Bindura University of Science Education

"Shaping and Creating the Future: Building Zimbabwe" www.buse.ac.zw

NATIONAL SCIENCE, TECHNOLOGY AND INNOVATION EXPOSITION (NSTIE)

Theme: **Future Forward Science: Unlocking Creative and Innovative, Potential in our Young People**

Date: Friday, 26th July 2024, 0900Hours
Venue: BUSE FSE Complex Ground, Shashi View, Bindura, Zimbabwe

Target Audience: All Public and Private Secondary High Schools in Zimbabwe, All students, and Teachers

Introduction

Science, Technology, and Innovation (STI) are essential ingredients in the industrialisation and sustainable development of nations. STI is a sound machinery for achieving the UN Sustainable Development Goals (SDGs) and the African Union's Agenda 2063 (STI strategy for Africa- STISA 2024) that focuses on the socio-economic transformation of the continent. This calls for a critical re-evaluation of the application of STI for industrialization and a knowledge-based economy in our nation Zimbabwe. Regular impactful Science Technology and Innovation Exposition (EXPO) is therefore imperative for future-forward science in the nation.

The Exposition aims to harness and showcase the scientific talents of high school students and teachers in the public and private secondary/high schools in Zimbabwe. By fostering innovation and creativity, the exposition will contribute to the broader goals of Education 5.0 in Zimbabwe, which emphasizes teaching, research, community service, innovation, and industrialization. This initiative aligns with national and global educational agendas, promoting a culture of scientific inquiry and practical application among young learners. It grooms students to become job creators rather than job seekers.

To provide a quality forum for Secondary / High Schools to showcase various initiatives, talents, innovations, creativity, critical thinking skills, entrepreneurial skills, and productivity in the knowledge application of STI & STEM. Also to promote industrialisation drive and transformative community services in Zimbabwe.

Objectives

The STI will specifically:

1. **Showcase and appraise the achievements and breakthroughs** of the Secondary / High Schools sector in STI

2. Facilitate dialogue and interactions among Secondary/ High School stakeholders on the role of STI towards industrialisation.
3. **Promote Scientific Inquiry**: Encourage students to develop and apply scientific methods to investigate and solve real-world problems.
4. **Foster Innovation**: Stimulate creativity and innovation by providing a platform for students to present original scientific projects and inventions.
5. **Enhance Learning**: Bridge the gap between theoretical knowledge and practical application, enhancing students' understanding and retention of scientific concepts.
6. **Develop Soft Skills**: Improve students' communication, presentation, and teamwork skills through project collaboration and exhibition.
7. **Encourage STEM Careers**: Inspire students to pursue careers in science, technology, engineering, and mathematics (STEM) by exposing them to various fields and opportunities.
8. **Promote Future Forward Science**: Talents hunt and catching them young.

Global Rationales for Addressing Education 5.0 Agenda

1. **Enhancing Global Competitiveness**: By aligning with global standards in STEM education, the exposition will help Zimbabwean students compete internationally in science and technology fields.
2. **Promoting Sustainable Development**: Projects focusing on sustainability and environmental conservation will contribute to global efforts to address climate change and promote sustainable development.
3. **Fostering Innovation Ecosystems**: Creating a culture of innovation at the Secondary/high school level will feed into national innovation ecosystems, driving industrial and economic growth.
4. **Building Research Capacity**: Encouraging research and inquiry from a young age will build a robust pipeline of future researchers and scientists essential for national development.
5. **Strengthening Community Engagement**: The exposition will promote community service and engagement, one of the pillars of Education 5.0, by involving local communities in scientific inquiry and problem-solving.

Methods

The STI Exposition will be in two phases viz: the provincial level and the national level.

Phase 1:- The Provincial STI Exposition Contest (PSTIE) will cover Participants drawn from each of the 10 provinces.

Phase 11:- The National STI Exposition (PSTIE) later after the provincial exposition contest.

Activities:- Three major activities involved are

i. ***Exhibition of Innovation/Talents***

Content Scope (15 categories):- Sciences, Technology, Engineering, Education, Mathematics, Entrepreneurship, Commerce, Information and Communication, Arts,

Agriculture, Mining and Mineral resources, Environmental Health, Climate change, F*ood security, Home-management and any other related innovation. Experts will assess and judge innovations based on a given evaluation tool. Merit list will be published. The best three innovations per a category will qualify for BUSE Award. Special Needs Institutions will compete in a unique group, and best three innovations per category qualify for BUSE Award.*

ii. ***Robotic Contest:***

This will be assessed according to the Rules set.
An institute should not register more than three Robotic teams by an institution.
Experts will judge according to a given standard.
Three best in a category innovation will qualify for BUSE Award.

iii. ***Research Reports / Poster Presentations:***

Send paper reports or posters to the secretariat at tgate@buse.ac.zw which will be vetted by experts. Judgment is based on a given template designed by the committee. The best three in each category articles with a mark of 60% and above will qualify for the BUSE Award.

Strategies

1. **Workshops and Mentorship Programs**: Conduct pre-exposition workshops to guide students on project selection, research methods, and presentation skills. Pair students with mentors from universities and industry to provide ongoing support.
2. **Collaborations with Industry and Academia**: Partner with local businesses, universities, and research institutions to provide resources, expertise, and sponsorship for the exposition.
3. **Diverse Project Categories**: Include various categories such as environmental science, robotics, biotechnology, and renewable energy to cater to different interests and skill levels.
4. **Interactive and Hands-On Activities**: Organise interactive sessions and hands-on activities during the exposition to engage visitors and participants, making science accessible and fun.
5. **Awards and Recognition**: Establish a system of awards and certificates to recognize outstanding projects, encouraging excellence and boosting student motivation.

Scope for Assessment

The assessment of the Science Exposition will be based on multiple criteria to ensure a comprehensive evaluation of both the process and outcomes. Key assessment areas include:

1. **Project Quality**: Evaluating the originality, scientific rigor, and practical application of the projects.
2. **Presentation Skills**: Assessing the clarity, effectiveness, and engagement of student presentations.
3. **Innovation and Creativity**: Measuring the level of innovation and creativity demonstrated in the projects.
4. **Teamwork and Collaboration**: Observing how well students work together and utilize their collective skills.

5. **Impact and Relevance**: Considering the potential impact of the projects on the community and their relevance to current scientific and societal challenges.

Registration

Each institution registers at most three (3) innovations per category. A fee of USD $150.00 will be charged per participating school of not more than five (5) representatives. More than five representatives will pay an additional fee of $20.00.

Conclusion

The Science Exposition is a pivotal initiative to harness the scientific talents of Secondary/ High school students, aligning with the Education 5.0 agenda in Zimbabwe. By promoting scientific inquiry, fostering innovation, enhancing learning, developing soft skills, and encouraging STEM careers, the exposition will contribute significantly to the country's educational and industrial goals. The strategic implementation and comprehensive assessment will ensure the exposition's success and lasting impact on students and the broader community.