሰነ መልኩ ደግሞ መንግሥት ለማዕድን ፍለጋና ማዕድን ለማውጣት የሚሰጠው ፈቃድ ላይ የፖሊሲ ለውጥ በማድረጉ መሆኑ ተገልጿል፡፡

18. ግልጽ የሆነ የሕግ ማዕቀፍ ኢንቨስተሮችን ለመሳብም ሆነ ዘርፉ የሚመራበትን ሁኔታ ለማመቻቸት በጣም አስፈላጊ ነው፡፡ የማዕድን ዘርፉን የሚገዛው ቁልፍ ሕግ የማዕድን ሥራዎች አዋጅ (Mining Operations Proclamation) ቁጥር 678/2002 እና በቅርቡ በ2006 በተጠቀሰው አዋጅ ላይ የተደረገው ማሻሻያ ናቸው፡፡ ይሁን እንጂ በአሁኑ ወቅት በሥራ ላይ የሚገኘው ደንብ የቀድሞው የ1986 አዋጅን መሰረት አድርጎ የተረቀቀ ነው፡፡ ሞዴል የማዕድን ሥራ ስምምነት (MMA) የሚባለውም ስምምነት የ1986 አዋጅን መሠረት አድርጎ የተዘጋጀ ነው፡፡ በአገሪቱ ባለው አሠራር መሠረት የማዕድን ፍለጋ ፈቃድ የያዙ ኩባንያዎች የግድ ከመንግሥት ጋር ተደራድረው የማዕድን ማውጣት ስምምነት መፈጸም ይጠበቅባቸዋል፡፡ ከፍተኛ የማዕድን ማውጣት ፈቃድ ለማግኘት የሚፈጸሙት የማዕድን ሥራ ስምምነቶች ጠቅለል ያሉ መስፈርቶችን እንጂ ጠቃሚና ማኅበራዊ ጉዳዮችን አያብራሩም፡፡ ከዚህ ይልቅ ለድርድር የማያመች ቀዳዳን ነው የሚተወው፡፡ በመሆኑም አዲስ መመሪያ በማርቀቅ በቅርብ ለፀደቀው የማዕድን አዋጅ ተጨማሪ ግብዓቶችን በመስጠት ማዳበር ያስፈልጋል፡፡ በተጨማሪም ሞዴል የማዕድን ሥራ ስምምነቱን በመከለስ ከአዲሱ የማዕድን አዋጅ ጋር እንዲጣጣም ማድረግ በዘርፉ ያሉትን የሕግ ማዕቀፎች ምሉዕ ያደርጋቸዋል፡፡ በሞዴል የማዕድን ሥራ ስምምነቱ ላይ ጥልቅ ክለሳ ማድረግ ከአዲሱ የማዕድን አዋጅና መመሪያዎች፣ እየመጡ ካሉ የግልጽነት መስፈርቶችና ለዘላቂ የማዕድን ልማት ከተገቡት ግዴታዎች አንጻር ከሌሎች ማዕድንን ከሚመለከቱ ተቆጣጣሪ ተቋማት ጋር መቀናጀት ለመፍጠርም ጠቃሚ መሣሪያ ያደርገዋል፡፡

19. መንግሥት በማዕድን ዘርፍ ላይ እየተሳተፈ የሚገኘው በማዕድን ሚኒስቴር እና የኢትዮጵያ ጂኦሎጂካል ሰርቬይ በኩል ነው፡፡ ሌሎች የመንግሥት ተቋማት ስለማዕድ ዘርፍ ያላቸው ዕውቀት በጣም ዝቅተኛ ነው፤ በዘርፉ ውስጥ ያላቸው ተሳትፎም በጣም ውስን ነው፡፡ በተጨማሪም በማዕድን ሚኒስቴርና በጂኦሎጂካል ሰርቬይ ተቋማት ውስጥ የሚሰሩ ቋሚ ሰራተኞች በተወሰነ መልኩ ብቁ ቢሆኑም በአጠቃላይ ግን በሁለቱም መሥሪያ ቤቶች ያለው የሰው ኃይል አቅም ዘርፉን ከመምራት፣ ከመቆጣጠርና ከማስተዋወቅ አንጻር ውስን ነው፡፡ ለዚህ በዋናነት ከሚጠቀሱ ምክንያቶች መካከል የዘርፉ ታሪካዊ አመጣጥ በአነስተኛ የማዕድን ልማት ላይ መሆኑ ወይም ከፍተኛ የማዕድን ልማት አለመኖሩ፣ በመሆኑም ወጥ ለሆነ የአቅም ግንባታ ዕድል መስጠት አለመቻሉ፣ በማዕድን ሚኒስቴር ስር ከፍተኛ ቁጥር ያላቸው ሰራተኞች (በተቋሙ የመዋቅር ጥናት መሠረት በአጠቃላይ 1500 ሠራተኞች መኖር ሲገባቸው በአሁኑ ወቅት ግን 900 ናቸው) መካከል አብዛኞቹ የሚሠሩት በአስተዳደራዊ ሥራዎች እና በድጋፍ ሰጪነት እንጂ በዋና የማዕድን ዘርፍ ሥራ ላይ አለመሆን፣ ከፍተኛ የሠራተኞች መልቀቅ በተለይም የረዥም ጊዜ ልምድ ያላቸው ሠራተኞች በጣም አነስተኛ መሆን፣ ወጥና ተከታታይ የአቅም ግንባታ እንዳይኖር ምክንያት ሆኗል፡፡ ይህ የሠራተኞች በብዛት መልቀቅ የሚያያዘው ከሲቪል ሰርቪስ ሰራተኞች ወርሐዊ ደሞዝ ከግል ተቋማት በእጅጉ ያነሰ መሆኑ እንዲሁም በቀላሉ ለመቀየር የሚችሉ የበጀትና የግዥ ሥርዓቶች አለመኖር በተለይ በጂኦሎጂካል ሰርቬይ የሚከናወኑ የቁፋሮና የላባራቶሪ ከፍል ሥራዎችን እያስተጓጎለ ነው፡፡ በዚህ የአቅም ውስንነት ተፅዕኖ እየደረሰባቸው ካሉ ወሳኝና ጠቃሚ ከፍሎች መካከል የጂኦሎጂ (የከርሰ ምድራዊ) መረጃ፣ የማዕድን መብቶች አስተዳደርና አመራር፣ የአካባቢና የማኅበራዊ ግምገማ (በቅርቡ ከአካባቢ ጥበቃ ባለሥልጣን ኃላፊነቱ ለማዕድን ሚኒስቴር የተላለፈ) እና የማዕድን ልማት ውል (ኮንትራት) አስተዳደር ናቸው፡፡ በዚህ ረገድ ተቋማዊ የመዋቅር ማሻሻያ በማድረግ፣ የደመወዝ ዕድገትን ማመቻቸት እና ቀልጣፋ የሥራ ሂደትን እና የአቅም ግንባታ እቅዶችን ከግምት ውስጥ ማስገባት ያስፈልጋል፡፡

20. የክልል መንግሥታት የሚከተሉት በኢትዮጵያ ያለውን ተቋማዊ አደረጃጀት ነው፡፡ በመሆኑም ከፌዴራል መንግሥት የማዕድን ተቋማት ጋር ተመሳሳይ መዋቅር ያላቸው ተቋማትም በክልሎች ይገኛሉ፡፡ ይህ መዋቅር ከክልሎች አልፎ በወረዳና በቀበሌ ደረጃ ተዘርግቷል፡፡ የተወሰኑ የማዕድን ልማት ፈቃድ አይነቶችና ተያያዥ መመሪያዎች በክልሎች ሥልጣን ሥር የሚወድቁ ናቸው፡፡ ወረዳዎች ደግሞ በከፍተኛ ደረጃ በጥቃቅንና አነስተኛ ባህላዊ ማዕድን (ASM) ማኔጅመንት ላይ ተሳትፎ ያደርጋሉ፡፡ የአቅም ውስንነት በክልልና በወረዳ ደረጃ ባሉ የአስተዳደር መዋቅሮችም ላይ በተመሳሳይ ይስተዋላል፡፡ በተጨማሪም በፌዴራል፣ በክልልና በወረዳዎች መካከል ያለው ቅንጅት ደረጃና ስኬት ይለያያል፡፡

21. አገራዊ የሙያ ክህሎትን ማሳደግ የሥራ ዕድልን ለመፍጠርም ሆነ ኢንቨስተሮችን ለመሳብ ጠቃሚ ነው፡፡ የማዕድን ኢንዱስትሪው በቀጣዮቹ ከአምስት እስከ አሥር ዓመታት ውስጥ በተወሰኑ መቶዎች ምናልባትም በተወሰኑ ሺዎች የሚቆጠሩ የሠለጠኑ ሠራተኞችን ይፈልግ ይሆናል፡፡ በማዕድን ወይም ተመሳሳይ በሆነ የሥራ ዘርፍ የሠለጠነ የሰው ኃይል ማግኘት በኢትዮጵያ ከፍተኛ ችግር ነው፡፡ በተጨማሪም የከፍተኛ የትምህርት

ተቋማት በማዕድን ፍለጋ (exploration)፣ ማውጣት (mining) እና ፕሮሰሲንግ የሚሰጠው ትምህርት ጥራት ብቁ የሆኑ መምህራን ባለመኖራቸው፣ እንዲሁም በትምህርት ተቋማቱ የማስተማሪያ ቴክኒካል መሣሪያዎች አለመኖር የተነሳ በጣም ዝቅተኛ ነው፡፡ መንግሥት የቴክኒክና ሙያ ሥልጠና ተቋማት ከማዕድን ጋር የተያያዙ ሥልጠናዎችን እንዲሰጡ በስትራቴጂ ደረጃ ቢቀርፅም እስካሁን ድረስ ግን የተዘጋጀ ሥርዓተ ትምህርት የለም፡፡ በዚህም የተነሳ በኢትዮጵያ የተሰማሩ የማዕድን ኩባንያዎች የሰው ኃይል ቅጥር የሚያከናውኑት ከኢትዮጵያ ውጭ ነው፡፡ የማዕድን ልማት ዘርፍ እንደ ማኑፋክቸሪንግ ዘርፍ የሰው ኃይል ተኮር ባይሆንም በዘርፉ የሠለጠነ የሰው ኃይል መኖር ኢንቨስትመንትን የመሳብ ኃይል አለው፡፡ በተጨማሪም ከፍተኛ ሥልጠና የወሰዱ ኢትዮጵያውያን መኖር ከፍተኛ የማዕድን ፕሮጀክቶች አስፈላጊ የሆኑና የተለየ ክህሎት የሚጠይቁ ስራዎች በውጭ ዜጎች ብቻ የሚሰሩበት ሁኔታ (Enclave Economies) እንዳይሆኑ ይረዳል፡፡

22. ኢትዮጵያ ከፍተኛ የሚባል ጥቃቅንና አነስተኛ ባህላዊ የወርቅ ማዕድን ዘርፍ ያላት ቢሆንም ትክክለኛ መጠኑና ባህሪው በአግባቡ አይታወቅም፡ ፡ በመሆኑም በዚህ ረገድ ዘርፉን በአግባቡ ማወቅና ዘርፉን በአግባቡ ለመምራትና ለመቆጣጠር የሚያስችሉ አግባብነት ያላቸውን እርምጃዎች መውሰድ ቅድሚያ ሊሰጠው ይገባል፡፡ ጥቃቅንና አነስተኛ ባህላዊ የማዕድን ማምረት ስራዎች ለኢንዱስትሪ ልማት አይነተኛ መሣሪያዎች ተደርገው ይቆጠራሉ፡፡ እንዲሁም አማራጭ የገቢ ምንጭ ለሌላቸው ገጠራማ አካባቢ ነዋሪዎች ጠቃሚ የገቢ ምንጮች ናቸው፡፡ በተጨማሪም ከፍተኛ የሆነ የሥራ ዕድል የሚፈጥሩ ሲሆን እንደ ማዕድን ሚኒስቴር መረጃ እስከ አንድ ሚሊዮን የሚሆኑ ሰዎች በዚህ ዘርፍ ተሰማርተዋል፡፡

ጥቃቅንና አነስተኛ ባህላዊ የወርቅ ልማት በኢትዮጵያ ጉልህ ኢኮኖሚያዊ ጠቀሜታ ቢኖረውም አስቸጋሪ ባህሪያት ግን አሉት፡፡ እነዚህም በሕግ ማዕቀፍ ውስጥ የሚከናወን አለመሆን፣ አካባቢያዊና ማኅበራዊ ጉዳዮችን ያላገናዘበ መሆኑና ከፍተኛ የወርቅ ልማት ሥራዎች ላይ እንቅፋት መፍጠርን ያካትታሉ፡፡ የማዕድን ሚኒስቴር ይህንን ጥቃቅንና አነስተኛ ባህላዊ የወርቅ ልማት እንቅስቃሴ ወደ ሕጋዊና ኢኮኖሚያዊ ሥርዓት ውስጥ እንዲገባ ጥረት እያደረገ ይገኛል፡፡ ከዚህ በአነስተኛ ደረጃ ከሚካሄድ የወርቅ ልማት ጋር በተያያዘ የኢትዮጵያ ብሔራዊ ባንክ አነስተኛ የወርቅ አልሚዎች ያመረቱትን ወርቅ ከወቅታዊ ዋጋ በአምስት በመቶ ጭማሪ የሚገዛበትን ሥርዓት ዘርግቶ እየተንቀሳቀሰ ነው፡፡ ይህ የብሔራዊ ባንክ እንቅስቃሴ ውጤታማ ነው፡፡ በዚህ ሥርዓትም በ2005/2006 ብቻ ስምንት ቶን ወርቅ ከአነስተኛ አምራቾች መግዛቱን ሪፖርቶች ይጠቁማሉ፡፡

ይሁን እንጂ በመስክ በተደረገ ዳሰሳ መገንዘብ የተቻለው የጥቃቅንና አነስተኛ ወርቅ አምራቾች ምርታማነት በጣም ዝቅተኛ ከመሆኑም ባለፈ የተመረተው ወርቅ በአብዛኛው የሚሸጠው ለብሔራዊ ባንክ ሳይሆን በሕገወጥ መንገድ ነው፡፡ በተጨማሪም የወርቅ ማምረቻ ይዞታዎች ጋር በተያያዘ ግጭቶች የሚፈጠሩባቸው አጋጣሚዎች መኖራቸውንና በአብዛኛው ግጭቱ ከገበሬዎች ጋር ቢሆንም ምናልባትም ከከፍተኛ የማዕድን ፍለጋና ማውጣት ሥራ ላይ ከተሰማሩ ኩባንያዎች ጋርም እንደተከሰቱ ማየት ተችላል፡፡ በተለይ ከከፍተኛ ፕሮጀክቶች ጋር የሚፈጠሩ ግጭቶች የወደፊት የማዕድን ልማት ዘርፍ ላይ መሳተፍ የሚፈልጉ አልሚዎች ላይ አሉታዊ ተፅዕኖ ያሳድራሉ፡፡ በመሆኑም አግባብ የሆነ መሠረታዊ መነሻ (Baseline) ጥናት ማካሄድ ዘርፉን በአግባቡ ለመረዳት የሚያግዝ ሲሆን ይህም መረጃ ላይ የተመሠረተ የፖሊሲ እንዲሁም የአስተዳደር ውሳኔ ለመስጠት ያስችላል፡፡

23. የፆታ እኩልነት አለመኖር በኢትዮጵያ የማዕድን ዘርፍና ተያያዥ ትምህርቶች ላይ ይስተዋላል፡፡ አሁን የማዕድን ፍለጋና የማዕድን ማውጣት እንቅስቃሴ ላይ በሚገኙ ኩባንያዎች ውስጥ የተቀጠሩ ወንድ ሠራተኞች ቁጥር በእጅጉ ከሴት ሠራተኞች ይልቃል፡፡ በአነስተኛ አምራቾች ዘንድም የወንድ ሠራተኞች ብዛት ከሴት አምራቾች ቁጥር በጣም ይበልጣል፡፡ የሥራ ክፍፍላቸውም የተለያየ ነው፡፡ ዳሰሳዎች እንደሚጠቁሙትም ወንድ ሠራተኞች ከሞላ ጎደል ከሴቶቹ እጥፍ የሆነ ገቢ ያገኛሉ፡፡ በዩኒቨርሲቲዎች ያለው የፆታ ስብጥር ትክክለኛ ቁጥር ባይታወቅም ከ30 በመቶ በታች (ምናልባትም ከዚህ በጣም ዝቅተኛ) የሆኑት ሴት ተማሪዎች ሲሆኑ፣ የማዕድን ዘርፍ ትምህርቶችን የሚሰጡ ሴት መምህራንም አምስት በመቶ ብቻ ናቸው፡፡ ቴክኒክና ሙያ ተቋማት በማዕድን ዘርፍ የሚሰጥ ሥልጠና መኖሩ ባይታወቅም በ2002/2003 ቴክኒክና ሙያ ተቋማት ከተመዘገቡ ተማሪዎች መካከል 46 በመቶ የሚሆኑት ሴቶች ናቸው፡፡ በእነዚህ የቴክኒክና ሙያ ተቋማት ውስጥ የሚያስተምሩ ሴት መምህራን ግን ከ16-17 በመቶ ብቻ ናቸው፡፡ በማዕድን ሚኒስቴር 40 በመቶ የሚሆኑት ሠራተኞች ሴቶች ናቸው፡፡ በሚኒስቴሩ የፆታ ስብጥር በየመምሪያው ከ14 በመቶ እስከ 100 በመቶ በሴቶች የተያዘ ሲሆን፣ በርካታ ከፍተኛና የሥራ አስፈፃሚነት ኃላፊነቶች በሴቶች የተያዙ ናቸው/ነበሩ፡፡

24. ኢትዮጵያ ረዥም እና ልዩ የሆነ ታሪክ ያላት፣ የተለያዩ ባህሎችና ቋንቋዎች ጎን ለጎን የሚስተናገዱባት ብዝሃነትን የተላበሰች አገር ናት፡፡ ኢትዮጵያ በባዮዳይቨርሲቲ በተፈጥሮ ሀብታም የሆነችና ተፈጥሯዊ ቅርሶችን የታደለች ናት፡፡ እንደ ዕድል ሆኖ ጂኦሎጂካዊ ተስፋ ሰጪ የሚባሉት የማዕድን አካባቢዎች ሕዝብ ከሰፈረባቸው ወይም በተለየ ምክንያት ከተጠበቀ አካባቢዎች ጋር አይገናኙም፡፡ ቢሆንም አንዳንድ ግጭት የመቀስቀስ አቅም ያላቸው አካባቢዎች እንዳሉ ይታወቃል፡፡ ስለዚህም ሁኔታውን መገንዘብና መቆጣጠር ያስፈልጋል፡፡ ይህ ካልሆነ የማዕድን ልማት ሥራ የአካባቢው ኅብረተሰብን ድጋፍ ያጣል፤ እንዲሁም ከአገር አቀፍና ዓለም አቀፍ ተቋማት ወቀሳን ያስከትላል፡፡ አካባቢ ጥበቃን በተመለከተ ያሉት ሕጎች ሁለት ብቻ ሲሆኑ፣ እነዚህም የኢትዮጵያ አካባቢ ጥበቃ ባለስልጣን አዋጅ እና በማዕድን አዋጁ ላይ የተጠቀሱት ጠቅለል ያሉ ድንጋጌዎች ናቸው፡፡ ስለዚህ ያሉት ሕጎች በጣም ጥቅል ሲሆኑ የማዕድን አስተዳደርም ኢንዱስትሪውንም ሆነ ተቆጣጣሪ አካላትን የሚደግፉ ተጨማሪ ዝርዝር መመሪያዎች እና አቅጣጫዎችን በማስቀመጥ መጠቀም ይችላል ::

በሥራ ላይ የሚገኙት የሕግ ማዕቀፎች ለትርጉም ክፍት ስለሆኑ በማዕድን ዘርፍ የሚሰማሩ ኩባንያዎች ንቁና በኃላፊነት የሚሳተፉ እንዲሆኑ ማድረግ ቅደሚያ የሚሰጠው መሆን አለበት፡፡ ይህንን ማድረግ ማለት ኩባንያዎችን የሚያበረታታና ማህበራዊ ግዴታዎቻቸውን ከመወጣት ጋር በተያያዘ ተግባሮቻቸውን ሲያከናውኑ በጥንቃቄና በዕውቀት ላይ ተመስርተው እንዲሆን ያደርጋል፡፡ በዚህ ረገድ አሁን በሥራ ያለውን ሞዴል የማዕድን ሥራ ስምምነት የተሻለ ጥልቀት እንዲኖረው አድረጎ ማዘጋጀት ጠቀሜታ ይኖረዋል፡፡ በተጨማሪም የማዕድን ሥራ የሚከናወንባቸው አካባቢ ነዋሪዎች ስለዘርፉ ያላቸውን ግንዛቤ እንዲሁም ክትትል የማድረግ ብቃትን ማዳበር ያስፈልጋል፡፡

25. የማዕድን ሥራ በሚካሄድባቸው አካባቢዎች ከመሬት ይዞታ ጋር የተገናኙ ግጭቶች ወይም አለመግባባቶች አሉ፡፡ ለአብነት ጥቃቅንና አነስተኛና ባህላዊ ማዕድን አልሚዎች የአዶላና፣ የቱሉ ካፒ ከፍተኛ የማዕድን ልማት ይዞታዎችን ጥሰው የሚገቡ መሆኑ፣ በለገደንቢ የማዕድን ፍለጋ አካባቢ ከገበሬዎች ጋር የተፈጠረው ግጭት የሚጠቀሱ ናቸው፡፡ ሁሉም የመሬት ይዞታ በአካባቢው አስተዳደር ቁጥጥር ውስጥ ያለ በመሆኑ እንደዚህ ዓይነት ግጭቶች በአግባቡና በፍጥነት መፈታት እንዳለባቸው ሊገመት ይቻላል፡፡ ቢሆንም ውጤታማ በሆነ መልኩ ችግሩን ለመፍታት ለማዕድን ሥራ መሬት እንዴት እንደሚቀርብና እንደሚሰጥ ግልፅ የሆነ ሥርዓት ያስፈልጋል፡፡ ነገር ግን ይህ ግልፅ ሥርዓት በአሁኑ ወቅት ሙሉ በሙሉ አለ ማለት አይቻልም፡፡ ለምሳሌ በአንዳንድ የክልል ግዛቶች ውስጥ ተግባራዊ የሆኑ የግብርና ፖሊሲዎች ከፌዴራል መንግሥት የማዕድን ፖሊሲ ጋር የሚጣጣሙ ባለመሆኑ የተነሳ የትኛው ፖሊሲ ቅድሚያ እንደሚሰጠው ለማወቅ አስቸጋሪ ነው፡፡

26. በሕግ የተጠበቁና የተከለሉ የደንና ዱር አራዊት ይዞታዎች ያሉ ቢሆንም አገሪቱ ቅድሚያ የምትሰጠው ከሆነ በእነዚህ የተከለሉ አካባቢዎች ላይ ጭምር የማዕድን ፍለጋና ማውጣት ሥራ ይከናወናል፡፡

ሆኖም በምን አግባብ በእነዚህ አካባቢዎች የማዕድን ሥራ እንደሚፈቀድ ግልፅ አይደለም፡፡ ስለዚህም አጠቃላይ መጣረስ ይታይበታል፣ አንዳንድ

ኃላፊነት የሌላቸው ኩባንያዎች በእነዚህ ክልል ቦታዎች ላይ መሰማራታቸው በሌሎች ተቀባይነት የማይኖረው በመሆኑ የአገሪቱ የማዕድን ዘርፍ ተዓማኒነት ላይ አሉታዊ ተፅዕኖ ሊያሳድር ይችላል።

27. መንግሥት ከማዕድን ዘርፍ የሚያገኘው ቀጥተኛ ገቢ የሚመነጨው በማዕድን ኩባንያዎች ላይ ከሚኖረው የኢንቨስትመንት ድርሻ፣ ከማዕድን ገቢ ግብርና ከሮያልቲ ክፍያ ነው። ሞዴል የማዕድን ሥራ ስምምነት መንግሥት ምንም ወጪ ሳያወጣ በኩባንያዎች ላይ ድርሻ እንዲኖረው ያደርጋል። በ2002 በተደረገው የማዕድን አዋጅ ማሻሻያ ላይ የመንግሥት ነፃ ድርሻ አምስት በመቶ በከፍተኛና አነስተኛ የማዕድን ኩባንያዎች ላይ እንዲኖረው እንዲሁም ከኩባንያዎቹ ጋር በሚደረግ ድርድር ይህ ድርሻው በገንዘብ በሚደረግ መዋጮ ከፍ ሊል እንደሚችል ተደንግጓል። በአሁኑ ወቅት በከፍተኛ ማዕድን አምራች ኩባንያዎች ላይ የተጣለው የገቢ ግብር ከ35 በመቶ ወደ 25 በመቶ እንዲቀንስና ገቢውም ለክልል መንግሥታት እንዲተላለፍ የፌዴራል መንግሥት በአዋጅ የወሰነ ሲሆን፣ ክልሎች አነስተኛ ኩባንያዎች ላይ የራሳቸውን የገቢ ግብር እንዲወስኑ ይፈቅዳል። በመሆኑም ለአነስተኛ አልሚዎች የተቀመጠ ቋሚ የገቢ ግብር ምጣኔ የለም። የሮያልቲ ክፍያ የሚሰላው በAdvalorem (ገበያ በሚሠጠው ዋጋ ላይ) መሠረት ሲሆን በከበሩ ማዕድናት ሰባት በመቶ፣ በብረት ማዕድኖች ላይ አምስት በመቶና በኢንዱስትሪ ማዕድኖች ላይ አራት በመቶ ነው። የሮያልቲ ክፍያ ምጣኔው ከአፍሪካ አገሮች ምጣኔ ጋር ተመሳሳይ ነው። ነገር ግን የገቢ ግብር ምጣኔውና የመንግሥት ነፃ ድርሻ ከሌሎች የአፍሪካ አገሮች ዝቅተኛ ነው።

28. አገሪቱ ከማዕድን ምርቶች ወጪ ንግድ የምታገኘው ገቢ ከዘርፉ ውስንነት ጋር በተያያዘ ዝቅተኛ ነው። ቢሆንም ለአገሪቱ ጠቃሚና የውጭ ምንዛሪ ምንጭ ነው። (ባለፉት ጥቂት ዓመታት ከተገኘው አጠቃላይ የውጭ ምንዛሪ ከሰባት እስከ አስር በመቶ ድርሻ ይይዛል።) ከማዕድን ዘርፉ የሚገኝ ገቢን ለመሰብሰብ፣ ለመቆጣጠር ወይም መልሶ ኢንቨስት ለማድረግ የተቋቋመ ልዩ ፈንድ የለም። ይህ ዓይነቱ ፈንድ ቢኖር ድንገተኛ የኢንቨስትመንት ካፒታል ዕድገቶች በማዕድን ዘርፉ ቢከሰቱ ሊፈጥሩ የሚችሉትን “Dutch Disease” ማለትም የዋጋ ንረት፣ የአገር ውስጥ ገንዘብ የመግዛት አቅም መጨመር ሌሎች የኢኮኖሚ ዘርፎችን ከውድድር ውጭ ማድረግና የመሳሰሉትን ተግዳሮቶች ለመከላከል ጠቃሚ ይሆናል። ወይም ይህ ዓይነቱ ፈንድ ቢቋቋም ከዚህ ዘርፍ የሚገኘው ከፍተኛ ገቢ በመሆኑ ለመጪው ትውልድ መቆጠብ አለበት የሚሉ ሐሳቦችን ቀድሞ መመለስ ያስችላል።

29. በአገሪቱ ሕግ የገቢ ክፍፍል ሥርዓት ተቀምጧል። በዚህም በከፍተኛ የማዕድን አምራቾች ላይ ከተጣለው የሮያልቲ ክፍያ የፌዴራል መንግሥት ድርሻ 60 በመቶ የተቀረው የማዕድን ልማቱ የሚካሄድበት አካባቢ ላለው የክልል አስተዳደር አካል እንዲሆን ይላል። በተመሳሳይ አነስተኛ የማዕድን አምራቾች ላይ ከተጣለው ሮያልቲ ልማቱ የሚካሄድበት አካባቢ 60 በመቶ ድርሻ ሲኖረው የተቀረው የፌዴራል መንግሥት ድርሻ ነው።

30. ኢትዮጵያ ለዓለም አቀፍ የማዕድን ግልጽነት ኢኒሼዬቲቭ (EITI) አባልነት ለሁለተኛ ጊዜ በጥቅምት 2006 የዕጩነት ጥያቄ አቅርባለች። በመጀመሪያ ያቀረበችው ጥያቄ ውድቅ የሆነው በአወዛጋቢው የአገሪቱ የሲቪል ማኅበራት አዋጅ የተነሳ ነው።

    ኢትዮጵያ የኢኒሼዬቲቩ ዕጩ አባል ብታሆን በዘርፉ ላይ ሊከሰት የሚችል ሙስናን ለመዋጋት ያስችላታል። በተጨማሪም በዚህ ረገድ መልካም ሁኔታ መኖሩን ለውጭ ባለሀብቶችና ለአገር ውስጥ ባለድርሻ አካላት መልዕክት ያስተላልፋል። ከበጎ አድራጎት ድርጅቶችና ማኅበራት አዋጅ ጋር የተያያዙት ጉዳዮች ኢትዮጵያ የማዕድን ግልጽነት ኢኒሼዬቲቭ ሙሉ አባልነትን እንዳታገኝ እንቅፋት ከሚሆኑት ጉዳዮች አንዱ ነው። ሙሉ አባልነቱን ለማግኘት የሚቻል የተጠቀሰው አዋጅ በድጋሚ እንዲታይ የሚያስፈልግበት ሁኔታ ሊኖር ይችላል።

31. የማዕድን ሥራ ከማኑፋክቸሪንግ (አምራች) ኢንዱስትሪ ዘርፍና ማዕድናት ለአገሪቱ ተገቢውን ጥቅም እንዲያስገኙ ከማድረግ ጋር ያለው ትስስር በትላልቅ ፕሮጀክቶች አናሳነት የተነሳ በጣም ውስን ነው። አሁን ባለው ሁኔታ የማዕድን ዘርፍ ከሌሎች የኢኮኖሚ ዘርፎች ጋር ትስስር ያለው በሲሚንቶ ምርት በኩል ነው። ነገር ግን የፖታሽ ማዕድን የማምረት ሥራ አንዴ ከተጀመረ በኋላ ከግብርና የኢኮኖሚ ዘርፍ ጋር የሚኖረው ግንኙነት ያድጋል ተብሎ ይጠበቃል። (ፖታሽ ለግብርና ማዳበሪያነት የሚውል በመሆኑ) የለገደንቢ የማዕድን ስራም ሆነ ሌሎች ሰፋፊ የማዕድን ፕሮጀክቶች ማለትም እንደ አላና ፖታሽና የኒዮታ ሚኒራልስ ቱሉካፒ ፕሮጅክቶች ከሌሎች የኢኮኖሚ ዘርፎች ጋር ያላቸው ትስስር በጣም ደካማ ሲሆን ይህም የሆነው አገር በቀል ድርጅቶች ለዓለም አቀፍ ማዕድን ኩባንያዎች ግብዓትና አገልግሎት የማቅረብ አቅማቸው አነስተኛ ስለሆነ ነው። በመሆኑም የበጅት፣ የአጠቃቀምና የምርት ቁርኝት በማዕድን ዘርፍና በኢንዱስትሪ ዘርፍ እንዲሁም ከሌሎች የኢኮኖሚ ዘርፎች ጋር በበለጠ መፍጠር የሚቻል መሆኑ ግልጽ ነው።

32. ምንም እንኳን መንግሥት ያስቀመጠው የተለጠጠ ዕቅድ (አንቀጽ 9) በቀጣዩ አስር ዓመት ይሳካል ተብሎ የሚገመት ባይሆንም በዘርፉ ልማት የተገኙ ውጤቶች የእሴት ሰንሰለቶችን በመፍጠር የግድ መደገፍና ማበረታታት ያስፈልጋል። ይህንን ሰንሰለታዊ የእሴት ትስስር መፍጠር ከእሴት ሰንሰለቱ ሁለቱም ጫፎች ያሉ የኢኮኖሚ ጠቀሜታዎችን ለማግኘት ይረዳል። ለኢንዱስትሪ ዘርፍ ጠቀሜታ ያላቸው ማዕድናትን በተመለከተ ዝርዝር የገበያ ሁኔታ ጥናትና የኢንዱስትሪ ማዕድናት ስፔሲፊኬሽን መሥራት የኢንዱስትሪ ማዕድን ዘርፍ እንዲያድግና ከኢንዱስትሪው ጋር ያለው ትስስር እንዲዳብር ለማድረግ አስፈላጊ ነው። የኢንዱስትሪ ማዕድናት እንደ ከበሩ ማዕድናት ልማት አልሚዎችን የሚስብ አይደለም። ቢሆንም የኢንዱስትሪ ማዕድን ዘርፍ በጣም ግዙፍ ከመሆኑም በላይ ለሁሉም አገሮች ከፍተኛ ኢኮኖሚያዊ ጠቀሜታ አለው። የኢንዱስትሪ ማዕድን ዘርፍ በከፍተኛ ሁኔታ በኢትዮጵያ ሊለማ እንደሚችል የማዕድን ሚኒስቴር ከሰጠው ትኩረት መገንዘብ ይችላል።

33. ከመሠረተ ልማት ጋር በተያያዘ በተለይም የየብስ ትራንስፖርት መሠረተ ልማት አለመኖር የኢትዮጵያን የማዕድን ሀብት በማልማት ረገድ ፈታኝ ሁኔታን ፈጥሯል። በአሁኑ ወቅት ወደ ተለያዩ የማዕድን ልማት አካባቢዎች የሚያደርስ ምንም ዓይነት የባቡር ትራንስፖርት የለም። ይህንን የትራንስፖርት መሠረተ ልማት ከመዘርጋት አንፃር ወቅታዊ ማዕድን ልማት ላይ የተሳትፎ ውስንነት በመኖሩና እንዲሁም የወደፊት የማዕድን ልማት ዞኖች ተለይተው የማይታወቁ በመሆኑ የመሠረተ ልማት ኔትወርክ አለመኖሩ ብዙ አያስገርምም። የኢትዮጵያ መንግሥት በአሁኑ ወቅት አዲስ፣ ዘመናዊና የመጨረሻውን ቴክኖሎጂ የያዘ ደረጃቸውን የጠበቀ የባቡር ኔትወርክ በአገር አቀፍ ደረጃ እየዘረጋ ነው። ዓለማውም አጠቃላይ ኢኮኖሚውን በፍጥነት ለማሳደግ እንጂ ከተወሰነ የኢኮኖሚ ዘርፍ የመጣን ፍላጎት ወይም የደንበኛ ጥያቄን ለመመለስ አይደለም። የታቀዱት የባቡር መስመር ዝርጋታዎች የማዕድን ዘርፍ ልማት የሚፈልገውን ትራፊክ (የባቡሮች ምልልስና የሚጓጓዘውን የማዕድን መጠን) ከግምት ውስጥ ያስገባ ጥናት ተደርጎ ይሆን አይሆን ግልጽ ነገር የለም።

    በመሆኑም ማብራሪያና በዚህ ረገድ የሚኖሩ ሌሎች ዕቅዶችን ማወቅ ያስፈልጋል። በተጨማሪም የባቡር ትራንስፖርትን ወደፊት ምን ያህል እንደሚያስፈልግ መተንበይ ያስፈልጋል። አሁን ያለው የማዕድን ልማት መጠን የባቡር ትራንስፖርትን የሚጠይቅ ወይም ለባቡር ትራንስፖርት የሚወጣውን ኢንቨስትመንት የሚመልስ አይደለም። የአላና ፖታሽ በልዩ ሁኔታ ከሚጠይቀው የባቡር ትራንስፖርት በስተቀር። የሎጂስቲክ አቅርቦት በሚቀጥሉት 10 እና 15 ዓመታት ምን ያህል ሊሆን ይችላል? የሚለውን በመገመት አስፈላጊው የትራንስፖርት ወጭ ግምት ውስጥ መግባት ይኖርበታል።

34. የጂቡቲ የባህር ወደብና ሌላው የጂቡቲ ታጁራ ወደብ ለኢትዮጵያ የማዕድን ዘርፍ አስፈላጊ የሆኑ መሣሪያዎች መግቢያ እንዲሁም የፖታሽ ማዕድን መውጫ (ኤክስፖርት የሚደረግባቸው) ወደቦች ናቸው። ከነዚህ ወደቦች በተጨማሪ ሌሎች ለኤክስፖርት ምርቶች መተላለፊያ የሚሆኑ አቅም

ያላቸው ወደቦች (ማለትም የምፅዋና የአሰብ ወደቦች በኤርትራ ወይም የበርበራ ወደብ በሶማሊያ) ቢኖሩም አካባቢያዊ የጂኦ ፖለቲካ ጉዳዮች እንዲሁም እነዚህን ወደቦች ትራንስፖርቱን ከሚፈልጉ የኢትዮጵያ አካባቢዎች የሚያገናኙ የመንገድ መሠረተ ልማት አለመኖር በአሁኑ ወቅት ወደቦቹን በአማራጭነት የማየቱ ጉዳይ ብዙም አስፈላጊ አይሆንም፡፡

35. የኤሌክትሪክ ኃይል መሠረተ ልማትን በተመለከተ ኢትዮጵያ የኃይል ማስተላለፊያ መስመሮች ትስስር ላይ ትኩረት ሰጥታ እየሠራች ሲሆን፣ የግልገል ጊቤ ሦስት የኃይል ማመንጫና የታላቁ ኢትዮጵያ ህዳሴ ግድብ የኃይል ማመንጫ ፕሮጀክቶችን ስኬታማ መጠናቀቅ ተከትሎ የኤሌክትሪክ ኃይል ኤክስፖርት በስፋት ለማከናወን የኤሌክትሪክ ማስተላለፊያ ኔትወርክ እየተገነባ ነው፡፡ ወደፊት ሊሰሩ የታቀዱና አሁን ያለው የኤሌክትሪክ ኃይል ምርት አቅም ግምት ውስጥ ሲገባ የኢትዮጵያ የማዕድን ዘርፍ ልማት በእንጭጭነቱ የሚያስፈልገውን የኃይል ፍላጎት በበቂ ደረጃ ለመመለስ የሚያስችል አቅርቦት የሚኖር ይመስላል ብሎ መውሰድ ይቻላል፡፡

36. የመንግሥትና የግሉ ዘርፍ ቅንጅት በመሠረተ ልማት ዘርፍ የለም፡፡ እንዲሁም ወደፊት ይህ ቅንጅት ይመጣ እንደሆነ የሚታወቅ ዕቅድ የለም፡፡ በአስካሁኑ ሂደት የመሠረተ ልማት ወጪ ለቻይናና ለቱርክ ኩባንያዎች የተሰጡ ፕሮጀክቶችን ጨምሮ በመንግሥት የሚሸፈን ነው፡፡ ይሁን እንጂ የመንግሥትና የግሉ ዘርፍ ቅንጅትን (ፐብሊክ ፕራይቬት ፓርትነርሽፕ) የተመለከተ አዋጅ እየተረቀቀ ሲሆን፣ ይህ አዋጅ በመሠረተ ልማት ረገድ የግሉ ዘርፍ ተሳትፎ መኖርን ያመላክታል ተብሎ ይጠበቃል፡፡

37. የወደፊት የማዕድን ዘርፍ ዕቅድ ሲወጣን «የማዕድን ኮሪደር» (Resource Corridor) ሊታሰብበት ይገባል፡፡ ይህንን ኮሪደር በነዚህ አካባቢዎች መገንባት ይገባል ብሎ ለመለየት በአሁኑ ወቅት አስቸጋሪ ነው፡፡ ነገር ግን ከርስምድራዊ (ጂኦሎጂካል) አቅማቸውን በማጤን አዋጭ ናቸው የተባሉትን አካባቢዎችና ለጆቡቲ ወደብ ምቹ የሆኑትን መለየት ይቻላል፡፡

የማዕድን ኮሪደር ሲታሰብ መዘንጋት የማይገባው መሠረተ ልማትና በማዕድን ዘርፍ የማኑፋክቸሪንግ አቅም ብቻ አይደለም፡፡ የተቋማዊ አቅም ግንባታ (የክትትልና ቁጥጥር ተቋማትን)፣ ሲቪል ማኅበራት ከማዕድን አልሚ ኩባንያዎች ጋር መሳተፍ የሚችሉበትን አቅም መገንባት፣ በተጨማሪም የሰው ኃይል ልማትና የሥራ ቅጥር ከግንዛቤ ውስጥ ማስገባት ጠቃሚ ነው፡፡ ይህንን የማዕድን ኮሪደር ጽንሰ ሐሳብ ወደ ተግባር ለመለወጥ የሚያስችል የመጀመርያ ዕቅድ በአላና ፖታሽ ፕሮጀክት ተዘጋጅቷል፡፡ ይህም ተያያዥ መሠረተ ልማቶችን በመዘርጋት፣ አገልግሎት ሰጪ ኢንዱስትሪዎችን በማቋቋምና የመቆጣጠር አቅምን በማሳደግ በኩል ጉልህ የሆኑ እድሎችን ይፈጥራል፡፡

ማጠቃለያ ምክረ ሐሳቦች (Summary of Recommendation)

38. ሪፖርቱ የሚያጠቃልለው የኢትዮጵያ የማዕድን ዘርፍ ልማትን የሚደግፍና የሚያጠናክሩ የተለያዩ ምክረ ሐሳቦችን በማቅረብ ነው (አንቀጽ 13)፡፡ ከፍተኛ የሆነ ድጋፍ ለኢትዮጵያ የማዕድን ዘርፍ ለማድረግ የአውስትራሊያ መንግሥት፣ የካናዳ ውጭ ጉዳይ ንግድና ልማት ሚኒስቴር (DFATD) ፣ የዓለም ባንክ እና ቻይናውያን 'ኢኒሼቲቭስ' እንደማቀዳቸው መጠን የተለያዩ ፕሮጀክቶች በጥንቃቄ ሊቀናጁና፣ ማን ምን ይሠራል የሚለው በግልጽ ቢቀመጥ ድግግሞሽንና ብክነትን ያስቀራል፡፡ የቀረቡ ምክረ ሐሳቦች ወደ ትግበራ እንዲለወጡ በአጭር ጊዜ (ከ6 እስከ 12 ወራት)፣ በመካከለኛ ጊዜ (ከ12 እስከ 36 ወራት) እና በረዥም ጊዜ (ከ36 ወራቶች በላይ) አማራጮች ቀርበዋል፡፡ የዶታ እኩልነት አለመኖር በማዕድን ዘርፍ የተንሠራፋ እንደመሆኑ መጠን የሥርዓተ ፆታ ጉዳዮች ትኩረት ሊያገኙና በሁሉም በማዕድንና ከማዕድን ጋር ግንኙነት ባላቸው ዘርፎች ላይ ትኩረት ተሰጥቶበት በዋነኛነት ሊሰራ ይገባል፡፡ በዚህ ረገድ ለማዕድን ዘርፍ ባለሙያዎች ትምህርት፣ ለጥቃቅንና አነስተኛ ባህላዊ ማዕድን አምራቾች እንዲሁም የማዕድን ዘርፍ ልማት በሴቶች ላይ ለሚያደርሰው ተፅዕኖ ልዩ ትኩረት ሊሰጥ ይገባል፡፡

39. በአሁኑ ወቅት የማዕድን ዘርፍ ልማት ላይ ያሉ ተግዳሮቾን ለመቅረፍ እንዲቻል የአጭር ጊዜ የመፍትሄ ሐሳብ እንዲተገበር ቀርቧል፡፡ እነዚህም ፡- (1) የማዕድን ፍለጋ እና የማዕድን ማውጣት የሥራ ፈቃድ የሚሰጥበትበትን ሁኔታ በተመለከተ ግልጽ የሆነ የፖሊሲ አቅጣጫ (ተያያዥነት ያላቸው ሕጎችና ደንቦችን ጨምሮ) እንዲቀመጥ፣(2) የማዕድን ሚኒስቴር ተቋማዊ መዋቅርና የአቅም ግንባታ ጥያቄን መመለስ፣ (3) የተቆጣጣሪ ተቋማት ውስን አቅምን ከግምት በማስገባት የማዕድን አልሚ ኩባንያዎችን ለዘላቂ የዘርፍ ልማት ንቁ ተሳታፊ እንዲሆኑ ማበረታታት፣ (4) አሁን ያለውን መረጃ እና እውቀት በመጠቀም ጂኦሎጂካሊ አዋጭ ስለሚባሉ አካባቢዎች በቂ መረጃ ማቅረብ፣ (5) ኢትዮጵያ የማዕድን ኢኒዱስትሪ ግልጽነት ኢኒሼዬቲቭ (ETTI) እጩ አባል እንድትሆን መደገፍ በዚህም ተባባሪ አካላት የሚፈልጉትን መረጃ ማቅረብ እና የሕዝብ ግንኙነት አቅምን መገንባት፤ (6) የማዕድን ገቢ ክፍፍል ሥርዓትን መቅረጽ፣ (7) መሠረታዊ ጥናት በማካሄድ በባህላዊ መንገድ የሚያመርቱ ጥቃቅንና አነስተኛ አምራቾች (ASM) ያሉበትን ሁኔታ እና ውስብስብነት መረዳት ኃላፊነት ያላቸው ተቋማት ይህንን የማዕድን ዘርፍ አካል እንዴት መደገፍ እንደሚችሉ ያግዛል፡፡

40. በመካከለኛ ዘመን ምክረ ሐሳብ (Recommendation) ዘርፉን በተሻለ ሁኔታ የሚያጠናክሩና የሚያፋጥኑ ሐሳቦች ቀርበዋል፡፡ እነዚህም

I. አዳዲስ ጂኦሎጂካል መረጃዎችን መሰብሰብና ማሰራጨት፣

II. አገራዊ የሰው ኃይል ልማት በማካሄድ በወንድም በሴቶችም የዘመናዊ የማዕድን ፍለጋና አጠቃላይ የማዕድን ፕሮጀክቶች ከሚፈጥሩት የሥራ ዕድሎች ተጠቃሚ እንዲሆኑ ማድረግ፣

III. ማዕድን ማለት እንዲሁም የማዕድን ልማት ምን እንደሆነ የሚያስገነዝቡ የአቅም ግንባታዎችን በሲቪል ማኅበራትና ማኅበረሰባዊ ተቋማት ላይ መፍጠር፡፡ ይኼንን ማድረግ ተቆጣጣሪ ተቋማት ለሚያከናውኑት ክትትልና ቁጥጥር ይጠቅማል፡፡

IV. በኢንዱስትሪ ማዕድን ምርት ምርምርና ሥርፀት ከአገር ውስጥ ኢንዱስትሪዎች ጋር በመተሳሳር ተግባራዊ ሊደረግ የሚችልበትን ጥናት ማከናወን ናቸው፡፡

41. በረዥም ጊዜ እና ከፍተኛ የማዕድን ዘርፍ ከመፍጠር ጋር ተቀናጅቶ ፖሊሲ አውጪዎች ከዘርፉ የሚገኝን ጥቅም በበለጠ ማሳደግ የሚችሉበትን ዕቅድ እንዲያጠኑ ምክረ ሐሳብ ቀርቧል፡፡ ይኼንን ከሚያረጋግጡባቸው መንገዶች መካከከል «የማዕድን ኮሪደር» መለየት፣ ትስስርን ማበረታት እና በረዥም ጊዜ ሂደት ጥሬ ዕቃዎችንና ምርቱን የመለየት (ኤክስትራክት) የማድረግ ሥራ በአገር ውስጥ እንዲከናወንና ኢኮኖሚውን እንዲጠቅም ማድረግ ተጠቃሽ ናቸው፡ በመጨረሻም ወሳኝና አስቸኳይ የልማት ጥያቄዎች ከተመለሱ በኋላ ከዘርፉ የሚገኝ ሐብትን የሚያስተዳድርና ለኢንቨስትመንት እንዲውል ኃላፊነት የሚኖረው "ሶቨሬይን ዌልዝ ፈንድ" ማቋቋም የሚቻልበትን ሁኔታ መተግበር ያስፈልጋል፡፡ ይኼን ፈንድ በአግባቡ ማስተዳደር የሚቻል ከሆነ ጠንካራና አስተማማኝ የኢኮኖሚ ዕድገት ማረጋገጥ የሚቻል ከመሆኑም ባሻገር ከዘርፉ የሚገኝን ሀብት ፍትሀዊና ግልጽ በሆነ መንገድ እንዲከፋፈልና ለቀጣይ ትውልድ እንዲተላለፍ ለማድረግ ያስችላል፡፡

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1. INTRODUCTION

1.1. Background and report structure

1. This report provides a review of the Ethiopian mining sector, and assesses its potential to contribute to sustainable economic growth and development. It further provides recommendations for the initiatives and actions that will be required for such development to take place, and it identifies the risk and opportunities that this entails. The need for this type of strategic analysis follows from the Government of Ethiopia's (GoE) ambition to, as part of the Growth and Transformation Plan (GTP), develop the mining sector to be a main pillar of the economy.

2. The report was produced in the period May 2013 to February 2014. It was commissioned by the World Bank and its partners (IFC, DFATD, the Australian Government and DfID) with the aim to assist the GoE in its efforts to develop the mining sector. Thus, the report has been produced in close cooperation with staff at the Ethiopian Ministry of Mines (MoM). Its findings are mostly based on desk top reviews of existing documents, on a large number of meetings and interviews with affected and interested stakeholders and also on some field work performed in the southern and western parts of the country. Regular oversight and feedback has been provided by representatives from the World Bank and its partners.

3. This chapter provides an introduction to the Ethiopian economy and the current contribution from mining, and describes general aspects of mineral sector development and how it may contribute to economic development. Chapter 2 presents the geological potential of the country, mineral occurrences, and mining and exploration projects. Building on Chapter 2, Chapter 3 presents possible scenarios for future mineral sector growth with economic implications, and further discusses industry linkages. Chapters 4-11 include assessments of different mineral sector framework areas, and recommendations are provided in the end of each chapter. Chapter 12 presents current infrastructure and development plans and, finally, Chapter 13 presents a summary and prioritization of recommendations.

1.2. The Ethiopian economy and contribution from mining

4. Ethiopia has averaged a 10.7% economic growth rate over the last ten years and was cited as the 12th fastest growing economy by the World Bank in 2012. According to the World Bank Ethiopia Economic Update (2013), with the provision that it can continue its historic growth performance, it could potentially reach middle income status by 2025.

5. The major driver of the Ethiopian economy is its agricultural services, accounting for 46% of the value added to GDP in 2011 (Table 1.1), followed by the services sector with 43%. Exports account for 12.7% of GDP, while imports are 28%. The manufacturing sector remains small, although efforts are being made to increase its size.

6. The Growth and Transformation Plan is the main national development roadmap for Ethiopia for the period 2010-2015, focusing on structural transformation and sector targeting to achieve broad based and equitable growth. The main feature of the plan is to ensure GDP growth rates of 11-15% per year and to create investment opportunities in agricultural and industrial sectors. The economic sector performance creates specific targets for the agricultural, industrial and mining sectors. Financing from both the public and private sector is envisioned. The other major sub-headings for the program include improvements in the country's infrastructure as well as social development indicators (education and training, and health). The final segment focuses on capacity building, information and communications technology development, democracy and good governance. The plan takes into consideration cross cutting issues, such as gender and youth development, HIV/AIDs prevention and control, labour affairs, environment and climate change.

Table 1.1. Economic profile for Ethiopia.			
	2000	2005	2011
GDP Indicators			
GNI per capita, PPP (current international $)	460	620	1,050
GDP (current US$ million)	8,180	12,307	31,709
GDP growth (annual %)	6.1	11.8	7.3
Sectoral Distribution of GDP			
Agriculture, value added (% of GDP)	49.9	46.7	46.4
Industry, value added (% of GDP)	12.4	13.0	10.5
Manufacturing, value added (% of GDP)	5.5	4.8	3.6
Services, etc., value added (% of GDP)	37.8	40.3	43.1
Gross capital formation (% of GDP)	20.3	23.0	25.5
Trade Indicators			
Trade (% of GDP)	36.0	50.6	48.7
Merchandise trade (% of GDP)	21.4	40.6	37.1
Exports of goods and services (% of GDP)	12.0	15.1	16.8
Imports of goods and services (% of GDP)	24.0	35.5	31.8
Natural Resource Rents			
Total natural resources rents (% of GDP)	10.1	8.4	6.0
Mineral rents (% of GDP)	0.0	0.1	1.1
Forest rents (% of GDP)	10.1	8.3	4.8
Source: World Development Indicators, 2013 accessed 23rd October, 2013 <http://databank.worldbank.org/>			

7. In the fiscal year 2011/2012, the Ethiopian mining sector contributed about 1.5% to GDP, with mineral rents (the difference between cost of production and its revenue value) accounting for 1.1% of GDP. The sector accounted for USD 618 million (19%) of the country's exports, with gold making up close to 100% of the mining sector exports and with most of this gold (about 2/3) coming from artisanal mining. In comparison, Ethiopia's largest export commodity, coffee, generated USD 833 million (26%) in export revenues. The contribution from mining to employment in Ethiopia is today small (a few thousand), as the sector is small and mining is not a labour intensive industry. Artisanal mining on the other hand is likely to involve several hundred thousand workers.

8. At the start of the GTP (2009/2010), one of the main objectives of the government was for the mining sector to contribute to export revenues and to provide inputs to the agricultural sector and add to local manufacturing capabilities. Over a couple of years before 2010, export revenues from the mineral sector averaged around USD 135 million, and accounted for 7 to 10% of the foreign exchange earnings for the country. In the year 2011/2012, the GTP review reports that the mineral sector secured USD 199 million in foreign exchange earnings.

9. Between 1974 and 1991 private investment was not allowed in the mineral sector, while government institutions were mandated to develop the mineral wealth of the country. As a result of the political change that took place in 1991, a new more market oriented economic policy was introduced in the country. In the mining sector, the government promulgated a new mining proclamation and mining income tax proclamations to encourage the participation of private capital in mineral sector development. This has not yet led to a significant expansion of the country's mining sector and the Ethiopian mining sector can be viewed to be in its infancy stage, but with good potential for future development.

10. Currently, the largest foreign investment in the mining sector is by Allana Potash, for a Potash project, which plans to start production by mid to late 2017. Nyota Minerals' Tulu Kapi project, which was on hold during the second half of 2013 but where activities have now continued after ownership changes and additional financing, has reached an advanced stage. Apart from these two advanced projects, there are a number of exploration projects at various development stages (see further Chapter 2).

11. In the framework of the Mining Value Chain (Figure 1.1), Ethiopia can be viewed as being at the stage of developing and improving governance related to the first three steps; Access to resources, Monitoring of operations, and Collection of royalty and taxes (Ethiopia recently submitted its application to become a candidate EITI country).

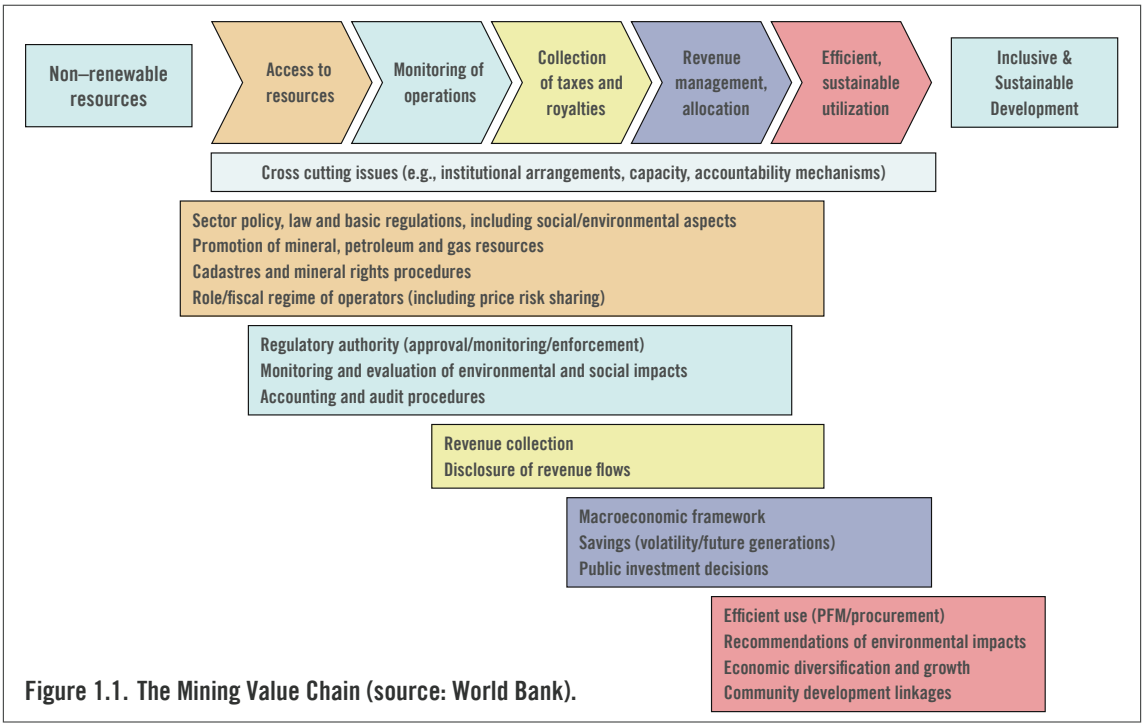

Figure 1.1. The Mining Value Chain (source: World Bank).

1.3. Mineral sector characteristics and development in general

12. The mining sector, in general, may be divided into three main subsectors: (i) metals and precious minerals mining; (ii) coal mining; and (iii) industrial minerals mining. Coal mining has an economic worth and global turnover that is on par with all metals and precious minerals mining combined[1]. Industrial minerals mining (mainly quarrying) is sometimes overlooked, when the mining sector is being considered in spite of it being a subsector which is vital for the functioning of society, and which has a considerable economic value to the domestic economy. With regards to industrial minerals, the value to bulk ratio is often small, and therefore the potential for export is limited as the international transport costs will often far outweigh the value of the material itself.

13. Mineral project development, from early exploration to the start of industrial-scale production usually takes 10-15 years or more (Table 1.2) and it may even take some 5-10 years from the initial estimation of mineral resources undertaken during the exploration phase before a mine is commissioned. This time is used to carry out detailed resource estimates, to do the various metallurgical, geotechnical, financial and environmental studies necessary for a bankable feasibility study, and to arrange financing and mineral and environmental permitting. The management of the sector needs to be characterised by a similarly long-term view. These estimates may be somewhat lower for technically simple, smaller gold mines and for industrial minerals projects, but can be substantially higher for large and complex polymetallic mines. Post-production, mine closure and rehabilitation usually takes a couple of years or more, and this is sometimes followed by a prolonged period of environmental monitoring, depending on the type of mine.

14. It also important to keep in mind that few exploration projects actually lead to mine development. For example, looking at major metals, over a recent 2-year period, 26 out of 710 (3.7%) greenfield discoveries in Canada reached feasibility stage[2]. For Australia, the numbers were 32 out of 570, or 5.6%. Far fewer projects would survive all the way to the mine construction stage.

Table 1.2. Common time periods (years) for the different phases of mineral development projects.

Exploration & feasibility study	5-15
Mine construction	1-2
Production	10-30
Mine closure & reclamation	1-2
Monitoring	5+

1 Raw Materials Group (2013)
2 Raw Materials Group (2013).

15. The needs and requirements for establishing a mine are dependent upon which commodity is being considered. High bulk commodities such as iron ore and coal are crucially dependent upon the availability of infrastructure for transport (railroads, harbours), and other supporting industries and activities (often referred to as "linkages"). Conversely, mines for low bulk commodities (e.g. gold and diamonds) may be initiated with a comparatively lesser need for associated linkages and infrastructure.

16. Mining is a cyclical business, with commodity prices varying in what is sometimes referred to as "super cycles", which in turn may span over one or several decades. Thus, the decade preceding 2005 (and the rise of demand of China) was characterised by low commodity prices (Figure 1.2), and limited exploration. In contrast, since 2005 the world has seen a boom in the mining sector, fuelled to a great extent by Chinese demand, leading to what at times has been near frantic activity and interest in the sector. The last year, since 2011, has seen a slowing down and decreases in commodity prices. The management of the sector needs to take these fundamental characteristics into account.

17. When considering the 'development' of the mining sector, particularly its contribution to economic growth and export revenues, the generation of large economic rents is more likely to come from medium to large scale mining projects, relative to those from artisanal and small scale projects. Furthermore, economies of scale are more likely to result with increased mine size and when there are a few large scale mines in production [3].

18. The mining sector holds substantial prospects for fostering development and economic growth. The sector is, however, also seen to be associated with a number of less desirable characteristics such as environmental impacts, socio-economic unrest, land-use conflict, financial instability (e.g. Dutch disease), and due to the large amounts of money involved, to be prone to corruption and illicit financial transactions. Measures are needed to address these problem areas, such as the development of a suitable regulatory regime, as well as the building of institutional capacity to implement such a regime.

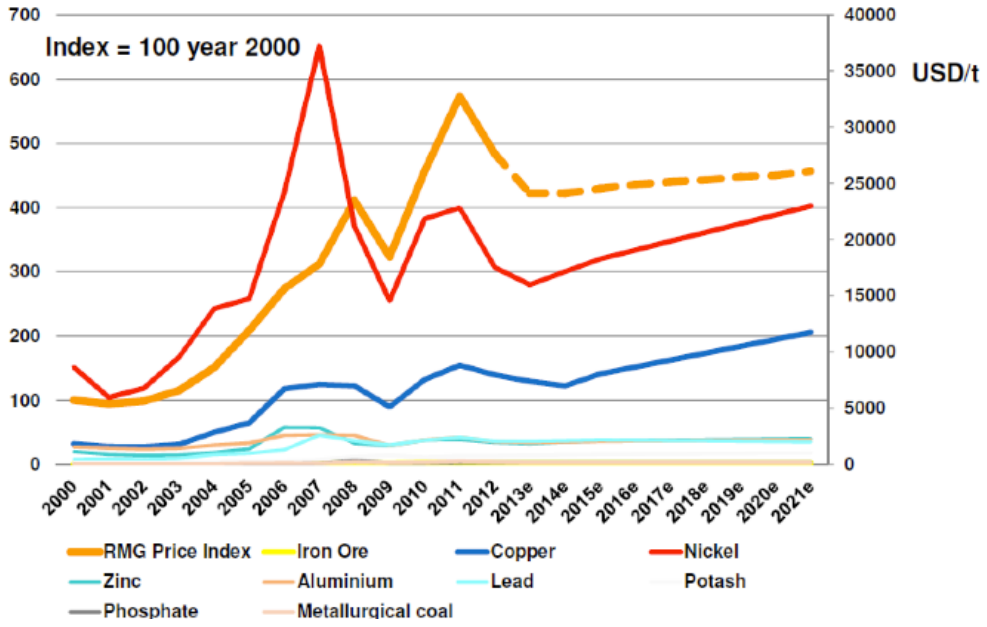

Figure 1.2. Variations in "metal price index" since 2000 (with 2000 given an index of 100). Source: Raw Materials Group, Stockholm (2013).

3 Note the number of mines will differ dependent on the metal being mined and the volume of ore (including waste rock) that is being produced.

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2. GEOLOGY, MINING AND EXPLORATION ACTIVITIES

2.1. Regional geology and mineral occurrences

1. The oldest rocks in Ethiopia are of late Proterozoic age (900-540Ma) and cover somewhat less than a quarter of the country. These rocks (displayed in dark green, grey and black in Figure 2.1) are mainly exposed in three areas of the country, to the north, west, and south, and to a lesser extent around Harar in the east. The Proterozoic basement of Ethiopia is located at the interphase of the Arabian-Nubian Shield that continues to the north into Sudan, Egypt and Saudi Arabia and the Mozambique Belt, which makes up much of the geological basement throughout eastern Africa.

2. The Proterozoic basement includes a variety of variously deformed and metamorphosed sedimentary, volcanic and intrusive rocks. In general, gneisses are more common, and the metamorphic grade higher, in the southern and western terrains compared to the northern terrain. The northern terrain is predominantly made up of volcanic and sedimentary rocks of lower metamorphic grade. So called greenstone belts occur in all three areas[4].

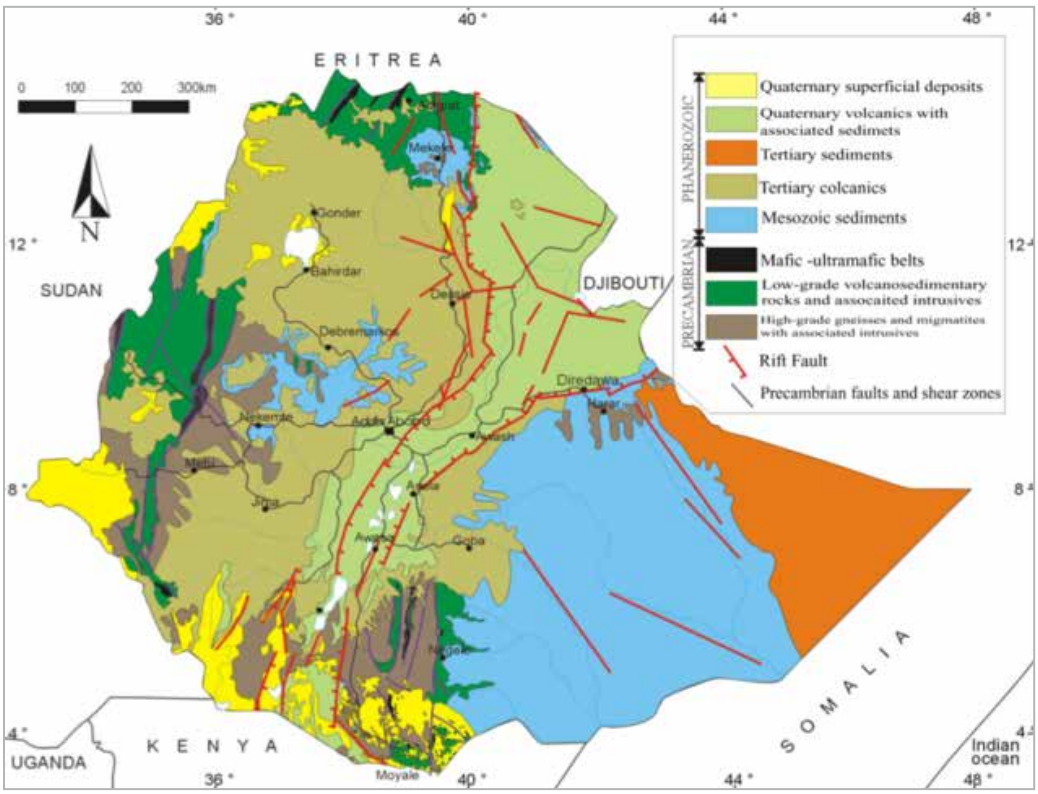

Figure 2.1. Simplified geological map of Ethiopia (source: GSE).

4 Greenstone belts may host a variety of minerals deposits, especially gold. They are thought to have formed along the margins of Archaean cratons (3200 – 2500 million years) but the term is sometimes also used for similar geological environments of younger age. They consist of a mix of metamorphosed mafic to ultramafic volcanic sequences with associated sedimentary rocks. The name greenstone comes from the green hue of some of the metamorphic minerals present.

3. Dominantly Mesozoic (251-66Ma) and some slightly older marine and continental sedimentary rocks cover about 25% of Ethiopia. They occur across large areas of eastern Ethiopia (the Ogaden basin) and also in two sedimentary basins in the centre and to the north of the country (blue in Figure 2.1). The Mesozoic formations include rocks such as sandstone, shale, limestone and gypsum.

4. About 50% of the country is covered by Tertiary (65-2.6Ma) and Quaternary (2.6Ma – present time) volcanic and sedimentary rocks, related to the formation of the Ethiopian rift. The rift runs from northeast to southwest across Ethiopia, and is part of the greater East African Rift. Thus, the Ethiopian highlands are underlain mainly by thick sequences of flood basalt that erupted 65-13 million years ago (olive colour; Figure 2.1) while the rift valley itself is covered mainly by Quaternary (< 2.6Ma) volcanic rocks and associated sedimentary rocks (green; Figure 2.1). Quaternary sediments also occur in other parts of the country (yellow) and Tertiary sediments in the far east (orange).

5. The different geological terrains described above are prospective for different types of rocks and minerals. Apart from extensive artisanal mining, there are and have been very few mines in Ethiopia and comparatively little detailed exploration has been undertaken. Mineral/rock occurrences (Table 2.1) in the different terrains are however reasonably well known mainly from the work undertaken by the Geological Survey of Ethiopia (GSE) over the past 40 years.

Table 2.1. Mineral and rock occurrences in main geological environments of Ethiopia.

Geological terrain	Commodity	Deposit types and key areas
Late Proterozoic basement (black, grey, green in Figure 2.1) Most important terrain for metallic minerals Also dimension stone, refractory minerals and ceramic raw materials	Gold	Primarily lode gold in greenstone belts
	Au-Ag-Cu-Zn	VMS-type in the northern terrain
	Tantalum	Pegmatite in southern terrain
	Iron	Basic intrusions in western and southern terrains; Quartz-banded sedimentary iron in western terrain
	PGE (+gold)	Ultramafic intrusions, and related alluvial-eluvial placers in the western terrain
	Phosphate	Basic intrusions, together with Fe
	Dimension stone	Several areas in the Proterozoic terrains
	Refractory raw materials: kyanite, graphite, talc	Southern terrain
	Kaolin	Southern terrain and in the Harar area (also in some areas with Quaternary volcanics
	Feldspar & quartz	Pegmatite in southern terrain and in the Harar area
Mesozoic sediments (blue in Figure 2.1) Important for the main cement raw materials	Limestone & gypsum	A number of deposits in all three Mesozoic sedimentary basins
	Silica sand	Several deposits in the Mesozoic basins
Tertiary-Quaternary volcanics and sediments (olive & green in Figure 2.1) Important for a number of industrial minerals and gemstones Also coal and epithermal gold	Potash	Evaporites in the central parts of the Danakhil depression
	Pumice	A number of areas in the felsic volcanics of the Rift Valley
	Diatomite	A number of areas in lacustrine sediments of the Rift Valley
	Bentonite	A number of areas in lacustrine sediments of the Rift Valley
	Rock salt	Occurs in some lakes in the central-southern part of the Rift Valley
	Soda ash	Opal occurs in the areas surrounding the northern, central and southern parts of the rift valley, in Tertiary volcanics
	Gemstones	Other gemstones such as beryl, emerald, sapphire, tourmaline and garnet are found mainly in the southern parts of the rift
	Coal	Lignite to bituminous deposits in sediments mostly within Tertiary volcanic formations in southwestern and northern Ethiopia
	Epithermal gold	Low-grade gold occurrences in the rift valley, northern parts

Sources: Tadesse (2009); various promotional documents available at the GSE (www.gse.gov.et, accessed November 2013); discussions with MoM staff.

2.2. Geological data and information

6. The Geological Survey of Ethiopia was established in 1968 with the primary aim to conduct systematic geological mapping and mineral exploration. Prior to the 1970's very little geological mapping work had been undertaken. A broad description of available geoscientific information is provided below.

   - **Geological mapping:** A national geological map at the scale of 1:2,000,000 was first published in 1973, and revised in 1996. These maps, however, defined much of the basement as being of Archean age (>2,500Ma). Studies undertaken during the 1990's by the GSE in collaboration with other institutions, and more recent geological mapping, indicates that the basement is of late Proterozoic age (<900Ma).

     Regional maps at the scale of 1:250,000 have been produced since the early-mid 1970's and today cover almost 70% of the country, including most areas of the country apart from the Ogaden basin in the east. No regional geological mapping has been undertaken at scales finer than 1:250,000.

   - **Geochemical mapping:** Geochemical surveys have been undertaken at different scales over the years, with focus on the Proterozoic areas. About 20% of the country has been mapped at the 1:100,000 or finer scales. In 2009, systematic surveys at the scale of 1:250,000 were initiated in parallel with the geological mapping.

   - **Airborne geophysical surveys:** Airborne geophysical surveys focused on mineral exploration have been undertaken over some parts of the Proterozoic terrains. However, the surveys were mainly done in the early 1970's (and to a lesser extent in 1996) with a line spacing of 1-2km and the data is of low quality compared to what can be achieved today with modern methods and tighter line spacing. A helicopter borne electromagnetic, magnetic and spectrometry survey was also carried out in 1993/94 in the Adola Gold area, with a line spacing of 200m.

   - **Ground gravity surveys:** Ground gravity measurements have been performed intermittently since the 1940's. The gravity network was significantly expanded during the countrywide gravity survey 1990-2001. The gravity stations are located mainly along primary and secondary roads (i.e. no grid system) with a spacing of 5km and the Proterozoic areas are not well covered.

   - **Mineral potential studies:** The GSE has over the years investigated a number of deposits through petrographic and geochemical studies, and to a lesser extent through drilling and assaying. Mineral resource estimates have been reported for a number of deposits while the methodologies are not compliant with modern procedures/methods.

   - **Geoscience data and information management:** The GSE houses bibliography and mineral occurrences meta-data databases at the Geoscience Data Centre (which are also available on-line at www.gse.gov.et) and a geochemical database at the GSE Laboratories. There is, however, a large amount of data and information at the GSE that is not yet entered into databases.

   - **Promotion of the mineral sector:** The MoM has been present at the Mining Indaba Fair in Cape Town, has an active and fairly informative web-page andhas produced specialized promotional brochures[a number of good promotional documents were produced in 2009-2011, in part with support from external development partners (GEUS)], available at the GSE website. Mining promotion literature is also included as a chapter in the booklets issues by the Investment Promotion Agency.

7. Due to a lack of capacity, much of the GSE's work is now focused on completing the 1:250,000 geological mapping and little resources are given to geochemical and geophysical surveys (see further Section 7.2). Some of the old maps sheets (from the 1970-2000) would probably have to be revisited and revised in light of stratigraphic revision needed as there is very likely no Archean basement in Ethiopia.

2.3. Mining and mine prospects in Ethiopia and the region

The purpose of this section is to provide a broad view of the geological potential by describing on-going mining as well as mine prospects in Ethiopia and the surrounding regions.

1. Gold

There is currently one operating large scale gold mine in Ethiopia, the Lega Dembi open pit mine in the southern Proterozoic terrain, owned by Midroc Gold Mine Plc. Lega Dembi opened in 1998 and has at an average produced some 4.5 t/yr (3.5 tonnes or 120,000 oz in 2012). In some two years time, the operation will continue underground and also include the Sakaro deposit located right next to Lega Dembi. Nearby, there is also the state owned Adola mine where alluvial gold (at least in part derived from the Lega Dembi deposits) has been mined for over half a century.

Extensive artisanal (and some small-scale) gold mining shows the potential for gold in all the Proterozoic areas of Ethiopia. The total artisanal production in later years is reported to have been about twice that of Lega Dembi, with some 7.2 tonnes of gold (about 232,000 oz) reported by MoM to have been produced in 2011.

In Sudan, 800 km north of the South Sudanese border there is the 20-year old Hassai gold mine, which is operated by La Mancha and it has so far produced some about 2.3 million oz of gold. There is also artisanal gold mining being undertaken around the Hassai mine as well as across the border from western Ethiopia, and further inland to the west.

One gold prospect in Ethiopia has reached an advanced exploration stage, Nyota Minerals Ltd's Tulu Kapi project. The project has established probable reserves[5] of 16.9Mt @1.82g/t (totally 986,000oz) and indicated and inferred resources of 24.9Mt @2.34g/t (totally 1,900,000oz) as of mid-2013. The project was on hold during the second part of 2013 but recent ownership changes and additional financing has allowed for exploration activities to continue. The project shows the potential for gold deposits in the western Proterozoic terrain.

2. Polymetallic deposits

The Arabian-Nubian shield in Eritrea, Sudan, Egypt and Saudi Arabia hosts a number of VMS-type polymetallic deposits. There are three advanced gold projects in Eritrea, one of which has reached the mining stage. The Bisha mine commenced production in 2011 and it is a high-grade deposit with gold and silver oxides at surface underlain by copper and zinc sulphides. The resource statement of May 2012 estimates contained metal of 529,371 tonnes of Cu, 1,539,085 tonnes of Zn, 970,000oz Au and 45,060,000 oz Ag in the Indicated and Inferred Resource categories.

3. Potash

There is as yet no potash mining in Ethiopia but the Danakhil depression in the far northeast of the country holds significant potash reserves. Allana Potash has been granted a full mining license and is planning to commence construction during the first half of 2015 and start-up production in the latter half of 2017. Proven and probable sylvinite reserves amount to 94Mt@28-29% KCl. Measured, indicated and inferred sylvinite resources amount to 418Mt@28-29% KCl. The current mine plan is for 1Mt/yr over 24 years. The sylvinite occurs in the uppermost sediment horizon. Large carnallite and kainitite resources are present in lower horizons, which may be extracted in the future. Other companies are pursuing exploration at nearby localities.

4. Tantalite

The state-owned [Ethiopian Minerals Development Enterprise (EMDE)] Kenticha tantalum mine located in southern Ethiopia has been producing tantalum in the recent past and shows the potential for pegmatite-hosted tantalum in the area. The production is currently on hold due to attempts to privatize the operation. This seems to have failed and the current plans are for EMDE to continue production in 2015. The uranium content of the ore is quite high (0.5%) and local processing to remove the uranium would be required for many export markets.

5. Cement raw materials

The Ethiopian cement production capacity has increased from 2-3Mt to some 10-15Mt/yr over the past couple of years. Raw materials for cement (limestone, gypsum, clay and pumice) are plentiful in the Mesozoic formations of Ethiopia and mined locally, often in close vicinity to the cement factories.

6. Other industrial minerals

Rock salt has been mined for a long time in the Danakhil depression through non-mechanised artisanal mining. In the recent past, there have been attempts to commence larger scale industrial production of salt in the area. **Kaolin, silica sand, soda ash quartz and feldspar,** are or have been mined through artisanal and small-scale mining.

7. Dimension stone

The most important producer of **dimension stone** in Ethiopia is the National Mining Company (Midroc group). Marble from the Benishangul-Gumuz area in the west and granite and limestone from around Harar in the east are turned into finished products at the manufacturing facility in Awash, central Ethiopia. Sandstone and volcanic rocks such as ignimbrite and basalt have also been quarried, mostly on a small scale for local dimension stone use.

5 Mineral resources (inferred, indicated and measured) and mineral reserves (probable or proven) are established in accordance with international standards, such as the Jorc Code and the NI 43-101. They include estimations of the amount of ore contained within a mineral deposit and form a central part of feasibility studies.

8. Coal

Coal was mined on a small scale in 2008-2010 in the Delbi-Moye area, mainly in attempts to substitute for import to provide cement industry with energy. There has recently been renewed interest in this deposit.

9. Gemstones

Gemstones are produced through artisanal mining, and the major types of gemstones found in Ethiopia include garnets, emeralds, rubies and opals. Opals account for nearly 98% of precious stone exports of the country.

Opals from deposits in Mezezo (Shewa province) were mined from 1993, but were of low quality and unstable (opals are sensitive to heat and water and can crack easily) and therefore did not gain traction as an exportable product. Opals were allowed on the exportable items list in 2005, but it was not until 2008 that the opal potential for Ethiopia was more fully realised, with the discovery of opal from the North Wollo Zone, in Amhara region. These opals were of much higher quality and considered more stable than those of other areas in Ethiopia. The Wollo Opal (also known as Welo) was presented at the Tucson Gem and Mineral Show in 2010 and has gained popularity in the wider global markets since then.

2.4. Exploration activities

8. The issuing of mineral exploration licences in Ethiopia has increased, in particular over the last 2-3 years (Figure 2.2). There are currently about 200 issued exploration licences registered at the central licensing office, Ministry of Mines, and the majority of these are for precious and base metals. The number of exploration licenses is low compared to other more active mining countries with comparable size of prospective terrains, where the number of licenses can reach several hundred or even thousands (as for example in Tanzania).

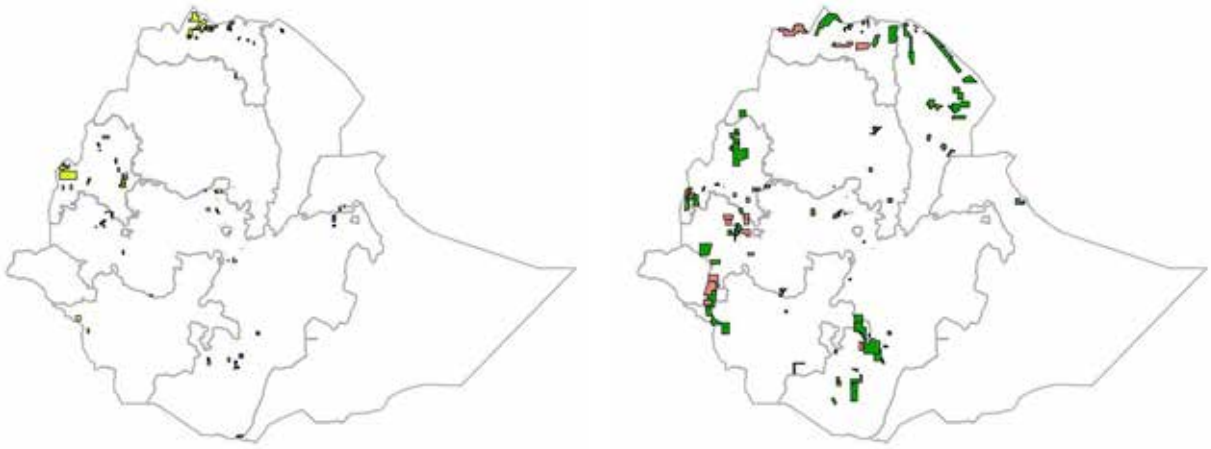

Figure 2.2. Licenses (mainly exploration) issued in 2005-2007 (left) and in 2010-2011 (right).

9. Two exploration projects have reached an advanced stage where mineral reserves have been established in accordance with international standards such as the JORC code or the NI 43-101. These include Allana Potash's Dallol potash project and Nyota Minerals's Tulu Kapi gold project. It should be noted that even at this advanced exploration stage various factors such as technical issues, commodity price, financing etc., may make any project uneconomic or delay progress. As mentioned above, Allana Potash plans to start production by mid to late 2017, while the Tulu Kapi project has been on hold during the second part of 2013 but new financing has recently provided for a continuation of exploration activities.

10. Nineteen companies are undertaking more or less advanced exploration across a total of twenty-eight licenses (Table 2.2), but none of these projects have progressed far enough for mineral resources or reserves estimates to be established, apart from Tulu Kapi. The majority are exploring for gold and base metals in the northern, western and southern Proterozoic terrains, one for iron ore in the Amhara region and two (apart from Allana) for potash in the Danakhil depression.

Table 2.2. More or less advanced exploration projects in Ethiopia. Mineral reserves or resources (see footnote, page 22) have not as yet been established in accordance with internationally recognized standards for any of these projects, except for Tulu Kapi.

Licensee Name	License Number	Region/Locality	Mineral type	Exploration activities
Midroc Gold Mine Plc.	MOM\026-124\97	Benshangul Gumuz: Baruda-Bulen, Ablarus, Bahu-Anjakoya, Yabanja & West Tangoy Localities, Metekel Zone	Precious, Base & Rare Metals	Stream, Soil, Rock Chip Sampling, Trenching & Pitting, Ground Geophysics & Intensive Drilling
	MOM\ EL\352\2010	Benshangul Gumuz and Amhara: Mentaweha Locality, Guangua/ Dibate Wereda, Agew Awi and Metekel Zones	Base Metals, Gold, Iron and Rare Metals	Stream, Soil, Rock Chip Sampling, Trenching & Pitting, Ground Geophysics & Intensive Drilling
Ascom Mining Plc.	MOM\387-429\1999	Benishangul Gumuz: Shungu and Nazali	Gold and Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Aster image interpretation, Ground & Airborne Geophysics & Intensive Drilling
Donia Gonda Mineral Resource Corporation Ltd.	MOM/ EL/4359/2009	Beneshangul Gumuz: Sherkole Locality, Asossa Zone	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Ground Geophysics & Drilling
Rayan Investment Plc.	MOM\ EL\251\2007	Benishangul-Gumuz: Oda Godere Locality, Mengi & Oda Godere Weredas, Assosa & Kamashi Zones	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Ground Geophysics & Drilling
Benzu Gold Mining (Eth) Plc.	056-319/99	Benshangul Gumuz: Asosa and Kurmuk	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching Airborne Geophysics & Initial Drilling
	MOM\ EL\409\2010	Oromia: Girja Haramfama and Genale Korcha, Meda Wellabu, Adolana Oddo Shakiso Wereda, Bale and Guji Zone	Gold & Associated Minerals	Stream, Soil, Rock Chip Sampling, Trenching Airborne Geophysics & Initial Drilling
Harvest Mining Plc.	326-354/99	Tigray: Terakemti, Nefasit, Hamlo, Igub, Adi-Nebrid	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching & Pitting, Ground Geophysics & Drilling
Ezana Mining Developmrnt PLC	TIG\ EL\344\2008	Tigray: Rahwa Locality, Asegde Tsimbela and Tsilemti Weredas, West Tigrat Zone	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Pitting & Drilling
Sheba Exploration Ltd.	1597-1602/2002 (MOM/ EL/73/2010)	Tigray: Una Deriam Locality	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenchingn& Drilling
Tigray Resources Incorporated Plc.	056-319\99	Tigray: Adi Dairo Locality, Laelay Adiyabo and Tahtay Adiyabo Weredas, Western Tigray	Precious and Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Ground & Airborne Geophysics & Intensive Drilling
	MOM\0138-0182\2000	Tigray: West Shire Locality, Adiyabo and Tahtay Adiyabo Weredas, Western Tigray	Precious and Base Metals	Stream, Soil, Rock Chip Sampling, Trenching, Ground & Airborne Geophysics & Intensive Drilling

Orecorp Minerals Plc	MOM\ EL\254\2011	Tigray: Enticho Locality, Kola Temben, Werie Lehe, Ganta Afeshum and Hawzen Weredas, Central and Eastern Tigray Zones	Precious and Base Metals	Stream, Soil, Rock Chip Sampling, Intensive Trenching, Airborne Geophysics
	MOM\ EL\243\2011	Oromia: Yubdo Locality, Yubdo Dile Lalo and Nole Kaba Weredas, Western Wellega Zones	Gold, Silver, Copper, Lead, Zinc and Nickel	Stream, Soil, Rock Chip Sampling, Trenching, Airborne Geophysics & Drilling
	MOM\ EL\244\2011	Oromia: Genji Locality, Boji, Gimbi, Haru, Lalo Asabi,Nole Kaba and Yubdo Weredas, West Wellega Zone	Gold, Silver, Copper, Lead, Zinc and nickel	Stream, Soil, Rock Chip Sampling, Intensive Trenching & Airborne Geophysics
National Mining Corporation Plc.	MOM\060-067\90	Tigray: Chini & Work Amba	Gold & Associated Minerals	Stream, Soil, Rock Chip Sampling, Trenching & Pitting, Ground Geophysics & Drilling
	MOM\ EL\121-148\88	Oromia: Okote, Borena & Guji Zone	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching & Pitting, Ground Geophysics & Drilling
Nyota Minerals (Eth) Ltd.	127-128/97	Oromia: Tulu Kapi & Anchore, W.Wellega	Gold & Platinum-Group Metals	Stream, Soil, Rock Chip Sampling, Trenching Ground & Airborne Geophysics Geophysics & Intensive Drilling
	MOM/ EL/372/2010	Oromia: Guji & Ankore, Yubdo, W.Wellega	Gold & Base Metals	Stream, Soil, Rock Chip Sampling, Trenching Ground & Airborne Geophysics Geophysics & Intensive Drilling
El Mining Plc	0320-0384/2000	Oromia: Siyo Hawi Wele & Metu Darimu and Gawa Locality, Western Wellega Zone	Gold & Associated Minerals	Stream, Soil, Rock Chip Sampling, Intensive Trenching & Ground Geophysics
MGM Gold Mines PLC	MOM\016-022\99	Somali: Haramsam and Hasamite Locality, Liben Zone	Gold	Stream, Soil, Rock Chip Sampling, Trenching, Landsat Image Interpretation, Airborne Geophysics & previously some Drilling
Stratex International Plc.	0002-0080/2002 MOM/ EL/4326/2009	Afar: Tendaho	Gold, Siliver and Base Metals	Stream, Soil, Rock Chip Sampling & Drilling
	MOM/ EL/139/2010	Afar: Gabala and Gira Locality	Precious and Base Metals	Stream, Soil, Rock Chip Sampling & Drilling
ETNO Mining Plc.	MOM\ ELI262\2002	SNNPR: Dizi, Sheka and Surma Weredas, Bench Maji Zone	Gold & Associated Minerals	Stream, Soil, Rock Chip Sampling, Intensive Trenching/ Pitting & Ground Geophysics
Access Capital Services S.C.	AMH\ EL\422\2010	Amhara: Sekota Locality, Sekota Wereda, Zone one	Iron Ore	Pitting/Trenching, Ground Geophysics and Inferred resouce estimation
Yara Dallol B.V.	0130-0134/2000	Afar: Musley and Crescent Localities	Potash	Drilling & Down Hole (Logging) Survey
G & B Central African Resources Ltd. (Ethiopia)	MOM\ EL\240-242\2001	Afar: Bada	Potash	Drilling & Down Hole (Logging) Survey
	3137-3150/2000	Afar: Dallol	Potash	Drilling & Down Hole (Logging) Survey
Source: MoM, Mineral Licensing and Administration Directorate (February, 2014).				

2.5. Recommendations

11. Summarizing the above, Ethiopia has prospective geology but there is only one operating large-scale mine and there are few advanced stage exploration projects compared to other countries with prospective geology. Investors are drawn to a large extent by geological prospectivity, as exemplified by the large investments being made in countries with what is regarded as unstable and/or comparatively less attractive mining regulatory regimes. The best marketing possible are "success stories" that in themselves attract interest, and draw investors to the country. In the absence of success stories, the collection of new geological data, and the subsequent marketing of these data assume vital importance. Recommendations below are aimed at attracting investment into exploration that may lead to large-scale mining. For further discussion and recommendations on industrial minerals, see Sections 3.4 and 3.5.

12. Airborne geophysical data is of fundamental importance to mineral exploration and the availability of this type of data is of very high interest to investors. Airborne geophysical surveys should primarily be undertaken across the late Proterozoic terrains (or parts of these).

13. Geological mapping relies heavily on airborne geophysical data and airborne data is a prerequisite to quality geological mapping. More detailed geological maps, at a finer scale (eg. 1:50,000), would facilitate exploration. This could be coupled with geochemical surveys in selected regions.

14. The implementation of an integrated geological and data and information management system, also including geochemical data, is proposed. Such a system, based on spatial data, would facilitate the handling of data and information, and be a very useful exploration tool. Initially, the establishment of a policy defining data ownership, and rules and ways for disseminating data could be considered.

15. MoM and GSE could consider establishing a promotion strategy for the Ethiopian mineral sector, in cooperation with the Investment Promotion Agency. This may include publishing in international trade journals and generating promotional material for wider circulation; planned presence at international mineral sector conferences and events; direct contact with targeted investors; and production of monthly newsletters, etc. For a holistic strategy to take into account investors' positive perceptions, and requirement/request for information, concerns etc., the formulation of the strategy would benefit from an initial survey of investors' perception of Ethiopia as a mining destination. It would be important to include current investors, past investors that have withdrawn, and potential investors. The survey should also include different sized companies, ie. juniors and majors.

16. In the short-term, the currently available promotional material may be reviewed and updated. In the longer term, these materials would then be updated continually.

17. While the GSE is currently redesigning its website to become more user-friendly and attractive, and to make data and information more accessible, the MoM could also consider doing so. The website is often the first point of contact for potential investors and the MoM website could provide more detailed information to assist potential investors, in terms of for example applicable regulatory processes and procedures.

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3. SCENARIOS FOR MINING DEVELOPMENT AND ECONOMIC IMPLICATIONS

1. This chapter follows on from the previous chapter's examination of the current status of the Ethiopian mining sector, and based on this information, it generates three future scenarios for medium to large scale mine production in the country. The scenarios are based on existing mines and projects, and current exploration activities. Given the derived scenarios, projections for cash flows to the state as well as direct employment numbers are generated.

2. Existing mines include Midroc's Lega Dembi gold mine, artisanal gold mining, and the state owned Kenticha tantalum mine, where production is currently on hold. With regards to potential future mines, it is only the Allana Potash's Dallol project that has reached such an advanced stage (pre-construction) that one may expect with some certainly that the project will reach the production stage. Except for Nyota Mineral's Tulu Kapi project, none of the more or less advanced exploration projects (Table 2.2) have established mineral resources or reserves. Thus, future production rates can only be established to a limited extent with certainty (i.e. based on current mines or projects that beyond doubt will become producing mines). The proposed scenarios are thus based on 'normal' rates for exploration-mine development success given the geological foundation and the number and progress of exploration projects, and common lead times from exploration to mine development, as further discussed in Section 3.1.

3. The development of economic linkages from the mining sector is essential to prevent the development of an 'enclave' mining sector. Forward and fiscal linkages are the main focus for the state, while attention must also be paid to backward linkages, which includes a range of service provisions as well as developing local manufacturing capability. Thus, the chapter provides further considerations of the existing linkages between mining and other sectors of the economy, and recommendations are made for how such linkages may be improved.

3.1. Fundamental geological, exploration and mining factors to consider

4. The existing gold projects, extensive artisanal gold mining and polymetallic projects in neighbouring Eritrea show the potential for gold in all the Proterozoic terrains and for polymetallic deposits in particular in the northern terrain. Table 3.1 indicates the approximate surface areas underlain by prospective geology in some gold producing countries, along with those countries' annual gold production. The late Proterozoic terrains in Ethiopia are geographically extensive, although it is noted that the gold potential of Ethiopia cannot be directly derived from the other countries as gold in Ghana, Burkina Faso and Guinea is found in early Proterozoic and Archean terrains rather than late Proterozoic terrains.

Table 3.1 Comparison of prospective surface areas and gold production in 2012.

Country	Prospective surface area (approximate km2)	Gold production
Ghana	50,000	3,139,400 oz
Burkina Faso	200,000	1,128,800 oz
Guinea	150,000	475,500 oz
Ethiopia	225,000	2012: Approximately 344,000 oz (of which about 2/3 is reported to come from artisanal mining*).

Source: Raw Materials Group (2013)
*MoM, Ethiopia

5. From the recent exploration work, undertaken primarily by Allana Potash, the Danakhil depression is known to host large resources of potash. It may be assumed that at least one mine (Allana Potash) will be developed based on these resources, with the possible development of additional mines in the future.

6. Exploration for minerals in Ethiopia has increased substantially over the last 2-3 years, while both advanced and greenfield projects are still comparatively few. However, from early exploration to the start of industrial-scale production usually takes 15 years or more and it may even take some 5-10 years from the initial estimation of mineral resources. This time is used to carry out detailed resource estimates, to do the various metallurgical, geotechnical, financial and environmental studies necessary for a bankable feasibility study, and to arrange financing and permitting. These estimates may be somewhat lower for technically simple, smaller gold mines, and can be substantially higher for large and complex polymetallic mines.

7. It is also important to keep in mind that few exploration projects actually lead to mine development. For example, looking at major metals, over a recent 2-year period, 26 out of 710 (3.7%) greenfield discoveries in Canada reached feasibility stage. For Australia, the numbers were 32 out of 570, or 5.6% [1]. Far fewer projects would survive all the way to the mine construction stage.

3.2. Proposed scenarios

8. Given the current state of mining and exploration in Ethiopia, medium to large scale over the next twenty years is most likely to be for gold, potash, tantalum and copper. Therefore economic projections are made on the basis of mining for these commodities.

9. Given facts above and taking into account the very few advanced projects and relatively few serious greenfield projects in Ethiopia today, even in the best case, only a moderate increase in number of mines and production is expected over the next 10 years. In the longer term, however, the comparatively large areas with promising geology can lead to a number of new mines and extension of existing projects, provided that exploration activities will continue to intensify in the future.

10. Three different scenarios termed conservative, probable and possible are given in Table 3.2. It is emphasized that the scenarios remain speculative as there are few advanced projects (paragraph 2) and a range of factors that are difficult to predict may drive development towards either of the three scenarios; e.g. government policy and in particular clarity and attractiveness of the licensing procedure, commodity prices, global economic climate, technical issues, political risks, social conflicts etc.

Table 3.2. Proposed scenarios for mineral production over the next 20 years.

Conservative Due to the many possible risks, exploration in Ethiopia is not intensified.	• Midroc operations (Lega Dembi) continue to produce gold at about 120,000 oz/yr for 2 years. After going underground, Lega Dembi-Sakaro produces 90,000 oz/yr for another 10 years. • Artisanal gold production continues at current levels, 8 t/yr. • The only advanced metals project, Nyota's Tulu Kapi, previously believed to go into mining in 2014, is not realized. • Tantalite production remains halted. • Allana Potash will start producing by mid to late 2017 but at half the planned rate (0.5 Mt/yr) due to unforeseen production or logistical issues.
Probable Only small increase in mining, primarily due to the comparatively few advanced projects and low intensity of exploration.	• Midroc operations (Lega Dembi) continue to produce gold at about 120,000 oz/yr for 2 years. After going underground Lega Dembi-Sakaro, with some resource extensions considered likely, produce 90,000 oz/yr for another 15 years. • Artisanal gold production continues at current levels, about 8 t/yr. • Tulu Kapi, or another small gold deposit is identified, starts producing 100,000 oz/a in 2018. • One other small gold deposit identified, starts producing 100,000 oz/a in 2023. • Two small gold deposits are identified, start producing 100,000 oz/a each from 2033. • Tantalite ore production re-starts in 2015, about 75t/yr (in accordance with governmental plans) and remains at this level as the deposit is depleted and new deposits are identified. • Allana starts producing and exporting potash as planned, at 1 Mt/yr by mid to late 2017. • Another smaller potash operation starts producing in 2023 at 0.5 Mt/yr.

1 Raw Materials Group (2013).

Possible Will require very strong intensification of exploration activities.	• Midroc operations (Lega Dembi) continue to produce gold at about 120,000 oz/yr for 2 years. After going underground Lega Dembi-Sakaro, with some resource extensions considered likely, produce 90,000 oz/yr for another 15 years. • Artisanal gold production continues at current levels, about 8 t/yr. • Tulu Kapi, or another small gold deposit identified, starts producing 100,000 oz/a in 2018. • One other small gold deposit is identified, starts producing 100,000 oz/a each from 2023. • A larger gold deposit is identified, starts producing 200,000 oz/a by 2023. • Two small gold deposits are identified, start producing 100,000 oz/a each from 2033. • Tantalite ore production re-starts in 2015, about 75t/yr (in accordance with governmental plans) and remains at this level as the deposit is depleted and new deposits are identified. • Allana starts producing and exporting potash as planned, at 1 Mt/yr by mid to late 2017. • Another smaller potash operation starts producing in 2023 at 0.5 Mt/yr and increases production to 1 Mt/yr in 2033. • A VMS deposit is identified, starts producing gold (150,000 oz/yr) from 2023 and copper (80 kt/yr) from 2033.

3.3. Revenue and employment potential

11. Assuming the current corporate income tax rate of 25% is maintained, and royalty rates are kept at the present level (precious metals 7%, metallic minerals 5% and industrial minerals 4%), Table 3.3 shows the estimated economic impact from the three scenarios. Corporate taxation and royalty revenue generated from the projects are estimated on the projected price (see below) and tonnage forecast for the projects. Employments rates are based on the direct employment at mine site based on assumed scale of these projects and do not include secondary employment (or artisanal miners).

12. In 2012, **gold** accounted for 19% of the value of global mine production (excluding coal). However, between 2015-2021 gold ore production is expected to decrease by 0.7%. Ore grades for gold are also likely to fall from 1.69 gpt in 2012 to 1.43 gpt by 2020. In general, gold mines have experienced considerable increase in costs and have had difficulties meeting output targets. Africa currently accounts for 13% of project pipeline capital expenditures for gold, with South Africa, Tanzania, Ghana and Burkina Faso accounting for just below half of these projects. The price outlook for gold would indicate a price range of USD 1,200 and USD 1,500/oz till 2020 (below the USD 1,600 price reached in 2011 and 2012).

13. **Potash,** mainly used by the agricultural sector, is likely to see strong demand in the next decade, particularly from emerging economies such as Brazil and China. The global potash markets are dominated by supplies from Canada and Russia, and Ethiopian production will be a small share of the global market. In recent developments (30th July 2013), the price existing cartel for Potash took a major blow when Uralkali (major Russian producer) walked away from price agreements, instead choosing to pursue a policy of sales volume over price. Consequently, price formation in the Potash markets is fluid at this time, as stakeholders adjust to the ramifications of the breakup of the price cartel. By the end of 2013, prices plunged to below USD 350/tonne, relative to the high of USD 425/tonne at the start of the year. In 2014, price stabilisation is expected around the USD 330/tonne mark. The major impact of this price fall would be on the continued feasibility of potash projects in the country, and the expected impact on revenues due to lower prices. Potash exports have not begun yet, but the fall in international potash prices will have an impact on continued investment in the sector, as well as revenue generation for the state from taxation.

14. Prices for **tantalum** are subject to sharp changes, given the limited number of suppliers in the sector. Therefore changes in one major producer can cause substantial fluctuations. While the average for the metal over the 2000-2010 decade has been around USD 100/kg, spikes in 2001 increased prices to nearly USD 600/kg for a short period. These short price spikes are usually as a result of panic buying by consumers, when mine production is halted or inventory levels are perceived to be low. However, as soon as supply is restored, the prices return to their average levels. Changes in the demand for electronic equipment, the main use for tantalum, will affect price levels. Prices for the next three years are forecast at USD 275 to USD 350/kg.

15. **Copper** prices generally reflect the state of the global economy, with copper prices rising in periods of economic growth. In recent years, global copper demand has mainly been driven by Chinese demand, and price fluctuations often occur in respect to changes in the performance of the Chinese economy. In 2012, copper prices receded somewhat from their previous highs in the USD 8000/ton and they currently reside

in the USD 7000/ton region. Copper prices are forecast to fall marginally in 2014 (as new production comes on line) with a return to around USD 8000 in 2015. In the long term (until 2021) copper prices should average at the USD 11,750/ton mark.

16. The scenarios presented in Table 3.3 reflect the present limited development of large and medium scale mining in Ethiopia, with Lega Dembi being the only current mine in production and with Allana Potash and Kenticha (tantalum) expected to start production in the next two years. The majority of the other projects, included in the possible and probable scenarios, are not expected to come on line before 2023, making price forecasts for their mineral production open to considerable uncertainty and margins of error.

Table 3.3. Estimation of economic impact (corporate tax and royalties) and employment based on development scenarios.

Economic Impact (million USD)	2013	2018	2024	2030	2035
Conservative	54	99	104	64	64
Probable	54	201	322	282	372
Possible	54	201	480	440	738
Direct Employment Potential (Number)					
Conservative	<1300	<1400	<1400	<400	<400
Probable	<1301	<3000	<4300	<3400	<5900
Possible	<1302	<3001	<8000	<7000	<10,000

17. Figure 3.1 shows the revenue from the sales of the projects listed in Table 3.2. The sharp rise in revenue 2023, is mainly linked to start production of new gold projects, while the fall in revenue in 2030 is linked to depletion of resources at Midroc's Lega Dembi mine. As new production comes on line for gold in 2033, revenues pick up again.

18. In a probable scenario, it is proposed that the mineral sector could generate revenue up to USD 1.5 billion by 2024 and in an optimistic scenario some USD 2 million (see graph above). In the probable scenario, the revenue corresponds to about 70% of the current export value of gold in Tanzania (USD 2.2 in 2012), an emerging mining economy dominated by gold production. In Ghana, which has a long mining history where gold accounts for more than 90% of the total mined value, gold exports were worth almost USD 5 billion in 2012.

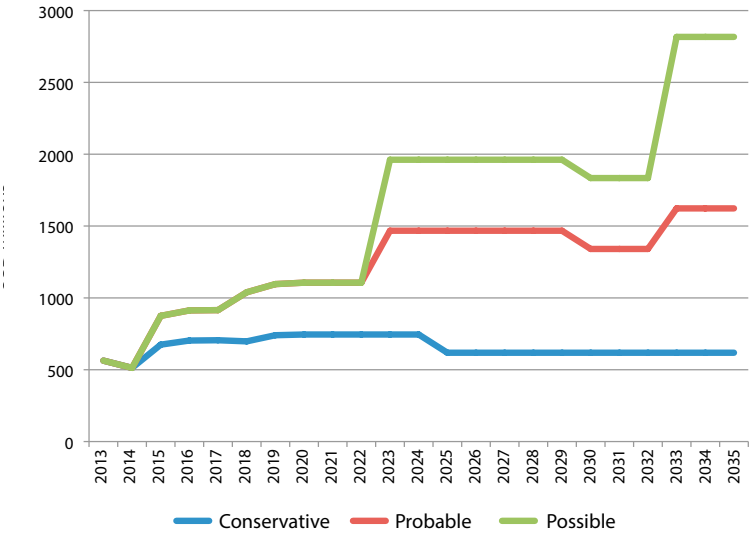

Figure 3.1. Conservative, possible and probable sales revenues.

19. In 2012, total sales from the mining sector in Africa where valued at USD 120 billion (this does not include mining for industrial minerals), representing nearly 10% of the continent's Gross Product. In Africa, metal mining and coal mining are about the same magnitude in terms of value. Among the metals, gold, copper and iron ore make up more than half of the value. If one assumes that the geology of Ethiopia is as prospective as the African "average", then these numbers would imply that the present day economic potential for the development of the Ethiopian mining sector would be to achieve an annual turnover of nearly USD 5 billion (with Ethiopia covering 1,227,127 km²; 4% of Africa's surface).

3.4. Current and projected economic linkages

20. Exploration activities may generate backward linkages through the need for logistical services, laboratory and testing services and other supplementary services. Telecommunications and logistics are the larger sectors that can benefit from development of backward linkages. However, restrictions on foreign participation in telecommunication and logistics, without the existence of competitive national alternatives, effectively means that the full potential of creating backward linkages in this regard is not being achieved. Other services, such as the existence of nationally based laboratory and testing, provision of security, catering, accounting, and IT services can also be expanded. Effective participation by the private sector can contribute to cost reductions in providing these services, which in turn contributes to a more attractive investment environment for mining and exploration firms. Higher participation rates can lead to increased employment and income opportunities.

21. Large scale, international mine operators tend to import necessary equipment and material, if not found domestically. Further, international support firms, such as equipment providers, logistical services, chemicals and other material inputs, laboratory services etc. tend to follow and be closely associated with new large mining projects. This, in turn, restricts possibilities to develop within country linkages. While MoM has concentrated on attracting exploration and mining firms, it could also look at the needs of the mining sector in terms of inputs from other types of firms and sectors. Coordination with other ministries (such as the Ministry of Industry and Ministry of Education) to develop these capacities locally, in step with the development of the mineral sector, will ensure greater backward linkages in the economy are established.

22. Currently the contribution of the mining sector to export incomes is limited to revenues being generated from gold and gemstone exports, with potash exports expected to come online in the next two years. Production of industrial minerals is limited to domestic consumption.

23. The current mineral production is small, which in turn explains a low level of existing linkages, both forward and backward, with the rest of the economy. Employment levels in the large scale mining sector are also low, and there is little evidence seen so far of the sector linking with the industrial and manufacturing sector. Mining of limestone and other industrial minerals are, however, usefully and strongly contributing to, and linking with, the cement and construction sectors.

24. The Lega Dembi mine offers local employment and also generates significant secondary and associated employment. Overall, forward linkages from gold are limited, as nearly 90% of the value is created at the mine stage and not from beneficiation. Backward linkages, in terms of inputs into mining operations (such as service provision, chemical inputs, machinery etc.) have greater potential. For example in Ghana, the gold mining sector contributes around 6% to GDP, employing nearly 20,000 people. The country's capital expenditure by the gold sector firms was USD 699 million, with local purchases (excluding fuel/power) were USD 467 million in 2008. In addition, voluntary contributions towards community development projects by just one of the gold mining firms amounted to USD 1.9 million in 2009 alone (Morris et al, 2012).

25. Tantalum exports from Ethiopia have been sporadic, with few linkages currently being evident. Tantalum is used in chemical process equipment, capacitors, nuclear reactors and aircraft parts and therefore is unlikely to serve as a raw material for the domestic manufacturing. Further, the production at Kenticha is associated with challenges with regards to processing, as the product has elevated levels of radioactivity. Hence, in this case, initiatives related to improve the processing and thereby adding value to the product would be most beneficial, and it would result in higher export revenues. Assessments need to be conducted, weighing the costs and benefits from continuing to export tantalite ore to initiating a beneficiation exercise that can be costly.

26. Potash mining, with potash being an internationally traded commodity offers substantial opportunities for economic linkages. It has a potential to contribute substantially to the domestic agricultural sector. In terms of forward linkages, the Allana Potash project will contribute to the fiscal linkages to the economy, through export and tax revenues. Employment creation is expected to be around 800 jobs once the facility is in production, with emphasis being place on recruiting locally. However for some skilled jobs, expatriate labour is required given the lack of certification of domestic labour. This follows as international operators, particularly those head quartered in North America and Europe, are required to ensure that mine site personal have internationally acceptable qualifications, which are not available for domestic labour.

27. The agricultural sector is the main stay of the Ethiopian economy and linkages from the mining sector, from potash, may contribute significantly to increased agricultural productivity. With the agricultural sector being responsible for 46% of the GDP and 9% of total merchandise export revenues, linkages between the mining sector and agriculture are of high importance to the state. Ethiopia may gain from an increase in agricultural productivity. For example, currently for cereal its yield are at 19,702 (hg/ha) compared to Egypt's 76,934 (hg/ha) or Zambia's 26,930 (hg/ha). The estimated consumption of fertilizers in Ethiopia in 2011 was 550,500 tonnes per year, whereas the required consumption to reach national agricultural productivity objectives in 2015 is estimated at 1.2 million tonnes per year. Not only does fertilizer consumption need to double, but a more diverse range of fertilises (apart from only UREA and DAP) is also required. With this need in mind, Allana Potash and the ATA have signed a memorandum of understanding, in February 2013, to fund a national fertilizer blending program to demonstrate the benefits of potash through systematic field trials.

28. Apart from potash, Ethiopia has several types of industrial mineral deposits (Table 3.4) but only cement raw materials and dimension stone are mined at an industrial scale. Apart from cement raw materials and dimension stone, salt and silica sand are mined quite extensively through small-scale and artisanal mining. Gypsum, clays, kaolin etc. have been mined on a small scale in the past.

29. Many of the industrial minerals (and coal) available in Ethiopia are imported and there is certainly scope for the sector to grow, primarily to serve the domestic market. Of the industrial minerals that are imported, they are largely sourced from China and the European Union, while coal is imported from the European Union as well Ukraine. In the past, attempts to supply the domestic market with industrial minerals have failed mainly due to inconsistent supply and the lack of proper specifications for the different product (Morgan, 2007).

Table 3.4 Overview of key industrial minerals resources.

Commodity	Main application	Production & potential
Limestone	Cement production	All cement raw materials are readily available and mined within Ethiopia. The current cement production capacity is twice the domestic demand.
Gypsum		
Pumice		
Clay		
Basalt		
Sandstone		
Dimension stone (marble, granite & limestone)	Building/construction	Locally produced dimension stone is used extensively in exterior and interior applications in Ethiopia. There has also been some export in the past.
Bentonite	Drilling mud, binder	Some testing of Ethiopian bentonite indicates suitable properties but essentially all bentonite is imported.
Coal	Energy for cement production	Coal is currently imported for use as energy by cement factories. In the future, locally mined coal has the potential to substitute for imported coal.
Diatomite	Industrial filters, mild abrasive, pesticider, absorbant	Some testing of Ethiopian bentonite indicates suitable properties but most is imported (there is some artisanal mining).
Kaolin	Ceramics, toothpaste, filler, paint production	Most of the kaolin used in Ethiopia is produced in-country, but some is imported.
Silica sand	Glassware	Silica sand (as well as other ingredients for glass; dolomite, feldspar, limestone) are mined locally but there are issues related to the consistency of quality delivered.
Soda ash	Production of caustic soda for manufacturing of detergents.	Most soda ash used is imported while there are plans to upgrade the plant at Lake Abiyata to meet the domestic demand.

Sources: Tadesse (2009); various promotional documents available at the GSE - (www.gse.gov.et, accessed November 2013); discussions with MoM staff.

30. Marble exports generate some small revenues only, and the activities may benefit from efforts to increase the scale of production, and to generate better linkages with other activities. Most of the marble is produced by one dominant firm (National Mining Corporation, which own the Awash Marble processing plant, Dalleti Marble Quarry and Harar Quarry) and the total value of production was some USD 300,000 in 2012. Marble is also used in the construction sector, where domestic consumption are likely to increase with the continued investments in that sector. While marble production (both for domestic consumption and exports) can be increased, the current structure (one dominant producer + numerous small scale producers) of production may need to shift towards a greater number of large and medium scale producers for greater employment and industrial linkages to be realized.

31. The Cement Industry in Ethiopia has expanded rapidly in the past five years, building mainly on raw materials sourced from within the country. The GTP's aim is to raise the country's total current production capacity to 27 million tons per annum by 2015. The 2011/2012 reviews of the GTP reports the total current capacity of the sector to be at 10.62 million tons. To support the domestic industry, Ethiopia banned cement imports in March 2012.

32. Cement plants are often capital intensive, large scale projects, dominated by multi-national companies; the largest company in the world (Lafarge) alone has a capacity of 225 million tons per year. In Ethiopia, the cement sector is dominated by domestic firms, with only one plant partly owned by South Africa's Pretoria Portland Cement. It is reported to exist 15 to 18 cement producers in the country; 5 to 8 of these are large cement manufacturers with a combined capacity to produce 10 to 15 million tons/year. There are four major integrated cement plants, with three located in Oromia and one in the north of the country, close to the Eritrean border. The major cement factories own their own quarry sites (including those for limestone, gypsum and sand). In 2013, Dangote Cement, a large and well established cement producer from Nigeria, has started construction of its plant in Muger valley with a 1.5 million ton capacity, to come on line in the second half of 2014.

33. The raw materials for cement are mainly limestone, gypsum, clay and silica sand. Cement plants will normally operate their own quarries, with plants located close to quarry sites to reduce cost of transporting raw material to a minimum. Raw materials are usually less than 10% of the cost of production, and the major factors for economic efficiency are costs of transport, energy costs and the capital investment in the plants. Transportation costs play a large role in determining the site of cement plants, with producers generally preferring to choose sites close to their source of raw materials. Energy costs (fuel oil) was reported to account for 60% of the production costs of the major cement plants operating in Ethiopia in 2010.

34. The current per capita cement consumption is estimated at 35kg/year, and the government wishes to increase this to 300kg/yr by 2017. This is in line with the heavy infrastructure investments being made by the government (including the construction of the Millennium Renaissance Dam), as well as the increase in construction activities will increase the demand for cement in the next five years. However, while this figure is still below the global average of 390kg/yr, it is doubtful whether the Ethiopian economy really can absorb a production of 300 kg/yr. To illustrate this it may be observed that whilst the Chinese economy supports a per capita cement consumption of 800 kg/yr, in India, this number is 126 kg/yr. Further, the cement production in July 2013 was reported at 12 million tons, while demand was reported at 5.4 million tons. Even with expectations of demand picking up in the next few years, the industry faces a serious risk of over-supply, which will force some actors out of the sector.

35. The export of surplus cement may be considered. However, regionally, Kenya has an established cement industry and may not serve as a possible market. Somalia's demand for cement, given its tense political and economic situation, is unstable and small. South Sudan could be a possible market for cement exports; however this potential needs further investigation. While exporting outside the African region is a possibility, it is noted that the global cement market is highly competitive.

36. The GTP targets the setting up of caustic soda and soda ash industries using locally available raw material. The targets included include establishing a caustic soda manufacturing plant with the capacity of 50,000 tons per year, as well as a soda ash plant with the capacity to produce 35,000 tons per year.

37. Ethiopia's important producers and stakeholders involved in the caustic soda and soda ash production include Abijata Soda Ash co, and the National Mining Corporation (an affiliate of the Midroc Group). Currently there is also one state owned caustic soda factory operating in Zeway, Oromia, employing 269 people.

38. The GTP targets for the Metal and Engineering Industry include the enhancement of the industry's production, improved quality and productivity, focus on import substitution, and the building of capacity to support other manufacturing units. In terms of targets, this translates into increasing the gross value of domestic products of the industry to over ETB 100 billion, raising the capacity utilizing of the industry to 95%, and improve annual per capita metal consumption to some 35 kg by the end of the program. Targets also include improving the production and technological capacity to be able to produce spare parts and components

for major manufacturing industries such as leather, textile, sugar, cement, agro-processing, construction and vehicle body industries. The 2011/2012 GTP review reports various projects at construction and other phases of operations but provides no details.

39. In refined metals, Ethiopia's largest imports in 2012 were for iron and steel (USD 812 million), followed by that for copper (USD 35 million) and aluminium (USD 32 million). With the planned infrastructure and construction projects, as well as the increased rates of urbanization that can be expected of the Ethiopian economy, there will be increased usage of iron, steel and copper in the next two decades.

40. While the goal of the GTP is to increase import substitution for inputs into the metal and engineering industry, and efforts are being made towards manufacturing spare parts domestically, there is still only limited local capability for metal smelting and refining capacity. However, in October 2013 the country exported 25 tons of steel manufactured from imported scrap, the first in the country's history.

Box 1: Macroeconomic contributions of mining to low and middle Income economies

In terms of Foreign Direct Investment (FDI) mining investments can in some cases account for as much as 60-90% of total FDI flows in low and middle income economies, especially in cases where the country in question is not seen as being an otherwise attractive destinations for international capital. Mineral production (mining) and mineral processing (smelting and refining) may be located in different countries, this as processing to a greater extent may benefit from economies of scale – thus there are many fewer processing plants/smelters than there are mines in the world - but also as some type of processing requires high levels of technology and capital, and availability of energy, which may not be readily available in the country where the mining is done. Further, processing facilities are often localized in more centralized locations, again due to the availability of transport, markets, capital and overall business environments. Thus the contribution of mining to the national income in low and middle income countries may become limited to extractive activities, and in such cases, the contribution may be less, say in the 3 to 10% of GDP range. Overall, large scale mining tends to generate comparatively low levels of direct employment and may often account for no more than from 1 to 2% of total national employment in low income countries. Mineral exports for such countries can be substantial, accounting from 30 to 60% of all exports, particularly in low income agrarian economies. State revenues received from the mining sector, through direct and indirect taxation can account from 3 to 20% of total revenues. This is a particularly important contribution in low and middle income countries that otherwise have limited tax raising capacity.

Source: Based on ICMM (2012) 'The role of mining in national economies'

3.5. Recommendations

41. Ethiopian policy aims towards developing an essentially new economic sector, that is the large-scale mineral sector. The lead times from exploration to a large-scale mine being commissioned are long (often 10-15 years), and thus, a similarly long-term perspective is necessary when supporting and managing the sector. Our projections suggest that the rapid development envisioned may not be realized, and therefore the development of the mineral sector could benefit from adopting a longer term view based on a slower growth rate. A long term view needs, in general, to be based on the sector's particular characteristics such as the inherent geological and financial uncertainties, the industry's cyclical nature, and technical requirements needed for advanced exploration projects to become actual producing mines.

42. When developing this new sector, it needs to be considered how to best establish economic linkages with other new and existing sectors. The findings of this report suggest that a range of approaches and activities will be needed, and these are listed below.

43. It is necessary to assess the needs of the domestic economy for industrial minerals that can be generated within country. For example recent increases in cement production capacity is tending towards over supply for the domestic market. Overall, Ethiopia's absorption capacity needs to be assessed before more protection (such as the ban on cement imports) is provided to the sector.

44. The development of industrial mineral mining would benefit from a detailed market analysis. In the first instance, production would be aimed for the domestic market to substitute for imports and such an analysis should establish quantities and qualities (detailed specifications) of different industrial minerals required. Following on previous studies of industrial minerals deposits undertaken by the GSE, additional studies would then be required to establish whether the deposits that have been identified can meet the quality requirements of the market.

45. One of the natural linkages from a mining sector is towards the beneficiation of the mineral raw material produced in the country. Although there is indicated geological potential for base metals in Ethiopia, such mines will only be established in the longer term perspective. At this time, thus, Ethiopia's metal and engineering industry remains small and reliant on domestic scrap and imported raw materials. Efforts need to be made to align the aims of the engineering sector with that of the identified potential minerals.

46. Policies to increase linkages can be aimed at a number of different levels. These are summarised in table 3.5. Macro policies that promote property rights and provide a business friendly environment are welcome. Targeted policies for the mineral sector can differ on the basis of the mineral produced; for example targeted policies for gold will differ from those for iron ore. A value chain analysis for each mineral could be a useful tool in determining where the investment reducing costs are incurred and where the largest profit margin is generated. A value chain analysis will also allow for strategies for better targeted backward and forward linkages to be developed. On a firm level, the nature of the lead firm can affect the linkages that are generated, and firms which assist in local capacity development should be encouraged.

Table 3.5. Macro, meso and micro policies to promote production linkages to the resource sector.

Macro Policies	Property rights, stability, exchange rate, skills and National System of Innovation, infrastructure, innovation
Meso (targeting) policies	Based on an informed analysis of different commodities sectors and their linkages, to identifying feasible backward and forward linkages through the involvement of value chain restructuring consortium involving key players in the sector. Analysis of global value chains in each commodities sector to develop strategy to selectively source key technologies and to engage with the most cooperative global firms whose strategies lend themselves to linkage development. Sector specific support for key market failures, notably with regard to capabilities and skills, the National System of Innovation and infrastructure.
Micro-firm level policies	Lead firm strategies, supply chain and customer development strategies, firm-level upgrading

Source: Morris et al, 2012

47. The mining sector can contribute towards a diversified economy, if policies are put into place now to ensure it does not become an enclave sector. Such policies need to focus on developing skills (both entrepreneurial and labour capacity) that serve as support industries to the mining sector. These can include developing logistical support, IT skills, provision of services such as security and catering. Engineering skills can be developed to service the machinery at operating mines. Efforts can be made to manufacture inputs for the mining operations themselves (starting with low technology products such as pipes, moving to higher technology products as expertise develop). Skills developed in supporting the mining sector can also be transferred to other sectors. For example, the capacity to service heavy machinery for the mining sector can be utilised for the construction sector and large scale agricultural machinery. Capacity developed by the provision of IT services can be provided to other sectors as well.

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4. HUMAN RESOURCES AND EDUCATION

1. This chapter concerns local human resources for work in the mining and exploration industry while the reader is referred to Chapter 7 for an assessment of human resources capacity related to mineral sector governance.

2. While large-scale mining is a capital-intensive business, it creates far less direct employment than for example the manufacturing industry, and even with a relatively strong development of the sector, less than 8,000 new direct mine jobs are expected within the next 10 years (Section 3.3). Nevertheless, job creation may be of importance to mainly local economies, and shortage of skilled local labour is also one of the primary business risks considered by international companies in their investment strategies. In surveys undertaken by Ernst & Young, skills shortage was ranked as the 5th highest business risk in 2013-2014 and in the two preceding annual surveys it was ranked as high as 2nd (Ernst & Young, 2011, 2012 and 2013).

3. A DFATD funded study on human resources requirements for the Ethiopian mineral sector, and the provision of higher education and TVET training, has recently been undertaken (Catalyst to Development, 2013). The reader is referred to this study for a detailed assessment of mineral sector human resources and education.

4.1. Current employment and needs for the future

4. Current mining and exploration activities were presented in Chapter 2. In summary, there is one large-scale mine, the Lega Dembi gold mine, which employs some 1200 people. The Kenticha tantalum mine, which is now on care and maintenance, used to employ some 600 people. By mid to late 2017, Allana Potash plans to start production, initially with a total work force of some 800 people. Allana's policy is to put emphasis on recruiting locally. However for many skilled jobs, expatriate labour is required given the lack of certification of the skilled domestic labour. Certification requires that an acceptable 'proof of competence' is provided; which is the result of a systematic process based on testing and accreditation, such as number of hours spent under supervision, attestation to the ability to perform certain tasks, etc.

5. According to the scenarios developed in Chapter 3, less than 4,300 direct mine jobs may be expected (probable scenario) within the next 10 years. As emphasized in Chapter 3, the proposed scenarios are highly uncertain due to a range of factors more or less out of control to the mining industry.

6. Exploration activities have increased over the last couple of years (Chapter 2) and most of the 15-20 active firms are international or have international funding. Many of these companies have employed local geologists that to a large extent come from, and have received training at, the Geological Survey of Ethiopia (GSE), which has created a skills shortage at the GSE (Chapter 7). Thus, there is, and will be, a shortage of exploration geologists in Ethiopia. Due to the uncertain nature of the industry, the number is difficult to estimate. Given the current level of exploration, and assuming that this level is maintained or will increase at a moderate level, labour requirement may be on the order of several hundred to a few thousand professionals over the next 5-10 years.

7. According to Catalyst to Development (2013), at the exploration phase, around 60% of the jobs require a BSc degree, 30% a TVET level 4 or 5 (technician levels) and the remaining 10% will not require formal training. At the mining phase, about 4-5% of the jobs would require a BSc or MSc degree, 6-10% a National Technical and Vocational Education Training (TVET) level 5 (technician level), 80% a TVET level 4 (specialized worker) and the remaining 5-10% would not require any formal training.

8. Highly skilled labour (BSc or MSc level) at the exploration phase would primarily include geologists and geophysicist, supported by technicians, drillers and casual labour. Highly skilled staff in the mining phase (BSc or MSc level) would include for example mining engineers, mineral processing engineers, mine

geologists and surveyors. Other qualified labour would include for example various types of technicians, drillers, blasters, heavy equipment operators, heavy vehicle operators etc. Several job qualifications not specific to mining will also be required, such as accountants, IT staff, civil engineers, human resources personnel, environmental experts, electricians, welders, etc.

9. Similar to the mineral sector globally, women constitute a very small part of the labour force in currently operating exploration and mining companies. Companies interviewed in the Catalyst to Development (2013) study nevertheless note the importance of an increased number of women in the industry, in particular for positions that require good care for equipment. It is also noted that Allana Potash seeks to encourage women to work as truck drivers. Historically, mining has been a male dominated work place mainly because it has involved physically hard work and the use of rudimentary mining techniques, often in dirty and remote environments – in many cultures and times considered not suitable for women. Today, mining is a technologically advanced industry that offers several types of positions, for which men and women are equally qualified. Furthermore, several studies show that businesses in general benefit from gender balance in terms of numbers of staff at all employment levels, ie. there is a business case for mainstreaming gender into business strategy development.

4.2. Education and vocational training in Ethiopia

Higher education

10. The information below is largely drawn from Catalyst to Development (2013). In general, higher education has expanded significantly over the last two decades with new universities being founded, and the variety of programs being offered is also increasing. Referring to the MoE website on May 21, 2013, Catalyst to Development (2013) reports that there are 31 accredited governmental, and 58 non-governmental, higher education institutions in Ethiopia.

11. Higher education of direct relevance to the mineral sector is however limited to programs in Earth Science or Geology given at 8 universities, and Mining Engineering and Metallurgy at 1 university each. There are also programs in Geomatic Engineering (1 university) and Surveying Technology (2 universities).

12. In the academic year 2011-2012, there were almost 2,300 students enrolled in the abovementioned programs, year 1-year 4 (Table 4.1). The majority were enrolled in the Earth Science and Geology programs, which account for almost 80% of the students. The Mining Engineering program is given by Unity University, which is a subsidiary of Midroc Gold. In addition to this (not shown in Table 4.1), Unity University runs a mining program since two years, with 40 students in each year. Midroc expects that most of the graduates will join the company after graduation.

Table 4.1. Number of students enrolled in university programs of relevance to the mineral sector year 1-year 4 in the academic year 2011-2012.

Program	Male	Female	Total
Earth Science/Geology	1,296	487	1,783
Geomatic engineering	214	20	234
Surveying technology	152	10	162
Mining Engineering	42	11	53
Metallurgy	41	0	41
Total	1,745	528	2,273

Data source: MoE Education statistical abstract, 2011-2012, as referred to by Catalyst to Development (2013).

13. There is some gender disparity with 30% of the students being female. There is an apparent positive trend of increasing female enrolment in programs of relevance to the mineral sector from 14% in year 4 to 30% in year 1 (Table 4.2). However, it is not known whether this is due to an actual increased female enrolment or if female students have a higher tendency to drop out of university. The total share of female students (23%) is somewhat lower than national university total of 26%. As can be seen in Table 4.1, the gender disparity is the lowest in Earth Science / Geology.

14. The majority of the students are enrolled in Earth Science/Geology with a total of almost 1,800 students (Table 4.1), which gives an average of 450 students / year. Adopting over-all university graduation rate of about 30% (based on data in Catalyst to Development, 2013, Table 2) would give 150 geology graduates / year and many of these may choose to work in other sectors than exploration and mining. Thus, the number of university geology graduates would likely need to increase to meet the mineral sector demands.

Table 4.2. Male, female and percent female students for each year (1-4) in university programs of relevance to the mineral sector, academic year 2011-2012.				
Year	**Male**	**Female**	**Total**	**Percent female**
1	583	248	831	30%
2	474	153	627	24%
3	220	53	273	19%
4	468	74	542	14%
Total	1,745	528	2,273	23%
Data source: MoE Education statistical abstract, 2011-2012, as referred to by Catalyst to Development (2013).				

15. The universities are facing several problems resulting in that the quality of the education is very low. According to the MoE Annual statistical abstract, 2011-2012, there is a total of 140 academic staff at departments of relevance to the mineral sector. This is deemed to be somewhat low, but more or less adequate looking at the over-all number of students. However, there are large differences between the universities, with student/teacher ratios ranging from about 10 to 100, with many geology departments being understaffed. Furthermore, the level of qualification of the staff is over-all low with only 20% being PhD, 32% holding MSc degrees, while the majority of 44% holda bachelors degree. Only 5% of the academic staff are female.

16. Laboratory and field training, which are both central to Geology and Earth Science education, in general suffers from lack of transport, laboratory facilities, equipment and instruments, and from a lack of sufficiently qualified teachers and technicians. Thus, the education is to a very large degree theory-based.

17. The Addis Ababa University (AAU), the oldest and best developed in the country, stands out from the rest with more than half of all the PhD-level staff and with a better equipped Earth Science department. Apparently, many other universities rely on assistance from the AAU, for example in using their laboratories. However, even at AAU there are serious shortfalls with regards to field and laboratory training.

18. Interviews with the industry undertaken within this project, and information received by the AAU (Catalyst to Development, 2013), indicate that students are in generally poorly trained to the degree that many cannot identify different rock types.

TVET

19. A new TVET strategy was adopted by GoE in 2008, designed to be outcome based and demand-driven. After secondary education (Grades 9-10), 80% of the students that continue studying are expected to join TVET institutions and 20% are expected to join higher education institutions. In 2010/2011, some 370,000 students enrolled at TVET institutions and 46% of these were female. Among TVET trainers, however, only some 16-17% are female.

20. TVET institutions offer training at five levels where Level V would produce mineral sector professionals such as technicians in mining, mineral processing and geology and Level III-IV would offer mineral sector specific training in for example drilling, surveying, mineral processing equipment operation, etc. However, as yet, needs, occupational standards, and TVET curricula specific to the mineral sector have not been defined while GoE plans to expand TVET to include mineral sector specific professions.

21. For Level V, the lack of TVET curricula is not specific to the mineral sector but there are over-all very few programs offered and graduates at this level. Several TVET, nevertheless, offer general training at Levels I-IV in various areas (plumbing, engineering, drilling, surveying, machine operation, etc), primarily to meet the needs of the industrial and agricultural sectors. Graduates at these level could, in many cases, work in the mineral sector if internal training at employment is given.

22. Despite the lack of curricula, TVET training (presumably Level 5) in Surveying Technology is given at two universities (Adama University and Dire Dawa University). There is total of 455 students enrolled but only 18% of these are female, a far lower share when compared to both TVET in general (46%) and to recent university enrolment in mineral sector disciplines (30%; Table 4.2).

4.3. Recommendations

23. An improvement of the quality of education at higher institutions, and development of TVET training, would assist in attracting investment in exploration and it would also lead to Ethiopia benefiting better from a potentially growing mineral industry through increased local employment. Increased efforts in these areas initiated today would be well timed as the mining sector is still in its infancy. Nevertheless, exploration skills are immediately required and needs in this area are expected to grow in the future, while an increased requirement for professional specialized in mining (mining engineers etc.) is more likely expected within some 5-10 years.

24. Catalyst to Development (2013) recommends a strategy for support to improve the quality of mining-related education in Ethiopia. The proposed strategy takes a long term view on implementation (10 years) and has a wide scope, including not only support for improved technical training, but also for the reinforcement of information capital and organizational capital. This, and similar initiatives, would be of fundamental importance to the development of the sector. Importantly, the current gender disparities seen at universities and TVETs need to be considered and strategies for higher women enrolment and examination rates developed.

25. TVET curricula are developed on the basis of occupational standards, and according to the TVET strategy the various ministries are responsible for setting these standards. Apart from developing occupational standards, it is proposed that MoM would be involved in training development through the monitoring and assessment of the requirements of the industry so that required qualifications and numbers of students are aligned with future industry demand.

26. The GSE and the mineral sector industry hold ample knowledge in the areas of exploration and mining. Education/training of mineral sector professional could benefit greatly from collaboration between universities and TVETs, and the GSE and the newly established mineral industry business organization (see Chapter 5).

27. Ethiopia has a very interesting geology with rocks ranging in age from Precambrian to very young volcanic rocks and on-going geological processes in the rift valley. This geological endowment is of interest to research groups globally and could provide a possibility for joint research programmes, where educational support from international universities could be included.

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5. STAKEHOLDER OVERVIEW

5.1. Stakeholders and key sector involvement

1. Federal governmental involvement in the mineral sector is centred to the MoM and the GSE (see next chapter). Ministry of Finance and Economic Development (MoFED) has interest in the sector related to its control of the budget process and planning process, its interest in and administration of revenues, taxes, royalties and foreign exchange earnings from the sector, and its control of the financial aspects of development programs support by development partners. The National Bank of Ethiopia is involved through the gold-buying policy where gold produced by artisanal and small-scale miners is bought by the bank. The Environmental Protection Authority (EPA) used to be responsible for the EIA process but has seconded environmental supervision and control of the mineral sector to the MoM. Other ministries or governmental offices are little involved and seem to have weak knowledge of the sector.

2. The regional states, following the general organizational set-up of the Ethiopian state, have a governmental structure related to mining that parallels the federal-level structure and this structure extends down to the zone, woreda and kebele sub-regional levels. Some types of mineral licenses, and associated regulation, are under control of the regions, and woredas are significantly involved in ASM management.

3. There are no specifically Ethiopian mining-related and formal NGOs or CSOs. Several NGOs and CSOs are nevertheless aware of the development of the sector, in part because of efforts by the government and development partners to engage a broad range of stakeholders in seminars and workshops. The work of local NGOs that receive international funding are restricted by law as to which issues that they may work with, some of which may relate to mining. With regards to international NGOs, Oxfam has an "Extractive Industries Global Program Strategy", and has staff based in Addis Ababa, which specifically work with extractive industries related issues.

4. There exist a long historic tradition of informal community-based organizations in Ethiopia, and these types of organisations exist throughout the country. Some of these traditional forms of organisations are being used by development organisations as recipients of assistance, such as micro finance or extension services.

5. The mass media consist of radio and television, which are under government control, as well as various private newspaper and magazines. Given the large expanse of the country, and the relatively low literacy rates in more remote areas, radio and television are important, whereas printed media serve only a small part of the population. Further, with little mining tradition and experience in the country, the journalists are overall not well versed in reporting about the sector.

6. The mining industry, globally, is characterized by a very large number of junior companies performing grassroots to advanced exploration, using private placement funding and venture capital. Larger companies have, in particular over the last 10 years, become more risk adverse and commonly acquire development projects (parts or fully) only once they are far advanced and have been proven to be financially feasible, and they also develop increasingly through merger and mid-cap/large-cap company acquisitions. Today, the large-cap mining companies (less than 150) control more than 85% of the value of mined metals globally. The rest is controlled by mid-cap and small companies, while juniors (a few thousand companies) control less than 1% of the mined value. In Ethiopia, there are some 20 international exploration companies that actively pursue exploration. These are all junior companies (see Table 2.2) of which some are at a moderately advanced stage, and some interest from larger companies is seen for example in the AngloGold Ashanti JV with Stratex International for exploration in the Afar region. One company, Allana Potash, has reached past the exploration stage and plans to go into potash production by mid to late 2017.

7. Within the industrial minerals sector, there are a number of operators, most of them domestic, and with the most important ones being some 5-6 key cement producers, including the state-owned Mugher Cement Enterprise.

8. There is only one private Ethiopian company, Midroc Gold Mine Plc that is involved in larger scale and formal (gold) mining in the country.

9. There are plans to form a business organization, similar to a Chamber of Mines in other countries, and which would include both mining and exploration companies. As of November 2013 the organization has been registered but has not started activities while some companies are active at mineral sector stakeholder events.

10. There is an extensive artisanal mining sector in Ethiopia; many of the miners are part of artisanal mining cooperatives but many remain informal. Gold, gemstone and salt are the major commodities being mined by these miners.

11. A number of donor organizations are active as stakeholders. Specifically in the mining sector, there is semi-formal coordination between initiatives and projects conducted by the World Bank, IFC, DfID, DFATD, the Australian Government and also Danida.

12. The World Bank, through funding from the Japanese Social Development Fund (JSDF) is supporting a project to improve the economic, social and environmental sustainability of Artisan Miners in Ethiopia, with special reference to women miners. An ASM baseline survey has been undertaken and support to selected communities is provided in the form of training in modern environmentally sustainable mining techniques and in setting up and running small-business; the provision of small grants program to access improved technologies; and upgrading of basic infrastructure like sanitation and access to potable water.

13. The World Bank has also financed and executed the Ethiopia Revenue Transparency Initiative, aimed to lay the foundations to enable the Government to apply as an official candidate with the EITI, mainly through organizing training, workshops, exchanges and other forms of capacity building.

14. DANIDA has provided funding, and capacity building, for some international marketing activities undertaken by the MoM, including regular participation at the yearly Mining Indaba and the production of marketing material.

15. DFATD is actively engaged with the Ministry of Mines in scoping activities and technical capacity building efforts through a number of programmes, including: (i) a five year initiative called “Education for Mining”, with a budget of about USD 15 million, aiming at increasing possibilities for Ethiopians to be employed in mining; and (ii) a five year programme to strengthen the Ministry of Mines, comprising a budget of some USD 10-15 million. Part of the latter project has involved training in topics related to mineral titles management. In 2013, DFATD undertook three scoping studies in the areas of Mineral Supply Chains, Education for Mining, and CSR.

16. DFATD and the Australian Government are jointly assisting in supporting the Africa Mineral Resource Centre (AMDC), in turn an institution created to assist African nations in achieving the African Mining Vision (AMV, see box in Section 6.1).

17. Ethiopia is a beneficiary of Australia’s Mining for Development Initiative. As part of this, the MoM has benefited from participation in study tours, training and in receiving scholarships for training.

18. DfID is presently preparing initiatives aimed at the mining sector, with the aim to start work from 2015 onwards. In the planning, DfID is leaning towards initiatives that relate to environmental aspects, and / or ASM, and is drawing on assistance from the Natural Resource Charter (c.f. box in Section 6.1).

19. IFC is involved through equity participation in the Allana Potash and Tulu Kapi projects. This, in turn, means that those projects are/have been developed in accordance with the IFC Performance Standards on Environmental and Social Sustainability, which are comprehensive in their scope. Companies with IFC financing must fulfil the requirements of the standards, and controls are performed through external audits.

20. The Chinese government is involved as an economic partner and currently supports a project to generate exploration targets in southern Ethiopia. This project includes capacity building at the GSE in the areas of mineral exploration and laboratory development.

5.2. Recommendations

21. Central and government institutions involved in mining sector development are, in general, in need of strengthening and capacity building. Most of the development cooperation related efforts that are either on-going or being planned in the sector, are concerned with this need. It is important that the efforts in this regard are well coordinated. Further, as mining sector development is something that requires extensive periods of time, it is important that all initiatives are planned with a long term perspective. The initiatives taken should, furthermore, to the extent possible be untied to any specific nation or organisation, and the best and/or most relevant expertise should be sought.

22. Civil Society's knowledge and understanding of mining, and its various implications, is rather limited in Ethiopia. Thus, activities that strengthen either formal NGO/CSOs, or that target more informal and traditional local organisations, are needed. This to ensure that the voice and concerns of local communities may be articulated, expressed and considered in the development of future mining policy as well as any future mining and explorations projects.

23. Social mobilization and dispute resolution is an important to ensure that local communities do not unnecessarily bear the brunt of extractive industry operations. Currently, under the work plan for preparation for the candidacy to the Extractive Industries Transparency Initiative (EITI), the Ministry of Mines is working with civil society organizations to promote social mobilization and awareness among civil society members for the mining sector. Social mobilization also includes managing expectations of the local communities when it comes to mining operations in their areas. Education has to be an important part of this effort.

24. The media's role in informing the public about mining, and in influencing public opinion is important in all countries. Initiatives aimed at improving journalists and others in the media sector knowledge and understanding of how modern exploration and mining is conducted would therefore be beneficial.

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6. MINERAL POLICY AND LEGISLATION

6.1. Introduction

1. The mining sector has received considerable attention from policy makers in later years. However, a decade or so ago, mining policy issues were most intensely, and almost only, discussed and considered in any depth at the World Bank. Today, there are a number of ongoing policy development initiatives, both by newly set up institutions as well as by well-established organisations and/or think tanks such as the African Union, European Union and the World Economic Forum, who have previously given the mining sector relatively limited interest (see box).

Box 2: Policy initiatives for the Mining Sector

Before the millennium, in depth discussion on how to best develop, manage and control the mining sector in developing countries was almost solely discussed at the World Bank. The advice provided was based on free market reform, and to ensure that foreign investments were allowed to flow into exploration and mining development. With regards to exploration, it was recommended that rights should be issues on a "first come, first served" basis.

In the 1990s, the World Bank Group had become increasingly concerned with the need to consider environmental and social issues in mining sector development. In fact, severe criticism of some World Bank projects and a debate over the "resource curse", led to a review of the bank involvement in projects in the "extractive sector". The "Extractive Industries review", was completed in 2004 and it concluded that the proper development of extractive industries can contribute to poverty reduction and that World Bank involvement can positively influence industry standards. Since 2004, the World Bank has developed a comprehensive set of tools aimed at assisting in the proper development and control of all the links in the "mineral resource chain". These tools have become tightly coupled with the EITI.

Following the latest commodity price boom, a number of new policy initiatives have been developed. In general, these either aim to ensure the future supply of metals (e.g. the EU's raw materials initiative), or attempting to provide advice to resource rich countries of how to better ensure that benefits of the sector can be better harnessed. Some of the latter type of advice (e.g. the Natural Resource Charter) is suggesting that the mineral sector should be managed more like the oil sector, including public bidding for tenements, in contrast to "first come, first served" approach. Other development relates to attempts to formalise, better structure and even stipulate legal requirements for the CSR related activities that often are performed by international mining companies that operate in developing countries.

The Africa Mining Vision (AMV) was adopted at the 2009 African Union summit. This vision is attempting to provide a path to better integrating mining with development policies and goals and to assist states to move from being solely exporter of raw materials to also being manufacturer and supplier of knowledge-based services. The need to ensure local development and community benefits are highlighted, as are efforts to improve the capacity of nations to negotiate contracts with mining companies.

6.2. Ethiopian mineral policy

2. The GTP has a strong role in Ethiopia in terms of policy formulation, and the MoM has established a 5-year plan in response to the GTP. Ethiopia has not previously had an official mineral policy but there is now a draft Mineral Policy under review. The 2010 Mining Proclamation also contains a few policy elements.

3. In line with more recent policy developments (see box above), the Ethiopian policy framework recognizes the potential of the mineral sector to become a 'trigger of industrialization' and wider economic development, with ambitious goals set in the GTP. However, the MoM independently produces its targets and budget requests, and there seem to be little or no cooperation with other relevant ministries (such as that for transport, industry and trade). It would appear that at the planning stage, each sector (industrial, agricultural, textile, etc) is treated as a separate entity and cross-sectoral linkages and co-dependent development is not sufficiently considered.

4. The policy framework clearly defines the role of the government as the facilitator, promoter and regulator of a mineral sector envision to be driven by private sector investment. The over-all vision is that the mineral sector shall contribute to at least 10% of the GDP and that foreign currency earning shall increase 10-fold by 2020-2023, and this should be facilitated through measures aimed attracting private investment, such as a clear legislative regime, the provision of quality geoscientific information, an enabling fiscal and tax regime, and security of tenure and a first-come-first-served system for license applications.

5. Key objectives include exploration and exploitation of all types of minerals for import substitution, for export to increase foreign currency earnings, and minerals for the production of fertilizers are specifically mentioned. The policy framework also recognizes the importance of environmental, social and health and safety safeguards and stakeholder participation for sustainable development and includes a range of policy measures in these areas. The sustainable development of the artisanal and small-scale mining sector forms an integral part of the policy formulation.

6. The draft Mineral Policy covers a range of areas appropriate at a policy level, and it is comprehensive in its overall content, while it varies extensively in content detail and policy actions. Thus, it is very detailed in some places, and many sections could be placed in laws or regulations rather than policy. In other places, it is rather vague and general with a lack of policy measures and actions. In all, this makes it difficult for stakeholders to assess the policy and for the authorities to implement the same.

7. Ethiopia is a signatory to the AMV but the Ethiopian policy framework does not refer to the AMV anywhere. They do, however, share many over-all policy directions, including the outlook to regional planning and cooperation, a central vision of the AMV.

8. Regional states in Ethiopia do not have their own mining policy documents, apart from the regional GTPs. The section in the Oromia GTP concerning mining appears similar to the federal-level GTP, but with less detail.

6.3. Mineral legislation and model mining agreement

9. The primary legislative branch of the federal government, that is, the House of Peoples Representatives, enacts framework laws (Proclamations) and delegate the Council of Ministers to enact secondary legislation (Regulations). Proclamations often delegate a specific authority (ministry/agency/bureau/board/office) to develop further secondary legislation (Directives). In case of contradictions, Proclamations prevail over Regulations and Regulations prevail over Directives. One should not, however, lose sight of exceptional circumstances wherein Proclamations might be amended by Regulations. The main legislation for the governance of the mineral sector includes:

    - The Constitution, 1994
    - Mining Operations Proclamation No. 678 / 2010
    - Mining Operations (Amendment) Proclamation (passed in December 2013)
    - Mining Operations Regulation No. 182 / 1994 (based on the Mining Proclamation No. 52 / 1994)
    - Transactions of Precious Minerals Proclamation No. 651 / 2009 (provisions around brokerage, crafting and refining of precious minerals)
    - Directives, issued in Amharic only:
        - Regarding the issuance of professional certificate for provision of consulting services in the mining sector, 14 August 1998.
        - To determine the maximum geographic scope of licences, 8 June 2006.
        - To determine preconditions for different types of licenses, 26 October 2009.
        - Regarding financial competence requirements to obtain a license, limitations on geographical scope, amounts of service fees and non-refundable application fees, 18 January 2011.
        - Mineral License Application Processing Directive, 9 October 2013.
        - On conditions under which vehicles may be imported tax free, date unknown.

10. It is an objective of the draft Mineral Policy to establish a legislative and regulatory framework that will provide for the effective administration of the mineral sector and an accompanying measure is to prepare and implement a mining proclamation and regulations. After the issuing of the 2010 Mining Operations Proclamation, an amendment to the proclamation and two directives have been enacted (see above). Thus, there is apparently an on-going process of reviewing and updating the legislative regime, while new regulations to give further effect to the 2010 Mining Operations Proclamation are yet to be drafted.

11. The key legislation governing the mineral sector is the 2010 Mining Operations Proclamation ("Mining Proclamation"). In line with the Constitution, the Mining Proclamation provides that mineral resources within the territory of Ethiopia are the property of the Government and of all the peoples of Ethiopia and that the Government is the custodian of mineral resources with duty to deploy them for the benefit and development of all Ethiopians. The Mining Proclamation focuses on establishing the rules and procedures for a licensing system and includes key aspects of types of licenses, division between the federal government and regional states in the issuing of different types of licenses, rules and procedures for access to mineral rights, their termination, and rights and obligations of license holders. The proclamation is rather general, and there are as yet no regulations drafted in response to the proclamation. The regulation that is currently in use to implement the Mining Operations Proclamation No 678/2010 is the Mining Operation Regulation No 182/1994, which mainly deals with issuance of a license, renewal, transfer and revocation of a license, rights and duties of licensees, and royalty fee and taxation issues.

12. A number of provisions in the Mining Proclamation result in unclear and what can be perceived as contradictive rules, which negate the objective of the draft mineral policy to establish a legal regime attractive to investors. Thus, Article 13-1 (b) provides for a so called first-come-first-served system in that applications of the same status covering the same mineral and area should be dealt with "in the order of receipt" (implicitly, upon assessment of financial and technical resources). However, the following sub-article states that for applications submitted "at the same time", priority will be determined, by a technical team, on the basis of the technical work programme, technical ability and financial proposal. This is consistent with Article 12-2 that states that the licensing authority will register the application and give a receipt to the applicant once it is satisfied with the application (rather than a receipt given upon submission of an application). The amendment to the proclamation seems to depart from the first-come first-served criterion, creating a mixture between first-come first-serve and a competitive system.

13. The Mineral Licensing Application Processing Directive, 1/2006, which came into effect on 9 October 2013 (in Amharic; numbered 1/2006 in accordance with the Ethiopian calendar), however, establishes the rules and processes to apply in providing that: (i) exploration license applications shall be collected on a monthly basis; (ii) all applications received during a one month period are assessed by a technical team according to a set of criteria with a scoring system, annexed to the Directive; (iii) a minimum score of 75% is required for granting of the license to be considered, and in case of applications of the same status that overlap spatially, the one with the highest score will be granted the exploration right. Power is however given to the state to give priority to applications that fall in line with any development strategy of the government. After the 1-month closure date for the receipt of applications, the applicants will be informed within 1-3 dates on when the applications will be opened (in public), and the opening of the applications should occur within 5-10 days. In case of spatially overlapping licenses applications submitted at the federal and regional levels, respectively, the two authorities should together establish the technical team to evaluated the applications.

14. Article 13-4 of the Mining Proclamation, however, adds uncertainty to the process is as it entitles the licensing authority to disregard applications altogether and opt for bidding for the area in question. Article 52-4 (c) also provides for mining agreements to be established through competitive bidding or direct negotiation. However, the law does not provide clear rules and procedures for calling for competitive bidding under the 2010 Mining Proclamation. The award of mineral rights through bidding is in line with some recently proposed policy directions (see box above).

15. The Mining Proclamation also envisages an entrepreneurial role for the Government in mining operations "that are vital for the overall economic growth either by itself or in partnership with private investors". Apparently, state companies must access licenses under the same conditions as other applicants. In order to make this clear to the investor community, this should be provided for in the mining law (as in the 1983 Chilean Mining Code, for example).

16. The 2010 Mining Proclamation states that the licensing authority can prepare "model mining agreements" to serve as basis for negotiation. In practice, exploration license holders must negotiate and enter into a Mining Agreement with the Government to get granted a large-scale mining license, as evidenced by the recent negotiation of a Mining Agreement with Allana Potash.

17. The Model Mining Agreement (MMA) was drafted pursuant to the previous Mining Proclamation No 52/1994 and has not been updated and made consistent with the 2010 Mining Proclamation. It establishes terms in a rather general manner, without elaborating much on important financial, environmental and community

aspects and leaving a few provisions open for negotiation. The MMA includes clauses on the determination of the geographical scope of the license area and its duration, and provisions to add annexes on the relevant work programme and expenditure. It further details the rights of licensees to build infrastructure and use water and other natural resources and obligations, including preference for local employment, training and local procurement. It sets environmental protection and community development provisions. It is noted that MoM is currently working on revising the MMA.

18. The MMA provides for the acquisition of a participation interest by the Government without a cost, which is also part of the recent (2013) amendment to the 2010 Mining Proclamation. In line with this, the new mining proclamation states that the federal state has the right to 5% free carry in mining projects. Additional equity participation by the state, with agreement from the investors, can be decided when the mining license agreement is signed.

19. Other African countries have concentrated on increased state participation in the mining sector, with Angola in its new mining code (September 2011), allowing the state to be entitled to at least 10% of ownership in the company or the minerals being extracted. Similarly Zambia in 2011 announced plans to increase its interest in mining projects from 20% to 35%. Zambia has indicated that there are plans to increase mining sector taxes and Zimbabwe has introduced legislation that would require mining companies to have 51% ownership by indigenous Zimbabweans. Namibian plans include all future mining projects to be awarded to state-owned companies. The DRC in its revision of the mining code has proposed an increased shareholding of the state in a mining company to 35%, compared to the present 5%.

20. According to our interview within this assignment, negotiations focus almost exclusively on the clause on state participation as well as on the approval of the technical work programme and the extension of the license. As per the interviews with government officers and industry representatives, a main constraint for negotiating a strong agreement is the lack of expertise from the government authority in technical aspects such as the assessment of the feasibility study.

6.4. Recommendations

21. For the orderly and successful development of the mineral sector, the role of the State - when other than regulatory – could be made more clear in the policy and legal framework. Furthermore, in general, it is beneficial to both investment and governance that this role is clearly communicated to stakeholders and investors and that it is reflected in all actions that relate to state involvement in the sector. The Ethiopian policy environment explicitly envisions mineral sector development to be driven by private sector investment. Given the scarcity of experienced mining or exploration companies within the country, such investments are therefore likely to come from foreign operators. At the same time, the policy and legal framework does provide for state involvement in mining. There are good examples of partly or fully state-owned mining companies successfully coexisting with the private sector (for example CODELCO in Chile and LKAB in Sweden). Such successes are generally based on long histories and significant contributions from the respective companies to national development, but also on clear policies and rules for how such companies should be managed and run, as well as the transparent implementation of these rules. It is recommended that the Ethiopian government carefully consider the lessons learned from elsewhere (see box), and develops and implements policies that are in line with the wealth of experiences than now exist with regards to state involvement in mining.

22. A forum for collaboration (eg. policy committee) involving other authorities than the MoM (eg. transport, industry, water and energy, environment, education, investment) would be beneficial to mineral policy definition and implementation. The current draft mineral policy includes many areas that require key involvement from other authorities, and policy measures/actions need to be better defined to facilitate implementation. More formalized means of communication would be beneficial to the long term sustainable development of the sector.

Box 3: State involvement in the mineral sector

The last decade has seen an increasing interest, especially among developing countries, in increasing state involvement in, and control of, mining projects. This relates to a period when commodity prices have been high, and when China's role in world mining has risen (in China, all mining is state controlled). This period - in turn - follows a prolonged period (1980-2000) which saw wide spread privatisation of state owned mines, in turn, following the collapse of the Soviet Union and the subsequent turn to market based, liberal policies which saw a very limited role for state enterprises. The period of privatisations was also concurrent with a period when metal prices were low, and when minerals were deemed to be of comparatively lesser strategic importance (in contrast to oil and the energy minerals where state involvement always has been higher than in the minerals sector). In line with this, state control has in general been greater in minerals that are deemed to have strategic importance (e.g. iron, aluminium, copper), compared to those that are regarded as not being strategic in this way (e.g. gold).

Throughout these historical trends and changes, state control and/or ownership in mining operations have continued to exist, but its relative importance has varied, reflecting the cyclicality of the sector as well as changes in policy direction. Raw Materials Group (2011) reports that for a subset of the most important minerals and metals (bauxite, Cu, Au, Fe, Pb, Mn, Ni, Sn and Zn), state control by value was at a high of 46% in 1984, and at a historical low of 22% in the early parts of 2000. Raw Materials Group (2011) further suggests that today, there is realisation that there are no simple answers as to whether state control in mining is good or bad. In all cases, however, were there is state control, the level of success is determined by a number of factors, and among those of special importance are: the existence of adequate management capacity; continual reinvestments must be made; the need of understanding on part of the owner (the state) of the cyclicality, long-term and risky nature of the sector; the need to retain considerable financial strength within the company; a clear distinction between the state's role as an owner and a regulator; full transparency; and within-company control of company cash-flow.

In addition to the possibility of full state control or ownership, there is partial ownership. This is especially prevalent in developing countries, and commonly the state in question assumes ownership of some percentage (either through free carry or through investing in the project at an early stage) of a certain project. The percentage is commonly less than 10 %. Advantages with this approach include that the state has a good understanding of what is happening within the company, that capacity and understanding of mining can be built up within the administration, and that dividends can be received from successful projects. Disadvantages include that such a set up may be a substantial deterrent to private investors (especially in the case of "free carry"), and that the state becomes to a greater extent exposed to a variety of risks related to projects not fulfilling expectations.

The issue of state control of mining in Ethiopia has, in part, followed international trends but has more importantly been controlled by domestic political changes. Currently, the Ethiopian mineral policy defines the role of the government as the facilitator, promoter and regulator of a mineral sector envision to be driven by private sector investment, the 2010 Mining Proclamation envisages an entrepreneurial role for the Government in mining operations "that are vital for the overall economic growth either by itself or in partnership with private investors". The Ethiopian Mineral Development Share Company (EMDSC) is the state-owned enterprise engaged in minerals exploration and exploitation, primarily involving the Kenticha tantalum mine. During 2013, the Privatization and Public Enterprises Supervising Agency (PPESA) invited prospective business partners to enter into a Joint Ventures to develop the EMDSC[1]. Previously, in the late 1990's, the Lega Dembi gold mine was privatized and the government also have had plans to sell the state-owned Adola Gold Development Enterprise[2], which runs a small alluvial gold project in southern Ethiopia, but this plan has not been realized. The state also owns the Mugher Cement Enterprise, one of the major cement producers in Ethiopia. Recently a joint Ethio-Chinese project has been initiated with the objective to undertake exploration within a very large concession in southwestern Ethiopia[3].

1 The Reporter observed on 18 August 2013 that the EMDSC is about to go to the privatization auction block in full in 2013/14 after the PPESA cancelled plans to operate the company under a joint venture deal.
2 Capital, 19 March, 2012.
3 The Reporter, 28 December, 2013

23. The GTP could aim for a more long-term view of the development of the mining sector. This should be based on an awareness of the sector's particular characteristics (inherent geological and financial uncertainties, the industry's cyclical nature, technical requirements for advanced exploration). This awareness can and should permeate all aspects of management of sector growth, from the GTP to the role of the MoM. The envisioned contribution from the mineral sector to the national economy by 2023 may not be met, and a slower development can be viewed as positive as it gives ample time for needed governance structures to develop.

24. The development of new regulations and revision of the MMA, on the basis of the new mining proclamation will lead to a more complete legal framework. A comprehensive revision of the MMA, in the light of new laws and regulations, incoming transparency requirements and sustainable development commitments, would also make it a useful tool for coordinating the work of different regulatory agencies with a role in mining (e.g. the environmental and water agency, the relevant agency for planning infrastructure and community development, as well different levels of jurisdictional authority) – as in long-term mining agreements in Western Australia. A thorough review of terminology and consistency with the overall Ethiopian legal system is also recommended.

25. The advantages and disadvantages of a mining licensing regime, which is not strictly based on the first-come-first-served, may be reconsidered. While the grouping and assessment of exploration license on a monthly basis may have some merit in that 'speculation' and applicants that do not have in mind to undertake serious exploration can be avoided, a common view amongst international exploration companies is that such a regime, and in particular the provision that all applications can be disregarded and the area in question can be taken to bidding, is a major disincentive to investment. Thus, currently, the legal and regulatory framework has a rather limited role in establishing the enabling conditions for mining to unleash 'sustainable economic growth', which is a key vision of the mineral policy framework.

26. Some countries provide for competitive bidding in highly prospective areas or with regard to certain "strategic" minerals. It would be beneficial to investment and regulation if the basis for calling for competitive bidding (as well as the criteria for competitive and transparent procedures) would be established under the law, in relevant regulations or directives.

27. It could be helpful to explore the possibility of establishing categories of minerals and relevant access regimes, as well as their respective priorities and relationship, which are somehow unclear and hard to implement under the current system.

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7. INSTITUTIONAL FRAMEWORK

7.1. Ministry of Mines

1. The Ministry of Mines (MoM) is responsible for essentially all aspects of mineral sector development and governance. The regulatory basis for the MoM is the 'Proclamation to provide for the definition of powers and duties of the executive organs of the Federal Democratic Republic of Ethiopia' No. 691 / 2010. The powers and duties defined in the proclamation broadly translate to the following: (i) promotion for sector development, (ii) collection and management of geoscientific data, (iii) encourage investment through facilitating exploration and mining operations; (iv) regulation of the sector, including the artisanal and small-scale gemstone sector; (v) organization of research and training centres for sector development, and; (vi) granting and management of mineral rights. Item ii and to some extent item i, falls under the Geological Survey of Ethiopia (Section 7.2).

2. Since 2010, the MoM also assumes the responsibility for the EIA process (supervision, evaluation, and compliance monitoring) as the EPA is seconding this process to different sectorial authorities and remains with a supervisory role.

3. The organizational structure of the MoM is shown in Figure 7.1. Many of the offices are generic to governmental ministries, while offices with duties of direct relevance to sector development include:

   - Mineral Licensing and Administration Directorate: Issuing and administration of mineral licenses, and compliance monitoring of technical and financial obligations. There are currently some 24 staff at the directorate but there is insufficient capacity to handle and evaluate license applications and perform compliance monitoring (see further Chapter 9).

   - Environmental and Community Development Directorate: The directorate was established in 2007 and, after a transition period, they are now fully responsible for the EIA process, including supervision, EIA evaluation and compliance monitoring. Occupational Health and Safety is also part of the scope of work. There are currently 14 staff at the directorate but there is no staff with extensive experience and sufficient qualifications in the fields required (mining environment, socioeconomics, community development and OHS), for example for in-depth assessment of EIAs. There is also a lack of instruments for environmental monitoring at the directorate. From interviews carried out within this project, it appears as if the directorate lacks power and resources for adequate monitoring and enforcement (eg. some companies have not lodged environmental bonds).

   - Legal Affairs: Drafting of policies, proclamations and regulations as well as various other legal agreements, importantly the Model Mining Agreement (see Chapter 6). There are 7 staff at Legal Affairs, but none is qualified in mineral law.

   - Artisanal Mining and Transactions Coordination: Responsible for the development of the artisanal mining sector through technical and training support and encouragement to form cooperatives. In this, they work closely with regions and woredas and there is currently 14 staff at the unit. The unit has made progress in certain geographical areas in terms of promoting the establishment of mining cooperatives. However, considering the very large size of the artisanal sector, the unit is understaffed and also lack capacity for adequate supervision in the areas of environmental and socioeconomic management.

   - EITI Implementation Secretariat: The secretariat is responsible for the process and application for Ethiopia to become an EITI candidate country. There are 5 staff at the secretariat.

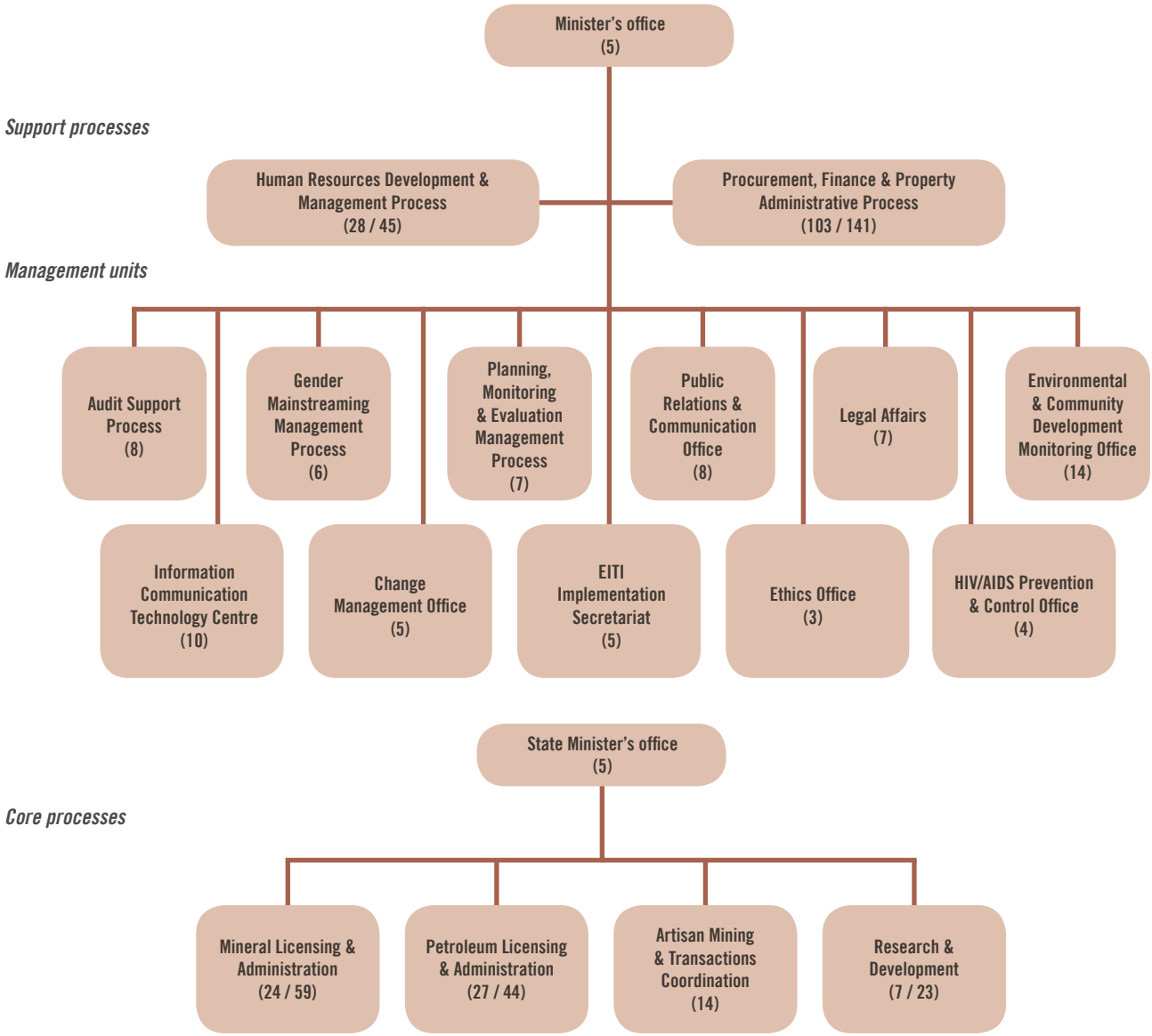

Figure 7.1 `Ministry of Mines organizational structure. There is a total of 287 staff (of which 40% are women) compared to the 440 required by the official staff structure. The number of current staff is shown within brackets. Figures in red also show the number required by the official staff structure for the five offices with the highest staff shortage compared to the staff structure.

4. MoM has considerable competence among some long-term employees. However, over-all, from interviews carried out within this project, the understanding of the mining cycle and mining industrial questions in general among many MoM staff is perceived to be rather weak, which influences both the supervision to private companies, the quality and efficiency in decision-making, and expectations with regards to exploration and mining development. Insufficient capacity is also an issue with regards to the negotiation of mining contracts. Thus, there is insufficient staff capacity both in light of fulfilling visions and goals, and to perform core functions such as license assessment and administration.

5. The capacity gap is in part a result of a high turnover of staff, which makes it difficult to consistently build capacity over the longer term and the high staff turnover is mainly related to the low public-sector pay compared to the private sector (differ by a factor of up to 10). The virtually non-existent large-scale mining sector has also not required significant capacity building for mineral sector governance.

6. There is a total of almost 300 staff at the MoM and there is a high number of staff in management and support processes (70%) as compared to staff in the core processes (30%) – see Figure 7.1 (in this estimation, the Environmental & Community Development Monitoring Office is here grouped with the core processes as it in essence has a regulatory function similar to that of the mineral licensing directorate). Overall, 40% of the staff are women but the gender distribution varies between different units, from 14% women at the Legal Affairs (1 out of 7) to 100% at the Ethics office where all three staff are female. According to the established

staff structure there should be 440 staff at the MoM and the discrepancy between current and planned staff numbers is related mainly to five offices (Figure 7.1).

7. The MoM budget for recurrent costs (Table 7.1) shows that management, administration and support dominate the costs. It is noted that while one of the important core duties of the MoM is the issuing of mineral rights and monitoring of companies' performance, the responsible office is only allocated 6% of the budget approved by MoFED. A similar level allocation (6%) for the artisanal mining and transactions office reflects the policy decision to provide significant support to the artisanal mining sector.

Table 7.1. The MoM (not including the GSE) 2012/2013 budget for recurrent costs.

	Birr	Part of total budget
Management & admin/support	18,680,860	72%
Mineral licensing & admin.	1,678,790	6%
Petroleum licensing & admin.	3,425,030	13%
Artisanal mining & transactions	1,481,760	6%
Research & development	579,590	2%

Source: MoM, Human Resources Development & Management

7.2. Geological Survey of Ethiopia

8. The Geological Survey of Ethiopia (GSE) was first established in 1968 as a department within the Ministry of Mines and Energy. In 1984 it was turned into an autonomous government agency accountable to the MoM named the Ethiopian Institute of Geological Surveys. The current regulatory basis for the GSE is the 'Proclamation to provide for the establishment of the Geological Survey of Ethiopia' No. 194 / 2000.

9. The responsibilities of the GSE that relates to mineral sector development broadly includes: (i) regional geological and geochemical mapping; (ii) reconnaissance, follow-up and detailed exploration to evaluate the mineral potential of the country; (iii) analysing geological samples (mineral, rock, soil, stream sediment, and water etc.) related to mapping and exploration work; (iv) undertake geophysical surveys; (iv) collect, manage and disseminate geoscience information, and; (v) carry out core drilling.

10. The organizational structure is shown in Figure 7.2 and as with the MoM, several offices are generic to governmental institutions and mostly concerned with internal processes, while five units/centres are of direct importance to mineral sector development are described below. It is noted that apart from supporting mineral sector development, the GSE is also involved in research and development in the areas of groundwater, geohazards and geothermal energy, but these areas are not considered in this report.

    - Basic Geological Mapping shall undertake geological mapping, geochemical surveys and geophysical investigations. There are some 20 staff as compared 40 in the official staff structure. The GSE undertook excellent mapping and exploration work over many years after its establishment in the late 1960's, and still houses considerable competence. However, due to a lack of human and financial capacity, the previous level of work has not been upheld and it has not been possible to build on the work executed and the competence acquired during large training programs in the 1980-1990's. As a result, the existing work is largely restricted to completing geological mapping at the 1:250,000 scale by 2015 (almost 70% of the country is now covered). In addition to the issue of staff capacity, the GSE vehicle fleet and equipment/ instruments are in part old and sometimes do not function well. The quality of the mapping is also limited by the lack of airborne geophysical data to support the mapping.

    - Mineral Exploration and Evaluation is responsible for exploration for metallic and industrial minerals (as well as hydrocarbons). There is some 10-15 staff as compared to 40 in the staff structure and the work is focused on the delineation of target areas for placer gold to support artisanal mining, and for industrial minerals close to existing infrastructure to support artisanal and small-scale mining. Exploration for metallic minerals was a key focus in the past but with private companies entering the market, this work has come to a halt due to staff loss.

    - The Geoscience Data Centre is responsible for the administration and distribution of data and information. It hosts a library, a bibliographic database with maps and some 3000 technical reports and a mineral occurrence database with metadata for some 500 occurrences. The centre is also involved in producing promotional material. Whereas the centre is well organized, there are large amounts of information and data not entered in databases. Furthermore, companies are obligated to provide exploration data and information to the GSE, but data from the companies are not currently collected. There are currently 14 staff at the centre.

- The Geoscience Laboratory is focused on geochemical analysis with AAS (4) and XRF (1) capabilities, and one ICP-OES awaiting building refurbishment and installation. There is also an XRD, thin section/ petrography facilities and basic equipment for mineral/rock physical measurements. In 2013, more than 90% of some 20,000 samples prepared for geochemical analysis (crushing and grinding) were for the private sector. Less than 20% of prepared samples were analysed at the laboratory, as private sector clients send samples overseas for analysis at accredited laboratories (the laboratory has been working towards achieving ISO17025 accreditation status over the last couple of years). There is about 60 staff at the laboratory, out of which more than half are professional staff (chemists and geologists). The analytical output is low considering to the number of staff and the instrumental capacity. Key issues include a lack of a strong client base, the cumbersome procurement process for purchase of spare parts and consumables, and the fact that many of the instruments are aging.

- The Drilling Services centre has 10-12 core drilling rigs (and also 2 rigs each for waterhole and geothermal drilling). The core drilling work undertaken is almost exclusively for private clients, whereas in the past core drilling was an integral part of the GSE exploration work. At the end of November 2013, five of the core drilling rigs were deployed in the field and the rest were in workshop for maintenance. Delay in the procurement of spare parts and consumables due to the cumbersome budgeting and tendering procedures is a key issue. There are some 70 drillers and 10 support staff, of which 45 drillers are currently assigned to geothermal drilling for EBCO (a state enterprise). Exploration companies believe that the GSE drilling centre has good equipment and skilled drillers, but claim that the drilling service is very inefficient. As fast, high-quality drilling is of primary importance in exploration, many companies prefer to use private drilling companies.

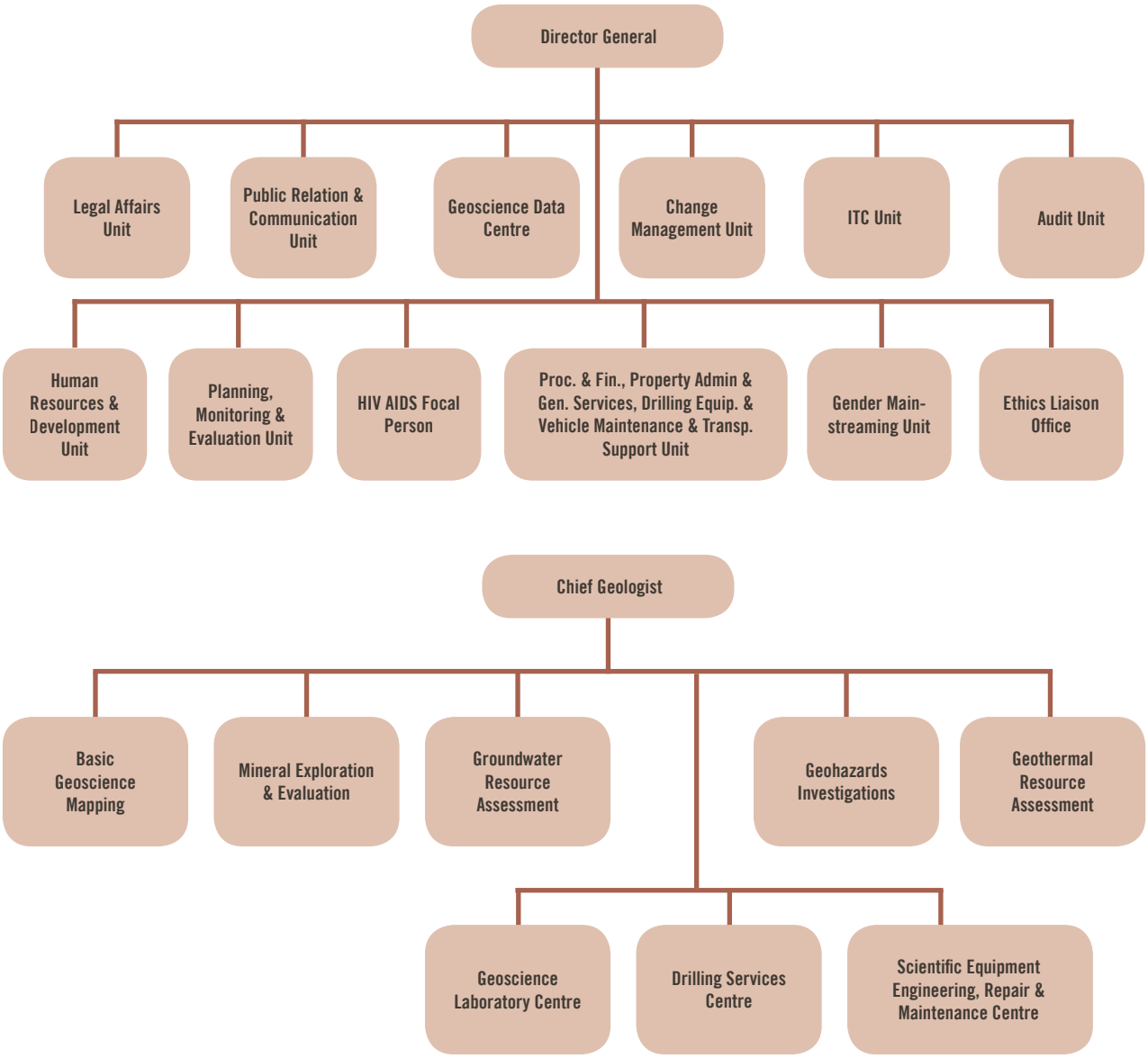

Figure 7.2 Organizational structure of the Geological Survey of Ethiopia.

11. The survey in total has some 600 staff as compared to the staff structure that has about 800 positions. Similar to the MoM, the majority of the employees work in management, administration and support (about 300 staff that fall under "Proc. & Fin., Property Admin & Gen. Services, etc" in Figure 7.2). According to the GSE structure there should be a total of 200 technical staff (various types of geoscientists, chemists, etc.), while the number of technical staff today is about 100.

12. Apart from the yearly governmental budget allocation to the GSE, based on staff structure and planned activities, the GSE is to a large extent reliant on donor-supported projects for the core technical work to be undertaken, and much of the historical work in collecting geo-scientific data, institutional strengthening and training has been in project-form, based on donor funds. There is currently a 5-year program with the Chinese government focused on the definition of target areas in southern Ethiopia, laboratory support, and training of staff.

13. As for the MoM and the GSE work is also hampered by insufficient staff capacity both in light of visions and goals, and to perform core functions, which is in part due to the very high turnover of staff making it difficult to build capacity over the longer term. For example, in 2012 about 40 technical staff left the GSE and about 30 new staff were recruited. The GSE is perceived as having considerable competence among many long-term employees but many experienced staff leave and new recruits are not sufficiently qualified and they often stay only for a short time.

14. The GSE reports that they receive sufficient budget allocations, based on their annual requests. Despite this, it is arguable that budgets for these institutions are not sufficient for functions for which they take responsibility. Even if the issue of the level of staff salaries is treated separately, budget support for field activities, mapping programs, etc. are probably too low.

7.3. Other institutions

15. As for other ministries and governmental organizations, MoFED has indirect involvement in the sector. This is through its control of the budget process and planning process, and its interest in and administration of revenues, taxes, royalties and foreign exchange earnings from the sector. MoFED would also be in control of any loans or programs for development of the sector from international development agencies.

16. Other ministries and governmental offices seem to have no knowledge and very little involvement in mineral sector planning/development. There is no official forum for collaboration and joint planning between the various ministries/authorities that are or should be concerned with the development of the mineral sector. Issues can be addressed at Council of Minister meetings, but communication seems to be mainly through the MoM notifying other offices of exploration and mining projects underway as and when needed. However, this normal for a country with little historical mining and an undeveloped mining sector. Countries such as South Africa, Ghana and the USA have seen more than 100 years of more or less formalized mining, or even several hundred years in the case of Sweden. This has allowed for long term development of legal and governance structures, while it is emphasized that even in these regimes, governance structures and procedures are continuously being developed and improved.

17. The regional states, following the general organizational set-up of the Ethiopian state, have a governmental structure related to mining that parallels the federal-level structure. For example, Oromia regional state has a Water, Mineral and Energy Bureau with a Mineral department within it, staffed by geologists and other professional and non-professional staff. In fact, the parallel structure theoretically extends down to the zone, woreda and kebele sub-regional levels. However, in practical terms sub-regional levels are dependent on regional capacity and act as extensions of the regional mining authorities.

18. Woreda level are significantly involved in ASM management (organization of cooperatives, outreach, follow-up, conflict resolution etc.). The woreda involvement presumably varies as much as the ASM activities themselves, across the country.

19. The degree and success of coordination between federal, regional and sub-regional levels is quite unclear, with contradictory assertions heard that "everything runs smoothly" to "there is no real coordination". In a longer-term perspective, feedback from stakeholders, particularly mining companies and local communities affected by mining, will reveal how well coordination is working.

7.4. Recommendations

20. MoM and GSE may consider organizational reviews and restructuring for increased efficiency and to allow for increased staff salaries, as keeping staff is vital to consistently build capacity in the longer term. In general, it is considered that the large number of staff at the MoM and the GSE (in total about 900, compared to some 1,500 required by the structural plans) is mirrored neither by their output nor by the needs for managing a sector, which is still rather limited in size. It is apparent that the execution of core mandates suffers from a serious lack of capacity, while there are comparatively large resources concentrated on management, administration and various types of support processes.

21. According to a civil service expert consulted within this project, the GSE already has the required institutional status to allow for increased salaries, as Proclamation No 194/2000 establishes the GSE as an autonomous federal governmental organ, having its own juridical personality. The Proclamation provides that staff salaries and per diem rates shall be determined by directives issued by the government. While increasing salaries for several hundred staff may not be financially viable, a detailed review of the institutional structure and staff requirements to perform core mandates should first be undertaken. Considering that a governmental career offers greater job security and possibly other non-material benefits such as job satisfaction, opportunities for training, etc. interviews with MoM staff indicate that a salary increase may not need to be at the level of private sector salaries for staff to be retained.

22. It may be considered that offices with regulatory functions be lifted out of MoM and turned into autonomous organizations, similar to the GSE, and that MoM remains with policy definition as the key mandate. The licensing and administration directorate and the environmental, social and community development unit are critical to the sustainable development of the mineral sector, yet they are in serious lack of human and technical capacity. Separating these from the MoM would provide for increased salaries and the possibility to function more effectively in smaller organizations. The work of these two units overlap in many areas, and their amalgamation into one agency may be considered. Turning governmental units into autonomous institutions has been successfully applied at a number of other Ethiopian ministries.

23. For the laboratories and the drilling units, their continued existence as part of the GSE should be reconsidered. Their output is considered to be rather low compared to their instrument and equipment capacity and staff numbers. this is in part due to lack of clients and in part due to lack of spare parts and consumables. Furthermore, in the longer term, their ability to compete with private service providers is regarded to be severely limited. They are not in charge of their own budgets but have to rely on yearly budget requests and allocations from MoFED. Even if they were turned into state enterprises, according to our information they would have to surrender 95% of their revenues to the state. It is proposed that either scaling down to meet the needs only of the GSE or privatization of these units is considered.

24. Capacity building is required throughout the MoM and the GSE. Long-term plans for this should be considered in conjunction with the possible re-organization of the institutions.

25. In the shorter term, various capacity building efforts should be considered. This should be primarily focused on the Mineral Licensing & Administration Directorate and the Environmental & Community Development Monitoring Office. It is proposed that this capacity building is not in the form of 'stand-alone' training courses or educational packages. Rather, it is proposed that external expertise is brought in to assist with on-going work on a continuous or continual basis and that training is provided on-the-job, and also that structured training or course work are included as an integral part of the consultancy.

26. Similarly, it is proposed that external expertise is brought in for the negotiation of mining agreements. As discussed above, a comparatively low level of regulation (Chapter 6, and see also Chapter 11 for environmental and social regulation) requires even stronger negotiation capacity. Such consultancy services should also be combined with training of staff.

27. Support is also required to Regional Offices, in particular in the area of artisanal mining management. As it is a solid policy of the government that artisanal mining remains a key sector contributing to foreign currency earning, job creation and local economic development, regional offices would require capacity building primarily in the area of environmental and social management.

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8. FISCAL REGIME

8.1. Fiscal regulations

1. The legal basis to collect tax and royalty payment emanates from a set of proclamations, regulations and directives including: the Mining Operations Proclamation, Mining Tax Proclamation No 53/1993, Mining Income Tax Proclamation (Amendment) No 23/1996 and No 802/2013, Income Tax Proclamation No 286/2002, and Council of Ministers Regulation on Mining Operations No 182/1994. A draft mining income tax proclamation of 2009 is under review.

2. Overall, the Ethiopian corporate tax rates and royalty rates are in line with those in the region. A holder of a small-scale mining license pays 35% income tax on taxable income and the Provincial State governments collect this payment. The income tax for large-scale mining is collected by the Federal government (by MoFED). This federal tax was recently lowered to 25%. There is also a 10% tax on dividends, which is calculated after appropriate income taxes are paid.

3. Royalties are calculated on an ad valorem basis. Ad valorem basis is computed in proportion to the estimated value of the goods or transaction concerned and is often connected with the levying of tax or custom duties. Royalties under Ethiopian mining law are paid based on the "sales price" set in the commercial transaction of minerals produced. The royalty rates for mined products are as follows:

Precious Minerals	7%	Industrial minerals & salt	4%
Semi-precious minerals	6%	Construction mineral	3%
Metallic minerals	5%	Geothermal	2%

4. Mining royalties are collected at two levels; for the precious minerals and metallic minerals, or large scale projects, the royalties accrue to the federal state. For industrial and construction minerals, and small scale mines apart from precious and metallic minerals, the royalties accrue to the regional states in which such quarries operate. Royalties are collected by MoM or by the regional mining bureaus at the regional level.

5. The legislation defines a revenue sharing mechanism, where 60 percent of the royalties collected from large scale operations are allocated to the federal government and the remainder is allocated to the provincial state where the mine in question is located. Similarly, for small scale mines, 60 per cent of the royalties remain in the state where the mine is located, whereas 40 percent is allocated to the federal government.

6. The Mining Operations Proclamation provides for exemptions from customs and duties regarding any consumables, equipment, machinery and vehicles that any holder of an exploration license or his contractor may import to Ethiopia useful for the purpose of mining operations and in accordance with the approved work program (Art 73(1). Also, the holder of small or large scale mining license may import free of custom duties consumables required to start and sustain commercial production for the first three months (Art 73(3)).

7. According to Article 70 of the 2010 Mining Operations Proclamation (and Article Nine of the MMA), the government may acquire a free participation interest of up to 5%. The same article provides that "An additional equity participation of the government may also be provided by agreement, which shall specify the percentage, timing, financing, resulting rights and obligation and other details of such participation." The Proclamation to Amend the Mining Operations Proclamation (2013) turns government participation interest of 5% in all large and small-scale mining projects into mandatory with the possibility to negotiating additional equity participation by agreement.

8. The fiscal regime considers a mine, quarry or other place for exploitation of natural resources as a permanent establishment and subject to business income tax, with non-residents being taxed on their Ethiopian sourced income. Income tax holidays are not provided for the mining sector (although they are applicable to new manufacturing and agro-industry investments). Losses from mining operations can be carried forward for 10 years, which broadly agrees with the level for African countries.

9. The Draft Mining Income Tax Proclamation of 2009 introduces regulations that would allow for ring fencing each license as a separate tax unit, a provision that did not exist in the Mining Income Tax Proclamation no. 53/1993 (amended). The draft also introduces deductions for amounts deposited into a fund for mine rehabilitation, where no such provisions existed in the current tax proclamation. Also, draft proclamation allows for ministerial discretion for granting temporary tax relief, again a provision absent in the current proclamation.

8.2. Revenue collection

10. The fiscal linkages from the mining sector materialize through corporate income tax, personal income tax (of the employees), tariffs on exports and imports and through royalties.

11. According to data from MoFED, royalties collected by the federal government have increased from about USD 2.5 million in 2005 to almost USD 9 million in 2012. Royalties collected by the regional governments have increased from about USD 850,000 in 2005 to USD 3.3 million in 2012. The World Bank (2012) estimates royalty payments to account for 12% of the revenues that flow to the state, with another 9% coming from equity participation. Corporate taxes estimated to account for nearly 60% of the flows. The remaining parts derive from tariffs and personal income taxes.

12. Current royalty rates in Ethiopia are in line with other African countries. A number of countries have already or are looking to increase taxation in the mining sector. In 2008, South Africa introduced a profit based mining royalty of 0.5 to 7%, with different rates for gold producers relative to the industrial sector. Tanzania and Namibia are specifically looking at introducing excess profit taxes for mining companies, and Mozambique is seeking to revise its mining code to ensure higher revenues for the government. In 2011, Ghana increased its mineral royalty tax from 3 to 5%. However, in other cases, such as that of Guinea, attempts have been made to revise mining royalties and taxation downwards to attract investment.

13. While the royalty rates, the corporate tax rate and the percentage of equity participation by the state in Ethiopia is competitive compared to many other African countries, this alone will not serve to attract investors. International companies look at the 'effective rate of taxation' i.e. when all the taxes paid to the government (such as excise duties, property tax, vehicle tax etc) as a determinant of planned investments.

14. Given the paucity of large scale mining, the ability of the federal government to collect royalties and taxes from large scale operators has not been well tested. There are indications that the MoM may not have all the necessary technical capacities to do so and limitations in this regard include the ability to monitor and audit financial statements and production figures, and as well as limited availability of the legal and financial specialists necessary to supervise the collection of royalty payments. As a consequence, in practice, the contribution of the mining sector to domestic tax revenue may be more limited than our estimates indicate (cf. Section 3.3).

8.3. Transparency initiatives in the extractive sector

15. As the Ethiopian government plans for the mining sector to grow in size and importance over the next decades, there is a concomitant wish to address issues related to possible corruption and the mismanagement of revenues from natural resources. Apart from the mining sector, the oil and gas sector are also seen to have strong possibilities for growth. In this context, the state embarked on a process to join the EITI in 2009, with EITI candidacy status awarded in March, 2014. The current EITI candidacy status and efforts to achieve compliance will enhance the profile and the credibility of the country, and may assist in attracting foreign investments in the extractive sectors.

16. The government launched its commitment to the EITI process with the Ministry of Mines delegated to lead the candidacy and compliance process. An Ethiopian EITI National steering committee was constituted, comprising of government officials, civil society representatives and private companies. The committee focused on designing frameworks for engagement and other implementation issues. Stakeholder engagement, including four extensive workshops and training sessions, both with mining companies and civil society organizations, have been carried out between 2009 and 2013 as part of the MoM's initiative to promote transparency.

17. By the end of 2013, 32 extractive companies have joined the initiative, including gold and potash producers, as well as those for industrial minerals, salt and marble. Of these, 16 companies were included in the first income/payment reconciliation report, based on 2009/2010 figures, with reported revenues of USD 20 million, expected to be published in early 2014. A candidature assessment for Ethiopia was released by the EITI on 4th February 2014, and candidacy status was awarded in March of the same year.

18. The major hurdle for the granting of candidacy status had been the civil society legislation; particularly the clause limiting foreign funding to 10% for organizations involved in advocacy. Concerns had been raised that the legislation does not allow for the civil society groups to be sufficiently independent and therefore meaningfully participate in the process. The government has successfully argued that the legislation is not meant to restrict the operations of charities and civil society organizations, but to offer a framework for their operations that did not exist in the legislation before. They further argued that the legislation is set up to allow charities and societies to engage in income generating activities, create transparency and accountability of their activities and allow a clearly defined relationship to exist between the State and the organizations. The goal now should be to continue pursuing multi-stakeholder engagement, and ensure the involvement of civil society organisations in the extractive sector, as this is likely to remain the key issue for achieving compliance status.

19. The content of mining investment related contracts are not made public in Ethiopia. There are furthermore no signs that such information will be made public in the future (in the way that is currently considered in countries such as Liberia, Sierra Leone and Guinea). The reasons may be related to a wish to maintain investor confidentiality. However, statements made by government officials also imply that this approach may also be associated with a preference to regulate conditions in laws and regulations, rather than to do so in separate contract agreement with investors.

20. Ethiopia is also a signatory to the World Bank's International Convention on Settlement of Investment Disputes between the States and Nationals of Other States, as well as being a member of the Multilateral Investment Guarantee Agency. Such agreements are indicative of the willingness of the government to be subject to international arbitration and standards. There has been no specific mining sector dispute that has required international arbitration at this time.

8.4. Recommendations

21. In designing fiscal policy in the mining sector, any government needs first to strive to maintain consistency in its approach, as too frequent changes in taxation rates and regulations governing private investments will discourage investors. The objective should be to arrive at a policy which is seen as fair by all parties, and which further is stable and may continue to function also in the case of a 'world class' mine being discovered and commissioned. Further, with regards to exportable commodities such as gold, these may have a volatile price cycle requiring regulatory efforts to protect the domestic economy from such variations.

22. Secondly, governments should look at the overall revenues that it receives from the mining sector and not solely at royalty rates and corporate income tax. It is the effective rate of taxation, i.e. the rate paid by the mining company combining all taxation and deductions that determines whether the state is getting a 'fair' share from the extraction of its natural resources. A bench marking study should be undertaken, where the current Ethiopian fiscal policies are compared to the situation in neighbouring countries, and with relevant countries elsewhere.

23. There are no 'correct' systems for resource revenue allocation and different systems will benefit different countries (cf. box below). A resource reallocation plan may take into consideration the level of regional disparity within a country, as well as the capacity of regional and sub-regional governments to collect taxes and royalties, as well as absorb them, and space for local communities most impacted by mining operations to share in the benefits of mining. Different options are available that may not only include sharing revenues between the federal government and the regional states where the natural resources are being extracted, but that also cover other non-resource producing regional states. The latter may well find their revenues decline in relation to the resource producing province (which is generating resource revenues for themselves). The goal of achieving Horizontal Fiscal Equalization is for revenue sharing to facilitate for each regional states (given its own revenue raising capacity and efficiency) to provide a similar level of services.

Box 4: Fiscal equalization and the sharing of resource revenues

Minerals may be either the property of the landowner (as in the case of the United States) or, more commonly, the state on behalf of the people. A general principle is that when mining takes place, the owner should be compensated for the loss of the mineral asset. Therefore royalties are seen as compensation to the owner of the minerals. There are few countries, such as Sweden and Mexico, which levy no royalties.

The revenue generated from taxation and royalties from mining activity may be allocated in different ways, for example between land owners, federal, provincial and regional state levels. For example, in many countries (e.g. Chile, Sweden, Tanzania) mining related revenues enter the federal budget and there is thereafter no special treatment of these revenues. In contrast, in Indonesia, the 1999 law stipulated that 20% of the royalties would go to the central government, and 80% to the region. Within the region, this would be further subdivided between the regencies (64%) and the provincial government (16%). In Peru, while the federal government collects the corporate income tax from the mining sector, through the state mechanism, 50% of such tax collected is returned to the sub-national government. Also in Peru, the royalty payments collected are distributed between the district municipalities (20%), the regional government (15%) and the regional national universities (5%). In Ghana, 20% of the royalties collected from the mining sector are spent on the regions where mining takes place. The remaining money is put into a 'Consolidated Fund' for general public expenditures.

In Australia and Canada, the federal state does not impose any mining royalties (apart from the MMRT in Australia applicable on the super profits of iron ore and coal). Instead royalty rates are left to the discretion of the individual province, which can design and collect its own royalty scheme. In Canada, provincial mining royalties are tax deductible against the federal corporate income tax.

Another approach towards resource rents is to allow control over the spending of such revenue to the local communities that are directly affected by mining. For example, in Papua New Guinea, the scheme developed between the mining company, central and provincial governments allows for the indigenous land-owner communities to decide on projects that should be financed by mining related incomes, such as roads, education and health facilities. In this country, a certain proportion of the gross taxable income of the mining project is earmarked for such project.

24. When the mineral sector has grown considerably, the government may consider establishing a sovereign wealth fund (or a generation fund) where part of the commodity revenues generated can be saved; serving both as a capital resource for future generations as well as limiting the detrimental impact "Dutch disease". While it may be argued that a comparatively 'poor' country cannot afford to bank revenues for the future, it may likewise be argued that this is a good measure of protection of funds in a financial system where optimal fiscal management is not in place. An inflow of resource revenues can result in a larger capital pool for the banks to lend from. If the capital is made available for manufacturing or businesses it can add to the domestic growth of the economy. However if such opportunities are not adequate, the capital may instead flow into other parts of the economy, for example the property market, and thus creating a housing bubble with inflating prices. A sovereign wealth fund allows for part of the resource revenues, that the economy cannot absorb, to be located in international asset markets, from which the state earns a return. These returns can be utilised in national budgets or earmarked for development projects such as health, education and infrastructure. As the absorptive capacity of the economy increases, more and more of the funds can then be brought into the economy. Generation funds are increasingly being discussed in relation to mineral resource revenues, while they have been more commonly applied within the oil sector. The Norwegian Government Pension Fund; for example, takes the proceeds from the oil sector and invests them in assets across the world. The returns from these investments are used to fill the national budget deficit. Ghana's Revenue Management Act (2011) was enacted a year after oil revenues began to flow from its Jubilee Fields in 2010. The Act clearly outlines the mechanisms for the collection and distribution of the petroleum revenues that accrue to the state. The bill divides the revenues into a Heritage Fund and a Stabilisation Fund. The latter is to be used to ensure a stable level of budgetary support, including spending on infrastructure. The Ministry of Finance and Economic Planning is responsible for investing the proceeds, reflecting their role as the Treasury. The Central Bank of Ghana is responsible for managing the funds.

25. Risk management, particularly when mineral exports are subject to volatile international prices, is important. One of the major vectors of the 'resource curse' is the impact on state budgets for developing countries in the face of commodity price slumps. Some Latin American countries devised counter cyclic monetary policies, which were put to good effect in face of the 2008 financial crisis, to counter the effects of the commodity price fluctuations. Other countries, such as Mexico with its oil production, have used forward contracts to ensure adequate future incomes for their exports.

26. With the granting of EITI candidacy status, the extractive sector is going to come under increased scrutiny and commentary from a variety of international actors and organisations. Questions of transparency in licensing, operations of the MoM itself and of taxes and revenues are likely to increase. The MoM needs to prepare for addressing new demand for such information, as well as further develop its public relations capacity. Greater transparency in the extractive industry has gained political momentum in recent years, and efforts that showcase Ethiopia's commitments to such an initiative will be welcomed by investors and civil society organisations. Given the 'rent seeking' and corruption that is sometimes associated with the extractive sector, disclosure of resource revenues allows for the development of a transparent mining sector. Such information will also be of use to local communities who can determine the extent of benefits they receive in relation to the mining operations in their regions.

27. Another issue related to resource revenues is the possibility of Dutch disease, which refers to the marginalisation of the domestic manufacturing sector, when natural resources become a dominant export. For example, if Ethiopia was to discover a large gold deposit, and gold dominated its export revenues, the Ethiopia Birr is likely to appreciate in value. While that would increase the foreign exchange earned by the country, it could have a detrimental effect on its agricultural exports (as these would now become more expensive in the international markets) as well as on the domestic manufacturing sector, which could become uncompetitive internally and internationally (as wages and cost of capital would rise). Therefore, in the medium term, as mineral exports pick up, the Ministry of Finance and Economic Development , in coordination with the National Bank of Ethiopia, needs to plan ahead to devise the appropriate measures in its monetary policy.

28. While generation funds and fiscal equalisation mechanisms discuss the saving and distribution mechanisms for resource revenues, the spending mechanisms for such revenues should also be taken into consideration by the state. The World Bank (2011) recommends that mining revenues that are placed in foundations, trusts or funds (FTF) be flexible within each country context. However, there are three criteria that can contribute to making decisions on the spending of such funds:

    a. Complexity; should be proportionate to the funding and capacity of the operating environment;

    b. Context: extensive social assessment to be carried out to define vision, beneficiaries and projects to be supported by the FTF, and;

    c. Integration: with other local and regional development plans.

29. Human resources at the Ministry of Mines need to be developed further to increase their capacity to audit, monitor and calculate the revenues due to the state, as well as ensuring that companies meet their other expenditure and spending requirements. While the mining tax codes and other fiscal heads may be clearly outlined in regulations, their operationalization is highly impacted by the ability of government personnel to interpret, understand and enforce.

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9. MINERAL LICENSING MANAGEMENT

9.1. Background

1. The existence of a modern and well-functioning Mining Cadastre and Registry System is a key feature for the promotion of investments in the mining sector. Potential investors, both local and international are much more likely to invest in a country where such a system is found to be of a high quality and transparent nature. Not only must the Mining Law itself guarantee this security but the administration of the Law must be transparent, decisive and efficient. For the investor, the Mining Cadastre System is often perceived as the substance of the Mining Law and therefore extremely important to forming an opinion on security of tenure as well as on the Government's desire to promote mining. For the State, an efficient Mining Cadastre System administration guarantees that the intentions of the Mining Law are carried out in practice and provides feedback that should influence policy making.

2. Ethiopia recently benefitted from a World Bank funded project where a modern, fully computerised mining cadastre was developed and commissioned. The system was based on the "first come, first served" provision of the Mining Proclamation and it was further installed to work both at the federal and regional levels. The software used was FlexiCadastre, a software which is tailor made for mining cadastre related applications, and which is used by many governments and multinational companies around the world (c.f. spatialdimension.co.za). The project was completed in 2011, at which time the system was fully functioning but since, it has partly fallen into disuse, and during part of 2013, it has not been functioning. The reasons for the partial non-functioning of the existing system is partly reported to be due to software problems, and the absence of a budget to perform necessary updates and perform "bug fixes", and partly due to the governments change in policies with regards to how licences for mining and exploration should be awarded.

9.2. Administrative procedures

3. The 2010 Mineral Proclamation provides for six types of licenses, summarized in the table below.

Table 9.1. Types of mineral licenses issued in Ethiopia, with reference to articles of the 2010 Mining Proclamation.

Type of License	Scope	Duration	Conditions	Status & Characteristics
Reconnaissance License	To carry out reconnaissance whenever the work program does not involve geological work that could disturb the earth surface	For the period specified in the license, which shall not exceed 18 months.		Non-exclusive, non-renewable

Exploration License	To carry out exploration according to the relevant work programme and to apply for mining and retention licenses	For the period specified in the license, which shall not exceed three years. It can be renewed twice for a period not exceeding one year each. Extension of renewal might be allowed by licensing authority not beyond five years.	Evidence of financial and technical resources to conduct exploration according to the work programme.; exploration expenditure consistent with minimum and work plan; environmental impact plan approved; applican not in breach with obligations under reconnaissance license.	Exclusive; renewable twice if applicant fulfils all conditions, including not in breach with any applicable provision, upon relinquisment of no less than one fourth of the license area. Variations to the exploration work programme have to be approved. No payment fee upon application is provided.
Retention License	It grants the right to hold the exploration license and to be granted a mining license (implicit from Art. 25).	For the period specified in the license, which shall not exceed three years. It can be renewed once for the same period if conditions for granting license remain.	Where the applicant has demonstrated discovery within exploration area of potential commercial significance but cannot be developed immediately because adverse market conditions, other economic factors, or unavailable processing technologies, of a temporary character (Art. 23) Obligation to submit annual progress report (Art. 25)	
Large-Scale Mining License	Implicitly: to carry out mining as defined under the Proclamation with the rights recognised under Art. 33.	For the period specified in the license, which shall not exceed twenty years. It can be renewed for 10 years if continued economic viability is proved (Art. 27).	Approval of work programme and EIA; access to financial resources and technical ability; not contravention with any obligations of the exploration license, if any (Art. 26 (1)). Obligation to commence operations within one year as from license becomes effective (Art. 30).	Rights to market and sell minerals produced (Art. 30). According to Article 52, 4 c, the licensing authority can negotiate a Mining Agreement what in practice occurs to get granted these licenses. The MMA includes provisions on transfer, surrender and termination of mining rights.
Small-scale Mining License	Implicitly: to carry out mining as defined under the Proclamation with the rights recognised under Art. 33.	For the period specified in the license, which shall not exceed ten years. It can be renewed for 5 years if continued economic viability proved (Art. 29).	Approval of work programme and EIA; access to financial resources and technical ability; not contravention with any obligations of the exploration license, if any (Art. 28). Obligation to commence operations within one year as from license becomes effective (Art. 30).	Rights to market and sell minerals produced (Art. 30).

Artisanal Mining License	Implicitly: to carry out mining as defined under the Proclamation with the rights recognised under Art. 33.	For the period specified in the license, which shall not exceed three years. It can be renewed twice for tree years each (Art. 32).	No requirement of financial, technical or professional resources. Only granted to Ethiopian citizens o a group of people registered as a cooperative society.	Exclusive.

4. The issuing of licenses is done by either the regional states or the federal government (Mineral Licensing & Administration Directorate, MoM). The former are mandated to issue: a) artisanal mining licenses; b) (to domestic investors) reconnaissance, exploration and retention licenses with respect to construction and industrial minerals; c) (to domestic investors) small scale mining licenses for industrial minerals and small and large scale mining licenses for construction minerals. The federal government issues reconnaissance, exploration, retention and mining licenses other than those to be issued by regional states.

5. Article 68 of the 2010 Mining Operations Proclamation provides that license holders pay annually in advance surface rentals for the license area, and for the area covered by a lease (this presumable refers to leases of areas outside the license area but required for the mining operations). The payment of licenses is made to the respective authorities responsible for the granting of the licenses at the federal and regional levels of administration.

6. Due to a lack of capacity at the federal office to handle mineral license applications, there was a moratorium on the acceptance of exploration license applications for over a year, up to the beginning of 2013. Also, due to a lack of capacity, during 2013 the focus has been entirely on the evaluation of mining license and license transfer applications, and there is a large backlog with regards to exploration licenses.

7. The currently applied process for the assessment of exploration license applications is to group and evaluate these on a monthly basis, in accordance with the provisions of the Mineral License Application Processing Directive, 1/2006 (Section 6.3, paragraph 11). In practice, thus, a technical committee selects the successful applicant on the basis of criteria set out in the directive.

8. There is an apparent scope for biased or compromised handling of exploration licensing under this licensing administration, especially as no receipt is given on the submission of applications. Even with a perfectly transparent evaluation of applications, the system still implies that objective criteria for selecting one firm exist, and that the committee has adequate information on firms and expertise to apply the criteria.

9. The interviews carried out among government officers consistently emphasized the use of this alternative system in practice because the government intends to discourage speculative applications. They also pointed at the critical capacity constraints of the licensing authority to assess applications on time. In a future reform process, the management at the mineral licensing office pointed out that they would rather work on addressing the institutional constraints for the effective implementation of this system than streamlining the process for a purely 'first come-first served' criteria.

10. Alternative methods to discourage speculation could include raising applicable fees (see recommendations below) as the costs for holding land for exploration and, especially for mining, in Ethiopia are low in comparison with some neighbouring countries, and selected mining nations (Table 9.2). It is noted that the Ethiopian approach to charging for the registration of applications, that is per page, appears to be fairly unique. It is also noted that Ethiopia is the only country that has a specific "License fee".

11. Technical and financial compliance monitoring also falls under the duties of the licensing and administration directorate. Monitoring is not adequate due to a lack of capacity, and a high number of exploration licenses apparently have expired or should be revoked due to non-compliance, but only very few have been revoked.

12. From the interviews carried out with MoM staff within this project, MoM may also chose not to relinquish ground in cases of non-conformance or where companies have left for other reasons, as the State may wish to take the area in question to bidding. Still, in other cases, geographical areas are reserved for state interest and is thus not open for applications, such as in the case of the Ethio-Chinese joint venture for which large areas of southwestern Ethiopia are reserved. Together with the process for the assessment of exploration license applications (paragraphs 7-8 above), this creates a system that is unclear and rather uncertain for investors. While the policy framework envisions the government to facilitate, promote and regulate the mineral sector, the 2010 Mining Proclamation does provide for an entrepreneurial role for the government in mining (see Chapter 6, paragraphs 4, 11-14, 20 and 24 for policy and legal provisions and related discussions).

13. The cadastre system, at the central licensing office, for recording and management of mineral licenses has not been working for some time, which is reported to be due to a lack of funds for software upgrading and technical support. The original intention at implementation was for a system where the federal office is connected to regional offices. This was not fully achieved, resulting in a risk of issued licenses to overlap spatially and, which emphasizes the need to coordinate the functioning of regional and federal offices regarding the cadastre and registration of licenses.

Table 9.2. Comparison of costs of holding ground for exploration and mining in Ethiopia with some neighbouring countries, and selected mining nations. Note that these types of comparisons can only be approximate, as no two mining laws and associated regulations are identical, and detailed stipulations differ from country to country (data from Ethiopian mining regulations No. 182/1994, and Spatial Dimension, 2013).

Appr. USD equivalents, Sept 2013	Ethiopia (1994)1	Botswana (1999)	Sweden (1992)	Kenya (prop.)	Tanzania (2012)	Zambia (2008)	Rwanda (2010)	South Sudan (prop.)
Reconnaissance license								
Application processing fee	26	-	80	2.9	-	-	73	8,750
Registration fee	0.52	-		-	-	-		438
License fee	5.2	-	-	-	-	-	-	-
Annual rent/km2	2.1	-	-	-	-	-	-	-
Exploration license								
Application processing fee	26	-	80	2.9	300	68	147	9,375
Registration fee	0.52	-		24	500	34		469
License fee	10.3	-	-	-	-	-	-	-
Annual rent/km2	3.1	0.58	633	2.9	100	1.94	14.7	6
Small-scale mining license; precious minerals								
Application processing fee	26	-	-	-	-	16.9	-	6,250
Registration fee	0.52	-	-	-	-	67	-	313
License fee	15.5	-	-	-	-	-	-	-
Annual rent/km2	10.3	-	-	-	-	0.33	29	781
Small-scale mining license; other minerals								
Application processing fee	26	-	-	-	-	see above	see above	see above
Registration fee	0.52	-	-	-	-			
License fee	10.3	-	-	-	-			
Annual rent/km2	7.7	-	-	-	-			
Large-scale mining license								
Application processing fee	26	-	13,000	23	2,000	-	220	31,250
Registration fee	0.52	-				-		3,125
License fee	258	-	-	-		-	-	-
Annual rent/km2	20.1	11.6	-	173	3,0005	67	67	1,563

1 Based on the 1994 mining regulations, which are applied today; License fees are per mining block – maximum license areas - which sizes are defined in the regulations
2 Charged per page of the license application document
3 Year1-3, thereafter rents escalate
4 ear 1-2, thereafter rents escalate
5 Gold, kimberlitic diamonds and gemstones; other minerals is USD 2,000/km2

9.3. Recommendations

14. In the short-term, the MoM may consider outsourcing or bringing in expertise to support the evaluation of the large number of exploration license applications now pending evaluation. Such a measure could be combined with capacity building and training of staff, in particular in the areas of technical and financial evaluation of feasibility studies. Concurrently, assistance could be provided in the area of compliance monitoring.

15. Granting of licenses outside the legislated procedures for application and evaluation is a primary deterrent to investment in the industry. The establishment of rules and procedures for discretionary granting of exploration or mining licenses may thus be considered.

16. Alternative methods for reducing speculation, which is given as the main reason for the discretionary evaluation of license applications, do exist, e.g. 1) A more rigorous examination of the criteria already in the law concerning technical and financial capacity for exploration, and strict application of these to each individual application; 2) Raising fees for licenses and holding ground to a level unsustainable except by firms seriously committed to investment and exploration. In this respect, a comparative study of the costs for mineral rights applications and the costs of holding ground is recommended.

17. A permanent solution for adequate budget support for the mining cadastre system would support its continuous operation. Software support and maintenance contracts are standard in all customised software implementations and adequate budgeting for hardware and network maintenance is necessary. A functioning cadastre system, comprising staff capacity, software, hardware, network and communications solutions and IT support, is critical for adequate regulation and failure of the system can have major negative impacts on investor confidence, transparency in licensing, MoM workload, and, ultimately, in achieving sector growth targets. For increased access to interested parties (investors, non-core authorities, civil society etc.), the cadastre could be published online and updated on a frequent basis (in real time or at least daily).

18. There is a need to coordinate the functioning of the cadastre at federal and at regional states level. If there are spatial overlaps in license areas, between licenses granted at the regional or sub-regional levels, and those granted at the MoM, then procedures should be modified so that such overlaps are impossible to create.

19. In some jurisdictions, the licenses fees are used towards the costs of the cadastre maintenance. This may not possible under the current institutional set-up (mineral licensing & admin being part of the MoM structure), but the possibility for this may be investigated under a revised organizational set-up (see Section 7.4).