

## Tsodilo

### ENVIRONMENTAL & SOCIAL REVIEW SUMMARY

This Environmental and Social Review Summary is prepared and distributed in advance of the IFC Board of Directors' consideration of the proposed transaction. Its purpose is to enhance the transparency of IFC's activities, and this document should not be construed as presuming the outcome of the Board of Director's decision. Board dates are estimates only.

Any documentation which is attached to this Environmental and Social Review Summary has been prepared by the project sponsor and authorization has been given for public release. IFC has reviewed this documentation and considers that it is of adequate quality to be released to the public but does not endorse the content.

<b>Project number</b>	29378
<b>Country</b>	Botswana
<b>Sector</b>	Oil, Gas and Mining
<b>Department</b>	Oil, Gas, Mining And Chemicals
<b>Company name</b>	Tsodilo Resource Limited
<b>Environmental category</b>	B
<b>Date ESRS disclosed</b>	May 10, 2010
<b>Status</b>	Pend FAP

#### Overview of IFC's scope of review

The review of this project consisted of appraising environmental, health, safety and social information provided by Tsodilo Resources Limited (the "Company" or "Tsodilo"), and assessing the Company's exploration operations through IFC's appraisal of this project which included two field visits by IFC Environmental and Social Specialists as follows:

site visit to the current Shakawe drilling site in December 2009, a meeting with the local chief at Sepupo (Chief Nkape) and his councilors, and review of Newdico (Pty) Limited and Gcwihaba Resources (Pty) Limited Environmental Guidelines and Code of Conduct; site visit by IFC Social Development Specialists at the end of March/beginning of April 2010 to conduct consultations and interviews with local government officials in Gumare (administrative center of northwest Ngamiland) and with community and household representatives in villages in the Ngamiland region of the company's operations (including Sepupo, Nxau Nxau and Tsodilo). Representatives of the Batswana, San (Basarwa or Bushmen) or Herero and Hambakushu ethnic groups in the Ngamiland area were also consulted. IFC staff also conducted meetings with management and key technical staff from Tsodilo.

#### Project description

Tsodilo Resources Limited (the "Company" or "Tsodilo") is a Toronto Stock Venture Exchange listed exploration company. The company's main project (the "Project") involves the exploration of diamonds and metal (base and precious metals, platinum group minerals and rare earth elements) in the northwestern part of Botswana.

The base metal licenses covers an area of approximately 13,500 km<sup>2</sup> while the diamond licenses cover a total area of approximately 16,250 km<sup>2</sup> that includes the southern part of the Angola/Congo craton in Botswana. Exploration for diamonds is centered on an area where a previous exploration program discovered 19 kimberlites, some of which diamond are bearing. Tsodilo has since discovered a further 9 kimberlites, bringing the total number of known kimberlites in this field to 28. The company believes their

license areas could be a potential source of the unexplained G10 kimberlite indicator mineral (“KIM”) and diamond deposits found west of their licenses in Namibia.

The company is also exploring for base metals and has identified a mineralized zone stretching 100 km. Assaying to determine the base metal content of the drilled cores is still outstanding. However, visual examination indicates high copper/nickel mineralization with grades and thickness yet to be confirmed by assaying. Assays and metallurgical test work is planned as part of the program for this year. Confirmation of mineralization will very likely confirm the potential for a big project with a high upside.

Tsodilo is seeking IFC’s engagement to assist in funding the continued exploration of the project to reach a scoping study stage over the next two years; and to provide environmental and social technical assistance to help develop the project in line with industry best practices.

In line with similar previous IFC investments, this Environmental and Social Review Summary (“ESRS”) only covers Tsodilo’s exploration activities as no mining activities have been implemented or planned to date.

### **Identified applicable performance standards**

While all Performance Standards are applicable to this investment, IFC’s environmental and social due diligence indicates that the investment will have impacts which must be managed in a manner consistent with the following Performance Standards:

While all Performance Standards are applicable to this investment, IFC’s environmental and social due diligence indicates that the investment in Tsodilo’s on-going exploration activities will have impacts that must be managed in a manner consistent with the following IFC Performance Standards:

- PS1: Social and Environmental Assessment and Management Systems
- PS2: Labor and Working Conditions
- PS3: Pollution Prevention and Abatement
- PS4: Community Health, Safety and Security

The project, in its exploration stage, has limited impacts on the remote and sparsely populated Ngamiland region of north-west Botswana in which the mining exploration license areas are situated. The limited impacts from exploration activities are adequately addressed under the Performance Standards given above.

At this stage of the project, Performance Standard 5: Land Acquisition and Involuntary Resettlement, does not apply. At present, the company is still in the process of drilling out a potential resource prior to commitment to a feasibility process. As such, no land has been acquired or planned to be acquired by the company; drilling activities are performed on a temporary land use basis in agreements with the local authorities and communities, and given the remoteness of the exploration area no resettlement or impact on livelihood activities of any households or communities is anticipated.

PS6: Biodiversity Conservation and Sustainable Natural Resource Management, does not apply as the project site and exploration drilling operations are located outside of areas with vulnerable biodiversity. North-west Ngamiland, where the company is undertaking its exploration activities, is situated in the middle Kalahari. The Kalahari is the largest continuous stretch of sand in the world, stretching some 2500 kms from the Orange River in South Africa to the tropical forests of the Democratic Republic of Congo (approximately 2 million square kilometres).

Precipitation in the north-west Ngamiland averages between 400-500 mm per annum, but is highly variable and potential evapo-transpiration (“PET”) exceeds rainfall in every month of the year. Rainfall is highly seasonal (November to March) and the dry season lasts 7 or 8 months. Rain commonly occurs in violent torrential isolated storms, rapidly infiltrates the sandy soils and drains away to depressions, leaving little or no surface water.

Over the total extent of the Kalahari the vegetation is very varied, but nowhere is it devoid of all vegetation. In the north-west Ngamiland region, where the company is undertaking its exploration program, vegetation varies from woodland savannah to scrubland and some grassland. All the Kalahari vegetation is adapted to long dry seasons and droughts that can last several years.

Diurnal changes in temperature in winter are extreme, ranging from below freezing to greater than 30 degrees Centigrade. The relict dunes of western Ngamiland towards the Namibian border are considered to be the oldest of the sand features in Botswana. The dunes were deposited by strong easterly winds which created long east-west dune ridges. The dunes are now strongly degraded and stabilized with vegetation cover. Relict dunes near the Namibian border and in the vicinity of Nxau Nxau are more pronounced and have scrubby vegetation at higher elevations and larger trees in the inter dune depressions where there is relatively more abundant groundwater.

The license areas of Tsodilo Resources are however located in close proximity to Okavango Delta and panhandle (the world's largest inland delta and a designated protection site according to the Ramsar Convention on Wetlands of International Importance). However, while the license areas extend to the edge of the wetlands, they do not extend into the Okavango Delta, panhandle and protected area. The company has indicated that there are no plans for any exploration to the north-east of the Maun to Shakawe road which follows the south-western edge of the Delta (commonly at a distance of several kilometres), and thus this forms a 'buffer' zone between potential mining operations and the wetlands of the Delta. The Government of Botswana has developed an Integrated Management Plan for protection of the Okavango Delta that regulates commercial and industrial activities in the vicinity of the Delta and ensures that no exploration or mining activities are undertaken within the Delta.

No negative impacts on Indigenous Peoples (PS 7) were identified at this project exploration stage. The company's license areas are located in the Kalahari area of north-west Ngamiland which was historically a hunting and gathering area for local clans of San (Basarwa or Bushmen) that are considered indigenous peoples of the area. Currently, the San are mostly residing in various designated settlements in the area following implementation of Government of Botswana's policy on settlement of San in centers where water, educational, health and other facilities can be provided. The Government of Botswana has prohibited hunting activities in the area. Thus San communities no longer hunt but still gather traditional plant foods and medicines in areas surrounding the settlements in which they have been relocated. San communities are largely marginalized and vulnerable and depend on some employment by Batswana, Herero and Hambukushu households on the cattle posts and some small subsistence agricultural plots. Some San own limited numbers of livestock and produce crafts for sale to tourists. In addition, some San and members of other local ethnic groups have been employed temporarily by Tsodilo to assist with road/track clearing and drill pad establishment.

At this stage of exploration activities by Tsodilo Resources, no negative impacts on San were identified. However, depending on the results of exploration activities, locations and scales of potential commercial mining activities in the area, such impacts may arise. Prior to any mining development the company will therefore be required to undertake a detailed Social Baseline and Impact Study as a part of the Environmental and Social Impact Assessment ("ESIA"), with special emphasis on the San and the development of mitigation measures in close consultations with indigenous communities. The company is currently undertaking ongoing consultation with local communities, including representatives of the San and will develop a comprehensive Stakeholder Engagement Plan (SEP) for future consultations with the local communities.

No Cultural Heritage (PS 8) issues have been identified to date. It is important to note however, that Tsodilo Hills, a UNESCO World Heritage Site is located 53 km south-west of

Shakawe in the license area. The site was inscribed in 2001 due to its unique religious and spiritual significance to local peoples, as well as its unique record of human settlement over many millennia. Tsodilo Hills contain over 4,500 rock paintings in an area of approximately 10 km<sup>2</sup> within the Kalahari Desert. A recent discovery of 70,000-year-old artefacts and a python's head carved of stone appears to represent evidence of the first known human rituals. The site is protected by the Government of Botswana and is fenced with a small museum located in the "core" area of the protected hills. No activity, apart from visits by local people and tourists, is permitted in the "core" area of Tsodilo hills. A "buffer" zone outside of the fence protecting the core area is used for cattle grazing and some limited subsistence agricultural cropping (mainly millets) by the residents of nearby villages. The company is not allowed to undertake any activities in the "core" area of the site and Tsodilo's drilling activities are also outside the buffer zone. The nearest existing drill site to Tsodilo Hills is 40 kms away.

No archaeological investigations have yet been undertaken in the drilling area. It is possible therefore, that archaeological artefacts are present in the area, and thus a detailed survey would need to be undertaken as part of the full ESIA if the project transitions to the development/exploitation phase.

### **Environmental and social categorization and rationale**

At this stage, due to the fact that the company is currently in the prospecting stage with limited exploratory drilling, testing and laboratory analysis, the Environmental, Health & Safety, and Social (EHSS) impacts of the project are limited, few in number, site specific and will be largely reversible and readily addressed through mitigation measures. Categorization of the project is based on the impacts of exploration activities, which consist primarily of: construction of temporary access tracks, drill pads for exploration drilling, construction of small temporary base camps for workers, limited emissions of dust and water, and waste streams from camp activities and machinery maintenance. Based on these considerations, this is a Category B project according to IFC's Environmental & Social Review Procedure.

The IFC made this categorization based on:

two site visits to the exploration project area;  
meetings with management and key technical staff from Tsodilo and review of technical documentation provided by the company;  
meetings with local officials and representatives of various government departments in Gumare (administrative center of north-west Ngamiland);  
meetings with community and household representatives in villages in the Ngamiland region of the company's operations (including Sepupo, Nxau Nxau and Tsodilo). This included consultation with representatives of the Batswana, San (Basarwa or Bushmen), Herero and Hambakushu ethnic groups in the north-west Ngamiland area where exploration by Tsodilo is being undertaken.

Any IFC investment in any future mining development will be assessed as a new project and its categorization will be determined after the necessary due diligence. If any of the exploration sites proves to be commercially suitable for mining development, environmental and social impacts of mining will be extensively studied and mitigation measures developed. Tsodilo will prepare the environmental and social documentation required to demonstrate compliance with IFC Performance Standards and EHS Guidelines, including baseline studies and ESIA. IFC will ensure that social and environmental documents associated with such a development, and a new ESRS will be publicly available and consulted upon in accordance with IFC's disclosure policy prior to the start of any mine construction. Even at this early stage, the company has committed to undertake activities as per the Environmental and Social Action Plan ("ESAP") to develop principles and policies for ensuring that any resulting future mining development will meet or exceed international best practice in environmental and social performance, and will comply with

### **Key environmental and social issues and mitigation**

The key social and environmental issues to address in this exploration project currently include:

control of erosion, rehabilitation of drill roads and drill sites;  
safe disposal of oils, waste materials and dust control;  
water and effluent management;  
occupational health and safety and community safety;  
hazardous materials handling and management;  
emergency preparedness & response;  
management of community relations and expectations during ongoing consultation and disclosure, and,  
maximizing benefits of the project for local communities (including preferential employment; assistance with community development initiatives where feasible);  
Environmental, Health, Safety and Social Policy commitments to ensure the compliance with IFC Performance Standards of any future mining activities.

#### **PS1: Social and Environmental Assessment and Management Systems**

**Assessment:** Tsodilo Resources has not yet instituted environmental and social baseline studies since the project is still in its early stages of exploration as highlighted above. Tsodilo however, has had in place Environmental Guidelines and a Code of Conduct, with effect from January 1st 2008. The guidelines are intended to ensure that all parties involved in the drilling activities are aware of the potential impacts of their activities and carry out their work in a manner that is environmentally sensitive as well as sensitive to the interests and rights of local communities.

Tsodilo has committed to implement an ESAP to cover all Health, Safety, Environment and Community (HSEC) aspects related to exploration activities, feasibility work and potential future mine development. A Social and Environmental Management System will be developed as per item #1 of the ESAP. The company has committed to a HSEC Policy document which will be developed with the IFC assistance, as per item # 1a of the ESAP. Tsodilo is committed to meet the IFC Policy and Performance Standards on Social and Environmental Sustainability and will develop an Environmental and Social Impact Assessment should any potential mining development be envisioned, as per action items #1d, #3 and #4 of the ESAP.

IFC has already identified, in consultation with local authorities and communities, some key issues that will have to be addressed in the social and environmental assessment documents should the company move forward to the development of any mines. Issues typical of mining such as the need for stakeholder engagement, land acquisition, livelihood restoration, access roads, energy and water supplies, waste management, waste dumps and tailings, etc will need to be fully addressed.

In view of the growing and future international water usage in the Okavango river basin in Angola, Namibia and Botswana and the cumulative impacts on the Okavango Delta and its sensitive ecosystem, any water abstraction will be a key issue which will need to be assessed thoroughly (as per item #1d of the ESAP). Use of any groundwater will also need to be assessed carefully, particularly in respect of sustainable groundwater recharge or depletion of relict groundwater sources. Depending on the location of viable commercial mining deposits, access roads would need to be constructed and electric power would probably need to be self-generated.

The exploration license areas are in the remote very sparsely populated Ngamiland region. Any mining development is therefore likely to attract large numbers of newcomers seeking

work and entrepreneurial opportunities, and this will require development of an influx management plan in close consultation with local authorities and communities (as per item #1d of the ESAP). Such an influx could exacerbate the expansion of local centers such as Shakawe and Gumare that have grown rapidly in recent years. An influx of outsiders could also exacerbate the incidence of HIV/AIDS in the Ngamiland area.

**Management and Organization:** Tsodilo's management team has committed to carrying out its exploration activities in line with industry best practices for mining sector governance, transparency and sustainability. As an exploration company, Tsodilo does not yet have any internal separate function for environmental and social issues, relying on the local operational staff for environmental considerations and community engagement. Tsodilo will assign a responsible person such as the project Geologist or Country Manager to spearhead the implementation and monitoring of the HSEC Policy on a day-to-day basis.

**Monitoring and Reporting:** Tsodilo will monitor the implementation of the ESAP and its HSEC Policy in compliance with the Botswana regulations and the IFC PSs'. Tsodilo does not currently publish any report on the environmental and social aspects of its exploration activities. In future, Tsodilo will submit an Annual Environmental & Social Monitoring Report (AMR) to IFC detailing environmental and social progress, incidents and monitoring, as appropriate. The company will also be reporting regularly, at a minimum annually, to the local communities on progress made in drilling out the resource as part of commitments as per the Stakeholder Engagement Plan (SEP) (item # 1b of the ESAP).

#### PS2: Labor and Working Conditions

**Human Resource Policy and Management:** Tsodilo has an existing total workforce of 12 people employed in the exploration project, of which one (Project Geologist) is an expatriate. Occasionally, manual labor is sourced from the surrounding communities via the local chiefs for clearance of road access routes and drilling sites. The drilled core is transported by road and stored at Maun airport, where Tsodilo is leasing one of the hangers. Local people are employed at the core-shed for sample preparation and core cutting. At the time of appraisal, Tsodilo had not yet developed a Human Resources Policy and Procedures in line with IFC standards. The company is currently a small junior exploration company that has only recently commenced drilling out of potential mineable resources. Tsodilo will develop an HR Policy as part of the HSEC Policy (item #1a of the ESAP). The HR Policy will include equal opportunity principles, a commitment to training and integration of local employees into its management and to the professional development of local technical staff. The Policy will also include a formal grievance mechanism for employees.

**Occupational Health and Safety (OHS):** While internationally accepted standards for occupational health and safety will be implemented through the HSEC Policy by Tsodilo, at the time of appraisal, Tsodilo did not keep OHS incident reports or environmental incident reports. Tsodilo, as part of their Environmental Guidelines and Code of Conduct, has an environmental compliance form which allows for the capture of environmental incidents as part of the collar site inspection checklist. The form is completed and signed by the Contractor/Driller and approved by the Project Geologist. There have been no reportable accidents to date. Going forward, Tsodilo will initiate formalized incident reporting which will form part of the AMR to be submitted to the IFC.

#### PS3: Pollution Prevention and Abatement

**Solid Waste:** Tsodilo's exploration activities generate minimal amounts of waste and it is all segregated appropriately. The company responsibly manages their waste streams and the final disposal methods. The main solid waste includes domestic refuse and sewage. Tsodilo's Environmental Guidelines stipulate that domestic waste shall not be burnt, buried or left on or adjacent to the site during drilling or after the field camp has been disassembled and removed. Instead, domestic waste is removed to designated dumping

sites.

Human waste is buried at least 30 cm below the ground and where a permanent base camp is established, proper sanitary facilities are installed and proper long drop latrines are used. These long drop latrines are closed and sealed off once they are full.

Drilling waste (chippings and mud) is buried at a depth of one meter. Topsoil and organic material, from drilling sumps and pads stripping, is stockpiled for use in the rehabilitation process as part of the drill hole closure process. Drilled areas are rehabilitated as soon as they are no longer required by re-vegetating the area; natural growth is rapid in the area.

The company does not ordinarily handle hazardous or toxic waste at this stage of their exploration activities. Some of the wastes include minimal amounts of used oil, grease, lubricants and drilling fluids from drilling activities. This waste is removed to designated dumping sites or recycling plants. The company avoids spillage of used drilling media and lubricants into water channels and the soil by means of the construction and use of sumps. Further, Tsodilo uses biodegradable drilling fluids.

Energy Use: Power for the camp is supplied from a small generator mounted on one of the drilling support vehicles and fuel for this Genset is currently stored in a mobile tank mounted on another drilling support vehicle. The mobile fuel tank also supplies fuel to the drilling rig.

Water Quality and Use: A water pipeline runs NE to SW parallel to the major highway (Shakawe/Maun) and carries water from the Okavango River water treatment facilities to Shakawe. Stand pipes are installed at intervals along the entire length of the pipe and these supply potable water to the adjoining communities. Tsodilo also collects a limited amount of water from these pipes for their drilling requirements, and bottled water is used for potable water supplies.

The vulnerability of groundwater and surface water receptors to the present exploration campaign and any future resource development have been identified by Tsodilo as one of the main environmental impacts facing the project. Occasionally exploration boreholes intersect groundwater resources and if not sealed, the borehole acts as a potential pathway for contaminants to enter the groundwater both from surface runoff and from other (even lower) horizons. As a result, the drill holes are refilled using clean sand or gravel to prevent contamination of groundwater, and this is clearly specified in the company's Environmental Guidelines. Cement containing 30% by volume of bentonite or other suitable colloidal reagent is used in the groundwater bearing horizons

Air Quality: Drilling operations are commonly undertaken in remote locations away from local communities, and dust from the drilling operations is carefully managed to avoid any impacts. Other emissions are from the drilling rig itself and small number of light vehicles consuming less than 10,000 liters of fuel per year.

Emergency Response and Preparedness Plan: None currently in place and Tsodilo currently does not have such a plan and will develop a separate Emergency Response Plan or Procedures (ERP), as per item #2 of the ESAP.

#### PS4: Community Health, Safety and Security

Where exploration drilling is to take place within community or private property, the company ensures that it has obtained approval from the community representatives or the owner of the property, and an authorization from the Land Board Authorities is obtained before any land is disturbed and work is commenced. No drilling has been undertaken to date in close proximity to residential areas and no safety impacts on communities have been identified to date. The use of community access roads by the company's vehicles is conducted with appropriate safety procedures to avoid accidents.



There is potential for vehicle impact on local vegetation and very limited and isolated areas of cropland. Tsodilo's Environmental Guidelines and practice dictates that clearing of vegetation to construct temporary access routes is undertaken using hand tools, in order to facilitate the rehabilitation of vegetation, save in circumstances when it is necessary to use mechanical clearing equipment of which approval will be given by the company. Large trees, with a stem diameter of 200 mm or more are not cut, instead cut-lines and access routes are routed around such trees.

### **Client's community engagement**

The company is in regular communication with a number of local stakeholders including the local administration in Gumare, representatives of local communities (including Batswana, San or Basarwa, Herero and Hambakushu groups) and chiefs of the villages around its operations. IFC observed that the company has established a close positive relationship with local communities, whose representatives reported that the company informs them of the exploration programs and upcoming activities, including drilling and access route development.

The company provides preferential employment to the local villages and undertakes ad hoc community development activities, such as providing computers to a school in the village of Nxau Nxau, which caters for specifically 248 San children from households throughout the north-west Ngamiland area (including a hostel), and also for local Batswana, Herero and Hambuhushu children at Nxau Nxau. The company is engaged in collaboration with the Water Affairs Department on finding sustainable solutions for the provision of potable water in the area.

Communities in the vicinity of exploration activities clearly welcome the company and there are high expectations of potential economic development and job creation from the future mining operations, which need to be managed carefully through on-going consultation. The company will further develop its strategic approach to stakeholder engagement by implementing a Stakeholder Engagement Plan (SEP) to ensure proper stakeholder relationships, manage expectations, address grievances, provide regular feedback, monitor community support, identify needs and priorities for sustainable development, including the needs of the local indigenous San people (item #1b and 1c of the ESAP), and any opportunities to assist with local development in the course of the company's exploration activities.

### **Local access of project documentation**

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Website access:

[http://www.tsodiloresources.com/i/pdf/2010-05-11\\_IFCTSDESRS29374.pdf](http://www.tsodiloresources.com/i/pdf/2010-05-11_IFCTSDESRS29374.pdf)