



United Nations
Educational, Scientific and
Cultural Organization

Basic and Applied Sciences Education (BASE) Project

UNESCO helps to reinforce the capacities of developing countries in the sciences, engineering and technology.

International Basic Sciences
Programme (IBSP) 国际基础科学项目

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Natural Science Sector / Division of Science Policy and Capacity-Building/
Section for Innovation and Capacity-Building

Plan



Part I: Background S3

From UNESCO to IBSP

- Introduction of UNESCO and IBSP
- The situation of the sci-tech education
- 17 Sustainable Development Goals

Part II: Project S9

Contents, Countries and Duration

- Basic science, technology and innovation online competition
- Scientific and technological kits for undergraduates and for teachers
- Indicators of success in model STEM systems

Part III: Sponsorship S15

How to become UNESCO's partner

- 3 benefits package
- Procedure to sponsor



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Part I: Background

- Introduction of UNESCO and IBSP

- The situation of developing world's sci-tech education

- 17 Sustainable Development Goals

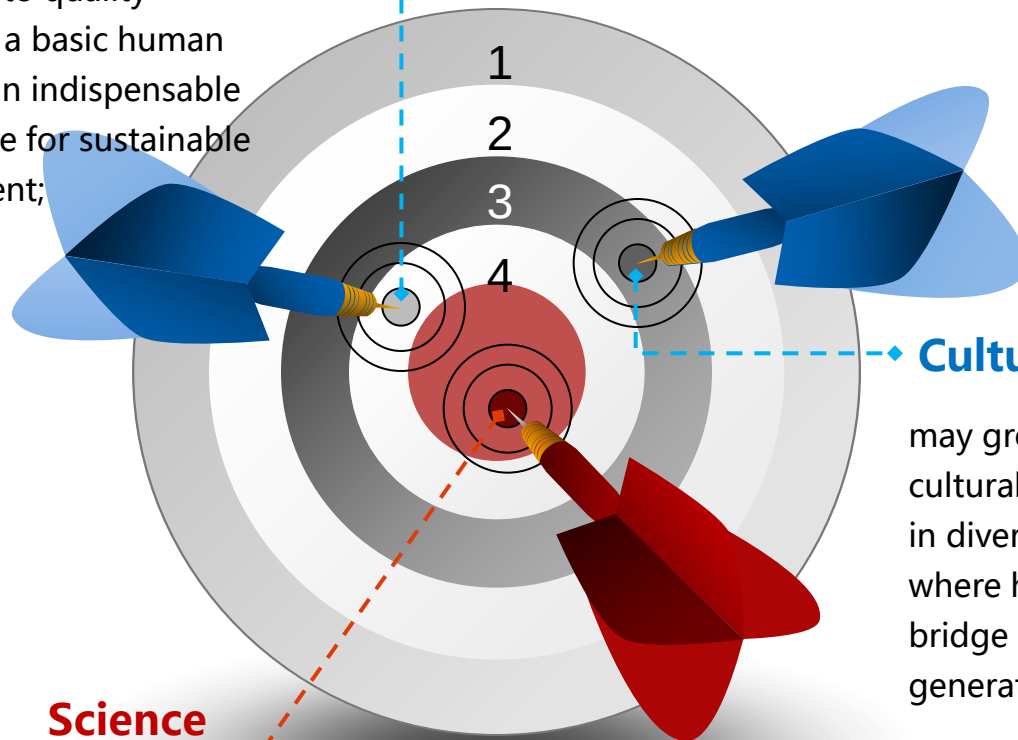


Mr. Ban Ki-moon and the Director-General
Irina Bokova in UNESCO, 18th November, 2016

UNESCO is responsible for coordinating international cooperation in education, science, culture and communication.

Education

has access to quality education; a basic human right and an indispensable prerequisite for sustainable development;



Culture

may grow and live in a cultural environment rich in diversity and dialogue, where heritage serves as a bridge between generations and peoples.

Science

can fully benefit from scientific advances

“Building **peace** in the **minds** of men and women.”

Introduction

UNESCO

- Born on 16 November 1945 after World War II
- Global priority: Africa and Gender equality
- Headquarter in Paris, 54 field offices around the world
- 195 Members and 10 Associate Members
- The only UN Agency who has a global network of national cooperating bodies (199 National Commissions for UNESCO around the world)

IBSP

- An intergovernmental initiative to strengthen national capacities through a network of centres of excellence in the basic sciences
- Deals with projects in mathematics, physics, chemistry, the life sciences and their interdisciplinary areas that serve national needs
- Promoting North-South and South-South co-operation
- Partnership with TWAS, ICSU, CERN and other science centres, IGOs and NGOs

Strengths in Science

UNESCO's **core competences**



Over **70 years' experience**
in promoting international
cooperation in science



Convening power



Networks



Neutral broker –
Legitimacy

Accountability

The situation of the science and technology education in developing countries

The African continent has areas with less than 50% literacy among children ages 18 and under.

50%

The number of poor young people going to university Burkina Faso, Liberia, Malawi, São Tomé and Príncipe, and Tanzania is “not statistically different from zero”.

0%

70%

In more than 20 developing countries, illiteracy rates amongst women exceed 70%.

2%

School enrollment rates in Sub-Saharan Africa are among the lowest worldwide, with participation among the young below 2 percent in countries including Malawi, Mozambique, Niger, Rwanda and Tanzania.

10%; 5%

An analysis of higher education participation rates in 35 countries in South Asia and sub-Saharan Africa by University of Cambridge researchers detected “extremely low” rates for people under 25 in almost all of them: below 10 percent in 31 of the countries, and below 5 percent in 20.

UN 17 Sustainable Development Goals

The success of the **2030 Agenda for Sustainable Development** depends largely on the capacity of countries to **make substantial progress in science, technology and innovation** in the coming years, which in turn depends heavily on the prioritization of **sound, quality education in the basic and applied sciences across the educational spectrum**.



BASE Project - Best Practice in the use of the SDG4, SDG7 and SDG9.



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Part II: Project

Basic science, technology and innovation online competition

Scientific and technological kits for
undergraduates and for teachers

Indicators of success in
model STEM systems

- The 1st portion involves the **development of electronic and physical scientific resources**, according to undergraduate-level curricula, including basic physical and chemical scientific kits, experiments, exercises, and teacher and student manuals.
- These educational resources will be developed by UNESCO in collaboration with the **International Union of Pure and Applied Chemistry**, the **International Union of Pure and Applied Physics**, the **European Physical Society**, the **TIA group**, and the **African Chemistry and Physics Societies**.

Scientific Kits



Portion 1: Science kits for undergraduates and for science teachers

Portion 1: Science **kits** for **undergraduates** and for science **teachers**



- *This aspect of the project truly acts as a mobile mini-laboratory programme, rendering low-cost, environmental-friendly, energy-efficiency, hands-on experimentation and knowledge-fortification in the basic and applied sciences accessible by undergraduate university students in regions with limited-resources.*



- *In addition to providing a substitute for large-scale laboratories in poor and remote areas (SDG 9), the BASE project will also employ an inquiry-based active learning and student-centric approach with an emphasis on scientific experimentation, in turn supporting pedagogic and knowledge-building processes that will be continuously improved by the yearly update of the educational resources.*



- *BASE is certain to strengthen effectiveness of instruction in the basic and applied sciences in developing countries, to foster a spirit of scientific innovation and creativity among students, and to improve the graduate and post-graduate student retention rate in Science, Technology, Engineering and Mathematics.*

Portion 2: Basic Science Innovation Online Competition

- The 2nd portion involves an **online competition**, the **theme** for which will be jointly decided each year by UNESCO's International Basic Sciences Programme (IBSP) and **financial donors** to the BASE project.
- **Competitors from all over the world will have the opportunity to create their own solutions to practical problems, utilizing the project's micro science kits and specified protocols.** Potential subjects include a range of practical scientific questions encountered in daily life such as "*How to purify water?*", "*How to create an anti-pollution mask?*", "*What forms a tree's shape?*" or art and culture related questions such as "*How can micro science kits be employed to build a musical instrument?*".
- **Students will be prompted to carry out experiments in line with protocol detailed in the project's instructional manual.** For example, with a chapter on "How to purify water" at their employ, students would utilize the kits to achieve the desired result; students would also be encouraged to upload their own conceptualized water purification solutions to UNESCO's website, in an effort to attract interest and demonstrate project effectiveness.
- **The competition winner would be invited to attend the awards ceremony at UNESCO Headquarters in addition to being invited to sit on the following year's jury, with his or her winning solution featured in the subsequent year's protocols as well.** The competitive nature of this project phase promises to encourage science and innovation learning in a dynamic, interactive, and motivating manner.



Implementation

The Project

HOW to change the situation towards SDGs?

Phase 1

- Conception of the project document, based on a mutually agreed-up concept note
- Commissioning of scientific protocols and physical materials

Phase 2

- Development of online basic and applied sciences educational resources
- Creation of a host platform, and management of legal and copyright aspects of project implementation
- Construction of the physical equipment and materials, including the science kits, in accord with the resources previously developed

Phase 3

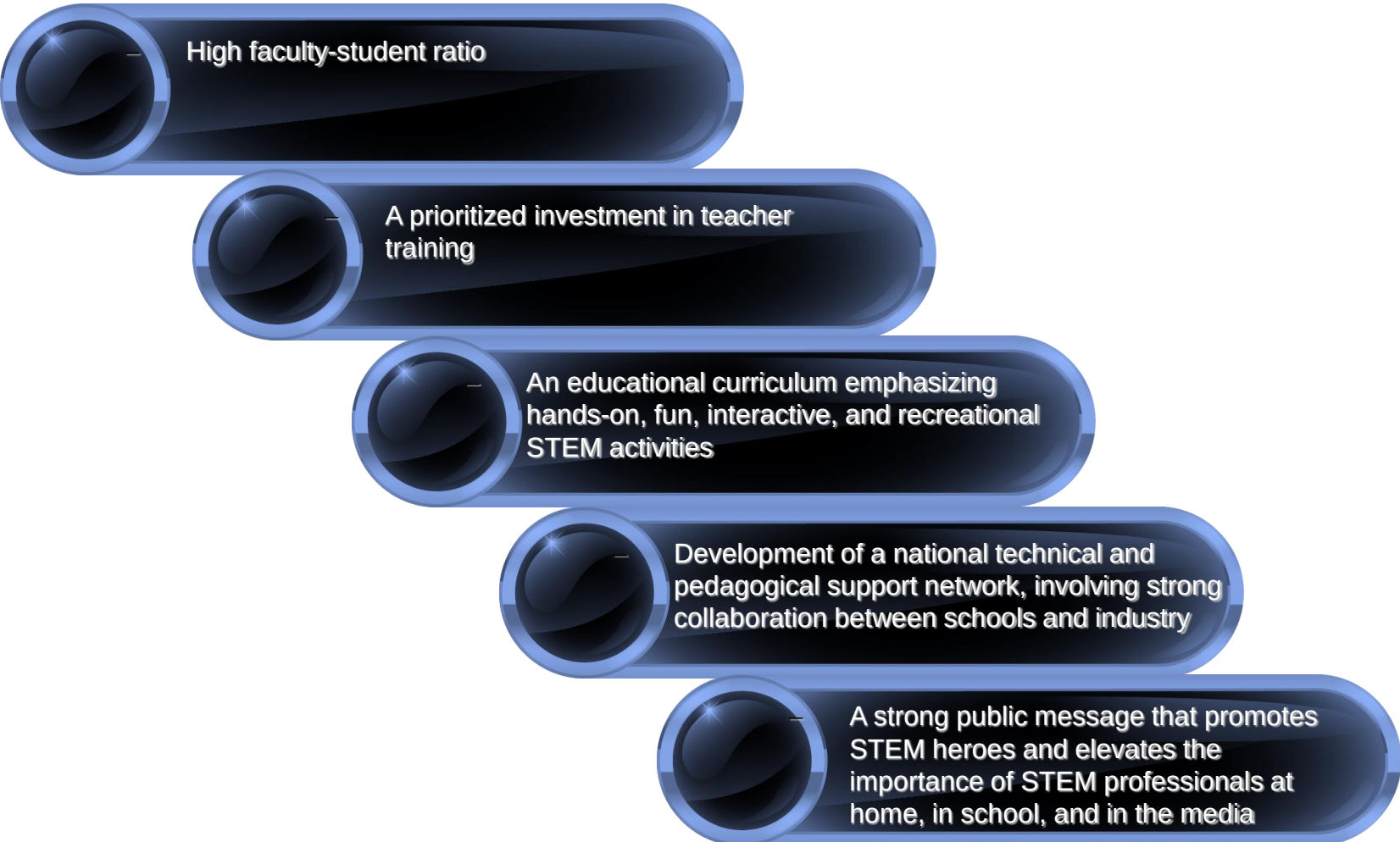
- annual update of BASE
- study of a possible extension of the BASE to the life sciences field.
- study of a possibility of translation of BASE in Spanish, French, etc.
- evaluation and assessment of the project implementation
- audit of the use of the funds provided by the partner

Phase 4

- Annual online project update, including material from the winners of the yearly competition
- Research into a potential extension of the project to include the life sciences
- Research into the feasibility of translating the project into Spanish
- Evaluation and assessment of initial project implementation
- Auditing of partner-provided funds

Indicators of success in model STEM systems

- The following key indicators, drawn from analysis of countries including South Korea and Chile where successful STEM programs have stimulated significant economic growth over the past several few decades, will inform the implementation and monitoring & evaluation phases of the project:



High faculty-student ratio

A prioritized investment in teacher training

An educational curriculum emphasizing hands-on, fun, interactive, and recreational STEM activities

Development of a national technical and pedagogical support network, involving strong collaboration between schools and industry

A strong public message that promotes STEM heroes and elevates the importance of STEM professionals at home, in school, and in the media



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Part III: Sponsorship

- 3 benefits packages

- Procedure to sponsor

Year 1/4 Budget

YEAR 1	Activity	Justifications	Total (USD)
Direct Costs	Production of Physics and Chemistry Protocols	Urgent	32, 000
	Peer-Review Checking	Urgent	25, 000
	Devise of the Physics and Chemistry kits	Urgent	50, 000
	Making and delivery of kits		50, 000
	External Training and Grants	3 Training workshops (1 in ASP, 1 in AFR and 1 in LAC)	40, 000
	Project Coordination	Web site design & competition	not applicable
	Sub Total		197, 000
Indirect Costs	Programme Support Costs	13% of Direct Costs	25, 610
	Grand Total		222, 610

Year 2/4 Budget

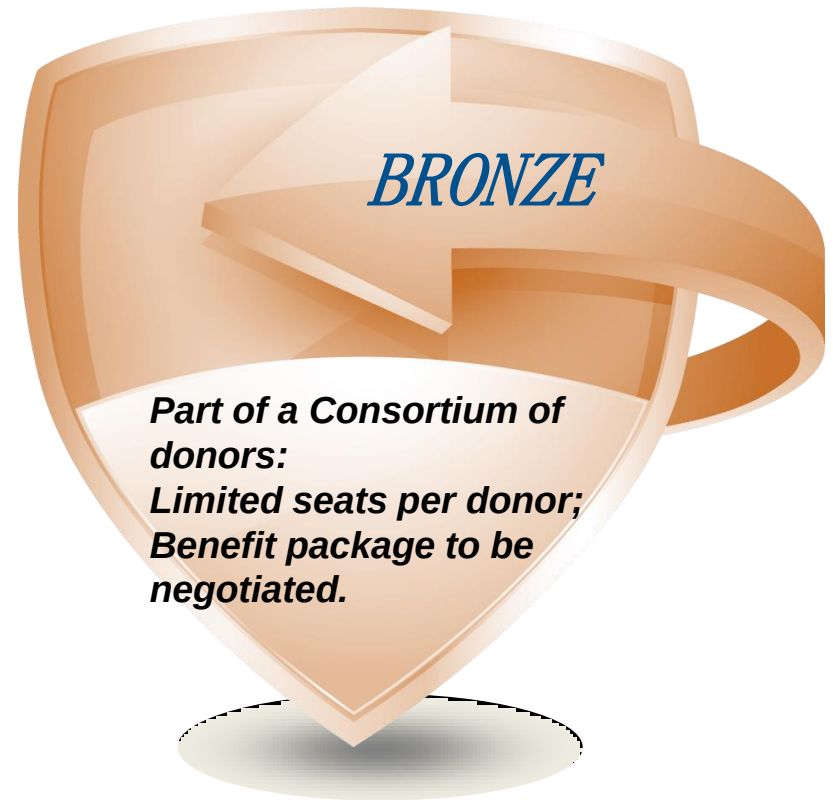
YEAR 2	Activity	Justifications	Total (USD)
Direct Costs	Updating of Physics and Chemistry Protocols		20,000
	Peer-Review Checking		15,000
	Making and delivery of kits		50,000
	External Training and Grants	3 Training workshops (1 in ASP, 1 in AFR and 1 in LAC)	40,000
	Project Coordination	Web site update & competition	186,440
	Evaluation of the Project	Mandatory evaluation and reporting on the project	20,000
	Sub Total		331,440
Indirect Costs	Programme Support Costs	13% of Direct Costs	43,087
	Grand Total		374,527

Year 3/4 Budget

YEAR 3	Activity	Justifications	Total (USD)
Direct Costs	Updating of Physics and Chemistry Protocols		20,000
	Peer-Review Checking		10,000
	Create Life sciences		50,000
	Making and delivery of kits		50,000
	External Training and Grants	3 Training workshops (1 in ASP, 1 in AFR and 1 in LAC)	40,000
	Project Coordination	Web site update & competition	186,440
	Sub Total		356,440
Indirect Costs	Programme Support Costs	13% of Direct Costs	46,337
	Grand Total		402,777

Year 4/4 Budget

YEAR 4	Activity	Justifications	Total (USD)
Direct Costs	Updating of Physics, Chemistry and life sciences		30,000
	Peer-Review Checking		10,000
	Making and delivery of kits		50,000
	External Training and Grants	3 Training workshops (1 in ASP, 1 in AFR and 1 in LAC)	40,000
	Project Coordination	Web site update & competition	186,440
	Internal Audit	Mandatory audit of the use of the funds	20,000
	Sub Total		336,440
Indirect Costs	Programme Support Costs	13% of Direct Costs	43,737
	Grand Total		380,177
TOTAL COST			1,380,092



Level of Sponsorship



Benefit Package - **Platinum**
铂金级资助福利包

Image, Marketing and
Communication 企业形象及市场



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Sponsorship

Details

- ☐ High visibility **within the United Nations system** as a partner of UNESCO
- ☐ High visibility of your company **during the implementation of the programme worldwide**
- ☐ High Profile Logo acknowledgment of your company **during opening and closing plenaries**
- ☐ Highlight your **international leadership** on a global stage
- ☐ **Photo opportunities and introductions** to key members of your organization with UNESCO
- ☐ Invitations to participate in the UNESCO's International Basic Sciences Programme (IBSP) **Committee** and to influence **global activity planning** of IBSP.
- ☐ Use the **shared values of UNESCO** (Building peace by using Capacity building in Science & Diplomacy)
- ☐ Display **promotional materials on site** during the project implementation



Benefit Package - **Platinum**
铂金级资助福利包

Networking
opportunities 人际网平台

Sponsorship

Details

- ☐ Access to the contact list of **policy-makers** involved with the Project
- ☐ Access to the Project's **participant list**
- ☐ **Follow-up** with participants



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Benefit Package - **Platinum**
铂金级资助福利包

Training & Knowledge sharing
培训与知识分享



United Nations
Educational, Scientific and
Cultural Organization

Sponsorship

Details

- ☐ Privilege to work in liaison with the pedagogic team
- ☐ Invest in learning for the future of your own enterprise and the benefit of the world.
- ☐ Possibility to perform surveys and studies among Project's participants and UNESCO's network including Ministers and education-institutions involved in the project

5

Benefit Package - **Platinum**
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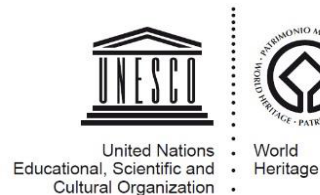
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Some of the UNESCO's Partners and Supporters



Panasonic supports sustainable development through UNESCO World Heritage conservation and education



Some of the UNESCO's Partners and Supporters in China



Ms Peng Liyuan and the Director-General Irina Bokova in UNESCO, 30th November, 2015



Guangzhou Municipal Government
Datangxi Municipal Government
Huangshan Municipal Government
Tangshan Municipal Government
...



9 Becoming a UNESCO's sponsor

Next Steps

Once a donor has indicated an interest in funding a proposal, a **Fund In Trust (FIT)** is created to implement the project

_Creation of a FIT Agreement

1 Signature of a General Agreement

- ▶ Signed in duplicate by both parties

2 Drafting of the project agreement

- ▶ An exchange of letters between the parties
- ▶ Draft of the agreement
- ▶ Internal validation including visa of Legal Affairs (LA)

3 The Funds-In-Trust Agreement:

- ▶ UNESCO's proposal and the Donor's acceptance
- ▶ Agreement
- ▶ Signature
- ▶ Payment

Payment process

Prior to the commencement of project implementation the donor is requested to transfer funds to UNESCO in accordance with the agreed budget.

In this respect, **the total amount of project costs**, including overhead costs, is deposited with UNESCO.

However, in the case of **large-scale projects (PLATINIUM)**

an agreed schedule of payments may be included in the funds-in- trust agreement.

In case of **several instalments**, commitments made by UNESCO with third parties for the implementation of the project are limited to the amount of cash available.

Thank you!

Natural Science Sector
Division of Science Policy and Capacity-Building
Section for Innovation and Capacity-Building

For more information on the **BASE Project** and to become a partner, please contact:

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WCPU

BASE project will use the United States of the world civil practice University (WCUP) as a platform for the operation of the project, the first demonstration in Southeast Asia, after the development of Africa and Latin America, etc..

BASE -Basic and Applied Science
Education Project



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