



United Nations  
Educational, Scientific and  
Cultural Organization

Natural  
Sciences  
Sector

# UNESCO science

for Sustainable  
Development

## SCIENCE POLICY FOR SUSTAINABLE DEVELOPMENT

*The power of science to empower society*

ENABLING CROSS-CUTTING SCIENCE, TECHNOLOGY AND  
INNOVATION PROGRAMMES AND POLICIES TO MOBILIZE THE SOCIAL  
ENERGY NEEDED FOR SUSTAINABLE DEVELOPMENT

### Background and description

Science policy at UNESCO dates back to 1963 when the Organization turned its attention to the role of science and technology (S&T) in economic development.

Countries are now very much aware of the essential role S&T play in economic development and realize that the linear model – or science-push model designed to encourage quality basic research – alienated the scientific endeavour from the business world, hampering the translation of new knowledge into products and services. Modern science systems foster linkages between knowledge creation and the application of results to satisfy social demands and solve problems – the so-called demand-push model. This trend was reflected in the *Science Agenda* adopted by the World Conference on Science organized by UNESCO and the International Council for Science in 1999. The *Science Agenda* called for a new social contract for science, one in which science would serve society and society would in turn give its support to science.

Growing awareness of the impact of environmental degradation and climate change on development is giving rise to new R&D priorities like clean energy technologies. Innovation has become a key driver of sustainable development. Endogenous innovation also buffers countries against the vagaries of international economic turmoil like the global recession of 2008-2009.

UNESCO promotes the integration of science, technology and innovation (STI) into the broader framework of national development policies; contributes to socio-economic development that is sustainable by strengthening STI governance; identifies emerging trends that will shape the future of STI; fosters institution-building and the elaboration of strategies, policies and projects; and broadens interaction among scientific, citizen and indigenous knowledge systems to achieve sustainable development.

### SUCCESS STORIES

UNESCO has been instrumental in:

- securing government approval for the establishment of a US\$5 billion Endowment Fund and Science Foundation in Nigeria;
- the creation of a Regional Centre for the Development of Science Park and Technology Incubators in Iran (2010);
- the establishment of the Israelo-Palestinian Science Organization (IPSO), contributing to research projects in science education, genetics and nanotechnology (2002);
- the setting-up of the World Association of Young Scientists (WAYS) to foster national science policies sensitive to the needs of young researchers (2004);
- launching Sandwatch, an interdisciplinary educational tool on the coastal environment that also informs policies.



### MAIN PROGRAMMES AND ACTIVITIES

#### STI policy advice and reform for sustainable development

UNESCO is the main UN provider of technical advice and capacity-building in STI policy at national, regional and global levels, to Member States in Africa, the Arab States, Asia, Central Asia, Southeast Europe and Latin America and the Caribbean.

In 1996, UNESCO initiated its science reform programme in response to the recommendations of the evaluation of the UN System Support to Science and Technology in Developing Countries. The programme objectives include:

- ▶ developing methodologies and elaborating programmes within the framework of UNDAF and the Delivering as One UN programme;
- ▶ designing and co-ordinating projects for national reform in pilot countries;
- ▶ advising governments to promote the harmonization of STI policies and laws at sub-regional levels;
- ▶ building awareness among STI stakeholders of the need for reform and integrating STI into the development agendas of countries;
- ▶ implementing pilot projects – since 2004, in eight countries, the majority in Africa. This includes work under the One UN programme in Tanzania, making UNESCO the leading UN Agency for STI reform programmes, including STI policy reviews and associated strategies.

To build capacity, a programme to strengthen management and governance skills in STI began in 2009. UNESCO has since developed guidelines for the introduction of science policy courses and degree programmes at different African universities.

### New forms of governance

Following the World Conference on Science (1999), UNESCO launched the Science Policy Fora initiative in 2003 to promote quality policy dialogue on the new roles and challenges for scientific knowledge in today's global society. The initiative encompasses:

- ▶ The World Science Forum – held every two years in Budapest (Hungary) since 2003, it provides a forum for debate on the interface between science, knowledge and society;
- ▶ The Inter-Parliamentary S&T Policy Fora – launched by UNESCO and partners in 2003 to strengthen the role of legislation in promoting science. By 2009, regional fora had been convened for parliamentarians in several regions\*. A national forum was also held in Abuja (Nigeria).

World Science Day for Peace and Development (launched by UNESCO in 2001) on 10 November each year offers an opportunity to stress the responsible use of science for the benefit of society and promotes a commitment to science based on awareness and public understanding. To popularize science, UNESCO organizes scientific meetings, supports science exhibitions and awards science prizes. It provides technical assistance and training for the development and management of science centres and science museums. One example is the National Science Museum in Sana'a (Yemen).

### Co-operation and regional integration in S&T policy governance

#### Co-operation with the African Union/New Partnership for Africa's Development (NEPAD): UNESCO

is contributing to *Africa's Science and Technology Consolidated Plan of Action* within its African STI Policy Initiative (2008-2013) involving: an assessment of the status of S&T policy formulation in Africa; technical advice and support for national STI policy reviews; development of common African STI indicators; creation of an African STI Observatory and; the launch of a pilot science park in Africa.

### South-South Co-operation in STI Policy:

UNESCO promotes South-South co-operation and knowledge-sharing on science-based economic development policies.

Examples include:

- ▶ The International Centre for Science, Technology and Innovation for South-South Co-operation established in Kuala Lumpur (Malaysia) in 2008 under the auspices of UNESCO organizes international training workshops on topics that include industry needs and R&D management;
- ▶ The Consortium for Science, Technology and Innovation for the South (COSTIS) was launched at the G77 ministerial round table during the World Science Forum in 2009.

### Indicators, statistics and prospective studies

UNESCO's Science Policy Series provides Member States with national strategic documents (e.g. Albania, 2009), country studies (e.g. Burundi, 2009), proceedings of international meetings and technical papers on STI policy.

In collaboration with the UNESCO Institute for Statistics, the UNESCO science policy team organizes workshops on STI policy reviews, statistics and indicators.

Every five years, the *UNESCO Science Report* (most recent edition 2010) provides a global overview of the main emerging trends and developments in scientific research, innovation and higher education.

Other UNESCO publications include the report on *Science, Technology and Gender* (2007) and the *Encyclopedia of Life Support Systems*, the largest online scientific knowledge base on sustainable development, in co-operation with Eolss Publishers Co. Ltd (UK).

### Developing university–industry–science partnerships (UNISPAR)

Within the UNISPAR programme, UNESCO provides training and technical assistance for the development of science parks and technology business incubators.

This includes annual international training workshops in Daejeon, Korea, in co-operation with the World Technopolis Association (WTA); regional workshops (e.g. San José, Costa Rica, 2010); and national workshops (e.g. Abuja, Nigeria, 2009). Together with WTA, UNESCO has initiated three pilot projects since 2006, in Alexandria (Egypt), Nairobi (Kenya) and Jakarta (Indonesia).

### Local approaches to sustainable development

UNESCO's STI policy work builds on the needs and aspirations of local cultures through dialogue between local knowledge systems and modern science.

The Section for Small Islands and Indigenous Knowledge co-ordinates UNESCO's work on Small Island Developing States (SIDS) and reports to the United Nations on UNESCO's contribution to implementation of the Mauritius Strategy on Sustainable Development in SIDS (2005). UNESCO launched the Local and Indigenous Knowledge Systems (LINKS) programme in 2002. Particular areas of focus include biodiversity management; climate change adaptation; natural disaster preparedness and response; education and schooling.

Publications documenting indigenous knowledge include *Mayangna Knowledge of the Bosawas Biosphere Reserve* (Nicaragua, 2010), *Reef and Rainforest* (Solomon Islands, 2008) and *The Canoe is the People* (Pacific islands, 2005).

Projects include: *Climate Frontlines* (June 2008–), a global online forum for indigenous peoples, small island populations and other vulnerable communities; and Youth Visioning for Island Living (2004–), supporting youth in the development of local projects for sustainable development.

### FOR FURTHER INFORMATION CONTACT:

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