

International Year of Basic Sciences for Sustainable Development in 2022, under the auspices of UNESCO

Michel Spiro

President of IUPAP

Chair of the Steering Committee of the
International Year of Basic Sciences
for Sustainable Development in 2022 (IYBSSD 2022)

<https://www.iybssd2022.org/en/home/>

Rationale

- ☉ **Basic sciences** are not always and everywhere considered as they deserve, in the discussions concerning the **societal, environmental and economic development**
- ☉ **Curiosity-driven sciences** construct the pool of knowledge which future generations will use for their development
- ☉ **Curiosity-driven sciences** re-enchant our world and make it worth to be sustainable
- ☉ **Serendipity** plays a role
- ☉ Source of **disruptive innovations**
- ☉ Viewed from the past, basic sciences **are the foundations of sciences and serve education**
- ☉ Facilitate open **multicultural dialogue**
- ☉ **Many scientific disciplinary international years** since the beginning of the 21th century: an international year concerning **all basic sciences and**

interdisciplinarity will build on these

Support

- 🌀 50 International Unions and Organizations
- 🌀 100 science academies, scientific networks and learned societies International Advisory Committee
- 🌀 30 Nobel laureates and Fields Medalists
- 🌀 UNESCO, World Science Forum, Club of Rome, Inter Parliamentary Union

Leading Union



Examples

- ☪ Vaccines and treatments against COVID-19 are full of basic biology (DNA, RNA, etc.)
- ☪ The WEB was born at CERN from the needs of fundamental science
- ☪ Google research engine comes from a brilliant mathematical idea
- ☪ Artificial intelligence relies on statistical methods
- ☪ Cellular phones are full of transistors, integrated circuits, WiFi, code, etc.
- ☪ GPS relies on Einstein theory of Relativity and on quantum atomic clocks
- ☪ The Genome Project has opened the way to gene therapies
- ☪ PET scan and MRI are based on antimatter physics and fundamental atomic magnetism
- ☪ Generation and storage of renewable energy depends on advances in physics, chemistry and materials science
- ☪ Reduction in pollution and green chemistry rely on basic advances in

chemistry

History for IYBSSD 2022

- Proposal in January 2017 to the **International Basic Sciences Program of UNESCO**
- Support from several scientific unions and research organizations as well as **ISC and UNESCO-IBSP**
- Resolution adopted by **UNESCO General Assembly** in November 2019 (Jordan, Russia, Vietnam, Nigeria)
- Welcomed in the final resolution of the **World Science Forum 2019** in Budapest
- Supported by **the Interparliamentary Union (IPU)** and **the Club de Rome**
- Proclaimed by consensus by the **76th United Nations General Assembly** on December 2nd 2021 (brought by Honduras with the support of Armenia, Azerbaijan, Bahrain, Bolivia, Brasil, Burkina Faso, Chad, Chile, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Fiji, Georgia, Guatemala, India, Indonesia, Israel, Japan, Jordan, Kyrgyzstan, Malawi, Nicaragua,

Tentative list of topics

- 🌀 Basic Sciences, Multicultural Dialogue and Peace
- 🌀 Basic Sciences, Education and Human Development
- 🌀 Basic Sciences and Women and more generally Equity, Diversity and Inclusion
- 🌀 Basic Sciences, Innovation, Economy and Sustainability
- 🌀 Basic Sciences, Health and Life Sciences
- 🌀 Basic Sciences and Global Challenges (climate, biodiversity, water...)
- 🌀 Basic Science as a Global Public Good
- 🌀 Basic Sciences and hazards
- 🌀 Basic Sciences and Big Data

Events

- 🌀 Opening ceremony, UNESCO headquarters, Paris - July 8th 2022 delayed due to the late proclamation
- 🌀 Closing ceremony, CERN, Geneva - end september or beginning October-2023
- 🌀 Global, regional, national, local events, in developed and in developing countries
- 🌀 Organized or endorsed by Steering Committee and International Advisory Committee members
- 🌀 UNESCO Chairs and Category 2 Centers, as well as World/International Days (esp. World Science Day for Peace and Development, 10 November)

Possible resulting actions

- 🌀 Implementation of open access publishing for all basic sciences papers, open data and open software
- 🌀 Promote **equity, diversity and inclusion** into collaboration in basic sciences
- 🌀 Promote training and education to basic sciences in developing countries
- 🌀 Connect scientists to the actors of Sustainable Development
- 🌀 Develop basic tool kits to support science-based decision making
- 🌀 Decrease the environmental footprint of Basic Sciences





Thank You

We count on you all for organizing events!!!