NDF Ex-post Evaluation of

NDF-277: Mineral Sector Development Technical Assistance Project, Tanzania

Prepared by Finnish Consulting Group (FCG)

Final Draft Report
August, 2009
## Acronyms

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<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>AAS</td>
<td>Atomic Absorption Spectrophotometer</td>
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<tr>
<td>ACM</td>
<td>Assistant Commissioner for Minerals</td>
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<td>AMMP</td>
<td>African Magnetic Mapping Project</td>
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<td>AOBG</td>
<td>All Minerals other than Building Materials or Gemstones</td>
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<tr>
<td>ASM</td>
<td>Artisan and Small Scale Miners</td>
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<tr>
<td>BAKWATA</td>
<td>National Council of Muslims in Tanzania</td>
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<tr>
<td>BM</td>
<td>Building Materials (as defined in the Act)</td>
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<td>CCM</td>
<td>Chama Cha Mapinduzi</td>
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<td>CCT</td>
<td>Christian Council of Tanzania</td>
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<td>CM</td>
<td>Commissioner for Minerals</td>
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<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<td>DEM</td>
<td>Digital Elevation Model</td>
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<tr>
<td>DNA</td>
<td>Designated National Authority</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EITI</td>
<td>Extractive Industries Transparency Initiative</td>
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<tr>
<td>EMP</td>
<td>Environment Management Plan</td>
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<tr>
<td>ESAMRDC</td>
<td>Eastern and Southern African Mineral Resource Development Centre</td>
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<td>EU</td>
<td>European Union</td>
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<td>EUR</td>
<td>EURO</td>
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<tr>
<td>FACEB</td>
<td>Fast and Cost Effective Map Production</td>
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<tr>
<td>FCFS</td>
<td>First Come, First Served</td>
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<tr>
<td>FEMATA</td>
<td>Federation of Miners Associations of Tanzania</td>
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<tr>
<td>GEM</td>
<td>Gemstones (as defined in the Act)</td>
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<tr>
<td>GETECH</td>
<td>Geophysical Exploration Technology of Leeds University, UK</td>
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<td>GEUS</td>
<td>Geological Survey of Denmark and Greenland</td>
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<td>GIS</td>
<td>Geographical Information System</td>
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<td>GML</td>
<td>Gemstones Mining License</td>
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<td>GOT</td>
<td>Government of Tanzania</td>
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<td>GPS</td>
<td>Geographical Positioning System</td>
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<td>GS</td>
<td>Geological Survey</td>
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<td>GST</td>
<td>Geological Survey of Tanzania</td>
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<td>GTK</td>
<td>Geological Survey of Finland</td>
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<td>GU</td>
<td>Global Utmaning (Swedish NGO)</td>
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<tr>
<td>ICDL</td>
<td>International Computer Driver’s License</td>
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<tr>
<td>ICR</td>
<td>Implementation Completion Report</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>IDA</td>
<td>International Development Agency</td>
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<td>IPC</td>
<td>Investment Promotion Centre</td>
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<td>IS</td>
<td>Institutional strengthening</td>
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<td>LA</td>
<td>Licensing Authority (see definitions)</td>
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<td>LAN</td>
<td>Local Area Network</td>
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<td>LIMS</td>
<td>Laboratory Information Management System</td>
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<td>LMR</td>
<td>Licensing and Mineral Rights</td>
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<td>LMRSS</td>
<td>Licensing and Mineral rights Registry Sub-Section</td>
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<td>LU</td>
<td>Licensing Unit (see definitions)</td>
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<td>MA</td>
<td>Mining Act of 1998</td>
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<td>MAC</td>
<td>Mining Advisory Committee</td>
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<td>MCC</td>
<td>Millennium Challenge Corporation</td>
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<td>MCIMS</td>
<td>Mining Cadastral Information Management System</td>
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<td>MCO</td>
<td>Mining Cadastre Office</td>
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<td>MD</td>
<td>Minerals Division</td>
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<td>MDBU</td>
<td>Mineral Data Bank Unit</td>
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<td>MEM</td>
<td>Ministry of Energy and Mines</td>
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<tr>
<td>MKUKUTA</td>
<td>Mkakati was Kukwuza Uchumi na Kupunguza Umaskini</td>
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<tr>
<td>MIGA</td>
<td>Multilateral Investment Guarantee Agency</td>
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### Abbreviations

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<th>Full Form</th>
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<tr>
<td>MIS</td>
<td>Mining Information System</td>
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<td>ML</td>
<td>Mining License</td>
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<td>MLHSD</td>
<td>Ministry and Lands and Human Settlements Development</td>
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<td>MR</td>
<td>Mineral Regulations</td>
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<td>MRD</td>
<td>Mineral Resources Department</td>
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<td>MRI</td>
<td>Mineral Resource Institute</td>
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<td>MRRRLU</td>
<td>Mineral Rights Registry and Licensing Unit</td>
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<td>MSD-TA</td>
<td>Mineral Sector Development Technical Assistance</td>
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<td>NAO</td>
<td>National Audit Office</td>
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<td>NDF</td>
<td>Nordic Development Fund</td>
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<td>NEMC</td>
<td>National Environmental Management Council</td>
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<td>NGO</td>
<td>Non-governmental Organization</td>
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<td>NGU</td>
<td>Geological Survey of Norway</td>
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<td>NVTC</td>
<td>National Vocational Training Centre</td>
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<td>PANGIS</td>
<td>Pan-African Network for a Geological Information System</td>
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<td>PGU</td>
<td>Swedish Policy for Global Development</td>
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<td>PL</td>
<td>Prospecting License (in the Report, including Reconnaissance Prospecting License)</td>
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<td>PLR</td>
<td>Reconnaissance Prospecting License</td>
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<td>PML</td>
<td>Primary (small-scale) Mining License</td>
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<td>PMU</td>
<td>Project Management Unit</td>
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<td>PPL</td>
<td>Primary Prospecting License</td>
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<td>PSR</td>
<td>Project Status Report</td>
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<td>QAG</td>
<td>Quality Assurance Group</td>
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<td>QDS</td>
<td>Quarter Degree Sheet</td>
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<td>REMAS</td>
<td>Regional Miners Association</td>
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<td>RL</td>
<td>Retention License</td>
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<td>RMO</td>
<td>Resident Mines Office</td>
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<td>SEAMIC</td>
<td>Southern and Eastern Africa Mineral Centre</td>
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<td>SEIA</td>
<td>Strategic Environmental Impact Assessment</td>
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<td>SGAB</td>
<td>Swedish Geological AB</td>
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<td>SGU</td>
<td>Geological Survey of Sweden (Sveriges Geologiska Undersökan)</td>
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<td>SIDO</td>
<td>Small Industries Development Organization</td>
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<td>SML</td>
<td>Special Mining License</td>
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<td>RMO</td>
<td>Regional Mines Office/Officer</td>
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<td>SEAMIC</td>
<td>Southern Mineral African Center</td>
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<td>SGAB</td>
<td>Swedish Geological (Hifab AB)</td>
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<td>SMD</td>
<td>Surveys and Mapping Division (Ministry of Lands and Human Settlements)</td>
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<td>SMMRP</td>
<td>Sustainable Management of Mineral Resources project</td>
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<td>SOP</td>
<td>Standard Operation Procedure</td>
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<td>SSM</td>
<td>Small-scale Mining</td>
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<td>STAMICO</td>
<td>State Mining Corporation</td>
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<td>TAMIDA</td>
<td>Tanzania Mineral Dealers Association</td>
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<td>TANSORT</td>
<td>Tanzania Government Diamond Sorting Organization</td>
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<tr>
<td>TAWOMA</td>
<td>Tanzanian Women Miners Association</td>
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<tr>
<td>TCM</td>
<td>Tanzania Chamber of Mines</td>
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<tr>
<td>TEC</td>
<td>Tanzania Episcopal Conference</td>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<td>USDM</td>
<td>University of Dar es Salaam</td>
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<td>VETA</td>
<td>Vocational Education and Training</td>
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<td>VPN</td>
<td>Virtual Private Network</td>
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<td>WB</td>
<td>World Bank</td>
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<td>WGS-84</td>
<td>World Geodetic System</td>
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<td>WLAN</td>
<td>Wireless Local Area Network</td>
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<tr>
<td>XRD</td>
<td>X-ray Diffractometer</td>
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<td>ZMO</td>
<td>Zonal Mines Office/Officer</td>
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6.4 Conclusions/Lessons Learned and Recommendations

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   8.3.6 Sustainability
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8.4 Conclusions and Recommendations

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10. RECOMMENDATIONS FOR THE FUTURE

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ANNEX 2: PLANNING AND IMPLEMENTATION CHART
ANNEX 3. STAKEHOLDER SEMINARS
ANNEX 4. STAKEHOLDER RESPONSE FROM THE NORDIC COMPANIES
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Preface

The report was prepared by Gunilla Goransson (team leader) and Yohana Mtoni, local consultant from Tanzania. They were hired by Finnish Consulting Group (FCG) Helsinki, Finland to execute this evaluation and FCG provided valuable support in the evaluation process. The team has greatly benefited from suggestions and observations from Mr. Poul Lassen, NDF.

The team would also like to express its gratitude to all those who have contributed to this: Ministry of Energy and Mines, other ministries and agencies, all those who participated so actively and enthusiastically in the stakeholder workshops in Dar es Salaam and Dodoma and other donors. Inputs from the Nordic companies are also highly appreciated.

It should be noted that the findings and conclusions in this report are those of the evaluation team and are not necessarily those of NDF or any other individual with whom the team met.

Executive Summary

The NDF-project: **Mineral Sector Development Technical Assistance Project in Tanzania** constituted funding of two components, which were identified and formulated during the World Bank’s: ‘Mineral Sector Development Technical Assistance Project’ (launched in 1995). However, the NDF-components were only implemented after the World Bank’s intervention had terminated in December 2001. The Credit Agreement was signed in 1999 and it expired on 31 December 2007. The Project objectives were to develop and support the Government of Tanzania’s policy, regulatory, and institutional reforms within the mining sector in order to encourage private investment and environmentally sustainable development.

The overall project was comprised of the following components: Environmental Monitoring and Mitigation, Geophysical and Geochemical Surveys, Environment and Mining, Mining Sector Development, Mining Cadastre and Small Scale Mining. The NDF components funded are: Geophysical and Geochemical Surveys, including the provision of equipment of the petrophysical laboratory of Geological Survey of Tanzania (GST), as well as the Mining Cadastral Information Management System (MCIMS), including analytical work on the Amendment of the Mining Act and its Regulations.

Several Nordic companies have benefited from this opportunity, including:
- Swedish Geological AB
- Geological Survey of Finland (GTK)
- Geological Survey of Denmark and Greenland (GEUS)

In general the Nordic Development Fund has been providing significant strategic and very timely support to strengthen the mining sector in Tanzania. As observed by World Bank-studies, the rapid growth of the mineral sector in Tanzania, particularly small-scale and artisanal mining has overstretched the institutional capacity. Government institutions lack adequate tools, expertise, and organizational setup required in overseeing and supporting a modern, market-driven mineral sector. In the setting, the selected NDF-components are assessed to be of crucial importance to Ministry of Energy and Mines (MEM) and responding to the need for overall strengthening of the mineral sector in Tanzania.
In assessing the project, the evaluation reviewed all NDF-components in terms of relevance, efficacy, efficiency, impact, sustainability and replicability and ranked the components in a scale from "very good", "good", "neutral", "somewhat unsatisfactory" to "unsatisfactory".

The consultants found that the provision of the support to the Geological Survey of Tanzania is justified for supporting the rational development of the mineral sector of Tanzania. This component scores positively on relevance, efficacy and impact. Impact has been considerable and largely as planned, i.e. substantial capacity building was carried out and the airborne survey, manuals and maps have been elaborated according to original plans. Efficiency is scored neutral, as steps could have been taken to more systematically explore the future requirements for recurrent costs to cover for the operations and maintenance of the systems as well as the expected revenue streams from selling of maps and services. Sustainability is therefore also somewhat unsatisfactory, as there are no indications of an analysis over the past years and into the future on how to finance the required operations and maintenance costs.

The NDF support to the laboratory establishment scores at the best neutral, but on three criteria (efficacy, efficiency & sustainability) it scores negative. The major concern is the fact that equipment has been purchased prior to the complete refurbishment of the building with required conditions for proper management and operations of some of the equipment. Impact includes the procurement of equipment and some training including the Laboratory Information Management System (LIMS). It is unknown how the future operations and maintenance costs will be acquired for the operations and maintenance of the equipment, as the GST was not able to demonstrate a revenue and expenditure analysis over time and expected revenues from sale of services to the public and private sectors.

The support to the mining licensing services through the Mining Cadastral Information Management System (MCIMS) is a critical and highly relevant service to the public in order to have an orderly and transparent licensing process and ultimately of an optimal use of the natural resources in Tanzania. Once the system is functioning and in full operation it will is anticipated that it will rate highly on efficacy as well. Impact has been considerable with capacity strengthening of staff, development of the Mineral Rights, Trading License and Permit Inventory, establishment of field verification of mineral rights and installation of the FlexiCadastre system. However, users of the MCIMS are very critical of the functionality and the consultants concluded that substantial added support is required before the system is fully functional. Despite the expert advice to initially limit roll out of the Mining Cadastral Information Management System in the provinces to the 8 zonal offices as pilot projects, the Ministry of Energy and Minerals decided to roll out to all 21 zonal offices at the same time. This approach has caused serious complications and added substantial costs to the process. It is assessed that additional support to the MCIMS is required before this important and key system in the mining sector development is technically sustainable.

Support has been provided to elaborate recommendations to revise the Mining Act and Regulations. However, under the current Act and Regulation the Minister and higher Ministry officials are able to by-pass the system of licensing and approvals. This jeopardizes the basic principle of "first come first served", and has not been resolved by the government. This in turn jeopardizes the credibility of the system. In addition, technical concerns, including the frequent power breaks and a lack of back-up generator, infrequent access to internet and technical system maintenance, are factors that contribute to low efficiency and low sustainability. Political will to support the basic principles is necessary for the system of licensing and approvals to function.

The Flexi-Cadastre is already being replicated into other countries, such as Mozambique and Uganda. In the Tanzania country context, the consultants assessed that there are further needs to improve the system before it can be considered to be fully institutionalized and sustainable.
The Mineral Policy was elaborated in 1997 and it underpinned the Mineral Act (1998) and the Mining Regulations (1999). Several studies have subsequently been carried out on the weaknesses in the Act and Regulations more or less parallel with the NDF project’s activities:

The report on Recommended Changes to the Mining Act 1998 and Mining Regulations 1999 was prepared by Swedish Geological AB and submitted in July 2005.

These recommendations were however overtaken by other Government of Tanzania supported studies which specifically addressed key policy issues in the mining sector such as the Mineral Review Policy Committee: Kipokola Report 2004 and the Presidential Commission on the Mineral Sector: Bomani Report 2008.

It seems that there was not any interface between the NDF-supported revision of the Mining Act and Regulations and the other high-level policy studies carried out by the Government. The future revision of the Mining Act and Regulations will require revision and up-dating in line with the redrafted Government policy for mining sector development once this new policy has been approved.

The first NDF-funded component supporting GST was completed according to the original plans. However, the support to the laboratory, as well as the MCIMS was not fully institutionalized and operational during the NDF support. This has been observed by the World Bank’s formulation team for their new follow-up project, the ‘Sustainable Management of Mineral Resources Project (SMMRP)’ which was approved in 2009. This will include a continuation of support to the laboratory and the MCIMS which will allow for a further strengthening of these key components in mining sector development.

On the operational side of the project it is also assessed that a more profound participation by NDF in the appraisal process of the project, jointly with the World Bank, as well as more timely interventions together with the World Bank, would have provided for considerably higher efficiency of the NDF-component. A more active NDF-participation in the concrete operational management of the project could probably also have contributed to solutions regarding the sustainability of NDF’s supported initiatives.

**Selected observations from stakeholder workshops are:**

- The mining cadastre system has made a substantive improvement in the licensing process
- The cadastre is “not dead, it is sleeping” (meaning that the cadastre has great potential once it is fully functioning)
- There has been too little attention to small artisan miners during the project

**Selected observations from the Nordic companies are:**

- The sustainability of the NDF-supported components (financial, institutional, technical) are in jeopardy due to the constant lack of resources in the governmental budget
- The funding has provided a great opportunity for continued business opportunities in the mining sector in Africa
- It is positive that the contract administration and procurement is managed by NDF

As observed by the Nordic companies, as well as by the evaluators, there are serious problems with the upkeep, operations and maintenance of sophisticated and “state of the art” technology in this institutional and physical environment, which will not be resolved by more capacity building and training of the personnel. Some of these difficulties to sustain such technology include, for instance the quality of the internet and electricity fluctuations, which damage equipment and require repairs and replacement by new equipment. In addition, plans for hiring the required personnel in the MEM and GST in order to operate the systems and equipment effectively are lacking.

Such examination of the expenditure and revenue streams of an institution should ideally be done at the formulation stage and continue throughout the entire project implementation - each decision made on procurement of equipment should be accompanied by an examination...
of implications on the Governmental State Budget for access to recurrent budget allocation. Cost benefit analysis of different investment options, if done at planning stage, would have contributed to shed light on different investment options and would have generated requirements for maintenance and services of the equipment. The absence of such realistic assessment is all the more important in the light of the recent collapse in commodity prices and reduction of national revenues.

In order to improve sustainability it is proposed that in a dialogue with the Ministry of Finance a commitment may be achieved towards providing recurrent costs for the operations and maintenance of equipment. A possible source of funding may be the General Budget Support (GBS) funds (which include donors from the Nordic countries). Another option for the Government of Tanzania and donors to explore may be the Extractive Industries Transparency Initiative (EITI) which recommends a direct commitment and linkage of assigning revenues from the mining sector towards the operation and development of the sector’s key institutions.

As a general recommendation, the Ministry of Energy and Minerals should also provide more information on how to assist the small and artisan miners in acquiring geological maps, knowledge and licences, etc. in Tanzania. It is suggested that a booklet in local languages should be published in order to provide information on geology, maps and the licensing procedures to the small and artisan miners, as this group is important for environmentally sustainable sector development.

Regarding the operational management and implementation of the NDF-component, the following steps are recommended for strengthening implementation of a project of this nature:

- Ensure that the staff recruited for the Project Management Unit (PMU) have documented experience which responds to large project management of this complexity and magnitude. The consultants found that project management, project financial management and accounting, project monitoring and reporting of the NDF-project could have been stronger and more efficient.
- Consider establishment of a high level inter-ministerial steering committee that can ensure political support and guidance of the intervention. Such a committee may include representatives from the Prime Minister’s Office, Ministry of Finance, Ministry of Land, Ministry of Planning, and a NDF representative etc. and could provide oversight of the project and facilitate inter-institutional coordination.
- Consider development of a Management Information System for the project, which would provide a basis for monitoring and evaluation. This should include the application of Logical Framework Analysis (LFA), indicators and sources of verification and a suitable reporting format in order to report on project progress, highlight obstacles and suggested recommendations on way forward. The LFA would be useful for project formulation, project monitoring and reporting/evaluation, both for the project staff and the NDF.
- An opportunity to reinforce the implementation process would be to consider the employment of a representative for NDF or an Assistant paid by NDF as part of the PMU in order to co-administrate project funds, project activities and to contribute to timely resolution of any problems or conflicts arising during implementation.
1. Background

During the last decade the mining sector has evoked considerable interest – as commodity prices soared - for its potential to contribute towards economic growth and poverty alleviation. Generally, developing countries are facing a number of constraints to achieve a situation of ‘sustainable mining’ which provides such a basis and contribution towards national economic growth and poverty alleviation. As a response to some of these challenges and constraints, the World Bank formulated and implemented the Mineral Sector Development Technical Assistance (MSDTA) project IDA Credit 2648 at the Ministry of Energy and Mineral (MEM). The project started in 1994 and was concluded in 2001 and amounted to US$ 11,6 million.

Nordic Development Fund (NDF) interfaced and co-financed the Mineral Sector Development Technical Assistance Project (MSDTA) with credit NDF 277 which followed suit in 2002 and was concluded in 2008. The total amount of this credit was approximately US$ 8,6 million.

Various guidelines and principles have been developed by institutions, like the International Finance Corporation (IFC), International Council for Metals and Minerals (ICMM), Mining Association of Canada (MAC) and many others. Another initiative is the Extractive Industries Transparency Initiative (EITI) which is a recent "best practice" that was developed by UK. Its first principle is:

“... belief that the prudent use of natural resource wealth should be an important engine for sustainable economic growth that contributes to sustainable development and poverty reduction, but if not managed properly, can create negative economic and social impacts”

Tanzania was accepted as an EITI candidate on 16th of February 2009 and has until 15th of February 2011 to undertake its validation. Tanzania is therefore taking the required steps to meet the sign-up indicators and establish a multi-stakeholder group. Technical assistance for this has been provided by World Bank, the government of Norway and the EITI Secretariat.

2. Objective of Study

The main objective of the study is to learn lessons for future – this applies both to NDF as well as the Ministry of Energy and Minerals and other concerned stakeholders.

3. Methodology of Study

The team leader visited Helsinki Finland, where meetings were held with Nordic Development Fund (NDF), GTK and with FCG, which is the contracting company for this assignment. Subsequently, detailed planning and desk studying took place and the field work was resumed. The team leader started the field work with a visit to Stockholm and met with Swedish Geological and SGU and visited Copenhagen where she met with GEUS.

Work started in Dar es Salaam, Tanzania in April, 2009.

A key feature of the methodology was to organize stakeholder meetings, one in Dodoma and one at MEM in Dar es Salaam, where both public and private sector were represented, as well as small and artisan miners. This methodology provided an opportunity for observations of the users – or potential users – of the systems.

- The stakeholder meeting in Dodoma took place on April 16, 2009, and
- The stakeholder meeting in Dar es Salaam on April 21, 2009.
The contributions were very useful and participants were very eager to express their opinions. The results from the workshops are summarized in Annex 2. The results from the stakeholders' workshops were forwarded to the implementing Nordic Companies, and they were encouraged to provide their observations on the evaluation criteria in order to learn lessons from their perspective. Several e-mails containing the observations from the stakeholder workshops were sent out at the writing of the report. Response was received from GTK and SGU and these are included in Annex 3. The reader is encouraged to consult with Annexes 2 and 3.

The team furthermore visited

- **In Dodoma**: GST, the laboratory and Madini Institute
- **In Dar es Salaam**: MEM and specifically the licensing system, National Audit Officer, embassies of Sweden, Finland, and Norway. SEAMIC, Ministry of Finance, etc.

NDF’s support is not structured according to the commonly used Logical Framework (LFA), which means that there are no indicators or benchmarks with sources of verification. This also means that there is no structured monitoring or reporting system in place in order to provide a basis for monitoring or evaluation.

In order to assess the project components, the study team will apply the customary evaluation criteria, i.e. Relevance, Efficacy, Efficiency, Impact, Sustainability and Replicability.

These will be assessed with the following ranking:
- Very good
- Good
- Neutral
- Somewhat unsatisfactory
- Unsatisfactory

The assessment of current and potential utilization of “best practices” and possible promotion of “best practices”, as results from the project, will also be studied.

An Institutional Stakeholder Mapping was an important instrument during the evaluation work and during the stakeholder workshops. It addresses a number of issues at various level with relevance to ‘sustainable mining’ practices.

### Table 1: Institutional Stakeholder Analysis

<table>
<thead>
<tr>
<th>Level</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global</strong></td>
<td>UN agencies and international declarations, conventions and protocols with regards to sustainable development are listed here – particularly those ratified by Tanzania. Global best practices with reference to ‘sustainable mining’, including Extractive Industries Transparency Initiative (EITI), ICMM’s Guidelines and Manuals, Global Mercury Programme etc. Other important elements are the UN Global Compact and the Global Reporting Initiative’s guidelines on sustainable reporting principles for the private sector. Efforts related to climate change, carbon financing are also initiated at this level and requires operationalisation at regional and national levels. Global and regional best practices with specific relevance to the Mining Cadastre and the Geological Mapping in Tanzania are forthcoming at the regional level with a potential to have an impact at the global level.</td>
</tr>
<tr>
<td><strong>Regional (Africa)</strong></td>
<td>It is important to bear in mind best practices of agencies and regional agreements with respect to sustainable mining, including such countries as Botswana, Namibia, South Africa.</td>
</tr>
<tr>
<td><strong>National</strong></td>
<td>All major agencies and institutions are mapped with donor funded projects (as identified in Tanzania’s state budget); Specifically MEM’s institutional set up is highlighted and NDF’s as well as World Bank’s interventions may be visualized from this chart</td>
</tr>
</tbody>
</table>
### Table: Institutional Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>Regional – provincial – institutions are shown and a few examples of donor funded projects at this level.</td>
</tr>
<tr>
<td>Zones</td>
<td>Institutional constraints have been identified at the Zonal level. It is therefore important to understand the organizational set up of the Mining Offices (ZMOs) and the Residential Mining Offices (RMOs) as some of the support, specifically the Mining Cadastre are addressing these constraints. NDF's support is highlighted in this chart.</td>
</tr>
<tr>
<td>Local government</td>
<td>One structure of a municipality is shown. This level of government is critical to sustainable mining operations and relatively efforts have been focussing on this.</td>
</tr>
<tr>
<td>Ward level</td>
<td></td>
</tr>
<tr>
<td>Village level</td>
<td>This is where the mines are physically located as well as the small and artisan miners. Many mines address sustainable development related issues directly with the villagers. However, critical partnerships also need to be developed through the facilitation of partnerships with governance (national, provincial and local) at the municipality, provincial, regional and national levels, private sector associations, NGOs etc. in order to address effectively sustainable mining operations.</td>
</tr>
</tbody>
</table>

**Note.** This chart is not included in the report, as it is too comprehensive to download, but the hard copy was used throughout the evaluation in meetings and stakeholder workshops.

This institutional map also facilitates an analysis and discussion of institutional roles and responsibilities, as well as a clearer definition of interface between the private and public sectors as well as possible synergies between the mining sector at central, provincial and local government levels and the private mining sector. This chart facilitates the strategic identification of the members of a steering committee. This chart may also assist in assessing various institutional arrangements and issues related to strategic project interventions and sustainability issues.

“Best practices” must always be interpreted within each specific country context. However, well used and applied international and regional (African) “best practices” can greatly contribute to avoid repeating mistakes made previously (which will be costly for the country), saving scarce funds In not reducing what has already been done and tested elsewhere and to capture the “optimum” solutions currently available.

The World Bank’s and NDF’s project interventions and evaluations did not coincide in time, it is still important to take existing evaluation results on lessons learned into consideration. Annex 5 therefore contains an excerpt from the World Bank’s evaluation, which has already been integrated into the new project which is being formulated for World Bank financing.

A debriefing was held with Dr. Kafumu, Commissioner of Minerals on April 23, 2009 where all findings and issues were discussed.
4. Country Context

4.1 Mining in Tanzania

According to the MKUKUTA - Tanzania's National Strategy for Growth and Reduction of Poverty - of 2005, mining is a priority sector for growth and poverty reduction. The updating of the mining policy and legislation as well as developing and promoting an enabling environment for investment in mineral value-added have been identified as important ingredients for the success of Mkukuta.

Tanzania is endowed with a variety of mineral resources, natural gas deposits, and some oil traces. The country’s minerals include gold, diamonds and various gemstones. Production of gold (which accounted for 44% of the value of exports in 2007) and diamonds have been climbing steeply since the late 1990s. There are also large proven reserves of natural gas in Tanzania and prospects of oil discovery are promising, with a number of searches at advanced stages.

The Extractive Industries Transparency Initiative (EITI) sets a global standard for companies to publish what they pay to governments in taxes and other fees - and for governments to disclose what they receive from the mining sector. The Tanzanian government is committed to this process and the Hon. Minister of Energy and Minerals leads the EITI process.

Although its contribution to GDP is still small at 3.5 per cent, mining is currently the single most important source of foreign exchange for the country. About 50 per cent of export earnings accrue from minerals, mainly from gold mining by large-scale foreign owned companies. Small-scale operations are rudimentary and are conducted in an ad hoc manner lacking adequate equipment and controls, with minimal adherence to safety and environmental standards. Tanzania has substantial deposits of precious and semi-precious metals, base metals and ferrous metals, and industrial minerals

Tanzanian mining is characterized by large scale industrialized mines and a large amount of small-scale operations that include local entrepreneurs and artisan miners.

At the time of formulation of the project, the legal framework of the mining sector consisted of:

- Mineral Policy 1997
- Mining Act 1998
- Mining Regulations 1999

The above documents relied on a strong private sector involvement – and relatively little public sector intervention - in order to achieve the objectives of sustainable mining, i.e. economic growth with poverty alleviation and a situation where the nation and the poor would benefit from the extraction of metals and minerals. Experience proved to be disappointing to many Tanzanians, where many poor people have been further impoverished by private sector interventions which have not ‘understood’ and respected the specific situation of the poor in Tanzania.

The Mineral Policy of 1997 has therefore recently faced considerable challenges as a large portion of the population felt by passed by the economic growth and development and that they have not been benefiting from the mining activities in their own country. Two important commissions have recently studied the situation and a new policy is currently being drafted.

In addition, a number of studies have been undertaken in Tanzania and elsewhere, specifically analyzing the accrual of benefits to Tanzania as a country and specifically addressing the potential for poverty reduction in the country:
UNIDO study in 2004
ICMM – country study
Helene de Neuville-Pangas: An Analysis of Tanzania’s Law and Regulations, 24th June, 2004;
International Institutional Consulting SL, the so called “Ortega Report”: Mineral Resources Institutional Assessment - Diagnose of the Current Mining Cadastre System, June 2004
Mineral Review Policy Committee: Kipokola Report 2004

A revised draft Mineral Policy was elaborated in 2008, which gives a stronger role to the public sector.

The Minerals Division under the Ministry of Energy and Minerals (MEM) has a central role in the administration and regulation of the mineral sector in the country.
Figure 1: Organization chart of MEM and Geological Survey of Tanzania
Figure 1 is a close up of the larger institutional chart (which is not included in this report) showing the details of the institutional structure of the Ministry of Energy and Minerals, the autonomous Geological Survey of Tanzania, the position of the Project Management Unit under the Minerals Department’s Commissioner. For information on the zonal and sub-zonal levels please refer to the larger institutional chart mentioned above. Donor funded projects are demonstrated in the green box to the right in the Figure. The interventions of NDF are shown in yellow, i.e. particularly the Licensing and Mineral Rights management department, Geological Survey Division (GSD) including the laboratory have been the focus of support. In addition, the zonal offices have been benefiting from support.

The support provided and financed by NDF was identified and formulated in the World Bank’s project with the same title, i.e. Mineral Sector Development Technical Assistance Project (MSDTA). Since the conclusion of the first World Bank – NDF funded project the mining sector context has changed and evolved. This is captured in the box below from the World Bank’s project, which is currently being formulated.

Table 2: Excerpt from World Bank: draft Sustainable Management of Mineral Resources Project, 2009, pages 32-33

13. The rapid growth of the mineral sector in Tanzania, particularly small-scale and artisanal mining has overstretched the institutional capacity. Government institutions lack adequate tools, expertise, and organizational setup required in overseeing and supporting a modern, market-driven mineral sector. While Tanzania has been successful in attracting investments, the Government and communities have become increasingly dissatisfied with the level of contribution of the mineral sector to the economy including the inadequate institutional capacity to oversee the sector particularly in auditing investment costs; environmental management costs and in enforcing safety and occupational health standards; inadequate value added in exported minerals; slow pace of transforming and modernizing artisanal and small-scale mining; and insufficient integration of mining into the national economy. More specific challenges facing the sector include:

- High expectations on the benefits of mining for Tanzania and communities in the mining areas
- Uncertain investment climate created by public opinion on and calls by Government officials for policy changes to increase benefits for Tanzania
- Lack of infrastructure for roads, rail and power. Most mines are not connected to the national grid and generate their own electricity using diesel generators at high cost
- Maintaining the competitiveness of Tanzania as a mineral investment destination, given the global commodities and credit crisis
- The lack of Government capacity to effectively manage the sector. Mining license applications are backlogged for over 12 months, the Ministry of Energy and Minerals lacks the resources to conduct mines inspections on license requirements, health, safety and environment.
- Lack of diversification of minerals from gold and gemstones into base metals and other minerals

14. to address these concerns, the government formed a Mineral Policy Review Committee (Kipokola report) in 2004, which was succeeded by a Presidential Commission on the Mineral Sector (Bomani Report) in 2008 to conduct an in-depth review of the mineral sector, with a view to improving the capacity of the sector to stimulate additional economic growth. The recommendations from the Kipolola and Bomani reports provided inputs into the Government’s process of policy review, which is currently under-way. Both reports emphasized the urgent need to build capacity within the government’s institutions and agencies, so as to: a) enable sustainable development of a modern, market driven sector, with adequate benefits for the country; (b) establish a modern and transparent administrative and oversight setup for the sector; c) consolidate the mineral sector growth achieved since the late 1990s; and d) continue developing basic geo-information to sustain investment promotion.

15. the Government of Tanzania is also formulating the Sustainable Management of Mineral Resources project (SMMRP) to address the outstanding policy and institutional issues aiming at improving benefits of the mineral sector in a sustainable way.

In February 2004, the Prime Minister Frederick Sumaye set up a Mineral Review Policy Committee (i.e. the Kipokola Committee) to undertake an in-depth review of the mineral sector policy and regulatory framework. This report discusses in detail the current weaknesses
in the Minerals Division with respect to the organizational set-up, capacity aspects and co-ordination and interaction with other government departments and institutions\(^1\).

Some of the tasks addressed by the task force are included in the footnote\(^2\) to the report: Government of Tanzania, Mineral Review Policy Committee: Kipokola Report, 2004 translated from Swahili.

A Presidential Commission on the Mineral Sector was appointed on the 12\(^{th}\) November 2007 and it subsequently elaborated the so called Bomani report. The committee reviewed the Mine policy (1997) and Mine Act (1998) and the “Bomani Report” was released in 2008. Structural problems with the mining sector are discussed and addressed. Therefore a new Mineral Policy is currently under elaboration where there is a different balance between the private and the public sector participation of the mining sector. The public sector will now take on a stronger role in something that may be called a specific "Tanzanian Model towards Sustainable Development".

Below is a table of the Ministry of Energy and Mineral’s recurrent budget in 2008/09 for the mineral division.

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\(^1\) The Report observes that the organizational structure of the Minerals Division approved in 2001 is inadequate in coping with a fast growing sector. It points to useful lessons that can be learnt from Botswana and Ghana. In Botswana, under the Ministry of Minerals, Energy and Water Resources there is a Mineral Economic Unit which safeguards national interests through close monitoring of mining investments and operations. In Ghana, under the Internal Revenue Authority, there also exists a special unit known as Petroleum and Mineral Unit (PMU) which tracks down costs of the big mines. PMU’s work is above all an in – built control mechanism for the mines to self regulate as a graduated royalty rate applies from 3% to 6% depending on the operational costs in relation to total value of minerals produced.

Regarding the approval procedures of mining contracts, Dr. Kipokola’s Report also commends Botswana for a system worth emulating: for each draft mining contract, it sets up a multi-disciplinary technical team and gives it ample time to thoroughly scrutinize and analyze all the aspects of the contract. With respect to co-ordination, Dr. Kipokola’s Report identifies as one of the major bottlenecks to effective monitoring of the mining sector, the lack of inter ministerial communication and interaction between Government’s departments and institutions on issues with bearing to the Minerals Division. It proposes the establishment of an Inter-ministerial Committee composed of various Permanent Secretaries as a solution. The Review Committee embraces the recommendations, but it suggests that it should be assisted by technical teams of designated senior officers.

(I) To review the mineral policy focusing on government participation in owning mines and making comparison with other countries.

(II) To investigate the distribution of revenues/incomes (from mineral sales) between the government and the mine companies and assess whether the royalties paid, rates of different taxes and incentives need to be rectified.

(III) To examine the structure, capacity and procedures of the mineral department in issuing licenses and control and manage the mineral sector in Tanzania.

(IV) To evaluate social services that are provided by the mining companies and to advise on measures to be taken by the government to improve on weaknesses.

(V) To investigate the veracity of claims in regard to compensation in mine areas and to advice on measures to be taken to rectify the situation.

(VI) To investigate allegations on environmental contamination and destruction (water pollution, land pollution/degradation) of mine companies.

(VII) To investigate measures being taken by the government in assisting small scale and artisan miners;
### Table 3. Summary of recurrent expenditure 2008/09 (In TSH)

<table>
<thead>
<tr>
<th>code</th>
<th>Department/Section</th>
<th>other expenses Tsh</th>
<th>% of total</th>
<th>salaries TSH</th>
<th>% of total</th>
<th>total Tsh</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Admin. And human resources</td>
<td>1 541 200 000</td>
<td>4%</td>
<td>374 660 000</td>
<td>11%</td>
<td>1 915 860 000</td>
<td>4%</td>
</tr>
<tr>
<td>1002</td>
<td>accounts</td>
<td>701 800 000</td>
<td>2%</td>
<td>159 051 000</td>
<td>5%</td>
<td>860 851 000</td>
<td>2%</td>
</tr>
<tr>
<td>1003</td>
<td>policy and planning</td>
<td>135 200 000</td>
<td>0%</td>
<td>111 995 000</td>
<td>3%</td>
<td>247 195 000</td>
<td>1%</td>
</tr>
<tr>
<td>1004</td>
<td>internal audit</td>
<td>132 500 000</td>
<td>0%</td>
<td>58 911 000</td>
<td>2%</td>
<td>191 411 000</td>
<td>0%</td>
</tr>
<tr>
<td>2001</td>
<td>Minerals</td>
<td>2 726 588 000</td>
<td>7%</td>
<td>1 041 831 000</td>
<td>32%</td>
<td>3 768 419 000</td>
<td>9%</td>
</tr>
<tr>
<td>2003</td>
<td>Mineral Institute</td>
<td>637 000 000</td>
<td>2%</td>
<td>317 400 000</td>
<td>10%</td>
<td>954 400 000</td>
<td>2%</td>
</tr>
<tr>
<td>2004</td>
<td>TANSORT</td>
<td>601 400 000</td>
<td>2%</td>
<td>658 400 000</td>
<td>20%</td>
<td>1 259 800 000</td>
<td>3%</td>
</tr>
<tr>
<td>3001</td>
<td>Energy and Petrol</td>
<td>1 428 189 000</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>1 428 189 000</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Summary recurrent expenditure 2008/09 USD**

<table>
<thead>
<tr>
<th>code</th>
<th>Department/Section</th>
<th>other expenses</th>
<th>% of total</th>
<th>salaries</th>
<th>% of total</th>
<th>total</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Admin. And human resources</td>
<td>1 185 538</td>
<td>4%</td>
<td>288 200</td>
<td>11%</td>
<td>1 473 738</td>
<td>4%</td>
</tr>
<tr>
<td>1002</td>
<td>accounts</td>
<td>539 846</td>
<td>2%</td>
<td>122 347</td>
<td>5%</td>
<td>662 193</td>
<td>2%</td>
</tr>
<tr>
<td>1003</td>
<td>policy and planning</td>
<td>104 000</td>
<td>0%</td>
<td>86 150</td>
<td>3%</td>
<td>190 150</td>
<td>1%</td>
</tr>
<tr>
<td>1004</td>
<td>internal audit</td>
<td>101 923</td>
<td>0%</td>
<td>45 316</td>
<td>2%</td>
<td>147 239</td>
<td>0%</td>
</tr>
<tr>
<td>2001</td>
<td>Minerals</td>
<td>2 097 375</td>
<td>7%</td>
<td>801 408</td>
<td>32%</td>
<td>2 898 784</td>
<td>9%</td>
</tr>
<tr>
<td>2003</td>
<td>Mineral Institute</td>
<td>490 000</td>
<td>2%</td>
<td>244 161</td>
<td>10%</td>
<td>734 161</td>
<td>2%</td>
</tr>
<tr>
<td>2004</td>
<td>TANSORT</td>
<td>462 615</td>
<td>2%</td>
<td>506 462</td>
<td>20%</td>
<td>969 077</td>
<td>3%</td>
</tr>
<tr>
<td>3001</td>
<td>Energy and Petrol</td>
<td>1 098 607</td>
<td>4%</td>
<td>0%</td>
<td>0%</td>
<td>1 098 607</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Total** | 30 422 493 | 2 542 799 | 32 965 292

*Exchange rate applied April 2009: 1 USD = 1,300 Tsh*

### 4.2 Mining Sector and Environmental Management/Climate Change Issues

Climate Change issues are dealt with by the National Environmental Management Council (NEMC). The mining sector is considerable GHG emitters due to considerable transportation, diesel production of energy as they are not connected to the national grid, considerable needs for ventilation etc. Tanzania National Adaptation Programme of Action (NAPA) is the national document on the way forward on climate change.
### 4.3 World Bank/NDF Funded Mineral Sector Development Technical Assistance Project (MSDTAP)

Please find a list of all NDF funded contracts in the Table below.

**Table 4: List of NDF financed contracts**

<table>
<thead>
<tr>
<th>Contracts</th>
<th>Status/comments</th>
<th>Value in SDR</th>
<th>Value in $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract 1: Swedish Geological (Sweden):</td>
<td>- contract signed in 2001 and implementation completed in 2002</td>
<td>SDR 222,106</td>
<td>279,010</td>
</tr>
<tr>
<td></td>
<td>- Review and Preparation Consultancy for Technical Assistance to the Ministry of Energy and Minerals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 2: Geological Survey of Finland (Finland):</td>
<td>- contract signed in 2003 and implementation completed in 2004</td>
<td>SDR 1,538 413</td>
<td>1,936,662</td>
</tr>
<tr>
<td></td>
<td>- Airborne Geophysical Survey of Selected Areas in Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 3: Inter-Agency Procurement Service Office (Int)</td>
<td>- contact signed in 2002 and implementation completed</td>
<td>SDR 17,690</td>
<td>22,212</td>
</tr>
<tr>
<td></td>
<td>- delivery of One unit of Toyota 4WD Land Cruiser hardtop station wagon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 4: D.T. Dobie &amp; Company Ltd (Tanzania)</td>
<td>- contract signed in 2002 and implementation completed</td>
<td>SDR 42,201</td>
<td>52,988</td>
</tr>
<tr>
<td></td>
<td>- delivery of Two units of Nissan Patrol 4200 Diesel GL 7 seaters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 5: Geological Survey of Finland (Finland)</td>
<td>- contract signed in 2003, Lead Consultant for Geophysical, Geological and Geochemical Surveys</td>
<td>SDR 3,124, 927</td>
<td>3,923,721</td>
</tr>
<tr>
<td>Contract 6: Swedish Geological AB (Sweden)</td>
<td>- contract signed in 2005 and implementation completed</td>
<td>Payment via special account</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- focused on Quality Control of the Airborne Survey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 7: Geological Survey of Denmark and Greenland (Denmark)</td>
<td>- contract signed in 2002 and implementation completed</td>
<td>SDR 238,468</td>
<td>299,425</td>
</tr>
<tr>
<td></td>
<td>- provided Consultancy for the Design of a Mining Cadastre Development Strategy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 8: GEUS (Denmark)</td>
<td>- contract signed in 2003 and implementation completed</td>
<td>SDR 63,682</td>
<td>79,960</td>
</tr>
<tr>
<td></td>
<td>- focus on procurement assistance for mining cadastre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract 9: Swedish Geological AB (Sweden)</td>
<td>- Establishment of Mining Cadastral Information System</td>
<td>SDR 1,173,703</td>
<td>1,473,725</td>
</tr>
<tr>
<td>Contract 10: Special Account</td>
<td>- payment for operational costs and contracts to suppliers;</td>
<td>SDR 424,244</td>
<td>532,689</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>8,595,393</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** NDF, Terms of Reference of the Ex-post Evaluation of NDF-277: Mineral Sector Development Technical Assistance Project, Tanzania

Note. Exchange rate:
1 SDR = 1.25562 USD

Project implementation started on the 1st of April 2002 and closed on the 31st of December 2007, being extended from the previous closing date of 31st of December 20063. The total cost of the NDF financed components is SDR 6,500,000, equivalent to USD 8,161,530 (at an exchange rate of 1 SDR equivalent to US$ 1.25562 as of December 2001.

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4.3.1 Planning and Implementation

A "Planning and Implementation schedule NDF 277 MSD-TA" is found in Annex 2. It shows the timing of World Bank’s and NDF’s interventions and the complementarity between the projects. It also shows the first study by SGU during the World Bank's financing and the number of interventions by various Nordic companies during the implementation of the NDF. As the evaluation results will demonstrate below, there are several themes, which have not been finalised within the time frame of the interventions from the NDF funded projects. Several of these will be continued and taken over by the new World Bank funded project. The table therefore also shows the planned activities of World Bank’s new project ‘Sustainable Management of Mineral Resources’ which is anticipated to start during 2010 and as well as the current project preparation facility.

The following components – which were conceptualized and implemented by the World Bank - were not finalized before its closure and they were therefore continued after the closure of World Bank’s Credit 2648 and continued to be supervised by PMU:

- Technology Demonstration Centre at Matundasi, Chunya, Mbeya and
- Gemstone Carving Centre at Arusha

Following is a breakdown of the estimated costs of NDF’s components:

Table 5: Cost per component on project

<table>
<thead>
<tr>
<th>Component</th>
<th>Amount USD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of Mining Cadastral Information Management System in Tanzania</td>
<td>1,674,746</td>
</tr>
<tr>
<td>Geophysical and Geochemical Surveys</td>
<td>5,303,362</td>
</tr>
<tr>
<td>Project management</td>
<td>367,269</td>
</tr>
<tr>
<td>Contingency</td>
<td>816,153</td>
</tr>
<tr>
<td>Total</td>
<td>8,161,530</td>
</tr>
</tbody>
</table>

These funds are loans to the Government of Tanzania.

4.3.2 Management Model

The governmental institutional setup is found in Figure 1 above. The executing agent of the Project is the Minerals Division of the Ministry of Energy and Minerals (MEM).

There is a Project Management Unit (PMU) with a Project Manager, a Deputy Project Manager, a Technician, an accountant and a secretary. The activities of the GST and Mineral Rights Registry and Licensing Unit (MRRLU) are coordinated by the PMU which reports directly to the Commissioner for the Minerals Department.

The component at the Geological Survey has been implemented with a counterpart configuration:

Geological Survey of Finland (GTK) is the lead consultant and it has a Project Manager and a Deputy Project Manager and Geological Survey of Tanzania (GST) also has a counterpart Project manager and Deputy Project Manager.

The Mineral Rights Registry and Licensing Unit (MRRLU) are on the other hand responsible for the execution of the Mining Cadastral Information Management System. An Association of several companies is executing the second component: Swedish Geological (Hifab AB), Sweden, Swedesurvey AB, also Swedish, Spatial Dimension (PTY), and South Africa. Local support was provided by InfoBridge Consultants Ltd of Dar es Salaam, Tanzania.
Surprisingly, there is no inter-ministerial steering committee responsible for the oversight of the project\textsuperscript{4} and necessary inter institutional coordination. Most financial resources are controlled by NDF, which has ensured timely and good governance of resources. PMU managed 3 bank accounts in Dar es Salaam:

- A special bank account for the receipt of funds in foreign exchange.
- Another bank account – 20100112 - for transfers from the account above into Tanzanian shillings. This same account is also used for the deposit of funds from the Ministry of Finance of the Government of Tanzania
- A third bank account for the management of the remainder of the IDA Credit 2648.

The accountant(s), who have been recruited within MEM, have undertaken the accounting responsibilities manually in ledgers and towards the end of the project somewhat in excel. There is no use of a computerized project accounting package and the accountants have not received any training on project accounting. The progress reports don’t clearly separate between the different accounts and they do not transparently report on budget up dates and disbursements from the different accounts including funding provided by the government as counterpart funding. More transparent information on the government contribution and expenditure on this would add valuable information. In addition, the financial statements blend NDF’s Credit 277 and IDA Credit 2648 related activities, and so do the audit reports from the National Auditor’s Office (NAO) office.

### 4.3.3 Use of Management Information System including Log Frame

Logical Framework Analysis (LFA) as a formulation, monitoring and supervision tool is not known or used by the project. Progress reporting is done by the individual components and consolidated by PMU on a quarterly basis. However, the reports are not structured in such a fashion, that indicators/benchmarks are easily identified; a baseline is generally used for defining the situation “before” the project and it subsequently provides a tool for assessing the situation “during” or “after” the project. There is no such baseline study in place. The consolidated reports therefore do not contain progress with reference to benchmarks and/or indicators. There is furthermore no reporting on critical issues and obstacles to the project implementation and there are therefore no recommendations on timely solutions.

In the absence of a steering committee and with a PMU with limited capacity and mandate, there is basically no mechanism for problem resolution or conflict negotiation when problems appear.

\textsuperscript{4} It appears that there was no steering committee for the MSDTA of the World Bank either. This weakness appears to have been recognized and a steering committee is planned for during the new “Sustainable Management of Mineral Resources Project”, which is being formulated.
5. **Component B: Development of the Geophysical and Geochemical Surveys**

### 5.1 Description and Objective

The primary objective of this component is to identify and discover new priority areas in the country with high mineral potential, with the aim of promoting them for further investment and to subsequently sustain a diversified growth of the mineral sector.

The execution of this specific component was based on a counterpart and twinning concept:

- GTK from Finland was appointed as the lead consultant and had appointed a Project Manager and a Deputy Project Manager
- GST equally had a counterpart Project Manager and a counterpart Deputy Project Manager

This model has contributed to the successful implementation of the project activities, but it has also been demonstrating some weaknesses. Frustration at unresolved disagreements that took place during project implementation was expressed by both counterparts. These problems were of serious nature and they were not mentioned in the progress reporting and it appears that the PMU was not assigned a role to contribute towards a smooth project implementation and/or conflict resolution. Furthermore, without a high level inter institutional steering committee appointed there appear to have been an absence of resolution to these problems. Changes in the PMU also contributed to a lack of continuity and stability in the project implementation. Both GST and GTK signalled some issues which had required assistance from a higher level/authority for timely resolution and which was not forthcoming.

The component had the following five sub-components which were concluded in 2007:

- Institutional Capacity Building
- Geophysical Data Processing and Interpretation
- Preparation of Preliminary Geological Maps
- Airborne Geophysical Surveys
- Geochemical Surveys

The funding to the laboratory is found under the first sub-component: Institutional Capacity Building.

### 5.2 Planning and Implementation

The planning and implementation of this component may be found in Figure 2 in the Annex 2.

Following maps and reports were produced – outputs – of the project:

1. **Geochemical:**
   - Geochemical field manual – 10 copies
   - Geochemical orientation report – 10 copies

2. **Geological:**
   - Maps and accompanied reports 1,625 copies. Maps are listed below;
   - Geological Field Manual – 10 copies
Table 6: Geological Maps at GST

<table>
<thead>
<tr>
<th>S/N</th>
<th>Geological Maps (Bed rock geology) – scale 1:100,000</th>
<th>Geological Maps (including Neogene) – scale 1:100,000</th>
<th>Interpreted Geophysical (QDS) – scale 1:100,000</th>
<th>Geophysical (Regional Maps) – scale 1:500,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>QDS 30 – Biharamulo</td>
<td>QDS 30 – Biharamulo</td>
<td>QDS 30 – Biharamulo – Lake Victoria</td>
<td>QDS 155 – Koga River</td>
</tr>
<tr>
<td></td>
<td>QDS 44 – Kalenge</td>
<td>QDS 44 – Kalenge</td>
<td>QDS 44 – Kalenge – Lake Rukwa</td>
<td>QDS 154 – Msima</td>
</tr>
<tr>
<td></td>
<td>QDS 62 – Bukombe</td>
<td>QDS 62 – Bukombe</td>
<td>QDS 62 – Bukombe – Kigoma/Mpanda</td>
<td>QDS 12 – Kiabakari</td>
</tr>
<tr>
<td></td>
<td>QDS 78 – Ushetu</td>
<td>QDS 78 – Ushetu</td>
<td>QDS 78 – Ushetu – Kigoma/Mpanda</td>
<td>QDS 4-5 – North Mara</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>QDS 13 – Buhemba</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>125</td>
<td>1,250</td>
<td>125</td>
</tr>
</tbody>
</table>

Note. All maps and reports are also available in soft copies (CDs)

Following sales of maps is reported in Geological Survey of Tanzania: Project Annual Progress Review: Review of Project Activities carried out in 2005, Dodoma 2005;

Table 7: Map Sales at GST in 2005

<table>
<thead>
<tr>
<th>S/N</th>
<th>Company</th>
<th>Area</th>
<th>Amount (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barrick Exploration (Africa)</td>
<td>Mara (QDS 4, 5, 12 &amp; 13)</td>
<td>6,000</td>
</tr>
<tr>
<td>2</td>
<td>Twigg Gold</td>
<td>Kahama (QDS 62 &amp; 78)</td>
<td>20,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biharamulo (QDS 30 &amp; 44)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mara (QDS 4, 5, 12 &amp; 13)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cabacana (T)</td>
<td>Kahama (QDS 78/4)</td>
<td>329,225*</td>
</tr>
<tr>
<td>4</td>
<td>Placer Dome</td>
<td>Mara (QDS 4, 5, 12 &amp; 13)</td>
<td>6,000</td>
</tr>
<tr>
<td>5</td>
<td>Sub Sahara Resources</td>
<td>Kahama (QDS 62)</td>
<td>7,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biharamulo (QDS 30 and part of QDS 31)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Randgold Resources</td>
<td>Mara (QDS 4, 5, 12 &amp; 13)</td>
<td>6,000</td>
</tr>
<tr>
<td>7</td>
<td>Randgold Resources</td>
<td>Kahama (QDS 62 &amp; 78)</td>
<td>14,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biharamulo (QDS 30 &amp; 44)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>59,329.225</td>
</tr>
</tbody>
</table>

Furthermore, in the annual report of 2006 following is stated:

“During the period under review the new airborne geophysical data collected in Kahama, Biharamulo and Mara areas in 2003, continued to be promoted to various stakeholders. However, there have been no purchases of the data during the period under review.

An amount of USD 96,480 has so far been realized since the promotion exercise started in August 2004”.

Reading GST’s progress reports gives the reader an impression of lack of the intended counterpart and twinning relationship of a development project, where both parties have expectations and obligations to achieve and strive towards the same project objectives. A “Consultant – Client” relationship has developed with very sharp language and detailed budget
control and delivery of items, which has not always contributed to an environment of collaboration. They don’t give an understanding of two institutions working together towards the same goals, i.e. strengthening the mining sector – national economic growth and poverty alleviation. GST criticizes GTK for not completing project commitments and it almost gives the reader an impression of GST nitpicking small details focusing on delivery of equipment, products and training, loosing the big picture of a complex development project, which should contribute towards higher goals.

On both sides, there was verbal reporting of “cultural differences” providing unresolved difficulties during the project implementation. This impacted negatively on project progress and implementation.

Much focus in the GST reports is on timely delivery of products – or lack thereof - , but there is little attention to how to solve problems together and/or reciprocity of activities. For example, there is no concern at all on critical sustainability issues, such as how the maps can be used by public and private sectors and above all displaying an approach or discussion on how to reach the small and artisan miners with valuable information. Furthermore, there is no mention of the need to refurbish the laboratory building before any equipment should be purchased. Despite insisting on additional “state of the art” equipment, there is no analysis of financial/revenue flows and expenditures and forward thinking and planning on how to acquire future recurrent costs in order to address sustainability of the investments. Prudent investment decisions should always be based on an awareness/knowledge of the generation of recurrent and operating costs (including an assessment of depreciation for future replacement of equipment).

It is clear that the PMU has not contributed towards a resolution of these disagreements and the absence of a steering committee has resulted in a lack of timely resolution and solutions to resolve them. PMU’s quarterly and annual reports have not reflected these conflicts and they have not contributed towards a resolution of them.

5.3 Evaluation of Sub Component Geological Survey of Tanzania

5.3.1 Assessment by Stakeholders and Nordic Implementer

According to GST and GTK all/most objectives were fulfilled and items delivered, apart from the weakness reported under Efficiency.

A stakeholder workshop was held at GST in Dododa on 16th of April 2009, which included stakeholders from GST, Madini Institute and several small miners. The small miners had substantial comments and concerns. Some of the observations are:

Positive:
- The project was very positive in upgrading the quality of data acquired in GST and capacity to process and interpret the data even in the laboratory. Lot of useful data was acquired.
- Many actors were involved and learned/practiced skills. We can work better now.
- Some of the geoscientific data which was collected enabled and facilitated that some areas were opened for exploration
- Improved geoscientific data/information acquisition, processing & dissemination

Not so Positive:
- Acquired new techniques and technology in map production are not adequate. There is a need for more training.
- The objectives were not implemented adequately, e.g. setting up of databases in GST, particularly for Geophysical data sets.
o Funds for some activities were not forthcoming in a timely manner, particularly field work which depend on the weather;
o The quality of maps is doubted, particularly those which were based on the information from GETECH, Leeds University, UK, i.e. that they were of inadequate quality – taken by low resolution.
o There is not sufficient information to stakeholders on the benefits of project results particularly at district level.
o The existence and use of maps and the existence of the mining caster and how it should function - particularly at district level.
o There is no initiative on the part of the managers of the mining cadastre and the GST to provide information on services “downstream” – i.e. to district and ward levels.
o The small miners mentioned that they are using old maps from 1963, but they don’t know that there are newer maps available in GST.

Feedback was also received by GTK and its response is included in Annex 4.

### 5.3.2 Relevance

The component was highly relevant for the national development of the mining sector. It should be noted, however, specifically, with respect to the geological survey work, the Commissioner and other officers in the GST made observations concerning the fact that only Nordic companies could participate in the bidding process. The procurement conditions were negotiated and accepted between NDF and the Ministry of Finance. Tanzania has had previous support and good experience from both UK and Germany. According to GST it would have been positive if these countries could have participated in the procurement process. This component will also be continued during the new World Bank funded project.

Mechanisms to address small miners and an institutionalization and use of the maps at the district level planning would have made the support even more relevant. Artisan mining was addressed by the World Bank funded components, but the necessary interlinkages didn’t emerge at implementation between the NDF and the World Bank interventions.

### 5.3.3 Efficacy

The component has contributed towards the development objective of contributing to identify priority areas in the country with high mineral potential, with the aim of promoting them for investment and subsequently sustain the growth of the mineral sector. Again, an inclusion of the small miners would have made this criteria score higher.

### 5.3.4 Efficiency

NDF conditions require that a certain percentage of funds be disbursed with Nordic content in the procurement. This fact was raised by the Commissioner and officers at the GST. It was considered by these staff that improvements might have been possible with access to other – non Nordic - companies/institutions in the case of the geological survey work. Both Germany and UK have a history of collaboration on Geological Survey related activities in Tanzania, which would have provided for a basis with prior knowledge and understanding of the specific country context of Tanzania.

A further weakness was stressed by GST and is mentioned below and should constitute a lessons learned which should be avoided.
The following was also communicated from GST:

GTK conducted airborne magnetics, radiometrics and EM with instruments fitted in the same aircraft. As a result data for EM was of poor quality and virtually useless for the intended purpose.

Recommendations

In the future, magnetics and radiometrics should be conducted together on same aircraft and EM be conducted separately in order to avoid interference from magnetometers.

5.3.5 Impact

There has certainly been positive impact of the maps, particularly with reference to the large mining companies. The larger companies know about the existence of the maps and can afford them. Some small miners who can afford the purchase and elaboration of maps, contract GST to assist them. However, there are no maps accessible for the small and artisan miners and they only know of old maps from 1960ies and they are unaware of the new maps. Please see below Annex 2 Stakeholder meeting in Dodoma, where the artisan miners present acknowledged that they don’t know about the existence of the geological maps.

5.3.6 Sustainability

Institutional sustainability

GST appears to be a well operated and maintained institution – although this statement doesn’t necessarily apply to the management of the laboratory. Plenty of training and capacity strengthening has been provided and it is considered that the GST will maintain the premises and services.

Financial and budgetary sustainability; macro economic stability, revenue generation and stability of commodity prices

GTK signals the following observations in the Procurement Report of 2007 with respect to recurrent expenditures and “after services” which are required for the proper maintenance and operations of the project equipment– This may also constitute lessons learnt with respect to required attention to up keep of technologies.

During the project period, GST has made a major leap forward towards a modern institution regarding updating of the equipment, general and specified skills and introduction of new working methods. Instead of near-future upgrading of existing equipment or procurement of new items, it is now emphasized to keep on working and practicing with the present equipment. This applies also surprisingly to updating of different software to the latest versions because often the latest version is not the most effectively working version.

The power conditions in the GST office require that every computer is equipped with an UPS. It should be noted, that the lifetime of UPS batteries very seldom exceed 3 years. The condition of the UPSS should be monitored constantly and the batteries should be changed immediately when the first symptoms appear. In practice this means, that there will be a more or less continuous process of renewing the UPS batteries.

The global IT-structure of today prerequisites software maintenance and normal office working routines through an Internet connection. The Capacity (band width) of the present Internet connection in the GST office is close to its upper limit. On line option of releasing some Internet capacity is that GST personnel should give up using their free “hotmail” email accounts and instead use their personal @gst.go.tz accounts. The GST personnel should further be reminded every now and then about "correct ways of using internet" and heavy downloading, if necessary, from the Internet should take place during night time.

Presently a total of about 14,000 EUR is used for the GST Internet airtime and software updates annually. The table below show the annual fees for the most important IT-requirements according to the price level of late 2006.
### Item Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>USD/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet connection, 575 USD/month</td>
<td>6,900</td>
</tr>
<tr>
<td>Antivirus software/F-secure, 25 computers, 580 EUR/year</td>
<td>761</td>
</tr>
<tr>
<td>ArcGIS/one network license + one fixed license</td>
<td>1,200</td>
</tr>
<tr>
<td>Geosoft incl. Chimera</td>
<td>1,900</td>
</tr>
<tr>
<td>Antivirus software for Mail-server</td>
<td>300</td>
</tr>
</tbody>
</table>

Although modern laser printers are quite durable and long lasting, they are quite sensitive regarding the quality of electricity. GST has improved the cabling of the “server room” and also added a stabilizer. These steps should increase the durability of the devices. However, there are an increasing number of sensitive devices outside the “server room”.

The two file servers are equipped with backup facilities so in case of a hard drive failure the loss of data will be minimized. However, this backup system is not fully automatic and needs some weekly checking.

The petrophysical laboratory was established in GST using funding outside the actual project budget. Four GST staff members have been trained for running of the laboratory. The first results have been utilized during the project and the importance of the knowledge on petrophysical properties of rocks has been demonstrated. The most important thing is respect of the petrophysical laboratory is to keep it running by measuring more samples from the archives and also from the field. After the laboratory has been running constantly on a daily basis for one or two years some software upgrades and increasing of the instrumentation could be considered.

GST is an autonomous agency and should elaborate their own audited financial statements. This was discussed with the NAO, as MEM is still reporting the GST in their financial statements. An open and transparent dialogue on revenue and expenditure streams should be part of planning and implementation of support in order to address financial sustainability issues at an early stage.

**Regulatory and policy sustainability**

The existing, as well as the revised draft policy, emphasise attention to assist the small and artisan miners in Tanzania. The new draft policy also emphasises a stronger collaboration at the district level and as well as improved inter institutional collaboration. It is recommended that GST pays more attention to provide affordable support and information also to the small and artisan miners.

The following booklets were funded and elaborated by the MSD-TA funded by the World Bank:

- Ministry of Energy and Minerals: Taratibu za utendaji Kazi Katika Uchimbaji Mdogo Wa Madini (Procedures for Mining for Small Scale Mining) Volume 1, 2 and 3, April 2000. These small booklets are not particularly user friendly and can anyway generally not be found in Ministry, zonal and residential offices. In comparison, SGU of Sweden has elaborated a very user friendly booklet for “mineral hunters” in Sweden, which is very illustrative, contains all required information in a very user friendly way. So many resources were put in by both World Bank and NDF and there was no simple user friendly and attractive booklet developed – not even a pamphlet.

**5.3.7 Replicability and application of best practice**

PMU and the World Bank are currently formulating a new project with a component addressing continued support to GST. Application of lessons learned from this experience would allow for attention to some critical issues related to sustainability.
5.3.8 Cross cutting issues: climate change, environmental management and gender

Several women are employed at GST and they have also received capacity strengthening and participated in training.

5.3.9 Rating of evaluation criteria

![SUMMARY EVALUATION CRITERIA](image)

The provision of these services to the public is a basic condition for the rational and more diversified development of the mineral sector of Tanzania. This component scores positive on relevance, efficacy and impact. Impact has been considerable and largely as planned: capacity building, the airborne survey, manuals and maps have been elaborated according to plans. Efficiency is scored neutral, as steps could have been taken to more systematically explore cost and revenue streams. However, the financial sustainability in particular is slightly negative, as there are no indications of an analysis over the past years and into the future on how to finance the required operations and maintenance costs in order to ensure technical and operational sustainability.

5.4 Conclusions/Lessons Learned and Recommendations

An improved management model will ensure improved implementation of this type of project component. See further under Chapter 10 Recommendations for the Future. Additional focus on small and artisan miners is essential – not only focus on the large companies and scientific research. User friendly maps and booklets and pamphlets may be elaborated for use by small and artisan miners.

6. Sub component Laboratory, Geological Survey of Tanzania

6.1 Description and Objective

The objective of establishing a petrophysical laboratory was to strengthen ground geophysical survey methods and interpretation of airborne geophysical data. The petrophysical laboratory was installed at GST in January 2005. The petrophysical laboratory measures the following physical properties of rocks:
• magnetic susceptibility;
• densities;
• remnant magnetization;
• porosities; and
• galvanic or inductive resistance (allows also determination of induced polarization (IP) and electrical properties of rocks;

The rock properties are used in the improvement/enhancement of the interpretation of acquired airborne geophysical data. They further give an understanding of the nature and geometry of the sources of geophysical anomalies.

6.2 Planning and Implementation

The conditions of the laboratory building were assessed by Swedish Geological\(^5\) in 1999 as follows.

**Laboratory Premises**

The condition of the laboratory’s premises was evaluated at the start of the project and recommendations for repairs were elaborated, including such details as roof repairs, painting of walls, installation of ventilation and air conditioning, necessary electrical power requirements, as well as water pipes and plumbing. Suggestions and recommendations for renovations were sent from the GTK to Dodoma in April 1996. These alterations of the laboratory were required before the installation of new instruments and the set up of new instruments and the set up of new analytical methods could be performed. The available space is sufficient for the planned laboratory activities and will not restrict full exposition of the capacity of the laboratory. The reparation and modification works on the buildings were in charge of the MRD and started during the second part of March 1996. According to initial plans the works should be concluded within 16 weeks. However, the renovation works did not proceed according to schedule. Combined with the slow progress of the procurements severe delays occurred in the implementation of the planned project activities at the mineral Laboratory. Some of the recommended repair works were still not completely finished in September 1995.

A number of equipments have been procured for the laboratory as shown in Table 8:

**Table: The of Equipment Procured and cost at Laboratory**

<table>
<thead>
<tr>
<th>Type of equipment</th>
<th>EURO</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS, XRF, centrifuge, PH-meter, water purification system, crucibles</td>
<td>118,834.98</td>
</tr>
<tr>
<td>Petrophysical laboratory</td>
<td>49,500.00</td>
</tr>
<tr>
<td>Reference materials</td>
<td>1,277.00</td>
</tr>
<tr>
<td>Plastic ware and tools</td>
<td>197.08</td>
</tr>
<tr>
<td>Protecting clothes</td>
<td>20.14</td>
</tr>
<tr>
<td>Cutting plats for rock saw</td>
<td>352.70</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>170,131.90</strong></td>
</tr>
<tr>
<td>Freight and forwarding</td>
<td>12,468.80</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>182,600.70</strong></td>
</tr>
</tbody>
</table>

**Source: GTK: Procurement Report 2007**

It is reported by the GST that the following has been achieved for the laboratory:

• Petrophysical laboratory fully established
• Geochemical laboratory refurbished
• Installation of new XRF analytical facility
• Installation of Atomic Absorption Spectrometer fitted with hydrogen generating kit (HGAAS)
• Installation of water deionizer used for water purification during analytical work

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- Procurement of various laboratory consumables including crucibles, chemical and reagents; and
- Procurement of an XRF analytical facility

Capacity strengthening has also been provided on the operations and management of the equipment, as well as on the Laboratory Management Information System (LIMS).

According to Minutes of the 3rd annual review meeting for implementation of component B: held at Dodoma on 14th February 2007 it was reported:

### Laboratory Information Management System (LIMS)

<table>
<thead>
<tr>
<th>The Consultant reported that LIMS software has been installed into GST Laboratory computers and can be accessed from three (3) workstations.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Client observation:</strong> The installed LIMS has the following shortfalls:</td>
</tr>
<tr>
<td>Cannot monitor laboratory activities and performance of equipment from sample reception to the reporting of results because the LIMS is in the form of folder capable of monitoring only sample reception and method codes. Due to this shortfall GST cannot acquire accreditation in the analysis of gold and base metals; The method codes and operating procures are in the format that cannot be updated</td>
</tr>
<tr>
<td><strong>Response from the consultants:</strong> The installed LIMS is not a full package and that, it is not possible to update. The consultant reported that software is available in various sizes in the market depending on the activities. There is a need for GST to acquire the full package.</td>
</tr>
<tr>
<td><strong>Way forward:</strong> GST should find resources to develop the LIMS by acquiring the full package.</td>
</tr>
</tbody>
</table>

*Source: Minutes of the 3rd Annual Review Meeting, held at Dodoma on 14th February 2007*

The laboratory is currently undergoing renovations as the roof leaks. Most of the equipment has therefore been removed into separate storage space and the consultants could therefore not see the laboratory in fully operational condition. The LIMS was reportedly not working and the consultants could only see one workstation.

### 6.3 Evaluation of the Laboratory

#### 6.3.1 Assessment by Stakeholders and Nordic Company(ies)

Unfortunately, the building has not been renovated sufficiently to accommodate the equipment in a safe and secure fashion. The roof has been leaking (despite financing from the World Bank to renovate the roof) and the entire building is undergoing substantial repairs. The current Government budget is allocating funds towards this refurbishment. However, in the meantime the equipment is suffering as can be seen from attached photos.

The stakeholder workshops which were held in Dodoma and MEM on April 16th and April 21st respectively provided feedback from key stakeholders, as follows:

**Positive:**
- Lab tests of poor artisan/small miners collected at zonal/resident offices taken to GST for processing
- Procurement of laboratory equipment and consumables went well during Project time.
- Equipment was procured, installed and operated to analyze samples.
Not so positive:
- Due to the conditions of the buildings and the uncontrolled procedures in the laboratory test results are not reliable
- Previously the laboratory didn’t have access to the correct chemicals – don’t know the status now
- Maintenance and servicing of purchased equipment is of major concern.
- There is a need for training on troubleshooting and minor servicing of equipment, which is currently not adequately conducted. Some equipment is entirely dependent on servicing by companies in S.A., which is very expensive and for which there is no budget.
- The laboratory was not enhanced to a level of gaining- international recognition (Accreditation). (The limitation of poor building and environment for laboratory services was not mentioned). (Consultants’ comments: this may seem to be an overambitious with considering the limitation in recurrent funding and other constraints)
- Enough equipment was procured but too little training on operations, care and use was provided;
- GST wanted to undertake the sourcing and procurement of equipment to be managed by GST. However, the project bound by donors’ conditions on purchase of equipment

Feedback was received from GTK who supplied an extensive response to the stakeholders’ comments. Please see below and in annex 3.

6.3.2 Efficacy

The up grading of the laboratory may contribute towards an improvement in the mining sector and the quality of interpretation of the mapping elaborated by the GST once the building has been renovated and equipment reinstalled and functioning.

6.3.3 Efficiency

The efficiency is rated as less satisfactory as the investments made in equipment are jeopardized by the lack of required maintenance of equipment and allocation of sufficient recurrent resources. There are several issues which require attention: the building is still not ready to receive the equipment as it is being renovated. As mentioned above there are needs for continued servicing of equipment. The Director states that there is additional need for maintenance contract services and training on minor repairs and upkeep of the equipment, as well as procurement of relatively expensive laboratory chemicals. The consultants requested to see a profit and loss statement, in order to make an assessment of current and future revenue and expenditure (recurrent costs) streams of the laboratory. However, it was not possible to access such statement during the visit to GST.

6.3.4 Impact

There has been some impact – equipment has been procured and delivered – but, the future operations and maintenance of it has not been ensured as yet. A number of laboratory testing has been done with the equipment, mostly for GST, but the real impact will come once the building is completed and the quality of tests may be guaranteed.
6.3.5 Sustainability

The sustainability of investments made in the procurement of equipment requires assurance of future operations and maintenance of the equipment. This includes staff with required capacity to provide the services and upkeep of the equipment, as well as budgetary allocation of resources to provide required after sales services, maintenance, procurement of spare parts and chemicals and supplies for the laboratory.

Institutional sustainability

The Director signals an urgent need for training, allocation of funds for maintenance contracts and upkeep. Currently, she doesn’t know the potential sources of such funds. The Government’s Recurrent State Budget is a potential source, but there are serious limitations to available funding. Another source may be the new World Bank funded project may be a source for such recurrent costs.

Financial and budgetary sustainability; macro economic stability, revenue generation and stability of commodity prices

GST and the laboratory are still using a budget line in the State Budget under the Ministry of Energy and Mines. The consultants could not receive any detailed information on the financial revenues and expenditures for GST and/or budgeting for current or future investment and recurrent costs. A list of “revenues” for some years was received, but this was not sufficient to do a full assessment/analysis of GST.

Technological sustainability

The technical sustainability of the equipment is in jeopardy. The renovations will cause dust and other inconveniences for the equipment and likely damage some equipment. The Director recommends that substantial additional capacity strengthening in terms of training and maintenance of equipments, as well as resources for after services in accordance with procurement and contracts are required to up keep the equipment.

Following are observations are made by GTK on the current state of the laboratory: The laboratory building was repaired and upgraded to acceptable laboratory standards for basic work during the WB project. However, it was noted that even if laboratory activities were running during the early days of the NDF project, some shortcomings still existed but not at such a level that they hindered basic functions. It should be especially noted that existing AAS equipment was working and GST insisted on procurement of additional AAS instrumentation; the existing laboratory premises did not exclude this (ceramic tiles are not essential regarding this issue and the roof was not leaking in this space).

The petrophysical laboratory is not a laboratory in the proper laboratory meaning and can be placed in any normal office space. The petrophysical laboratory was placed in the laboratory building because of suitable free space and no problems connected with premises were encountered in running the laboratory during the project period. Further it should be noticed that in case of break down of existing laboratory premises, the petrophysical instrument setup can be moved very easily to another location.

The XRF instrument was procured according to requirements by the GST. It should be separately noted that according to the claims by GST, a fusion machine was regarded necessary. However, the consultant did not agree on this, an issue which caused some dispute. The procured instrument is a bench top model which can be moved from one place to another whenever needed for example to some office space if problems are encountered regarding laboratory premises.

Regarding the water supply we can give the following comments: the matter dealt with supply of clean (distilled) water which was thought to be very limited, i.e. not enough for full laboratory activities. However this did not affect running of any of the instruments procured by project. For the purpose of improving the clean water supply for ensuring versatile laboratory activities, the project procured a purification system based on special filtering technique; however, this system requires a certain minimum water pressure which could not be reached using the piped water system in the GST laboratory building. Therefore, already existing additional pumping equipment was recommended to be shifted to properly raise the pressure, an issue that GST did not find of that high a priority.
As a conclusion comment we want to stress that at the end of the project all instrumentation procured by the project was properly running and not affected by poor laboratory premises.

### 6.3.6 Replicability and application of best practice

This experience cannot be put forward as a ‘good practice’, but rather a lesson learnt to make sure that the proper refurbishment of the building is fully done before the supplying of equipment.

### 6.3.7 Cross Cutting Issues: climate change, environmental management, gender

Tanzania’s gender policy appears to be addressed as there appear to be a good balance of employing both men and women in the institutions. Several women are employed at GST and the Director of the Laboratory is a woman.

### 6.3.8 Rating of Evaluation Criteria

![SUMMARY EVALUATION CRITERIA](image)

<table>
<thead>
<tr>
<th>Component B laboratory</th>
<th>Very Good</th>
<th>Good</th>
<th>Neutral</th>
<th>Somewhat unsatisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
</table>

This sub component scores at the best neutral, but on three criteria it scores negative. The major concern is the fact that equipment has been purchased prior to the refurbishment/establishment of a building with minimal conditions for proper management and operations of some of the equipment, as well as the fact that future required recurrent costs have not been secured. Impact includes the procurement of equipment and some training. It is unknown how the future operations and maintenance costs will be acquired as the consultants had not had any access to a revenue and expenditure analysis over time and expected revenues from sale of services, not only to the public sector, but also to the private sector.

### 6.4 Conclusions/Lessons Learned and Recommendations

Some of the equipment is in risk of malfunction as long as they are not placed into a suitable environment/building. Also, it is necessary to provide for required recurrent budget for the maintenance of the equipment, or it will break down and will have to be written off as a loss to GST. As this is a loan to Tanzania, the fact that resources are not used optimally and adequately maintained signifies a loss to the country. It is not clear how the accounting is
done of assets, depreciation and analysis of revenues and expenditures, as such statements were not seen by the consultants.

Realistic assessment of revenue and expenditure streams and exploration of the affordability may be done already at the planning stage. A strategy on the provision of sustainable mining services should be developed for GST and the laboratory.

As a general comment to both project components, it is recommended to start with an institutional assessment and assessment of all staff in the institution. Subsequently, the development of a manpower development plan will guide all training and capacity strengthening activities. Clearly signal future requirements for future up keep and maintenance of the equipment for outside/external resources to maintain and service the equipment, including the identification of suitable service providers.

7. **Component E: Establishment of Mining Cadastral Information Management System (MCIMS)**

7.1 **Description and Objective**

The primary objective of the component was to develop, install and deploy the MCIMS so that it allowed MEM to:

1. Process license and permit applications efficiently and in accordance with the provisions of the Mining Act (MA) of 1998 and Mining Regulations (MR) of 1999
2. Systematically monitor the operations of all license holders and their compliance with the mineral sector policy, the MA and the MR
3. Take prompt action to ensure compliance by all license holders
4. Sustain the MCIMS and the capabilities that it provides

The following sub components were carried out under this component:

- E.1: Institutional Capacity Building
- E.2: Establishment of a Mineral Rights, Trading License and Permit Inventory
- E.3: Field Verification of Mineral Rights
- E.4: Amendment of the Mining Act and Mining Regulations
- E.5: Deployment of the MCIMS

7.2 **Planning and Implementation**

Figure 2 in Annex 2 shows the planning and implementation schedule for the Component. Geological Survey of Denmark and Greenland (GEUS) were contracted in 2002 by the World Bank to develop the strategy for the implementation of a new computerized MCIMS. The study "Consultancy for the Design of a Mining Cadastre Development Strategy" was published in March 2004.

The component was subsequently implemented by an Association of companies, which included: Swedish Geological (Hifab AB), Sweden, Swedesurvey AB, also Swedish and Spatial Dimension (PTY) of South Africa. Local support was provided by InfoBridge Consultants Ltd of Dar es Salaam, Tanzania. The contract was carried out between April 2005 and March 2007. An extension between the Government of Tanzania and the Association was awarded from April to December 2007.

The study Mineral Resources Institutional Assessment, i.e. the so called “Ortega Report” - Diagnose of the Current Mining Cadastre System contains an opportune analysis and a number
of recommendations for a cost effective planning and implementation of the Mining Cadastre in Tanzania.

An observation is as follows\(^6\):

... These small surfaces are corresponding to the initial prospecting period and they must be obligatorily reduced when the licenses are renewed, according to the section 29, sub-section 3 of the Act. This obligatory relinquishment is introducing serious negative factor in the cadastre management because:

- It is reducing still more the dimensions of the licenses, which are already small by comparison to the international standards.
- In the case of very successful prospecting projects may affect the rights of the titleholder in order to maintain the property over the discovered resources, introducing serious potential risks and discouraging the prospecting investments.
- As result of this relinquishment methodology, the number of licenses is always artificially increased, making (unnecessarily) much more difficult the cadastre management, as well as the titleholder licenses maintenance.

Furthermore, the same Mineral Resources Institutional Assessment, Diagnosis of the Current Mining Cadastre System\(^7\) states:

... The organization of the cadastral activities may be improved. It seems that the volume of the current cadastral activity is not enough (according to the dimensions of the country, because the exact number of existing licenses and applications cannot be provided by the existing computer system), too small to justify the existence of 20 decentralized cadastre offices. From the international experience point of view, in other countries with equivalent or even bigger size, the distribution of the de-concentrated agencies is much more simple (as in Madagascar, Mozambique or Peru for instance), where between four and eight decentralized offices are enough to efficiently manage the cadastral activity of the whole country.

Other very important aspects to be considered is the sustainability. A structure based on six regional or zone offices is much more easily sustainable with the own resources generated by the administration of the mineral rights. And it is also obvious that this sustainability is not only affecting the economic aspects, but also the practical functionality and the technical capacity: it is much more feasible to maintain eight fully operational offices (fully equipped and integrated by well trained teams), instead that 20 dispersed offices. Based on the international experience, it seems adequate for the new Tanzanian Cadastre to suggest a de-concentrated structure with 8 Zone Offices linked by Internet to a Central Cadastre Headquarters Office. In principle, the roles of each type of office can be defined as follows:

a) Central Office, responsible for the coordination (including the control of the chronicle order for new applications) of the cadastral activity with jurisdiction for processing applications over the whole country. Applications for mineral rights in any area of Tanzania may be presented here.

b) Zone offices, responsible only for the reception and registering of the applications for mineral rights for corresponding to the jurisdiction of the Zone.

It is technically feasible to allow the Zone offices the reception of any type of licenses, taking under consideration that the guarantee the principle “first come, first served” can be guaranteed by the internet linking between Central and Zone offices, with operational procedures specifically designed. To reach this objective, the Central and Zone Offices must be fully equipped and computerized, inter-linked by Internet and integrated by a highly specialized and trained team. This type of system has been

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\(^6\) International Institutional Consulting SL: Mineral Resources Institutional Assessment, June 2004, pages 19

\(^7\) International Institutional Consulting SL: Mineral Resources Institutional Assessment, June 2004, pages 11-12
recently installed in some countries as Peru, Ecuador and Madagascar, where it is working perfectly, and it is currently being implemented in Mozambique

7.3 Evaluation Mining Cadastre Information Management System (MCIMS):

7.3.1 Assessment by stakeholders and Nordic company(ies)

A number of observations were made in the stakeholder workshops. In addition, currently the following technical problems are reported by the MEM when operating the MCIMS

Table 9: Problems with the MCIMS identified at MEM

<table>
<thead>
<tr>
<th>PROBLEMS WITH THE SYSTEM (Mining Cadastre Information Management System):</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. System doesn’t recognize an area with small size e.g. Dimension of 50m X 50m. It prompts with error message “area is too small possibly it is a silver” hence hindering processing of PL and PML application. This occurs during running validation.</td>
</tr>
<tr>
<td>2. Sometimes during running validation the system gives out two shapes simultaneously, while it is supposed to give out one shape.</td>
</tr>
<tr>
<td>3. Problem with generating a license. Sometimes it happen the discrepancy between an offer and generated license. i.e. coordinate displayed on the offer differs from coordinate generated from a license. Therefore needs manual rectification.</td>
</tr>
<tr>
<td>4. Printing official documents letter of offer or license documents especially in the modified application. The system produce only one coordinate instead of producing the applicant coordinates.</td>
</tr>
<tr>
<td>5. Incomplete workflows of Retention and Conversion</td>
</tr>
<tr>
<td>6. System doesn’t show the relationship between workflows i.e. one action from the other.</td>
</tr>
<tr>
<td>7. Problem in running validation in renewal applications. System doesn’t remember previous shape in that way result into no shape in result shape and comparison shape.</td>
</tr>
<tr>
<td>8. Confusion in viewing a license and application. System doesn’t take you to the intended location. For instance you intend to view a polygon in “Dodoma” the system takes you to “Mwanza”.</td>
</tr>
<tr>
<td>9. Lack of training to the staff subsequent to implementing a new version. At least there should be a transition period in adopting the new version from the old one.</td>
</tr>
<tr>
<td>10. Reliance of support from consultancy in South Africa. This led to delays during system break down as all support is solicited remotely from Cape Town.</td>
</tr>
<tr>
<td>11. Most of upcountry offices do not access the System subsequent to the upgrading of the new version.</td>
</tr>
<tr>
<td>12. Consultant did not specify the maximum number of user to work on the system concurrently.</td>
</tr>
<tr>
<td>13. The system does not show the history of an area especially in the case of relinquished area during renewal of the license.</td>
</tr>
<tr>
<td>14. The system has limitation in saving information. Example when running validation the output result may have more the 17 parts when you try to save the results the system do crashed.</td>
</tr>
<tr>
<td>15. The System has limitation in finding open space within the area with valid license. If there are many valid licenses inscribed the system crushed.</td>
</tr>
<tr>
<td>16. There are ID’s in the System with empty attributes. There is no reason for the existence of those objects ID’s similar to the license.</td>
</tr>
</tbody>
</table>

The observations in the stakeholder meetings were concentrated towards this component more frequently than towards anyone else. This shows the very high expectations demonstrated by the public as well as the private sectors. The comments also testify to a large number of structural problems still remaining to be addressed and solved. Comments were many as may be seen in Annex 3. Here only a few are shown:
Positive:
- The system facilitates effective applications processing – a Computerized Licensing System has been established;
- There are some improvements with the FlexiCadastre system: for example it reduces some delays
- It contributes to reduce unnecessary conflicts between small mining customers and with large mining customers;
- It facilitates retrieval of processed data and monitoring
- It works in the MEM Dar es Salaam, but it doesn’t even work in the Zonal Office in Dar es Salaam. The officer has to take the applications from his office and have his technical assistant input the data into the system in MEM.
- It has great potential for good data management:
  - The system works well for few users
  - Overlaps of licenses solved
  - Processing trend increases
  - Revenue collection increase
  - Transparency is improved

Not so positive:

Observations by stakeholders at workshop at MEM – central level
- *The Cadastre is not sick, it is sleeping* – this expresses the anticipated potential of the system.
- The Cadastre is a miserable failure - The system is unreliable
- Licenses are not processed for 2-3 years;
- The GPSs, which were provided by the project to the Zonal officers have not worked and have not been repaired;
- There are several delays in the procedure: for example at the expiration of a license it goes to the Minister’s office for stamping; There is overlapping of licenses; There are disputes on whether there are any overlaps. The minister/commissioner is granting/signing licenses
- There is a need to understand what can be achieved in the absence of an improved legal system.
  - Various issues need to be addressed in the Licensing and Mineral Rights unit and the Management Information System: Indicators, such as number of applications received and processed per day/month should be part of an internal management information system and should be reported in the Project’s Progress reports;
  - # of staff involved over time in the process is another indicator to be used internally as well as in project reporting; There are 600 applications per day from small scale miners and approx 200 applications from large scale miners

It was suggested that an analysis of relevant Issues should be structured according to following issues:
- the functionality of the system
- the transformation of the system from manual into computerized
- hardware issues
- support, including management contract
- software issues

“First come first served” principle is not working. 
**Various technical problems were mentioned:** There are many problems to maintain equipment working:
- For example, it took 45 days to get a printer serviced. If furthermore took 2 months to negotiate the procurement of the server.
• The antenna is not working
• There is a lack of powerful antivirus
• The system is too slow to provide an initiative for entering new and old data
• System lacks good administration system
• There seem to be institutional problems for the cadastral system to meet intended objectives

The mining cadastre is not well known to users. There is no user friendly information in English and Swahili on the system. Neither the license office nor the zonal/residential offices have anything of written information on the use and application of the cadastre to miners – above all to the small and artisan miners.

There is no control mechanism in MEM to verify the boundaries of the plots and licenses. Infobridge did such a control and verification during the project implementation, but there are concerns on what is happening now. For example, the Ministry of Land has high credibility amongst users, as they go out in the field and control all boundaries before registration. In addition to this there is a problem with reliability on the GPS equipment being used. There are concerns that the accuracy of measuring is not adequate and that for small miners who have very small plots, a measuring error of up to 15 meters may be quite damaging.

Against strong advice from Consultant and from experts’ reports, Government went ahead and ordered a roll out of the FlexiCadastre to 21 rural locations – instead of the recommended maximum of 6-8 zonal offices. Most – almost all of these – do not work for a number of reasons, including:
• Network problems
• Electricity with frequent power cuts and absence of a generator; even with access to a generator, MEM in Dar es Salaam doesn’t have a generator and is also experiencing frequent power cuts. At the zonal and residents offices there is a lack of equipment, like computers, printers etc. including consumables.
• Mining cadastre is not working according to Terms of Reference’s requirements:
• Poor connectivity to regional office
• Frequently system is crashing

There has been inadequate training on the use of the Mining Cadastre. In addition, not all mineral rights information is available in the mining cadastral system and not all the granted licenses, especially the PMLs, are in the system.

**Observations by the stakeholders in Dodoma, which included the small and artisan miners. There were only negative observations at this level:**

- Flexi Cadastre not very effective (at Dodoma level). It is often un-available on the network at Resident and Zonal Mine Offices.

- It is very difficult for small scale/artisan miners to get access to areas to mine. There are people (often in Dar es Salaam and Asians) who have acquired the PL for big areas, which they are not developing. When small miners/artisans have discovered potential areas for mining and when they apply for the PL (Prospecting License) or PML (Primary Mining Licenses) they are not successful in most cases;

- Many small miners/artisan miners do not know of the existence of the Mining Cadastre process;

- There appear to be two parallel processes in existence for the acquisition of a license for the small miners: the “old” and the “new” system. The new system is not working and it is anyway unknown to the small miners.
The “old” process, which is still used, is very bureaucratic: small miners normally submit the application form (attached with site map) to a nearby mine office (Zonal/RMO). A zonal/residential mine officer upon receiving the application will arrange the site visit to check the intended site for mining. The zonal officer writes the recommendation to the Commissioner. The Commissioner thereafter uses this recommendation as a basis for the decision. While the small miner/artisan miner is still waiting for the reply from the Mineral commissioner, they are told by the Zonal/residential Officer that the area asked for was ready acquired (by another PL). The small miners therefore suspect that as they were not previously informed that this areas was taken, that somebody has bypass them in the sequence of processing the lot and/or that the information has been inappropriately used, such that a rich person with connections has misused their discovery. They therefore accuse the processors of the information of not following strictly the guidelines.

Unfortunately these – often inappropriately acquired – licenses for areas, are in most cases acquired by able/rich people who keep the license for long time without developing the areas thereby hindering small and artisan miners accessing land.

Recommended solution: limit the time to use the license and create a watertight system based on first come first serve – guaranteeing confidentiality to the person who puts in an application (he really wants to be sure that it will not be taken by somebody with contacts and connections higher up).

Not sufficient information to stakeholders on the benefits of project results, existence and use of maps and the existence of the mining caster and how it should function - particularly at district level.

There is no initiative on the part of the managers of the mining cadastre and the GST to provide information on services “downstream” – i.e. to district and ward levels. The small miners mentioned that they are using old maps from 1963, but they don’t know that there are newer maps available in GST.

Difficult to enforce the regulations

First come first served licenses doesn’t work. Minister overrides the registrations done at the zonal/residential level. There may also be problems at the zonal/residential level itself.

Other problems which give rise to conflicts of land use include the fact that the Ministry of Agriculture issues licenses for farming of bio fuels – bad use of fertile land; overlaps with mining licenses; and other problems of lack of coordination.

Need for streamlining of licensing procedure Minister/Commissioner/zonal and residential officers. The miners recommend that the issuance/approval of the license for small mining should be done at the zonal/residential office. Several reasons: to eliminate corruption and reduce bureaucracy.

Much land is owned by District Council and they must be involved at some time in the process.

Bureaucratic- takes time – they loose the opportunity to get a license, despite costs of locating area and submission of fees for application (refundable?)
7.3.2 Relevance

It is clear that these activities are highly relevant for strengthening the public sector in facilitating the licensing procedures and in providing an optimum environment for an orderly and transparent support to private – and public - sector investments in the mining sector. There is no doubt that there are very high expectations from stakeholders on the system.

There is often an unrealistic expectation on behalf of the government that “State of the Art” technology and systems may be easily replicated from a developed/industrialized country into the Tanzanian context and that everything will be resolved by “training in-house”. There is little understanding of the need for a steady and dependable electricity supply with minimal power fluctuations, which requires a backup generator both at central and zonal levels. Furthermore, the zonal and residential offices need to have access to suitable equipment, such as computers, printers, etc to be effective and capacity to use and operate them. Furthermore, there is a need for continuous routine maintenance by staff and continuous upkeep maintenance by professional technicians, and the absolute need to budget for recurrent costs in the State Budget.

7.3.3 Efficacy

This criterion assesses whether the “immediate objectives” – in this project the component’s sub element revision of the Mining Act, the MCIMS will lead to the objective of more efficient and transparent management of the licensing of mineral rights.

It is very likely that this will happen, but the time frames are long term and have not been fully reached within the time of the project.

7.3.4 Efficiency

The following issues lead to low scoring on the efficiency criteria:

- The roll out of the system to 21 decentralized offices despite recommendations to take on an incremental approach and limiting the roll out to a maximum of 8 zonal offices undermines the efficiency and sustainability of the system. Currently, the system is not working – either in the central offices or in the zonal and sub zonal offices. This makes the ‘first come, first served’ condition non functional and MEM looses credibility as long as the system is not performing.

- The recommendations for the revision of the Mining Act of 1998 and its Regulations of 1999, which constituted part of the support under this component has not had the anticipated impact. The anticipated ratification by the Parliament has not taken place. Instead a number of high level studies have been undertaken by the Government which has resulted in a revised version of the Mineral Policy of 1997. There is no mention in the documentation on efforts to liaise with these high level commissions and committees in order to provide an input into and to impact on the process. Work done, however, will to a large extent still be relevant in order to have a fully positive environment for the MCIMS. However, the analytical work done for the revision of the Mining Act and the Regulations will have to be revised again after the Mineral Policy has been approved.

- The fact that the computerized system has been implemented prior to the approval of the revision of the Mining Law and its regulations means that the system will have to be revised again after such legislation has been enacted.

- The study elaborated by International Institutional Consulting SL: Mineral Resources Institutional Assessment: Diagnose of the Current Mining Cadastre System, June 2004
was financed by the World Bank and constitutes an opportune study, which contains critical elements for an orderly implementation of the mining cadastre. These have not always been taken into consideration – for example the incremental and limited approach to rolling out of the system to the decentralized levels.

- The ministry hasn’t employed the required personnel – MCIMS System Administrator - recommended by the Swedish Geological AB – in order to maintain the system.

### 7.3.5 Impact

Impact of the MCIMS has been considerable. The provided support is as follows\(^8\): The new MCIMS is a centrally located database at the Licensing and Mineral Rights Registry sub-section (LMR) in Dar es Salaam. A Wide Area Network (WAN) connects the system to 8 zones and 11 sub zonal offices. The MCIMS consists of: an Intranet-based MCIMS application; an Intranet-based GIS application embedded in the MCIMS application; a centralized SQL server database; and a database layer to allow for the storage of vector and raster geospatial information in the SQL database.

However, the system is still not fully functional and the intention to extend the system to 21 offices is not possible in the short run. There is considerable need to address structural problems, requirements of training and selection of personnel who can manage the system. The activities, which were funded by NDF and not concluded during this period, will be included in the new World Bank funded project Sustainable Management of Mineral Resources to start in July 2009.

### 7.3.6 Sustainability

The final report elaborated by Swedish Geological highlights following weaknesses and signals the need for further long term support of the system:

Following are some issues that might have some impact on the sustainability of the new MCIMS:

- Lack of a MCIMS system administrator
- Lack of MEM ICT management
- Lack of equipment in the regional offices
- High communication costs
- Lack of uniform procedures and tools

### 3.1.1 Lack of a MCIMS Administrator

As mentioned in Chapter 2, the present situation where the Licensing Officer for Primary Licenses assumes the role of the MCIMS System Administrator, while maintaining his responsibilities as licensing officer, can only be considered a temporary solution and may, if not solved, affect the sustainability of the project.

It is important that MCIMS is properly administered to guarantee the functionality and security of the system. Although it is more important for the MCIMS System Administrator to be highly knowledgeable about the manual and computerized licensing and registry functions than being an academically trained IT-person, being a MCIMS System Administrator is in principle a full time work that is very difficult to combine with the responsibilities and work-load of a licensing officer.

The MCIMS System Administrator should not only be responsible for the smooth daily operation of the MCIMS but shall also provide user support, be able to provide specialized outputs from the system (e.g. non-standard reports etc requested by the Minister), train new personnel, make and supervise working

\(^8\) Swedish Geological, Spatial Dimension, InfoBridge, Swedesurvey: Establishment of a Mining Cadastral Information Management System in Tanzania, final Report, January 25, 2008, page 1
procedures for the Regional offices, update workflows in the system if the legal basis or procedures are modified etc. etc.

3.1.2 Lack of MEM ICT Management

During the course of the project, the Consultant has insisted on the necessity of creating an ICT department at MEM which is a prerequisite for the long-term sustainability of the MCIMS. So far this has not been achieved and maintenance and administration of the WAN and LAN have been carried out by local consultants. Many other duties normally handled by an ICT-department, such as maintenance of servers, have until now been carried out by the acting MCIMS SA and the consultant for the MCIMS servers.

Maintenance of communications between the LMR and the 20 regional offices is one of the chief responsibilities of an ICT department. No staff is currently available for providing service to the regional offices and, unless corrected, the system may eventually break down.

3.1.3 Lack of equipment in the Regional Offices

As mentioned before, the procurement of equipment to the Regional Offices, as recommended by the Consultant, was not realized during the Project time. It is the Consultant’s opinion that each Regional office must have a sufficient number of computers to provide redundancy and also have appropriate printers etc. to guarantee the MCIMS functionality as well as service to the clients.

3.1.4 High Communication Costs

Communications costs maintaining all 20 regional offices on-line and fully participating in the system requires considerable funding over the next few years. It is estimated that the communications cost to keep all 20 regional offices on-line is about USD 12,000 per month.

It is important to demonstrate that the investments in a new MCIMS are worth the cost of maintenance. The new cadastral system should generate considerable incomes from the state that could not be recovered under the old, manual system.

A fully functional MCIMS requires that all 20 regional offices are on-line every day and uninterrupted communications can at all times be maintained with the LMR in Dar es Salaam. This is a prerequisite for upholding the principle of “first come, first served” which is one of the pillars of the whole system. Off-line solutions can only be accepted only for short periods normally not exceeding a day. In that case applications submitted need to be faxed the same day to the LMR, and the LMR via fax communicate any new applications or change of status of any large-scale licenses.

3.1.5 Lack of uniform Procedures and Tools

It is of utmost importance that the same procedures are carried out at all 20 regional offices. The consultant has noted some lack of uniformity in procedures between regional offices as well as certain resistance at some of the regional offices in adapting to the new system.

Some of these observations might emanate from the fact that the regional offices, even when working with Mining Cadastre matters, are not obliged to take orders or instructions from the LMR or the Minerals Development Section, underlining the importance of an appropriate coordination between the Mining Section and Minerals Development Section in these questions.

3.2. Systems

A long-term agreement providing support will be needed for several years from now. Minor bugs in the system will have to be adjusted, the current system up-graded to new versions, adjustments made to the system and workshops when the recommended amendments to the Mining Act and Mining Regulations are implemented.

To this list may be added the number of issues which are currently affecting the operations of the system:

- Frequent power cuts and lack of a generator (which jeopardizes the safe and continuous operations and the well-being of the equipment) in the central office in Dar
es Salaam; this is an even more serious problem in the zonal offices. Even the zonal office in Dar es Salaam has to physically bring the applications into the head office for processing.

• The system ‘freezes’ when there are many users at the same time.
• The zonal and sub zonal offices are not connected and all registrations have to be transported to the office in Dar es Salaam – the basic principle of ‘First Come, First Served’ is therefore jeopardized.
• The back up data should be kept in a separate building. However, the server needs more space in order to have adequate air circulation;

**Institutional sustainability**

The required staff to manage the system has not been recruited and this undermines the ability of the MEM to maintain and operate the MCIMS.

**Financial and budgetary sustainability; macro economic stability, revenue generation and stability of commodity prices**

The investments in sophisticated technology were made without any consideration of different investment and phasing options. The Consultants cannot find any financial analysis of the investments – generation of expenditure and revenue streams over time – or cost benefit analysis of different investment options. This includes not only an assessment of the investment costs, but also the revenue/expenditure streams required in order to address the operations and maintenance of the investments. For example, the rolling out of the MCIMS into 21 zonal offices implies very high investment costs, but also considerable annual maintenance and operations costs. Also there was no analysis of different scenarios of phasing in the systems incrementally, i.e. start small with a pilot project, have the pilot evaluated prior to replication of the project activities into other zones and grow as the system becomes fully operational in the centre and subsequently in the pilot project or a few Zones. Replication would only take place once the system is tested and fully functional and further replication would be done incrementally as well, making sure that the system works and that the required expenditures for operations are forthcoming/budgeted for.

The need to address financial and economic implications of choice of technologies and methodologies need considerable additional attention. Also, a realistic assessment of the human resources capacities in the zonal offices – and requirements in terms of restructuring and/or training – is necessary prior to initiating the decentralization.

1. The two options of decentralizing the system into a) 8 zonal offices or b) 21 zones and residential offices should go through a comprehensive analysis of investment costs, but also of future implications for the Ministry’s recurrent budget over future years. Advantages and disadvantages of the two options should also be systematically assessed – this includes need for energy/generator, realistic assessment of training needs, needs for equipment. An incremental approach to the project implementation should be analyzed, rather than – clearly against international best practice – trying to include 21 mostly rural systems in one go.

2. The decision to implement the system in all regional offices at the same time will make the system more expensive, more difficult to maintain and operate and may jeopardize the functioning of the system. This is happening currently, which implies that the ministry is loosing credibility and the rate of complaints are increasing.

3. Substantial funds have been expended on the development of recommendations on amending the Mineral Act and the Regulations, letting the Mineral Policy remain intact. Currently, the ratification process at the Parliament is not progressing as a decision has been made to revise the Mineral Policy instead. This will considerably delay the modernization of the Mineral Act and Regulations and the recommendations elaborated
under the project will have to be revised again in future once the Mineral Policy has been approved.

4. What will be the recurrent costs of communication for the central office and the zonal and residential offices, a management maintenance contract with the Spatial Dimensions, etc?

5. Tanzania has signed on to the Extractive Industries Transparency Initiative (EITI) and this will have a potential for exploring revenue flow provided by the private (and public) sector, which may be redirected towards investing in and up keeping the mining sector services.

**Regulatory and policy sustainability**

The recommended amendments to the Mining Law and its regulations have not been approved in Parliament. As mentioned above the Mineral Policy is being reviewed and the Strategic Environmental Impact Assessment (SEIA) is currently undertaken by the National Environmental Management Council (NEMC).

**Technological sustainability**

There are substantial challenges to the transfer of “State of the Art” technologies from developed into developing countries. As seen above, there is need to address and mitigate a number of technical issues before the transfer of such technologies, including ensuring a stable and reliable energy supply for operations of computers and databases, need for parallel operations of systems before solely relying on new computerized systems, the need for pilot testing of new systems before replication into larger systems, capacity strengthening, etc. The current experience should provide a basis for lesson learning of future similar projects.

**Environmental sustainability; approach to Corporate Social Responsibility issues; application of best practices on sustainable mining in the project cycle**

The modernization of the licensing process is an example of best practice. Also the definition and development of a new Mining Law is compatible international best practices.

However, in several instances best international practices are not applied:

- It is customary to apply a pilot phase and an incremental approach when introducing new technologies;
- Applying an incremental approach to rolling out the complete system to the zones and sub zones
- Undertaking a solid financial analysis in order to assess financial viability and provision of annual resources for operations and maintenance

**7.3.7 Replicability and application of best practice**

FlexCadastre is a system which is introduced in other neighbouring countries. As seen from this project experience, there is a need to review lessons and ensure that such lessons are applied in similar country situations and that measures of mitigation are taken in a timely manner.

**7.3.8 Cross Cutting Issues: climate change, environmental management, gender**

Not addressed by the project.
7.3.9 Rating of evaluation criteria

This is a critical and highly relevant service to the public in order to have an orderly development of the licensing process and of the use of the natural resources in Tanzania. Once the system is functioning it will be high on the efficacy criteria as well. Impact has been considerable with capacity strengthening, the Mineral rights, trading license and permit inventory, field verification of mineral rights and installation of the FlexiCadastre system. The efficiency score is quite low, as costs could have been contained - decision makers in the MEM didn’t take the expert advice to limit roll-out in provinces to the 8 zonal offices initially – instead of rolling out to all 21. This has caused serious complications and added costs to the process. More support is required before the system is technically sustainable.

Project planning has been over-optimistic. Unfortunately, the support provided to elaborate recommendations concerning the structural problems with the current Mining Act and Regulations which allow the Minister and higher Ministry officials to by pass the system jeopardizes the basic principle of “First Come, First Served” has not been resolved by the government. This, in turn, jeopardizes the credibility of the system.

Other technical concerns, such as internet, unreliable electricity due to frequent power cuts, lack of a back up generator even at the central offices in Dar es Salaam, system maintenance, and other factors contribute to low efficiency and low sustainability. The political will to support the basic principals of a cadastre is a condition for functioning.

The FlexiCadastre is already being replicated into other countries, such as Mozambique and Uganda. For the Tanzania country context, there is further need to address the system.

7.4 Conclusions and Recommendations

There is strong criticism from users on the MCIMS and it is currently loosing credibility. The decision was taken to roll out the MCIMS in 21 decentralized locations against the clear recommendations by various experts, including the Consultant, to limit roll out to maximum 8 locations. The limitations in infrastructure, dependable electricity (need for generators), internet, lack of basic equipment such as computers and printers, many/most of the Zonal and Residential offices are not working.

A critical problem of this component is the increased recurrent costs to operate the system effectively:

- Additional personnel requirements, including a systems administrator
- A management contract for the FlexiCadastre
- Additional recurrent costs for internet, servicing of equipment, electricity, etc.
- Additional support and investments in the zonal offices

The component should be addressed more as a “development” project, rather than just application of a “State of the Art” computerized program within a country context.

8. Sub Component Support to the Legal Framework – Mining Act and Regulations

8.1 Description and Objective

The Sub component E.4: Amendment of the Mining Act and Mining Regulations specifically addressed the need to review the legal context in order to make the MCIMS effective. The objective of the revision of the Mineral Policy of 2008 is to increase the mineral sector contribution to the GDP and address poverty alleviation by integrating the mining industry with the rest of the economy. Other objectives are:

(i) The Economic environment improved
(ii) The fiscal regime reviewed;
(iii) The legal framework strengthened;
(iv) The institutional framework strengthened;
(v) Participation of Government and Tanzanians in mining activities established;
(vi) Small scale mining developed;
(vii) Land compensation procedures improved;
(viii) Infrastructure to support mining activities improved and developed;
(ix) Value addition of minerals promoted and developed;
(x) Human resources required in the mineral sector promoted and developed;
(xi) Public awareness on mining activities improved;
(xii) Marketing of minerals developed and promoted; and
(xiii) Environmental management, health and safety in mining activities improved;

The chart in Figure 5 below clearly shows the relevant reports and studies elaborated parallel to the project. Some are Government financed studies and other reports are supported by other actors. The Mineral Policy was elaborated in 1997 and underpinned the Mineral Act from 1998 and the Regulations from 1999. As may be seen from the chart, several studies were carried out assessing the weaknesses in the current policy, Mining Act and its Regulations more or less in parallel with the project.

8.2 Planning and Implementation

9 the Mineral Policy of 2008
### Figure 5. Sequencing of Mineral Act, Regulations and Mineral Policy as well as NDF support provided

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<td>Helene de Neuville-An Analysis of Tanzania's Mining Law and Regulations</td>
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<td>International Institutional Consulting SL: The Ortega Report: Diagnose of the current Mining Cadastre System</td>
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<td>NDF - Swedish Geological AB: Establishment of a MCIMS Report on Recommended changes to the Mining Act, 1998 and Mining Regulations, 1999</td>
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**Legend**

- [ ] NDF funded studies
- [ ] non NDF funded studies
- [ ] Government Funded studies
The chart above shows the interface between the existing and planned legislative framework and the implementation of the MCIMS.

At the time of formulation of the project, the legal framework consisted of:

- Mineral Policy 1997
- Mining Act 1998
- Mining Regulations 1999

Subsequently a number of studies have been undertaken in Tanzania and elsewhere, specifically analyzing the legislative context and accrual of benefits to Tanzania as a country and specifically addressing the potential for poverty reduction in the country:

- UNIDO study in 2004
- ICMM – country study on Tanzania
- Helene de Neuville-Pangas: An Analysis of Tanzania’s Law and Regulations, 24th June, 2004;
- International Institutional Consulting SL: Mineral Resources Institutional Assessment, the so called “Ortega Report”, June 2004
- Mineral Review Policy Committee: Kipokola Report 2004
- Revised Mineral Policy 2008

The Kipokola and Bomani reports have initiated a process of policy revision and there is currently a draft of a Revised Mineral Policy undergoing the Strategic Environmental Impact Assessment (SEIA). This also changes the context of any recommendations in relation to amendments of the Mining Act 1998 and Regulations of 1999 and the MCIMS.

Swedish Geological’s report on Recommended Changes to the Mining Act 1998 and Mining Regulations 1999, submitted July 2005 builds on some of the studies mentioned above. However, the consultants cannot see any mentioning of the Kipokola report which was elaborated prior to Swedish Geological’s report. This work on changing the underpinning policy undertaken and financed by the Government, makes any work on the Mining Act and regulations superfluous.

8.3 Evaluation of Support to the Legal Framework – Mining Act and Regulations

8.3.1 Assessment by Stakeholders and the Nordic company

The stakeholders had no comments that related to the positive results, but had some comments as seen below which were not so positive:

Not so positive:

- There will be no changes to the Mining Act and Regulations until new policy is approved
- There are still so many gaps especially the shortage of linkage between Mining Act and other related laws eg. Land Act and Forest Act as well as with Wild Life Act
- The recommended changes to the legislation have not been effectuated

According to Swedish Geological following Support was provided\textsuperscript{10}:

Amendment of the Mining Act and Mining Regulations consisting of revising the existing Mining Act and Regulations and proposing amendments that rationalized and simplified the management of the MCIMS. The Consultant’s recommendations were based on Best International Practice and on the following principles: a) an open mining cadastre and title registry; b) granting of rights based on objective criteria; c) application of “first come first served” principle; d) exclusive title for mineral rights; e) security of tenure over mineral rights; f) free transferability of mineral rights; and g) simple and transparent financial maintenance requirements. A first report on proposed amendments was delivered to MEM in April 2005. In October 2005 a working document on recommended changes was presented. The proposed new legal texts were then drafted by MEM attorneys and reviewed by the Consultant’s legal expert. The proposed amendments were submitted to the Attorney General for approval and to be ratified by Parliament (not yet ratified in December 2007).

The recommendations which were elaborated by the project to address the Mining Act of 1997 and Regulations of 1998, were however overtaken by some Government of Tanzania supported studies which address the policy context:

- Mineral Review Policy Committee: Kipokola Report 2004
- Revised draft of the Mineral Policy 2008, currently undergoing the Strategic Environmental Impact Assessment (SEIA)

8.3.2 Relevance

The revision and amendments of the legal framework is critical and a pre condition for an effectively functioning Mining Cadastre Management information System. However, in the light of the changes undertaken in the country policy context with respect to the Kipokola and Bomani reports and the revision of the Mineral Policy the process of moving ahead with the recommendations will have to be revised.

8.3.3 Efficacy

Following reports were elaborated by Swedish Geological AB and reviewed by the consultants:


Both reports recognize and make reference to the following reports and the fact that there is some potential of duplication of effort:

- Helene de Neuville-Pangas: An Analysis of Tanzania’s Law and Regulations, 24th June, 2004;
- International Institutional Consulting SL: Mineral Resources Institutional Assessment, June 2004

However, these documents do not make reference to the changing policy environment and/or any contacts and liaison with the Mineral Review Policy Committee (2004) or the Presidential Commission on the Mineral Sector, which was established in 2008.

It should be noted that in Tanzania the policy is the central document, which precedes and determines the basis for the legal framework (in this case, the Mining Act and Regulations).
The work underpinning the revision of the policy therefore renders the project support on the Mining Act and Regulations less relevant, as the basic premises are altered in the new policy.

8.3.4 Efficiency

Efficiency would have been improved with more high level coordination and use of existing governmental documents and governmental Mineral Review Policy Committee in 2004. In the light of the new draft policy, once the Policy has been approved will have to be reviewed again.

8.3.5 Impact

The Mineral Act and the Regulations have not been amended and ratified by the Parliament as anticipated and impact is therefore so far small.

8.3.6 Sustainability

This sub component will considerably contribute towards improved sustainability of the MCIMS when implemented in accordance with the government’s new policy. It is not known to what extent MEM’s legal department has been absorbing the work done by Swedish Geological AB into the process of elaborating a new policy.

8.3.7 Replicability and application of best practice

Best practices and lessons learned should be captured from other countries in the region, such as Botswana, South Africa and others. FlexCadastre is being replicated into other countries. However, it is critical to pay much more attention to the legal framework.

8.3.8 Rating of evaluation criteria

The following is a summary of the evaluation criteria:

![SUMMARY EVALUATION CRITERIA]

The support is highly relevant as a basis for the MCIMS. However, if more strategic coordination had been done at the higher levels of government – for example through a steering committee – resources could have been used more appropriately. It is very difficult to
express an opinion on the impact – little – if anything was said in meetings and discussion. Maybe portions of the study can be used in process of public consultation and discussions?

### 8.4 Conclusions and Recommendations

It is unknown if there was any interface between the project and Mineral Review Policy Committee (2004) and the Presidential Commission when Geological Survey AB and MEM elaborated the Mineral Sector Recommended changes to the Mining Act, 1998 and Mining Regulations, 1999, with the date of publication of 31 July 2005. Subsequently, to the publication and enactment of the revised policy, the recommendations elaborated by the project will require revision and up dating in line with the redrafted policy – once this new policy becomes approved and it is important that MEM is part of this process and facilitates the observations in the recommended changes.

**FIG. 7  OPTMUM SEQUENCING OF ACTIONS IN A MINING CADASTRE**

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<tr>
<th>Step</th>
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<td><strong>Step 1</strong></td>
<td>Political will and Condition for mining cadaster functioning: commitment to “fist come first serve”</td>
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<td><strong>Step 2</strong></td>
<td>Revision of the Mineral Policy, Mining Law and Regulations according to ‘regional and international best practices’</td>
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<td><strong>Step 3</strong></td>
<td>Institutional assessment and required restructuring and strengthening</td>
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<tr>
<td><strong>Step 3</strong></td>
<td>Revision and support to modernize the cadastre manual procedures</td>
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<td><strong>Step 4</strong></td>
<td>Manual implementation of the new procedures</td>
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<td><strong>Step 5</strong></td>
<td>Ensure that offices are adequately equipped BEFORE and roll out or computerization to either central government or zonal offices</td>
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<td><strong>Step 5.b</strong></td>
<td>Computerization of the Mining Cadastre at central ministry in a limited nr of selected locations, where &quot;environment&quot; is positive: internet, electricity and generator, capacity replication of system into other locations</td>
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<td><strong>Step 5.b</strong></td>
<td>Management maintenance contract for software</td>
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<td><strong>Step</strong></td>
<td>Training in accordance with Institutional Assessment, strengthening and Manpower development plans</td>
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</table>

Figure 8 suggests a more incremental approach to the institutionalization of a computerized MCIMS with a deeper awareness of the country political context and relevant on going processes. It is furthermore recommended to consider and apply international “best practice”, which should focus on “best practice” on the African continent, above all in neighbouring countries. In this case, application of best practice on the rolling out of the system to a limited number of zonal and residential offices would have been prudent. Also preconditions of a secure energy supply at central and decentralised levels are required. It is therefore recommend to clearly map out on going – or required - governmental processes and the interface of the project with these processes at the planning stage. There is an obvious need
for a high level inter-ministerial steering committee to address an optimum and efficient use of interventions in the case of the cadastre.

9. Consolidated Conclusions

The support provided by NDF has been critical in contributing towards an improvement of the mining sector. However, several components require continued support in order to be fully functioning and fully institutionalized. Each project component – achievements and limitations - has been assessed above and will not be repeated here. Conclusions and recommendations below will be focussing on the more strategic and management aspects.

NDF has supported strategic and critical issues in the mining sector of Tanzania, which were identified and formulated by the World Bank. An important, continuous and timely contribution has been provided by the Nordic agencies and companies towards a strengthening of the public sector’s ability to strive towards creating an enabling environment for attracting private sector investments mostly through a strengthening of the public mining sector in Tanzania.

The co financing arrangements with the World Bank are creating a partnership with potential synergies which are positive. The Government of Tanzania as well as the Nordic companies have benefited from this arrangement. However, it should be noted, that at least one instance (GST), there were critical remarks that international competition would allow for improved quality of support.

The NDF funded projects are largely conceptualized as a transfer of “State of the Art” technology from one country (industrialized) to another (developing with a totally different country context). This has created over optimistic plans and budgets, which are resulting in a lack of adequate institutionalizing and attention to sustainability. It is not merely a question of transferring.replicating a sophisticated technology from one country to another perceiving required support as merely a technical issue which will be accompanied by training. The transfer of advanced technology from a Scandinavian country to Tanzania need to take on a developmental approach – particularly for the MCIMS. Prior to further support to the sector it is recommended to have a systematic review of lessons learned in Tanzania and other neighbouring countries in order to improve on the efficiency of use of funds.

The anticipated “twinning” arrangement between GST and GTK turned into a situation of “Client” and “Consultant” relationship, which was not entirely positive. The financial sustainability has generally not been adequately addressed by either of the components. Both GTK and Swedish Geological have brought it to the attention of the MEM in their final reports, but these issues are generally not adequately analyzed at the planning of the project components.

PMU has had limited capacity in being effective in resolving and facilitating solutions to problems during project implementation. All staff is recruited internally from MEM, which has contributed to limited capacity. The reporting has been weak on signalling outstanding problems which needed to be resolved and they did not report transparently on financial management. The accounting of project funds has been done manually and sometimes on excel sheets. PMU manages the Credit facility from NDF in addition to Government of Tanzania financing for both NDF Credit 277 and IDA Credit 2648. Despite so many resources going into capacity strengthening none has been used to strengthen the accountants and the accounting system. This has introduced errors and a lack of transparency in the reporting of the management of different funds: NDF 277 and government allocation to Credit 277 and Credit 2648. The financial statements have included all of these sources of funds, whereas each donor funded project should have their own specific financial statements. This has resulted in the audit undertaken by NAO has not separated the different projects (this was not detected by the auditor!!). It was however clarified in discussions between the consultant and the NAO.
Furthermore, as Geological Survey of Tanzania is now an autonomous institution since 2006, they should present audited statements for inclusion in the financial statements submitted to the NAO for governmental auditing.

Most development agencies use the LFA for project formulation and monitoring. The monitoring aspects are framed in the definition of indicators and sources of verification and these subsequently become the basis for performance monitoring and reporting. This enables stakeholders to observe issues related to project performance and implementation early on and they therefore have the opportunity to find mitigation measures. NDF, the consultants and/or the Government don’t use this tool in any reports.

The absence of a high level steering committee has created a situation where there is no search for synergies with other institutions, programmes and projects, above all Prime Minister’s Office (local Government), Ministry of finance and private sector participation. For example, the work provided on the Mineral Act and Regulations did not adequately take note of the high level Bomani and Kipokola processes taking place with respect to the new policy.

As highlighted in meetings and the stakeholder meetings, the MCIMS has urgent problems which need to be addressed soonest.

As demonstrated above on all components and sub components the scoring on efficiency is very low – this means that considerations should be focused on whether these funds could have been used more wisely.

10. Recommendations for the Future

Some of the recommendations from the Stakeholder workshops are highlighted below and in Annexes 2 and 3:

- At formulation, there is a need for more realistic assessment of capacities, an understanding for time required for implementation and the real context of Tanzania: for example it is necessary to take the lack of access to reliable electricity and frequent need for a generator into account. Not even the MEM has a back up generator to protect against frequent power cuts, much less is this situation for the zonal and residential offices.
- The required changes to the Mining Act and Regulations are recommended, but will not happen until the new policy is approved.
- Small miners should have access to simplified maps and support from the licensing
- More information needed to small miners to know where they can have access to maps and simple language should be used
- A stronger collaboration between the private and public sector is strongly recommended.
- Learn lessons from past projects to provide input to new ones;
- Also there are booklets with information for small miners, which should be used NOW, but also provide input into new projects for possible improvement.
- Financial analysis and assessment should be introduced: provide projections for future recurrent costs and make arrangements with Ministry of Finance in order to ensure future sustainability of very expensive investments
- Government should work more in partnership/collaboration with the private sector. Government should outsource to the private companies some capabilities: it is not possible to train a database administrator and keep the person in public sector – instead government should contract this to the private sector.

NDF is recommended to continue with supporting the mining sector of selected developing countries and to involve Nordic companies in this process. Co-financing with EU, World Bank as well as the regional development banks are suitable and cost effective mechanisms.
NDF should consider participation in World Bank’s (or other financing agencies’) appraisal, particularly on the components which are of interest for financing by NDF. More realistic planning will provide for more value for money and an increased more sustainability.

A high level steering committee composed of representatives from the public and private sectors should be considered. This will provide for more transparency and insight in how the mining sector is strengthened and that systems provide requested services.

It is furthermore recommended to consider financial implications of project interventions to a larger extent by introducing financial and cost benefit analysis of investments where this may contribute towards strengthening the sustainability and access to recurrent expenses. When advising decision makers on investment options, it is recommended to assist the government to analyze its costs and benefits. How will revenues be generated from different sources – sale of services, or through budgeting in Ministry of Finance, or as revenue generated by sales of licenses? Can EITI be a mechanism to explore?

MEM is recommended to consider using LFA for the formulation, implementation and evaluation of the components. It is therefore required to provide strengthening of the PMU to work with the LFA, as well as the design of a Management Information System as a basis for reporting project progress according to the LFA indicators.

It is recommended to consider the employment of short or long term Technical Assistance (ideally one long term person) at the PMU with the responsibility to address the development goals of project intervention: this includes a focus on artisan and small miners – poverty alleviation – and an understanding of the country context: move away from a policy with focus on private sector intervention towards a policy of greater focus on public sector participation and focus on small scale miners.

The financial management and accounting system has to be considerably strengthened. There are different ways to solve this: hire a full time accountant from the private sector with documented professional training and experience. As an alternative, a private recognized accounting company provides assistance and support to the accounting personnel. This would include the setting up and training on an accounting software package, supervision of transactions and elaboration of quarterly reports and financial statements. If the Government is not prepared or able to finance this, consideration could be given to NDF financing the company’s services directly, in the interests of improved financial management.

Financial analysis should be part of the formulation process and be addressed continually during the implementation of the support. It is rather noteworthy that in the large packages of capacity building there is no sign of strengthening of financial management, budgeting and planning for the purpose of addressing financial sustainability. A thorough assessment of the government’s capacity to allocate adequate resources in the budget towards recurrent costs needs to be more realistic. Donors also allocate large amounts of funds directly to the State Budget as General Budget Support (GBS). A link and a commitment to use such funds should be established in the Ministry of Finance before large and capital intensive investments are undertaken.

Management of financial resources and budgets: Preventive control mechanisms should be put in place to prevent possible mismanagement of funds.

**Strengthen PMU in the following:**

It is recommended to consider and conceptualize project support as “development” projects and following is therefore recommended:
• Long or short term technical assistance (preferably one long term specialist) on behalf of NDF in place during the entire project implementation. This person will work with and within the government and facilitate the implementation of the two components.

• Each project component also requires the presence of a long term specialist in place during the entire project implementation of that specific component.

Consider a steering committee composed of representatives from the public and private sectors. This will provide for more transparency and insight in how the mining sector is strengthened and that systems provide requested services.

• Need to understand the policy and legal framework’s context and evolution over time;

• Ensure an approach and vision towards economic growth and poverty alleviation. How can the project support, services and products be useful for the artisan and small miners? (it is a lost opportunity that this has not taken place during the NDF intervention)

• Ensure that there is proper phasing and sequencing of investments: laboratory and other equipment should not be procured prior to the building being refurbished and put in adequate state;

• Roll out of computerized systems in 21 decentralized locations – against the advice of experts and Consultant – is done in stead of taking an incremental approach and again ensuring that the local commitment is fulfilled with regards to equipment of offices: adequate building, generator and adequate electricity supply, computers and printers etc.

• Ensure that a suitable accounting system is set up and financial reporting is transparent and understandable/useful for decision making

• Have a realistic understanding and approach to government’s ability to respond (financially) to recommendations on hiring additional staff in order to respond to recommended institutional reorganizations.

• Have an understanding for public sector management, including the (potential) role of local government in sustainable mining and multi sectoral planning

• Coordination at the (provincial and (district) level of licenses to the mining sector

• Financial co management of the funds

• Consider a conflict resolution (independent) on licensing issues attached to the Commissioner of Minerals

A long term international expert, specialist in Project Management and preferably the areas technical areas to be addressed by the support. Previous experience of project implementation in several African countries is a condition.

Training and reports elaborated by previous projects should be used for current and future activities – and further improved. It is recommended that user-friendly books and pamphlets, targeted to all the range of stakeholders, are produced as part of the information materials.
ANNEX 1

Terms of Reference
Annex 1. Terms of Reference

Nordic Development Fund
Evaluation of two mining sector projects

TERMS OF REFERENCE

NDF Ex-post Evaluation of
NDF-277: Mineral Sector Development Technical Assistance Project,
Tanzania

1. BACKGROUND

1.1 Title of the Project to be evaluated:

NDF-277: Mineral Sector Development Technical Assistance Project, Tanzania

1.2 Basic Project Information and Current State of the Project:

The Mineral Sector Development Technical Assistance (MSDTA) Project (the "Project") was implemented by the Project Management Unit (PMU) under the Ministry of Energy and Minerals (MEM) with financial assistance from the Nordic Development Fund (NDF) under Development Credit Agreement No. 277 TA dated 25 May 1999 for an amount of Special Drawing Rights (SDR) 6,950,000.

The Credit Agreement was signed in 1999 and it expired on 31 December 2007. The Project objectives were to develop and support the Government of Tanzania’s policy, regulatory, and institutional reforms within the mining sector in order to encourage private investment and environmentally sustainable development.

The Project was comprised of the following components: Environmental Monitoring and Mitigation, Geophysical and Geochemical Surveys, Environment and Mining, Mining Sector Development, Mining Cadastre and Small Scale Mining. The NDF-components have primarily been focusing on the Development of the Geophysical and Geochemical Surveys (Component B) and the Establishment of Mining Cadastral Information Management System (MCIMS) (Component C).

The main objective of Project Component B was to "identify priority areas of high mineral resource potential, which can be promoted to potential investors in order to sustain further growth". This component consisted of five sub-components: i.e. Institutional Capacity Building; ii. Geophysical Data Processing and Interpretation; iii. Preparation of Preliminary Geological Maps; iv. Airborne Geophysical Surveys; and v. Geochemical Surveys.

The main objective of Project Component C was to "develop, install and deploy the Mining Cadastral Information Management System"; a new modern and computerized system that would allow MEM to: i. process license and permit applications efficiently and in accordance with the provisions of the Mining Act of 1998 and Mining Regulations of 1999; and ii. Systematically monitor the operations of all license holders and their compliance with the mineral sector policy, the Mining Act and Mining Regulations.

The Beneficiary government is represented by the Ministry of Finance and the implementing partner is Ministry of Energy and Minerals. The lead agency IDA/World Bank completed its
components in December 2001. The Project management consists of a Programme Management Unit (PMU). The PMU is positioned in Dar es Salaam, however, main project activities have also been carried out in Dodoma and through more than 20 regional mines offices in various provinces. The daily project activities are managed by the Project Manager and five-six support staff. Final endorsement of work plans for the implementation and other project reports rests with the PMU.

In general, there has been a strong interest of Nordic companies in the project. In total, seven contracts have been awarded to Nordic companies:

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<tr>
<th>Contracts</th>
<th>Actual value</th>
<th>Status/comments</th>
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<tr>
<td>Contract 2: Geological Survey of Finland (Finland):</td>
<td>SDR 1,538 413</td>
<td>- contract signed in 2003 and implementation completed in 2004 - Airborne Geophysical Survey of Selected Areas in Tanzania</td>
</tr>
<tr>
<td>Contract 3: Inter-Agency Procurement Service Office (Int)</td>
<td>SDR 17,690</td>
<td>- contract signed in 2002 and implementation completed - delivery of One unit of Toyota 4WD Land Cruiser hardtop station wagon</td>
</tr>
<tr>
<td>Contract 4: D.T. Dobie &amp; Company Ltd (Tanzania)</td>
<td>SDR 42,201</td>
<td>- contract signed in 2002 and implementation completed - delivery of Two units of Nissan Patrol 4200 Diesel GL 7 seaters</td>
</tr>
<tr>
<td>Contract 5: Geological Survey of Finland (Finland)</td>
<td>SDR 3,124, 927</td>
<td>- lead consultant for Geophysical, Geological and Geochemical Surveys</td>
</tr>
<tr>
<td>Contract 6: Swedish Geological AB (Sweden)</td>
<td>Payment via special account</td>
<td>- contract signed in 2005 and implementation completed - focused on Quality Control of the Airborne Survey</td>
</tr>
<tr>
<td>Contract 7: Geological Survey of Denmark and Greenland (Denmark)</td>
<td>SDR 238,468</td>
<td>- contract signed in 2002 and implementation completed - provided Consultancy for the Design of a Mining Cadastre Development Strategy</td>
</tr>
<tr>
<td>Contract 8: GEUS (Denmark)</td>
<td>SDR 63,682</td>
<td>- contract signed in 2003 and implementation completed - focus on procurement assistance for mining cadastre</td>
</tr>
<tr>
<td>Contract 9: Swedish Geological AB (Sweden)</td>
<td>SDR 1,173,703</td>
<td>- Establishment of Mining Cadastral Information Management System</td>
</tr>
<tr>
<td>Contract 10: Special Account</td>
<td>SDR 424,244</td>
<td>- payment for operational costs and contracts to suppliers;</td>
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Thus, the Nordic geological and technical expertise has been applied throughout the project implementation and the project activities have been implemented with relatively minor difficulties. By December 2007, practically all project activities were implemented and concluded, however two contracts with GTK Finland (a 4-years contract of 3,71 Mill. EUR) and Geological Survey of Sweden (a 3-years contract of 1,34 Mill. EUR) were implemented as last activities of the project.

2. DESCRIPTION OF THE ASSIGNMENT

- **Overall Objective**

The overall objective of the evaluation activities implemented under this contract will be to improve the impact of the NDF’s managed credit agreement, by strengthening the NDF’s and also the Borrower’s ability to draw on lessons learnt from the past interventions.
**Specific Objective**

The **specific objective** of the evaluation is to check on the achievements of the project, particularly with regard to **impact and sustainability of the various interventions** by the different project elements with emphasis on the NDF-project components. The evaluation will assess the level of success in addressing the raised issues and problems, and to evaluate the achievements and weaknesses of the Project in respect of the **five international evaluation criteria (relevance, efficiency, effectiveness, impact and sustainability)** taking account of the particular situation of the project and the realities on the ground.

The mission will therefore:
- Evaluate the project’s performance with regard to its implementation and the achievement of the original objectives set out in the Credit Agreement;
- Document **lessons learned** concerning the Project design, implementation and management; and
- Propose **concrete recommendations** on how to further enhance and improve the **sustainability of the project components**

**Requested Services including Methodology to be Applied**

The mission team will provide the following services:
- Develop evaluation criteria and methodologies, questionnaires, interviews etc;
- present the findings to the Project’s stakeholders after the discussions, meetings and visits;  
- formulate recommendations to the Tanzanian Government, NDF and other beneficiaries on all aspects of the Project management, **relevance, efficiency, effectiveness, impact and sustainability**;
- submit timely a high quality evaluation report in line with the specific objectives and specifications; and
- Draw the attention of the beneficiaries and NDF to any other aspects that the mission believes are relevant for the project’s expected impact and sustainability.

In particular, the evaluation will have to consider the following main issues:
- Evaluate the project’s performance with regard to its implementation and the achievement of the original objectives set out in the NDF Credit Agreement;
- evaluate the management of the project, in particular the internal evaluation and monitoring system of the project, visibility and dissemination of the project activities;
- **evaluate the achievements and shortcomings of the NDF-financed components and contracts, in particular Component B and C**;
- evaluate the effectiveness of the co-operation between the PMU, NDF/WB and the implementing agency (MEM) in carrying out the Project;
- evaluate the project’s impact & sustainability and make recommendations on how to improve prospects of positive impacts, replication and sustainability;
- Summarize the achievements and shortcomings of the project, notably in view of measuring the improvements in the development of the Mineral Sector in Tanzania.

**Requested Results**

- The results of the evaluation mission are expected to advise the local counterparts, NDF and the project management office on the **lessons learnt of the NDF-component(s)**, including proposing **concrete recommendations** on how to further enhance and **improve the sustainability of the NDF-financed project component(s)** and
- A comprehensive assessment of the project, **with focus on the NDF-component(s)**, presented in the form of a report which can be published at NDF’s web-site and printed as an official NDF-publication.
3. EXPERT PROFILE AND MANAGEMENT

The Evaluation Team must be composed of minimum one key expert who will be the Team Leader of the Evaluation, while a number of other key experts - local as well as international can be proposed for the assignment and in accordance with the requirements in the ToR. In this case, the exact composition of the Evaluation Team (i.e. the number of experts, responsibility and number of man-days) must be stated in the proposal.

The Team Leader will be responsible for the overall planning and implementation of the mission and for the production and a timely presentation of the final report.

The Team Leader's profile should meet the following requirements:

Qualifications and skills and specific professional experience:
• University degree in a discipline relevant to the scope of the assignment,
• Field experience relevant to the Terms of Reference,
• Substantial working experience with managing and/or implementing loan programmes/projects, preferably on the subject relevant to the ToR,
• Substantial experience in international donor project evaluations; working experience as a Team Leader, preferably in the context of WB/ADB/NDF development cooperation and loan programmes/projects;
• Proven knowledge of technical and/or financial programme management as well as of Project Cycle Management and Logical Framework approaches;
• Excellent English language and communication skills;
• Proven ability to rapidly produce quality reports;
• Familiarity with Nordic-Tanzanian co-operation issues would be as asset; and
• Experience with similar programmes and/or relevant working experience in or with Tanzania would be an asset.

For other proposed experts, it is also preferred that they have a university degree in a discipline relevant to the scope of the assignment as well as field experience relevant to the Terms of Reference. Also substantial experience in project management and international project evaluations would be a strong asset.

The proposed experts must not have been directly involved in activities supported by the project. They must be self-sufficient in terms of equipment and communication (laptop, mobile phone etc.).

➢ Role of the NDF Evaluation Management

NDF will manage the Evaluation as regards funding, contracting and implementation management. The NDF Evaluation Manager will follow the evaluation throughout the process until the final report is completed and published.

The Evaluation Manager will:
• Liaise on a regular basis with the Team Leader of the Evaluation Team
• Comment on and approve the draft and final versions of the proposed methodology, draft field and evaluation reports;
• Coordinate internal NDF-contributions (from Regional Managers and Management), including assisting in contacting to Government agencies, when required;
• Provide feed-back to the Evaluation Team;
• assist in organizing, facilitating the evaluation workshops, field studies, as per appropriate; and
• Organize the presentation and publication of the evaluation results, and assist with the necessary follow-up of the Evaluation
Role of the Evaluation Team (Consultants/Experts):
The Evaluation is carried out through a team lead by the Team Leader. In general, the Evaluation Team will:
- Carry out the Evaluation as per ToR;
- Be responsible for the findings, conclusions and recommendations of the Evaluation;
- Report to the NDF Evaluation Manager, be in regular contact, coordinate mission/field studies timing and key events with the NDF Evaluation Manager and seek his/her advise, when needed; and
- The Team Leader is responsible for the Team’s reports and for the organization of the work of the Team.

4. LOCATION AND TIMING

Activities
It is expected that the evaluation shall include - at minimum - the following activities:
- Desk study at home/Preparation of mission, including consultations/interviews with NDF Evaluation/Regional Manager(s) and selected contractors
- Field visit in Tanzania of minimum one week, including visit(s) to selected project-sites.
- Preparation of mission report (draft + final report) in home country

The mission will include in particular:
1. Review of background material and preparation of a tentative mission plan which shall be endorsed by NDF Evaluation Manager;
2. Briefing with NDF (before the field visit) and Ministry of Minerals and Energy (at the beginning of the field visit) to discuss the Project, the final methodology and tentative mission plan;
3. Interviews and discussions with the PMO staff and relevant counterparts and stakeholders, including MEM, Ministry of Finance in Dar Es Salaam;
4. Visit to and meetings with beneficiary institutions in Dar Es Salaam and project sites in provinces, as appropriate;
5. Interview and discussion with various beneficiaries in selected national ministries and institutions, including consultancy providers/Consultancy firms;
6. Debriefing at the Ministry of Energy and Minerals on preliminary findings and conclusions at the end of mission in Tanzania; and
7. Finalization of evaluation mission report at the expert’s base by incorporating any additional comments from NDF and submission of the draft final report for comments or approval.

The exact timing of the (de)briefings will be agreed between the Evaluation Team and NDF Evaluation Manager.

The local PMU is expected to provide logistical support (arrangement of meetings and visits, logistics and assistance as required), but logistic cost should be borne by the Evaluation Team (i.e. transportation, accommodation, laptop and private communication etc.).

During the desk study phase at the beginning of the assignment, the Evaluation Team is expected to review the following project documentation (if available):
- Credit Agreement;
- Progress Reports by the Implementing Agency;
- Mission and Mid-term Review Reports;
- NDF Project Ratings;
- Financial Management Reports by the Implementing Agency;
- Project Completion Reports by the Nordic Contractors; and
- Project Completion Report by the Lead agency, World Bank

**Locations of assignment**
The main location of the assignment will be in Dar es Salaam and also in selected provinces of Tanzania.

**Timing of the assignment**
The evaluation is scheduled to start during first quarter of 2009. It is anticipated the Draft Project Evaluation Report by the Evaluation Team shall be completed within 3 months after starting date. The tentative time table for the Evaluation is as follows:

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<th>Phase I:</th>
<th>2 -4 weeks</th>
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<tr>
<td>• Desk Study, Briefings/Meetings with NDF</td>
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<tr>
<td>• Approval of meeting schedule, including preparation and arrangement of meetings with stakeholders on spot/location;</td>
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<td>• Approval of methodology and approach for the evaluation</td>
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<th>Phase II:</th>
<th>2 weeks</th>
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<td>• Conduct Field Studies,</td>
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<td>• Meetings with stakeholders; workshop</td>
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<td>• Debriefing with Implementing Agency and Borrower and NDF</td>
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<th>Phase III:</th>
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<td>• Presentation of Draft Report after mission</td>
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<td>• Comments to Draft Report from Implementing and NDF</td>
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<tr>
<td>• Presentation of Final Report for publication</td>
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5. **REPORTING**

The experts will have to produce the following documents and presentations:
- A proposed methodology before the briefing with NDF and a work plan at the start of the assignment shortly after the briefing with NDF;
- A summary of the mission findings at the final debriefing in Tanzania;
- Debriefing presentation during the debriefing at the Ministry of Energy and Minerals and MOF;
- A draft final report, including comments from all stakeholders
- A final report with detailed annexes.

The final report will comprise a maximum of 50 pages excluding annexes. It will contain a self-standing executive summary. The reporting language will be English.

**Submission of reports**
- Draft final report according to the comments made at the debriefing must be presented to NDF within 4 weeks after the field visit; and
- The revised final report based on the comments on the draft final report from NDF and Implementing Agency and Borrowers will be submitted 2 weeks from obtaining the comments.

**Number of report copies**
An electronic version, one original and 3 A4 paper copies of the final report will have to be submitted to NDF.
6. ADMINISTRATIVE INFORMATION

During contacts with the authorities (implementing agency etc), or any project or Organization, the Consultants will clearly identify themselves as an independent expert and not as official representative of NDF.
Annex 2: Planning and Implementation Chart
Annex 2. Planning and Implementation chart

FIG. 4. PLANNING AND IMPLEMENTATION SCHEDULE FOR NDF 156 MSD-TA

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<td>MSD-TA Project implementation</td>
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<td>SGU, Geological Mapping</td>
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<td>Project Preparation facility New World Bank Project</td>
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NDF MSD-TA (25th May 1999 to December 31, 2007)

Contr. 1: Swedish Geological Preparation Consultancy for the Technical Assistance to the MEM

Contr. 3: Inter Agency Procurement Service Office - procurement vehicles

Contr. 4: DT Dobie & Co procurement of vehicles

Component B: Geophysical

Contr. 2: Geological Survey of Finland (GTK) Airborne Geophysical Survey of Selected Areas

Contr. 6: Swedish Geological AB Quality control of Airborne Survey

Contr. 5: Geological Survey of Finland Lead Consultancy for Geophysical, Geological and Geochemical Surveys

Component E: Mining Cadastre

Contr. 7: Geological Survey of Denmark & Greenland (GEUS): Design of Mining Cadastre Strategy

Contr. 8: GEUS Assistance on Procurement for Mining Cadastre

International Institutional Consulting

Contr. 9: Swedish Geological establishment of the MCIMS Extension of above mentioned contract

SUSTAINABLE MANAGEMENT OF MINERAL RESOURCES PROJECT
ANNEX 3

Stakeholder Seminars
Annex 3. Stakeholder Seminars

Stakeholder Meeting at Geological Survey of Tanzania—lessons learned
NDF funding of mining sector
16th April, 2009

Background
The NDF-components have primarily been focusing on the Development of the Geophysical and Geochemical Surveys (Component B) and the Establishment of Mining Cadastral Information Management System (MCIMS) (Component E).

Meeting objectives
The objective of the meeting was to capture lessons learned from key stakeholders in order to assess the achievements of the project, particularly with a focus on its sustainability.

Meeting activities
1. Evaluate NDF’s contributions in developing, installation and deploying the Mining Cadastral Information Management System”; a new modern and computerized system that would allow MEM to: i. process license and permit applications efficiently; and ii. systematically monitor the operations of all license holders and their compliance with the mineral sector policy, the Mining Act and Mining Regulations.

2. Evaluate the implementation of Project Component B which intended to "identify priority areas of high mineral resource potential, which can be promoted to potential investors in order to sustain further growth". This component consisted of five sub-components: i. Institutional Capacity Building; ii. Geophysical Data Processing and Interpretation; iii. Preparation of Preliminary Geological Maps; iv. Airborne Geophysical Surveys; and v. Geochemical Surveys.

Meeting participation
The meeting participated by representatives from cross section of various relevant stakeholders. The list of meeting participants is presented in the attachment.

In this meeting participants had opportunity to discuss and share their views on lessons learned from the project formulation and implementation. Impacts (positive and negative) of the NDF loan to the Mining Sector in Tanzania were discussed. Recommendations for sustainability and future were provided.

Meeting participants
The Meeting Facilitators: Gunilla Goransson and Yohana Mtoni.

Participants in Stakeholder Workshop GST, Dodoma – 16th April 2009
Wt. C.M. Lihapa, Madinga Mining Co
Sahibu M. Mlula, Madinga Mining Company
Nomburi Pb, GST
Abuballar D. Mtulichile, Partners
Mzee R.A. Kange, Stamico, Dodoma
Adriana o Mangare, GST
Pascal Semikiwa, GST
Results from the workshop

<table>
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<tr>
<th>IMPACT</th>
<th>Positive</th>
<th>Not so positive, Negative</th>
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</thead>
<tbody>
<tr>
<td>Project Management Model</td>
<td>Not enough coordination with other local counterparts, such as STAMICO Consultant (GTK) implemented the project, but not in line with the agreed formulation (Swedish Geological)</td>
<td></td>
</tr>
<tr>
<td>Project formulation</td>
<td>Project formulation considered capacity building in geodata generation i.e. GST field and lab operations</td>
<td>Project scope (focus on two components) was limited to only two problems, i.e. Strengthening licensing process and GST operations. Madini Institute was not considered in the components. Madini has an important task in training future mining technicians for work in the mining sector and consequently for employment creation.</td>
</tr>
<tr>
<td>Mining cadastre</td>
<td>Flexi Cadastre not very effective (at Dodoma level) Flexi Cadastre often un-available on the network at Resident and Zonal Mine Offices. The system not robust enough to cater for the needs of the country. The system is overstretched in usage. It is very difficult for small scale/artisan miners to get access to areas to mine. There are people (often in Dar es Salaam and Asians) who have acquired the PL for big areas, which they are not developing. When small miners/artisan miners have discovered potential areas for mining and when they apply for the PL (Prospecting License) or PML (Primary Mining Licenses) they are not successful in most cases; Many small miners/artisan miners do not know of the existence of the Mining Cadastre process; There appear to be two parallel processes in existence for the acquisition of a license for the small miners: the “old” and the “new” system. The new system is not working and it is anyway unknown to the small miners. The “old” process, which is still used, is very bureaucratic: small miners normally submit the application form (attached</td>
<td></td>
</tr>
</tbody>
</table>
with site map) to a nearby mine office (Zonal/RMO). A zonal/residential mine officer upon receiving the application will arrange the site visit to check the intended site for mining.

The zonal officer writes the recommendation to the Commissioner. The Commissioner thereafter uses this recommendation as a basis for the decision. While the small miner/artisan miner is still waiting for the reply from the Mineral commissioner, they are told by the Zonal/residential Officer that the area asked for was ready acquired (by another PL). The small miners therefore suspect that as they were not previously informed that this areas was taken, that somebody has bypass them in the sequence of processing the lot and/or that the information has been inappropriately used, such that a rich person with connections has misused their discovery. They therefore accuse the processors of the information of not following strictly the guidelines.

Unfortunately these – often inappropriately acquired – licenses for areas, are in most cases acquired by able/rich people who keep the license for long time without developing the areas thereby hindering small and artisan miners accessing land.

Solutions: limit the time to use the license
Create a watertight system based on first come first serve – guaranteeing confidentiality to the person who puts in an application (he really wants to be sure that it will not be taken by somebody with contacts and connections higher up).

Not sufficient information to stakeholders on the benefits of project results, existence and use of maps and the existence of the mining caster and how it should function - particularly at district level.

There is no initiative on the part of the managers of the mining cadre and the GST to provide information on services “downstream” – i.e. to district and ward levels.

The small miners mentioned that they are using old maps from 1963, but they don’t know that there are newer maps available in GST.

Difficult to enforce the regulations
First come first served licenses doesn't work. Minister overrides the registrations done at the zonal/residential level. There may also be problems at the zonal/residential level itself.

Ministry of Agriculture issues licenses for farming of bio fuels – bad use of fertile land; overlaps with mining licenses; and other problems of lack of coordination.

Need for streamlining of licensing procedure Minister/Commissioner/zonal and residential officers. The miners recommend that the issuance/approval of the license for small mining should be done at the zonal/residential office. Several reasons: to eliminate corruption and reduce bureaucracy.

Hoarding of licenses by wealthy individuals– the regulations are not stringent enough.
**Geological and Geophysical Survey**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Not so positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project was very positive in upgrading the quality of data acquired in GST and capacity to process and interpret the data even in the laboratory. Lot of useful data was acquired.</td>
<td>Acquired new techniques and technology in map production not adequate. Need for more training.</td>
</tr>
<tr>
<td>Many actors were involved and learned/practiced skills. We can work better now.</td>
<td>The objectives were not implemented adequately, e.g. setting up of databases in GST, particularly for Geophysical data sets.</td>
</tr>
<tr>
<td>Some of the geoscientific data which was collected enabled and facilitated that some areas were opened for exploration</td>
<td>Funds for some activities were not forthcoming in a timely manner, particularly field work which depend on the weather;</td>
</tr>
<tr>
<td>Improved geoscientific data/information acquisition, processing &amp; dissemination</td>
<td>The quality of maps is doubted, particularly those which were based on the information from GETECH, Leeds University, UK, i.e. that they were of inadequate quality – taken by low resolution.</td>
</tr>
<tr>
<td></td>
<td>Not sufficient information to stakeholders on the benefits of project results particularly at district level.</td>
</tr>
</tbody>
</table>

**Laboratory**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab tests of poor artisan/small miners collected at zonal/resident offices taken to GST for processing</td>
<td>Maintenance and servicing of purchased equipment is of major concern.</td>
</tr>
<tr>
<td>Procurement of laboratory equipment and consumables went well during Project time.</td>
<td>There is a need for training on troubleshooting and minor servicing of equipment, which is currently not adequately conducted. Some equipment is entirely dependent on servicing by companies in S.A., which is very expensive and for which there is no budget.</td>
</tr>
<tr>
<td>Equipment was procured, installed and operated to analyze samples.</td>
<td>The laboratory was not enhanced to a level of gaining-international recognition (Accreditation). (The limitation of poor building and environment for laboratory services was not mentioned).</td>
</tr>
<tr>
<td></td>
<td>Enough equipment was procured but too little training on operations, care and use was provided;</td>
</tr>
<tr>
<td></td>
<td>GST wants sourcing and procurement of equipment to be managed by GST. However, project bound by donors’ conditions on purchase of equipment</td>
</tr>
</tbody>
</table>

**Recommendations:**

Some areas explored by large companies and not used by them; should be used by small miners.
Licensing should start and finish at zonal/Resident mine offices particularly for small and artisan miners.
Some solution is required for the laboratory. It is difficult for small miners to access laboratory services when they live/work far away from Dodoma. Laboratory services should somehow be extended from Regional level to district level to enable small miners to have
this service near to them. Currently some miners cannot afford to travel from Sumbawanga or Singida to bring samples to Dodoma. Can they afford the cost processing the laboratory test?

It would be better if licenses for small/artisan miners will be provided by Zonal offices and not in the Ministry of Energy and Minerals (MEM-HQ)

Small miners need training/education

Cost for acquiring mining licenses should further be reduced for artisan/small miners since most of them have little capital.

Use of the Logical Framework Assessment (LFA) may be used for project formulation and implementation

Suppliers training should be included in procurement process

Extension services to small scale miners should be strengthened, streamlined and coordinated.

**Lessons learnt:**

Project managers and experts should be respectful to all Tanzanian and culture. Political interest to address small/artisan miners’ needs is not there, given their limited power compared with that of the large companies.
Stakeholder Meeting at Ministry of Energy and Minerals, Dar es Salaam – lessons learned
NDF funding of mining sector
21st of April, 2009

Participants in Stakeholder Workshop MEM
Alex A. Magayane, Head Small Scale Mining Development
Imani Adam, MEM
Wilfred Machumu, MEM
Philip Sango, Tanzania Mining
Samuel Auyb, MEM, PMU
Mtumai. S. Damury, MEM
Alex A. Magayane, MEM
Teodore Silinge, MEM
Julia Moshi, MEM
Salome Makange, Head Legal Services Unit, MEM
David Malub, Eastern Zonal Office, MEM
Tunaini Lyuvali, Eastern Zonal Office, MEM
Frank. N. Makyao, MEM
Philbert Rweyemamu, Barrick
Siliman R. Mti, MPM
Auriar Amsali, TAWOMA
Emmanuel Jengo, Chamber of Mines
Richart Mutatina, Kikarawe Mine
Hayaz Mruma, MEM

Results from the workshop

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>Positive</th>
<th>Not so positive, Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management Model</td>
<td>Financial, technical, supervision of components, addressing sustainability of interventions</td>
<td>There is no steering committee with participation of private sector and other high level ministries, such as Prime Minister’s Office for local government collaboration, Ministry of Finance. There is an internal MIS which amongst other reports on # of applications and other information. This is not used for assessing project progress and it is not used in the progress reporting.</td>
</tr>
<tr>
<td>Project formulation</td>
<td>The need for the project was established.</td>
<td>Ample time is required for implementation and the real context of Tanzania: the lack of access to reliable electricity and often need for generator. Not even the MEM has a back up generator to protect against frequent power cuts, much less is this situation for the zonal and residential offices. Both World Bank and NDF have short periods of intervention and these projects require longer time for achieving sustainability. Private sector did not participate in the project formulation Lack of use of LFA, lack of MIS, weak reporting: there is a need for establishment of development objectives, immediate objectives, and indicators/benchmarks, definition of sources of verification. This is the basis for the Management Information System and the reports, including the Progress reports.</td>
</tr>
</tbody>
</table>
Few staff was included in the formulation of the project. There were no considerations for recurrent costs budgeted during and particularly after the project ends – lack of financial and technical sustainability.

There is a lack of analysis of the financial implications of the investments. The implications and needs for recurrent costs to operate, maintain the investments is not there. This undermines the sustainability of all investments.

MEM refused to follow the consultants’ advice in establishing a period of non receipt of applications during the implementation of part of the project. There are now many applications – they have increased dramatically.

The cadastre generates 144,000USD/year and therefore generates income, but this goes to the Treasury and there are no mechanisms to get some of this money back to sustain the cadastre.

### Mining cadastre

<table>
<thead>
<tr>
<th>Positive</th>
<th>Not so positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>It facilitates effective applications processing – Computerized licensing System has been established;</td>
<td>The Cadastre is not sick, it is sleeping.</td>
</tr>
<tr>
<td>There are some improvements with the FlexiCadastre system: for example it reduces some delays It contributes to reduce unnecessary conflicts between small mining customers and with large mining customers; It facilitates retrieval of processed data and monitoring</td>
<td>The Cadastre is a miserable failure:</td>
</tr>
<tr>
<td>It works in the MEM Dar es Salaam, but it doesn’t even work in the Zonal Office in Dar es Salaam. The officer has to take the applications from his office and have his technical assistant input the data into the system in MEM. It has great potential for good data management:</td>
<td>The system is unreliable</td>
</tr>
</tbody>
</table>
| • Number of licenses in various categories  
• Payments (revenue)  
• Debtors | The GPSs which were provided to the Zonal officers have not worked and have not been repaired; |
| The system works well for few users | There are several delays in the procedure: |
| Overlaps of licenses solved | • for example at expiry of a license it goes to the Minister’s office for stamping;  
• There is overlapping of licenses. There are disputes on whether there are any overlaps. These are technical issues which have to be resolved.  
• Electricity problems slows the system down  
• The minister/commissioner is granting/signing licenses | |
| Processing trend increase | There is a need to understand what can be achieved in the absence of an improved legal system; |
| Revenue collection increase | Various issues need to be addressed: |
| Transparency is improved | Indicators, such as number of applications received and processed per day/ month should be part of an internal management information system and should be reported in the Project’s Progress reports;  
# of staff involved over time in the process is another indictor to be used internally as well as in project reporting |
| | other areas of issues include:  
• the functionality of the system  
• the transformation of the system from manual into computerized  
• hardware issues  
• support, including management contract  
• software issues |
| | “First come first served” principle is not working. Technical problems: There are all sorts of problems to maintain equipment working: for example it too 45 days to get a printer serviced. If furthermore too 2 months to negotiate the procurement of the server. The antenna is not working |
| | There is a lack of powerful antivirus |
The system is too slow to provide an initiative for entering new and old data

System lacks good administration system
There seem to be institutional problems for the cadastral system to meet intended objectives

The mining cadastre is not well known to users;
There is in fact NO user friendly information in English and Swahili on the system. Neither the license office nor the zonal/residential offices have anything of written information on the use and application of the cadastre to miners – above all to the small and artisan miners.

There is no control mechanism in MEM to verify the boundaries of the plots and licenses. Infobridge did such a control during the project implementation, but there are concerns on what is happening now. For example, Ministry of Land has high credibility amongst users as they go out in the field and control all boundaries. In addition to this problem there is a problem with reliability on the GPS equipment being used. There are concerns that the accuracy of measuring is not adequate and that for small miners who have very small plots, a measuring error of up to 15 meters may be quite damaging.

There are 600 applications per day from small scale miners and approx 200 applications from large scale miners

Against strong advice from Consultant and from experts’ reports, Government went ahead and ordered a roll out of the FlexiCadastre to 21 rural locations – instead of the recommended maximum of 6-8 zonal offices. Most – almost all of these – do not work for a number of reasons:
Network problems
Electricity with frequent power cuts and absence of a generator; even with access to a generator, MEM in Dar es Salaam doesn’t have a generator and is also experiencing frequent power cuts. At the zonal and residents offices there is a lack of equipment, like computers, printers etc. including consumables.

Mining cadastre is not working according to Terms of Reference’s requirements:
• Poor connectivity to regional offices
• Frequently system is crashing

Inadequate training on the use of the Mining Cadastre
Not all mineral rights information available in the mining cadastral system
Not all the granted licenses especially the PMLs are in the system

* A note by the consultant: there is an unrealistic expectation on behalf of the government that state of the art technology and systems may be easily replicated from a developing country into the Tanzanian context and that everything will be resolved by “training in-house”. There is little understanding of the need for dependable electricity supply with minimal power fluctuations, and usually a backup generator; at zonal and residential offices have access to suitable equipment (computers, printers, etc), continuous routine maintenance by staff and continuous upkeep.
maintenance by professional technicians, and the absolute need to budget for recurrent costs in the State Budget.

**Mining Act and Regulations**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Not so positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>There will be no changes to the Mining Act and Regulations until new policy is approved.</td>
<td></td>
</tr>
<tr>
<td>There are still so many gaps especially the shortage of linkage between Mining Act and other related laws eg. Land Act and Forest Act as well as with Wild Life Act</td>
<td></td>
</tr>
<tr>
<td>The recommended changes to the legislation have not been effectuated</td>
<td></td>
</tr>
</tbody>
</table>

**Geological and Geophysical Survey**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Not so positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maps are not user friendly for Small and artisan miners</td>
<td></td>
</tr>
<tr>
<td>Success not communicated for the public consumption</td>
<td></td>
</tr>
</tbody>
</table>

**Laboratory**

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to the conditions of the buildings and the uncontrolled procedures in the laboratory test results are not reliable</td>
<td></td>
</tr>
<tr>
<td>Previously the laboratory didn’t have access to the correct chemicals – don’t know the status now</td>
<td></td>
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</tbody>
</table>

**Conclusions and Recommendations:**

At formulation, there is a need for more realistic assessment of capacities, time required for implementation and the real context of Tanzania: the lack of access to reliable electricity and often need for generator. Not even the MEM has a back up generator to protect against frequent power cuts, much less is this situation for the zonal and residential offices. The required changes to the Mining Act and Regulations are recommended, but will not happen until new policy is approved.

Small miners should have access to simplified maps

More information needed to small miners to know where they can have access to maps and simple language should be used.
A stronger collaboration between the private and public sector is strongly recommended. This should take place in
Learn lessons from past projects to provide input to new ones;
Go back to previous projects, use training material and reports developed during these: for example baselines studies elaborated by the World Bank funded projects 1996, 1997 and baseline products developed up to 2003. Also there are booklets with information for small miners, which should be used NOW, but also provide input into new projects for possible improvement.
Financial analysis and assessment should be introduced: provide projections for future recurrent costs and make arrangements with Ministry of Finance in order to ensure future sustainability of very expensive investments
Government should work in partnership/collaboration with the private sector. Government should outsource to private companies some capabilities: it is not possible to train a database administrator and keep the person in public sector – instead government should contract this to the private sector.
ANNEX 4

Stakeholder Response from the Nordic Companies
Annex 4. Stakeholder Response from the Nordic Companies

Input to the evaluation by the Scandinavian companies with respect to lessons learned

Name of Company which submits comments: Geological Survey of Finland
Date: 17.04.2009
Component name: Component B: Geological Survey and/or Component C: Mining Cadastre Information System
Specific sub component: Geological Survey (GTK)

Table 1: Lessons learned in the planning phase

<table>
<thead>
<tr>
<th>Lessons learned – planning phase</th>
<th>negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOR flexible regarding survey methodology and sampling frequency.</td>
<td>TOR too detailed regarding man months, expertise and procurement.</td>
</tr>
</tbody>
</table>

Table 2: Lessons learned in the implementation phase

<table>
<thead>
<tr>
<th>Lessons learned – implementation phase</th>
<th>negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff members interested and active. Most problems could be solved by discussing with GST management.</td>
<td>Opposite opinions between the consultant and customer regarding use of project funds and agreed tasks.</td>
</tr>
<tr>
<td>Certain staff members committed and keen workers.</td>
<td>Appointment of staff members for training and field work did not follow the interests of the project but merely personal criteria.</td>
</tr>
<tr>
<td>Successful integration of GST key functions.</td>
<td></td>
</tr>
<tr>
<td>Funds for procurements part of the project budget, i.e. the consultant takes care of ordering and payments.</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Lessons learned with reference to the management model (composition and responsibilities of PMU, NDFs and WBs roles and responsibilities etc)

<table>
<thead>
<tr>
<th>Lessons learned – management model</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDF’s willingness to communicate.</td>
<td>The role of PMU out of focus regarding the implementation. Unnecessary quarrelling between consultant and PMU.</td>
</tr>
<tr>
<td></td>
<td>No consultant as part of the PMU.</td>
</tr>
</tbody>
</table>

Table 4: Lessons learned in the ex-post implementation phase

<table>
<thead>
<tr>
<th>Lessons learned – ex-post implementation phase</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication between consultant and client has continued and interest for future cooperation exists.</td>
<td>The client had only minor interest in preparing the completion report.</td>
</tr>
</tbody>
</table>
Table 5: Comments on lessons learned on following evaluation criteria:

Lessons learned on impact

<table>
<thead>
<tr>
<th>Lessons learned – impact</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>New modern techniques in use both in fieldwork and in data processing in the office.</td>
<td>Much of the outcomes can only be seen in the long run.</td>
<td></td>
</tr>
<tr>
<td>Generally strengthened infrastructure including modern IT facilities e.g. intranet.</td>
<td>Misuse of internet connections.</td>
<td></td>
</tr>
</tbody>
</table>

“The criteria of “Sustainability” may be subdivided into:

**Institutional sustainability:** the agencies’ and institutions’ ability to institutionalize and internalize the support provided beyond the project interventions

**Financial sustainability:** the government’s ability to assume additional costs for operating and maintaining the introduced systems

**Regulatory and policy sustainability:** the extent to which the project activities respond and are internalized into the policies, acts and regulations. Recent events have introduced a new mineral Policy in Tanzania, which emphasis public sector participation, support to small scale miners and several other changes from the Mineral Policy of 1997.

**Technological sustainability:** this is very important for the interventions undertaken by NDF. Issues related to the transfer of ‘state of the art’ technologies (from a developed country) to Tanzania (a developing country) and its readiness to take on this support and sustain its operations

**Application of “best practices”:**

- Addressing climate change/GHG emissions reductions
- Cross cutting issues: HIV/AIDS, gender for example

Table 6: Lessons learned on sustainability

<table>
<thead>
<tr>
<th>Lessons learned – institutional sustainability</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems introduced are still working and utilized.</td>
<td>Increased running costs.</td>
<td></td>
</tr>
<tr>
<td>The strong training component proved to be the right approach</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lessons learned – financial sustainability</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government’s priority crucial</td>
<td>Government’s priority crucial</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lessons learned – regulatory and policy sustainability</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Technological sustainability</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>The strong and versatile training component enabled adaptation of new methods and technologies. The relatively long time span of the project secured enough training under a long enough time.</td>
<td>Breakdown of hardware and upgrading of software need continuous funding.</td>
<td></td>
</tr>
<tr>
<td>Proper space for sensitive equipment could be prepared and will be easy to maintain.</td>
<td>Trained and skilled key persons may join other employers.</td>
<td></td>
</tr>
<tr>
<td>New technologies are introduced step by step and after the basic level, higher levels may be adapted according to needs, resources and interests.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross cutting issues: gender, HIV/AIDS etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction of new computer supported routines emphasizes the role of education and encourages attendance in training programs. This favors equality between men and women and gives new opportunities for women to actively work in the sector.</td>
<td></td>
<td></td>
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</tbody>
</table>
ANNEX 5

Lessons Learned by Stakeholders
Annex 5. Lessons learned by stakeholders


Lessons learned and reflected in the Project Design:

52.. overall, the main lessons learned from global initiatives and capacity building operations for sustainable management of the mineral sector in various regions include (a) the need to establish a sector-specific focus and improvements with clear delineation of authority and responsibility of various ministries and agencies involved in the sector; (b) beneficiary participation in project preparation, organization, implementation, and coordination at the field level; (c) sustainability of project components built around institutional champions for different components; and (d) strong ownership and political commitment to project objectives.

53.. on the policy level, project implementation experience has demonstrated that Government ownership is crucial for successful outcomes of Bank financed projects. The Bank has maintained an active dialog with Government authorities several years, who have demonstrated such ownership and commitment to the Project. Project preparation involved consultation with the Ministry of Finance, Revenue Authorities, and Local Government, to ensure that it is fully in line with the government’s development goals and incorporates its vision.

54. the Project is built on foundation laid by the Mineral Sector Development Technical Assistance Project, successfully completed in 2001. the lessons drawn from the former project have found their reflection in design of this operation, including (a) government’s commitment to institutional reform; (b) integrated and phased approaches for Mineral Sector development; (c) enhanced multi-stakeholder’s participation and consensus on the objectives and results of Mineral Sector development; (d) regional development initiatives and measures, taking stock of the economic activity being generated by mining non-renewable mineral resources; (e) improvement and management of the mineral sector information system and databases; (f) close correlation of the programs for institutional capacity building with the specific project activities to be executed by institutions and agencies under the Project; (g) cost-effective and pragmatic approach to the project supervision in a spirit of cooperative partnership between the Government and Bank. The project recognizes the importance of engaging in an integrated approach to sector reform by including the activities that will contribute to the main components of the Government initiatives, such as extension services for ASM, improving mining cadastre information management system, stimulating mineral sector investment, and strengthen linkages between mining and the local economy.

55. the project contains extensive measures to support responsible artisanal and small-scale mining that reflects best international practice learned through the Bank’s involvement in hosting the Communities and Artisanal and Small Scale Mining (CASM) Secretariat. CASM experience has shown small-scale miners and environmental and social improvements are coupled with formalization and improved incomes. Lessons learned from the UNEP Global Mercury Program implementation activities in Tanzania are also being incorporated into Project.

The involvement of communities and civil society in mining sector projects can be very effective in improving development impacts. The SMMRP includes direct involvement of communities and civil society in the local economic development component through participation in the strategic planning priers at the local level. The artisanal and small scale mining activities are directed to community based miners. The Environmental and social
component includes involvement of civil society in the PSIA and SESA as well as consultation on procedures, guidelines and environmental and social awareness programs. In addition, Tanzania is implementing EITI, with includes self-selected representation form civil society in the EITI Multi-Stakeholder Working Group.

Specifically with reference to components addressed by NDF funded activities:

Component B. Strengthening Governance and Transparency in Mining (US$7.4 million)

39. B1. Legal and fiscal Reform (US$1.7 million). This sub-component will build on previous studies and experience and support the ongoing review and updating of the legal, fiscal and regulatory frameworks for the mineral sector in Tanzania.

40. the sub-component will support the following activities (a) strengthening MEM’s legal services unit; (b) supporting reviews of the Mineral Policy, the Mining Act and related laws with emphasis on harmonization of laws; (c) establishing a legal and regulatory framework on value addition activities and radioactive minerals; (d) creating public awareness on the Mineral Policy and legal and regulatory frameworks, and on the fiscal regime; and (e) supporting activities related to the implementation of EITI.

41. B2. Institutional Capacity Building (US$2.0 million). MEM underwent comprehensive restructuring following the organization efficiency results in 2001 and 2006. Despite the changes, MEM has continued to face various challenges that have necessitated review of its functions and organizational structure to enhance its efficiency.

42. this sub-component will support an institutional analysis to identify needs for capacity building and strengthening linkages and coordination with other government institutions that take part in the administration of the mineral sector. The project has already identified the need to strengthen MEM’s auditing and inspection functions, including environmental impact assessment review and compliance monitoring, mine occupational health and safety, and technical audits for royalty payments and fiscal issues. The sub-component includes the following activities: (a) functional review of MEM; (b) strengthening of the miners’ inspection section; (c) strengthening of the Gold Audit Program Section; (d) training of MEM staff; and (e) improvement of working tools and equipment for ZMOs and RMOs.

43. B3 Improving the Mining Cadastre Information Management System (US$2.0 million). This sub-component will build on the new mining cadastral information management system (MCIMS) that was developed with support from the Nordic Development Fund. The MCIMS was constructed around the centrally located database in Dar es Salaam with a Wide Area Network connecting the system to MEM’s 20 regional offices. By end-2007, MCIMS had inadequately trained administrators and operators, lacked adequate equipment in the regional offices, faced huge application backlogs that affect data integrity, and had not incorporated into the MCIMS all primary mining licenses issues to small-scale miners. Currently, approximately 10,000 pending license applications date back to 2007.

44. The sub-component aims to support MEM’s efforts to strengthen the MCIMS by improving its hardware, software, and human resources and by formulating mechanisms to sustain the system. The sub-component will support (a) assessment of Cadastre needs and strategy, hardware, software and training; (b) system upgrades; (c) staff training in MCIMS operations; (d) improvement of central registry and sub-registries at ZMOs and RMOs; (e) field verification of small scale mining licenses to support the full incorporation of the small-scale mining sub-sector into the MCIMS; and (f) strengthen of the MCIMS and clearance of backlogged applications.
Component C. Stimulating Mineral Sector Investment (US$22.2 million)

47. C.1 strengthening of the Geologic Infrastructure (US$21.0 million). This sub-component will build upon work conducted under the Minerals Sector Development Project financed jointly by the Nordic Development Fund and the Tanzanian Government between 2006 and 2007.

48. The sub-component will support GST to (a) complete high resolution airborne geophysical survey and conduct ground follow up in selected areas of the country, including Chunya, Dodoma, Kiomboi, Kondoa, Manyoi, Babti, Handeni, Kilindi, Mvomero, Bahi, and Chamwino districts; (b) acquire and update geo-data and information through geological mapping and geophysical and geochemical surveys, and publish related maps and reports, particularly for selected areas in Kiomboi, Mbulu, Hanang, Babati, Sinigida, Kondoa, Kitelo, Handeni, Kilindi, Manyoni, Dodoma, Kongwa, Mpawapwa, Iringa, Ludewa, Kilolo, Mufindi, Njombe, Bagamoyo, Mvomero, Kolosa, Mbarali, Kyela, Chunya, Bahi, Camwino, Songea, Mbinga and Namtumbo districts; (c) computerize, digitize and upgrade the existing Geological and Mineral Information System (MIS); (d) strengthen the GST (training and laboratory upgrade); (e) update and maintain the geological map library and rock and mineral core sample archives; and (f) make geoscientific data and information readily accessible to potential investors and stakeholders and feed into infrastructure planning.
ANNEX 6

List of Persons Met
Annex 6. List of Persons Met

**CIDA**
Jared Duhu, Senior Development Officer  
Victoria Mushi, Senior Development Officer

**Embassy of Finland**
Keikki Haili, Minister Councilor, Deputy Head of Mission

**Embassy of Sweden**
Jan Grafstrom, counsellor

**Geological Survey of Finland**
Kristian Lindqvist, Senior Scientist

**Geological Survey of Sweden**
Arne Sundberg, Deputy Head of Division

**Geological Survey of Tanzania (GST)**
Prof. A.H. Mruma, Chief Executive Officer  
Dr Pascal Semikiwa (Principal Geologist),  
Taramaeli T. Mjokava, Principal Chemist

**GEUS**
Per Kalvig, Senior Adviser, Department of Economic Geology  
Christian Knudsen, Head of Department, Department of Geological Mapping;

**Laboratory of GST, Dodoma**
Ely Brian Temu, Director of Geological Services

**Mineral Research Institute (MADINI Institute)**
Dr. A. S. Macheyeki, Deputy Director

**Ministry of Energy and Minerals**
Dr. Kafumu, Commissioner for Minerals  
Hamisi O.M. Komba, Deputy Commissioner for Minerals  
John M. Nayopa, Project Development Team Leader  
Wilfred R. Machumu, Head Licensing and Mineral Rights management  
Frank Makyao, License Officer  
Iman Adam, IT specialist  
Gidion N.A. Kasenge, Head Environmental Management Unit  
Samuel Ayub, Geologist, member of Project Management Unit  
Theodore B.P. Silinge, Principal Forest Officer, Environmental Unit  
Alex A. Magayane, Head Small Scale Mining Development  
Salome Makange, Head Legal Services Unit, MEM  
Joyce Nicodemus, Accountant  
Amina Hajjat, Accountant

**Ministry of Finance**
John Kuchaka, Finance Management Officer, Management of Financial and Economic Affairs  
Jerome J.J.R. Buretta, Assistant Commissioner – Multilateral Aid

**National Audit Office**
Athanas Plus, Assistant Auditor General
National Environmental Management Council (NEMC)
James L. Ngeleja, Principal Environment Management Officer

Nordic Development Fund (NDF)
Poul H. Lassen, Regional Manager East Africa

Norwegian Embassy
Marianne Damhaug, Counsellor Energy

SEAMIC
Mesfin Wubeshot Gebremichael, Manager – Geo-information Services

SGU

STAMICO, Dar es Salaam
Gray L. Mwakalukwa, Director General

Swedish Geological AB
Haakan Tarras-Wahlberg, Managing Director
Karl Westerlund, Technical Director
Klas Lundquist, Senior Consultant

The Minerals Group
Magnus Ericsson, Partner

World Bank
Vedasto C.R. Rwechungura, Programme Officer

Participants in Stakeholder Workshop GST, Dodoma – 16th April 2009
Wt. C.M. Lihapa, Madinga Mining Co
Sahibu M. Mlula, Madinga Mining Company
Nomburi Pb, GST
Abuballar D. Mtulichile, Partners
Mzee R.A. Kange, Stamico, Dodoma
Adriana o Mangare, GST
Pascal Semikiwa, GST
Taramaeli T. Majokaus, GST
Prof. A. H. Mruma, GST
Elly Brian Terus, GST
Robert G. Nkini, Resident Mining Office
Augustina K. Rutathwa, GST
Arnold R. Misana, Stamico
Abel Tiius Mwenda, Mchimbat, Mbutgomongo
Steven Ndabazi, Mineral Resources Institute
Abukabar D. Mtulnchile and Partners, Mwapswa
Abraham Munga, GAIRO
Y. Myumbiliwa, GST
Mr. Liupiudu

Participants in Stakeholder Workshop MEM, Dar es Salaam – 21st April 2009
Alex A. Magayane, Head Small Scale Mining Development
Imani Adam, MEM
Wilfred Machumu, MEM
Philip Sango, Tanzania Mining
Samuel Auyb, MEM, PMU
Mtunai. S. Damury, MEM
Alex A. Magayane, MEM
Teodore Silinge, MEM
Julia Moshi, MEM
Salome Makange, Head Legal Services Unit, MEM
David Malub, Eastern Zonal Office, MEM
Tunaini Lyuvale, Eastern Zonal Office, MEM
Frank. N. Makyao, MEM
Philbert Rweyemamu, Barrick
Siliman R. Mtigile, MPM
Auriare Ambari, TAWOMA
Emmanuel Jengo, Chamber of Mines
Richart Mutatina, Kikarawe Mine
Hayaz Mruma, MEM

Other
Mr Hayaz H.H.Mruma, previous Project Manager
ANNEX 7

List of Literature
Annex 7. List of Literature

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the Ministry of Energy and Minerals and the Swedish Geological AB/Swedsurvey of Sweden, dated 14th of January 2005; only hard copy received

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