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URANIUM, THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT: LESSONS FROM NAMIBIA

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INTRODUCTION

Namibia has a well-established uranium exploration and mining sector, and proudly looks back onto four decades of uranium mining at the Rössing Uranium Mine. The Langer Heinrich Mine has produced uranium for a decade, and another milestone was reached in 2016 with the opening up of the Husab Mine, set to become one of the largest uranium mines in the world. Namibia also has a number of known deposits at an advanced exploration or early development stage, just awaiting an improvement in the uranium market to become active contributors to the Namibian economy. Furthermore, active exploration is ongoing, and received a boost when a moratorium on nuclear fuel licenses was lifted by the Ministry of Mines and Energy last year.

The Namibian uranium sector has an excellent record of cooperation with government, including active collaboration on environmental issues. The Ministry of Mines and Energy's Strategic Environmental Management Plan, which is assessing the environmental performance of uranium exploration and mining activities, is implemented with active participation of the industry. This is an important aspect, as the industry is operating in a sensitive arid environment.

BACKGROUND

Uranium Mining in Namibia is carried out in the Erongo Region in the central western part of the country. This region is characterized by its aridity, vast desert landscapes, scenic beauty, high biodiversity and endemism and heritage resources. It has the second largest economy of all the Namibian regions, and mining plays a very important part in this economy. Walvis Bay and Swakopmund are amongst Namibia's five largest towns, at the same time, large parts of the Erongo Region, especially along the coast, are under active conservation in the form of national parks [1].

The Namibian uranium deposits belong to two main types, namely primary uranium mineralisation in light-coloured granite (alaskite) (Rössing, Husab), and secondary uranium mineralisation in calcrete (Langer Heinrich). Secondary mineralisation is the result of weathering of rocks with primary mineralisation. The predominant uranium mineral in alaskite is uraninite [UO2], but betafite [U(Nb,Ti)2O6(OH)] can be a major mineral phase in some places. Secondary uranium deposits are found in calcrete which formed in paleo-valleys of ancient rivers flowing westwards from the Great Escarpment some 88 to 25 million years ago. The main uranium mineral in calcrete is carnotite [K2(UO2)2(VO4)2 x 3H2O]. It occurs in cracks and as a coating on sediment grains in the calcretised fluvial channels. Both mineralisation types are amenable to open cast mining methods [2].

The Namibian uranium exploration and mining activities occur in the ecologically sensitive central Namib Desert, and in an area partly belonging to the Namib-Naukluft and Dorob National Parks. Mining is vital for the growth of the Namibian economy, and the country must therefore reconcile development objectives and mineral exploitation with environmental protection for its long-term socio-economic growth and stability. An integrated approach is required so that development of one resource will not jeopardize the potential of

another. In order to support and facilitate such an integrated approach, the Namibian Uranium Association was formed by the industry in 2013.

THE NAMIBIAN URANIUM ASSOCIATION (NUA)

Members of the NUA include all Namibian uranium mining operations, Namibia's leading uranium exploration companies, and associated contractors. NUA is the leading point of contact for government, media, stakeholders, the general public and anybody interested in the position and policies of the Namibian uranium industry. Members of NUA accept product stewardship as a pillar that supports the overarching concept of Sustainable Development. In this way the Association makes a lasting contribution to the socio-economic development of Namibia while at the same time minimizing the environmental footprint and promoting the Namibian uranium brand [2].

Product stewardship ensures that the industry focus on economic development, environmental impact management and social responsibilities by building partnerships throughout the uranium life cycle to ensure that production, use and disposal are consistent with the global sustainable development goals and global best practices. Cumulative socio-economic and biophysical impacts of mining cannot be successfully addressed by one company only, and unsustainable practices by one company can impact negatively on the entire industry. Proactive cooperation in health, environment, radiation safety and security and community issues companies is therefore a necessity.

THE NAMIBIAN URANIUM INSTITUTE (NUI)

As part of its stewardship mission, NUA has established the NUI. NUI is guided by respected independent scientists who serve on NUA's Scientific Committee. The main purpose of NUI is to act as a hub for the uranium industry in Namibia, and promote knowledge and capacity building in specialized skills in environmental management, radiation safety and health. NUI therefore provides an opportunity for NUA members to work together to improve safety and health performance through the implementation of world-class leading best practices an. As such, NUI is working closely with the Namibian Government and with the Namibian University of Science and Technology.

NUI's activities are guided by a Sustainable Development (SD) Committee, which was formed to assist the uranium industry in safeguarding its reputation as a safe and responsible commerce. The committee was also established to assist NUI in promoting best practices with regard to health, environment, and radiation safety and security; and in its oversight responsibilities by reviewing, monitoring, and advising NUI and NUA from a uranium industry-wide perspective. At policy level, the SD Committee reviews and guides NUA policy formulation to ensure that it incorporates principles of sustainable development early in the process. These principles include public participation, inter-generational equity, sustainable use of natural resources and public access to information. The SD Committee's duties include the assessment and monitoring of all risks associated with health, environment and radiation safety and security matters of the uranium industry; assistance with the development and implementation of internal compliance and control systems and procedures to manage risks; coordination of assessment and monitoring of the effectiveness of controls instituted; and the review and making of recommendations to NUI and NUA in relation to risk management. In order to achieve this, the SD Committee has also appointed four working groups, namely the Services Working Group, the Radiation Safety Working Group, the Water and Air Quality Working Group, and the Swakop River Farmer's Working Group.

NUI's Communication Technical Advisory Committee (C-TAC) was established in order to recommend to NUI the overall strategic direction of the institute's communications. It is an advisory committee tasked to advise and assist NUA through NUI in carrying out its mission and strategic plan by developing and monitoring communication protocols, initiatives and policies, and formulating and implementing a stakeholder engagement and communication strategy for the uranium mining industry in Namibia.

TRAINING

An integral part of NUI's activities is teaching in order to improve knowledge, safety and the implementation of best practises in the field of occupational health, environmental management and radiation safety. As part of its stewardship mission, NUI has developed partnerships with various scientists to develop standards, guidelines and training courses to cater for the needs of the uranium industry. NUI is officially registered with the Ministry of Labour and Social Welfare as an Approved Inspection Authority in terms of the Regulations made under Schedule 1(2) of the Labour Act, 2007 (Act 11 of 2007), with competencies in the fields of health, environment and radiation safety and security [2].

THE STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN

Some 10 years ago, when prices for fuel for civil nuclear reactors were rising fast, resulting in a worldwide boom in uranium exploration and mining, the Namibian uranium industry recommended to the Namibian government to undertake a Strategic Environmental Assessment (SEA) of the Namibian uranium province, where exploration for uranium was also expanding rapidly. Subsequently, such an assessment was carried out by the Geological Survey of Namibia (GSN), Ministry of Mines and Energy (MME), and provided vision

and generated a culture of cooperation between the uranium mining industry, government and the public. A Strategic Environmental Management Plan (SEMP) was developed as a result of the SEA, and has been implemented by the Geological Survey of Namibia in cooperation with the Namibian uranium industry since 2011. It is an over-arching framework and roadmap addressing the cumulative impacts of existing and potential developments and the extent to which uranium mining is impacting the central Namib. The SEMP has 12 themes, the so-called Environmental Quality Objectives (EQOs), each articulating a specific goal, providing context, setting standards and having a number of key indicators that are monitored. These themes include socio-economic development, employment, infrastructure, water, air quality, health, effect on tourism, ecological integrity, education, governance, heritage and future, and mine closure and future land use [3].

Implementation of the SEMP is guided by a steering committee that is chaired by GSN (MME). Members include the Department of Water Affairs in the Ministry of Agriculture, Water and Forestry, the Ministry of Health and Social Services, which includes the National Radiation Protection Authority, the Ministry of Environment and Tourism, the Gobabeb Research and Training Centre's Namibia Ecological Restoration and Monitoring Unit, the Namibian Coast Conservation and Management Project and NUA.

NUI is actively contributing to the compilation of the Annual SEMP Reports. A great achievement of the SEMP to date is the fact that the Annual SEMP Reports have established a long-term monitoring and decision-making tool through which potential impacts are highlighted so that measures can be developed to avoid unnecessary impacts or to mitigate unavoidable impacts. The aim of the SEMP process is to increase the commitment of key government institutions, the uranium industry and NGOs to undertaken whatever actions will take the region towards its desired future state of the SEMP.

SUSTAINABLE DEVELOPMENT

In Namibia, sustainable development is a constitutional imperative. In Article 95, the Namibian Constitution obliges the state to actively promote and maintain the welfare of the people by adopting policies that are aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefits of all Namibians both present and future. Hence there is a duty to ensure that Namibia's environment remains healthy and productive and that Namibians use their natural resources in sustainable and productive ways to combat poverty and improve people's quality of life. Through the implementation of its stewardship principles, which ensure a focus on economic development, environmental best practice and social responsibility, NUA is actively involved in the sustainable development of Namibia.

In September 2015, 17 Global Sustainable Development Goals (SDGs) were adopted in New York by world leaders under the United Nations 2030 Agenda for Sustainable Development. Even before this event, the African Union has formulated a Consolidated African Position (CAP) in support of the United Nations 2030 Agenda for Sustainable Development. In addition, the African Union Agenda 2063 is a global strategy to optimize the use of Africa's resources for the benefit of all Africans. The domestication of the African Union Agenda 2063 and the SDGs was launched in Windhoek in June 2016 by the Hon Deputy Prime Minister and the Director General of the National Planning Commission. The Namibian National Development Plan 5 has Sustainable Development as the overarching theme, and alignment of the AU Agenda 2063 and the SDGs with NDP 5 is under way. NUA's contributions towards Sustainable Development and the work of NUI's Sustainable Development Committee are therefore fully in line with Government policies. NUI was actively involved in the drafting of NDP5 at National Planning Commission level and is also represented on the Namibian government's Sustainable Development Advisory Council.

The mining industry has the potential to contribute positively to all 17 SDGs. The SDGs have 90 indicators, and an analysis showed that 53 are already met by the uranium industry in Namibia. These fall under SDG 1 (No poverty), SDG 2 (No Hunger), SDG 3 (Good Health), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 6 (Clean Water and Sanitation), SDG 7 (Good Jobs and Economic Growth), SDG 8 (Renewable, Affordable, Clean Energy), SDG 9 (Innovation and Infrastructure), SDG 10 (Reduced Inequalities), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption), SDG 13 (Climate Action), SDG 15 (Life on Land), SDG 16 (Peace and Justice), and SDG 17 (Partnerships for the Goals).

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Country or International Organization

Namibia

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