SnT 2025
CTBT: SCIENCE AND TECHNOLOGY CONFERENCE
8 SEPTEMBER ONLINE DAY
9 TO 12 SEPTEMBER AT HOFBURG PALACE, VIENNA & ONLINE

P5.2-789

A proposal to transfer Botswana National Data Center to a University environment

Motsamai Tarzan Kwadiba[1,2], Botlhe Bruno Tladi[1], Kamogelo Sekale[1], Modise Garegae[1], Esther Modise[1], Ntebogang Kgangetsile[1], Elisha M. Shemang[2], Loago Molwalefhe[2], Ame Thato Selepeng[2], Moikwathai Moidaki[3], Rapelang Simon[3], James King[3], Joseph Maritinkole[4]

[1]Botswana Geoscience Institute (BGI), [2]Botswana International University of Science and Technology (BIUST), [3]University of Botswana (UB), [4]Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)

INTRODUCTION AND MAIN RESULTS

This presentation provides insights into the global norm of operating National Data Centers (NDCs) under university settings, which, in the case of the Republic of Botswana, has been used as a working hypothesis in the proposal to move the NDC from a national geological survey of the Botswana Geoscience Institute (BGI) to the Botswana International University of Science and Technology (BIUST). Operating the NDC in the university environment offers a plethora of key benefits, including students' involvement in NDC activities to enable acquisition of necessary skills in the routine data analysis, access to NDC training sessions and workshops aimed at enhancing technical skills and knowledge on the various forensic science disciplines of the CTBT verification regime, and development of national and regional capabilities in the monitoring of nuclear weapons test explosions and the national implementation of the Treaty.

SnT 2025 CTBT: SCIENCE AND TECHNOLOGY CONFERENCE
8 SEPTEMBER ONLINE DAY
9 TO 12 SEPTEMBER AT HOFBURG PALACE, VIENNA & ONLINE

A proposal to transfer Botswana National Data Center to a University environment

Motsamai Tarzan Kwadiba[1,2], Botlhe Bruno Tladi[1], Kamogelo Sekale[1], Modise Garegae[1], Esther Modise[1], Ntebogang Kgangetsile[1], Elisha M. Shemang[2], Loago Molwalefhe[2], Ame Thato Selepeng[2], Moikwathai Moidaki[3], Rapelang Simon[3], James King[3], Joseph Maritinkole[4]

P5.2-789

Precis

There is an urgent need to transfer the Botswana NDC from the Botswana Geoscience Institute (BGI), which is a national geological survey, to the Botswana International University of Science and Technology (BIUST) in line with a Memorandum of Understanding between the BGI and BIUST concerning the establishment of a Seismological Research Center. Once at BIUST, the NDC can deliver a plethora of benefits, including students' involvement in NDC activities to enable acquisition of necessary skills in the routine data analysis, access to NDC training sessions and workshops aimed at enhancing technical skills and knowledge on the various forensic science disciplines of the CTBT verification regime, development of national and regional capabilities in the CTBT monitoring, verification and national implementation of the Treaty, and cultivation of future forensic scientists specializing in the various CTBT verification technologies.

Overview

The Seismology Section (SMS) at the Botswana Geoscience Institute (BGI) in Lobatse, Botswana, is responsible for the operation and maintenance (O&M) of seismological monitoring stations in the Republic of Botswana to ensure that the country conforms to and implements its obligations under the various international agreements and treaties concerning denuclearization and a nuclear-weapons-free world.

Responsibilities of the Seismology Section

The SMS is responsible for the implementation of several international agreements and treaties on behalf of the Republic of Botswana, through the O&M of seismological monitoring stations in the country to ensure compliance with international agreements and treaties regarding the reduction of nuclear weapons towards global denuclearization and a peaceful nuclear-weapons-free world (**Table 1**). Thus, seismic monitoring in the country supports the national requirements to keep the country free from nuclear weapons, mitigate seismic devastations, and contribute to global efforts of denuclearization.

Table 1: List of some of the key international agreements and treaties to which the Republic of Botswana is a Signatory.

INDEX	TREATY / AGREEMENT	DATE OF SIGNATURE	DATE RATIFICATION
1	Comprehensive Nuclear-Test-Ban Treaty (CTBT)	16 September 2002	28 October 2002
2	Treaty on the Prohibition of Nuclear Weapons (TPNW)	26 September 2019	15 July 2020
3	Non-Proliferation of Nuclear Weapons Treaty (NPT)	1 July 1968	28 April 1969
4	African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba)	9 June 1998	16 June 1999
5	Agreement Between the Government of the United States of America and the Government of the Republic of Botswana Concerning the Operation of a Seismic Monitoring Station in Botswana (LBTB Agreement)	16 February 2000	N/A

NB: Botswana has domesticated the ***Non-Proliferation of Nuclear Weapons Treaty (NPT)*** through the ***Nuclear Weapons (Prohibition) Act, 2018***.

Problem Statement: Different mandates

The core mandate of the BGI is to undertake multiscale geological mapping all over Botswana and produce comprehensive reports and maps for guiding geoscientists to explore, exploit, and develop mineral resources for the benefit of the country. On the other hand, SMS verifies Botswana's compliance with international agreements and treaties on the prohibition of nuclear explosions, disarmament, and nuclear weapons non-proliferation, and minimizes loss of human lives, property damage, and socioeconomic disruption due to earthquakes. Therefore, SMS is currently misplaced at the BGI as a result of discordant mandates.

Remediation and Way Forward

To relocate SMS from the BGI to a university environment, which is in alignment with international best practice and global benchmarks. For example, the Kenyan NDC is hosted at the University of Nairobi, and the Ethiopian National Data Center is hosted at the University of Ethiopia in Addis Ababa.

Acknowledgements

The CTBTO provided financial support for attendance at the SnT2025 Conference

Republic of Botswana
Botswana Geoscience Institute
Excellence in Geoscience
BIUST BOTSWANA INTERNATIONAL UNIVERSITY OF SCIENCE & TECHNOLOGY
UNIVERSITY OF BOTSWANA
CTBTO PREPARATORY COMMISSION