

# **The IYBSSD and the IUPAP centenary-100 years of physics in Africa (the past, present and future)**

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The basic sciences are defined as the scientific disciplines of mathematics, physics, chemistry, and biology. They are called basic sciences because they provide a fundamental understanding of natural phenomena and the processes by which natural resources are transformed. Basic sciences have a significant impact and offer the necessary tools to address crucial challenges like ensuring everyone has access to food, energy, healthcare, and communication technologies. For the past two years, the successes and setbacks of the global battle against the COVID-19 pandemic have served as a sharp reminder of the value of fundamental disciplines like biology, chemistry, physics, mathematics, and anthropology. Without basic sciences, how would we know that infection is caused by a virus, what does that virus look like, what are its genetic sequence and variations? In short, everything that helps us fight the pandemic and its consequences – are all rooted in basic sciences. For example, World Wide Web (WWW), that you are using right now to read this, was invented at CERN from the need for global collaboration for experiments in fundamental physics and it has been developed thanks to powerful algorithms.

The International Year of Basic Sciences for Sustainable Development (IYBSSD) focuses on the links between basic sciences and the Sustainable Development Goals (SDG's). Themes and topics chosen by UNESCO and the United Nations as priorities serve as the foundation for IYBSSD. It promotes communication between scientists and all types of stakeholders, including associations, students, and local authorities in addition to members of governmental decision-making bodies and international leaders. In 2022, the International

Union of Pure and Applied Physics will celebrate its 100th anniversary. To commemorate this Centenary, a number of activities and events will be held. Along the course of the year, more activities and events are anticipated to be planned in a number of locations around the world, particularly in some of the thirteen nations that participated in the establishment of the Union in 1922. Belgium, Canada, Denmark, France, Holland, Japan, Norway, Poland, Spain, Switzerland, United Kingdom, United States of America, and the Union of South Africa were among them. The IUPAP is deeply committed to contribute towards the application of physics and other scientific disciplines to solve the problems of concern to humanity. The Union is firmly in favour of taking actions that will help achieve sustainable development and a more balanced and inclusive world. To advance in this respect, IUPAP is leading fellow scientific unions and other partners to promote and organize an International Year for Basic Sciences for Sustainable Development (IYBSSD) in 2022/2023. IYBSSD activities will be combined with the IUPAP's centennial celebration to have a greater impact.

In this topic, interns (students) are going to learn and study the following:

- i. Importance of basic sciences and sustainable development goals. Interns will do studies on basic sciences particularly in Africa.
- ii. Using physics as a basic science in sustainable development projects in Africa will be explored.
- iii. Interns will study the history of physics particularly in Africa.
- iv. Current physics status and future outlook will be investigated.

