

**Intermediate Technology Consultants (ITC)
and Intermediate Technology Development
Group (ITDG)**



MINING CAPABILITY STATEMENT



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intermediate technology consultants

ITDG

PRACTICAL ANSWERS
TO POVERTY

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MINING CAPABILITY STATEMENT

Since its founding in 1969 ITC has carried out projects in more than 50 countries in Africa, Latin America, Asia and Europe. As the consulting arm of Intermediate Technology Development Group (ITDG), an international non-governmental organisation, ITC provides high quality, independent and professional research and advice to its clients, including governments, NGOs, the World Bank, key bilateral agencies and the private sector. Personnel are drawn from an international resource of over 200 professionals in ITDG's eight country and regional offices. Teams of experts are carefully selected, using local expertise wherever possible, to the specific requirements of projects to ensure maximum operational performance, sustainability and local knowledge.



ITC provides advice, assistance, training and research in two strategic theme areas:

Rural and Urban Infrastructure

To improve poor communities' access to essential basic services such as housing, energy, transport and ICTs.

Increasing Enterprise Opportunities and Access to Markets

To contribute to better livelihoods by creating opportunities for the improved use of technology by micro and small enterprise.

ITC and ITDG have been working in the field of **mining** for over 30 years. We have a proven track record of providing support and benefit to small-scale and artisanal miners and work to provide the following **services**:



Institutional Development and Capacity Building: ITC and ITDG have worked to build the capacity of local mining institutions and facilitate the organisation and legalisation of artisanal operations. We have trained women's groups and small-scale mining associations in the safe and environmentally benign prospection, extraction, processing, value-adding and marketing of mineral materials.

- # **Private Sector, Enterprise and Market Development:** We have on-going experience of facilitating an improved marketing chain for mined products. We are currently investigating the potential to create added-value products and to stimulate fair trade in gemstones in Zambia.
- # **Technology and Knowledge Transfer and Development:** ITC and ITDG use participatory methods and a sustainable livelihoods approach to improve upon traditional knowledge systems and provide technical assistance to develop more efficient mineral extraction and processing plants.
- # **Training:** We have substantial experience in the mining and other sectors of the design and implementation of training materials and the provision of training-of-trainers and guidelines for trainers.



Experience of Mining in the African Context

ITDG Southern Africa has become a renowned technology development institution in the mining industry, especially the small-scale sector, in the region. Regionally artisanal mining employs a significant population, provides an income base, generates much-needed foreign currency and economic growth, and can be a vehicle for capital formation and a nucleus of regional development. This decade has seen small-scale mining receive increasing attention in developing countries. Policy makers, national governments, private sector, donors, international organisations, NGOs and technology development institutions have exchanged ideas and experiences and worked to develop strategies for formalising small-scale mining and mineral industries. Countries particularly active in artisanal mining in Africa include Kenya, Uganda, Ghana, Madagascar, Zambia and Tanzania. The ITDG Southern African office and ITC have gathered and maintained regional momentum and responded to active demand at a national level in all these countries, particularly in Zimbabwe and recently in Zambia and Madagascar



Challenges facing the Small-scale and Artisanal Mining Industry

Experiences and lessons emerging from our long involvement in the mining sector have highlighted several challenges facing the small-scale and artisanal mining sector in recent times. Some of these are outlined below:

Lack of Managerial Skills

Small-scale miners face management challenges. To build their management capacities ITC and ITDG have provided training to miners in business management to support miners in basic business concepts and practices including planning, financial management and marketing.



Lack of Information and Technical Skills

Small-scale and artisanal miners often practice extremely inefficient and unsafe methods of prospection and extraction, resulting in very low levels of production. This is a result of a combination of factors such as lack of knowledge and information on techniques and geology, lack of funds for equipment and the often informal and clandestine nature of their activities.

Lack of Appropriate Equipment

Miners often do not have, and are unable to purchase, the appropriate equipment and materials needed to improve production. Often they have depended on ore that was near the surface but these resources are now depleted. They therefore need appropriate equipment and techniques to mine deeper.

Poor Linkages with Service Providers and Markets

Miners do not have networks with other service providers such as financial institutions or international buyers. They require support to effectively link into wider networks and to avoid being cheated by intermediaries.



Environmental Management Rarely Actively Practised

There is a need to raise awareness on the need for environmental control and management. Miners then require support, improved skills, and usually some form of legal or financial incentive to minimise their impact upon the environment.

Adding value to their products

Small-scale and artisanal miners often are unable to add-value to their products by further refinement and processing, or by smarter packaging and marketing. They may even lack information on what can be done with their products, and they usually lack the funds as individuals to invest in the necessary equipment.

ITC and ITDG have considerable experience in working with miners and local stakeholders to overcome the challenges outlined above.



ITC and ITDG Competencies in the Mining Sector

ITC and ITDG Southern Africa have assisted small-scale and artisanal miners to acquire and apply appropriate technologies, knowledge and skills in exploiting mineral deposits and ores and establishing viable, safe and

environmentally sustainable mining operations using a holistic and integrated combination of the following competencies:

- § Socio-economic surveying of mining communities and key constraints analysis
- § Livelihoods analysis and participatory needs assessment (drawing on the sustainable livelihoods framework)
- § Geological exploration, in particular, ore reserve estimation and mining geology
- § Mine design and mine planning, including production and marketing
- § Mineral processing efficiencies
- § Mine environment and safety, including environmental impact assessment studies and management, mine ventilation and mining closure
- § Training – gemstone identification and value-adding; marketing of mineral productions; improved exploration, exploitation and processing techniques
- § Impact assessment
- § Policy Research and Strategy Formulation – contribution to the development of long-term strategies, taking into consideration the perspectives of small-scale and artisanal miners.



More information on our experience in current and previous **mining projects** is shown overleaf.

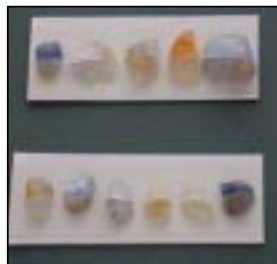
GLOBAL MINING PROJECTS

Mining Sector Diversification Project

Country	Zambia
Client	EU, Sysmin
Contract Value (£)	1,966,000
Dates	2002 - 2007



The immediate beneficiaries of this project will be existing and new small-scale mining operations, lapidary and other processing operations. A financial facility will be made available for exploration, mining and processing purposes. The project aims to make adequate geological data readily available to small-scale miners; improve small-scale miners ability to manage their business; equip miners with adequate mining, safety, valuation and processing skills; improve access to capital and equipment and introduce fair trade. The project will also work with miners to create added-value for gemstones and other products. The team will work with several mining associations to promote the development of the sector and to improve road access in the mining areas.



Vulnerability of Artisanal & Small Scale Mining to Commodity Price Movement

Country	International
Client	DFID
Contract Value (£)	15,000 (of £50,000)
Dates	2003 - 2005

This desk-based research was commissioned by DFID to investigate the interaction between economic variables and price fluctuations and the ASM sector, which has to date been imperfectly understood. ITC's role is to produce two well-researched, peer-reviewed papers on:

- 1) An examination of the relationships between the mining sector & national governments and how external shocks impact on this relationship.
- 2) An examination of the impact of price fluctuations on livelihood strategies in ASM communities compared with other non-financial shocks.

Women in Mining

Country	Zimbabwe
Client	UNIFEM
Contract Value (£)	83,000
Dates	1995 - 1999



Women trained in all aspects of the mining industry from prospection through geology, mining, law, processing and the environment to marketing of their products. A training school was built and people from appropriate institutions such as universities and government ministries delivered the courses. Course graduates have had noteworthy successes in developing business plans which have enabled them to access funding.

Best Practice in Small-scale Gemstone Mining

Country	Sri Lanka
Client	DFID KaR
Contract Value (£)	211,000
Dates	1998 - 2003



The purpose of the Best Practice in Small-scale Gemstone Mining project was to enhance the ability of small-scale gemstone miners to make a living for them and their families from gem and semi-precious stone mining in Sri Lanka, and to identify elements of best practice in gemstone mining and valuation that may be transferable to other contexts. The project undertook a socio-economic survey of Sri Lankan miners and produced a case study (or fact sheet) of the country's gem industry including sections on Geology, Techniques, Institutions, Marketing and Finance. The project also implemented a practical training course on gemstone identification and the factors that influence a gem's value with the aim of enabling miners to ensure they receive a fair price for their gems. The information and source material produced for miners as a result of this work is available in English and Sinhala. Much of the information contained within this document will be readily transferable to other gem-mining contexts because the principles of gem identification and the factors influencing a gem's value remain the same regardless of the source country. The report is available on ITC's website at www.itcltd.htm/final_reports.htm



Normalisation of the Small-scale Mining Sector

Country	Madagascar
Client	World Bank
Contract Value (£)	565,000
Dates	2000 - 2002

The goal of the project was to mainstream small-scale mining operations and to develop the capacity of the Ministry of Mines to provide extension services to miners and manage the sector more effectively. The work included setting up some pilot projects to demonstrate best practice and develop improved services for the mining communities. The project developed an integrated management plan for the sector which proposed means of formalising small-scale mining operations, improving mining conditions, enabling greater added-value through processing, improving mining practices, and providing information to miners on sources of equipment, advice and markets.

Kenya Improved Stone Workers

Country	Kenya
Client	DFID TDR; DFID JFS
Contract Value (£)	288,000
Dates	1998 – 2001



A multi-faceted project that researched best practices in stone quarrying and developed legal guidelines for the sector. Best practice looked at improved tools, improved methods, adding value to the product at the quarry, environmental remediation and health and safety. The project also undertook institutional capacity building.



Shamva Mining Centre

Country	Zimbabwe
Client	Comic Relief, EEC Micro Project Scheme, GTZ/GATE, ODA
Contract Value (£)	450,000
Dates	1988 - 1999

This landmark project established a Mining Services Centre to provide local small-scale gold miners with access to mechanised and more efficient minerals processing. Additional services included assistance with blasting; advice on geology, mining methods, law, marketing and environment; and equipment hire. The project provides milling services to over 500 gold miners, 10 times more than the initially targeted 50 miners. Training interventions delivered to men and women have enabled best mining practices including clean production. The project has been subsequently handed over to the National Miners Association of Zimbabwe to run. The livelihoods of the communities in Shamva have been positively transformed through employment generation and the ultimate income effect.



Mobile Ball Mill

Country	Zimbabwe
Client	EC Co-financing
Contract Value (£)	76,000
Dates	1995 - 1999

The project built a pilot-scale trailer-mounted processing plant to test the viability of providing small-scale gold miners with access to efficient minerals processing by taking the plant to them. The project delivered considerable benefit to the small number of miners who had access to the plant. Wider impact could be achieved by scaling up the operation.



Recovering the Lost Gold of the Developing World

Country	Zimbabwe
Client	DFID KaR
Contract Value (£)	27,000
Dates	1998 - 1999

Best practice research that investigated mining and processing methods in the small-scale gold mining sector. The sampling exercise confirmed the inefficiency of current practices and proposed what further work would be required to improve access to more efficient, more productive and less environmentally damaging mining and processing methods.

Information and Influence in Small-scale Mining

Country	Phillipines and Zimbabwe
Client	DFID - ESCOR
Contract Value (£)	60,000
Dates	1996 - 1999



This advocacy project involved studies on mercury pollution and dust pollution and investigated the kind of economic and legislative frameworks that can facilitate small-scale mining. The project produced and disseminated practical and educational documentation on pollution and health risks to minimise dangers and consumption. The project also ran the secretariat of "Small Mining International" – an international small-scale mining network.

North Dyke Small-scale Chrome Mining

Country	Zimbabwe
Client	Zimbabwe Alloys
Contract Value (£)	20,000
Dates	2001 – 2002

The research focussed on mining cooperatives and involved studying the current mining practices in the North Dyke, identifying the stakeholders, studying the relationships that exist between the various stakeholders, and identifying ways by which the small scale miners might make a sustainable living from chromite mining. The research also identified alternative livelihood options for the area.



Odzi Custom Milling, Zimbabwe

Country	Zimbabwe
Client	EU
Contract Value (£)	15,000
Dates	1999-2000

The project sought to assist Odzi miners to improve their mining practices so that they could supply sufficient ores to a milling plant. Business management courses were run for the miners under the International Labour Organisation Start and Improve Your Business (SIYB) Regional Programme. The SIYB programme through its three pronged intervention strategy at the business idea generation phase, business start up phase and business expansion phase has significantly contributed to transferring business knowledge and skills into relevant practice in mining in Odzi.

Kadoma Custom Milling Feasibility Study

Country	Zimbabwe
Client	Austrian Foundation for Small Mines
Contract Value (£)	5,000
Dates	2001

Conducted a feasibility study of custom milling of gold in Kadoma which concluded that such a project could be run successfully for the benefit of small-scale miners.

Feasibility Study of Small-scale mining activities in Insiza District

Country	Zimbabwe
Client	SNV
Contract Value (£)	25,000
Dates	1998/99

Conducted a feasibility study of small-scale mining activities in the Insiza district in order to assess the environmental impacts of small-scale gold mining activities in the area and to recommend mitigation measures. The report concluded that environmental damage in the area was massive and that this could be mitigated through training in improved mining methods and access to improved gold mining and processing technologies.



Rural Investment Opportunities in the Small-scale mining sub-sector

Country	Zimbabwe
Client	SIDA
Contract Value (£)	10,000
Dates	1999

Study was conducted to assess investment opportunities in the small-scale mining sector in Zimbabwe. The study concluded that investment opportunities for small-scale mining existed in gold, chromite and industrial minerals (especially limestone) mining.