UNESCO GO→SPIN Methodological and Data Collection
Training Workshop – Republic of Uganda

12–16 April 2021

LECTURE 1: GO→SPIN
Programme Overview

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Contents of the training workshop

LECTURE 1: GO→SPIN Programme Overview.

LECTURE 2: GO→SPIN Methodological Framework.


LECTURE 4: Using the GO→SPIN online platform.

LECTURE 5: Completing the GO→SPIN surveys on operational policy instruments, legal instruments and institutional ecosystem.

The presentations and the complete bibliography can be downloaded from https://researchkits.org/training/Uganda/
UNESCO GO SPIN

Methodological and Data Collection

Training Workshop

Republic of Uganda
Jamhuri ya Uganda
12–16 April 2021

Contents of the GO-SPIN Training Workshop

click here to open and download
What is GO-SPIN?

GO-SPIN is UNESCO’s Global Observatory of policies and policy instruments on science, engineering, technology, and innovation (SETI), legal instruments, institutional ecosystems, contextual factors and indicators on research and innovation.

Users are: The national developing planning agencies, more particularly the government bodies responsible for formulating and co-ordinating national SETI policies and other national bodies involved in the application of science and technology (S&T) to sustainable development; Parliamentary groups especially concerned with SETI policies; SETI information brokers, consulting groups and advisory bodies; Teaching and research departments engaged in SETI policy studies; the governing bodies of R&D institutes and S&T services; the boards of management of productive enterprises heavily reliant on R&D or engaged in the transfer of technology and innovation; international governmental and non-governmental organizations concerned with SETI and their application to sustainable development; etc.
Why GO→SPIN?

• Effective SETI policies are key to achieve SDGs and GO→SPIN is an excellent monitoring tool for them to define new STI Roadmaps.

• GO→SPIN is a methodology for mapping information on SETI policies, national SETI ecosystems and their organizations, SETI legal frameworks, operational policy instruments and indicators for providing evidence-based policy analyses.

• GO→SPIN performs capacity building activities, collects new information on SETI policies, publishes country profiles, provides standard setting instruments (GO→SPIN Manual) and the GO→SPIN online platform is a tool for analysing SETI policies and for monitoring the implementation of the 2017 Recommendation.
The original programme had six different components:

- GO→SPIN Country Profiles Series
- GO→SPIN On-line platform
- GO→SPIN Foresight and Technical Studies Series
- GO→SPIN Surveys: New information for policy assessment
- GO→SPIN Capacity Building: Training Workshops

New component: Follow-up of 2017 Recommendation
UNESCO is organizing capacity-building workshops to help Member States in the collection of information on STI policies based on the GO→SPIN methodological approach and is training national focal points to feed the new GO→SPIN online platform...
After a national GO→SPIN training, Member States need around 3-6 months to collect the raw data. Then we need another 3-6 months to process, write the draft, make the peer reviewing, validate the content with National authorities and UNESCO’s boards, proof-reading, etc.

The first 10 volumes of the “GO→SPIN Country Profiles Series”
Contents of UNESCO’s GO→SPIN Country Profile Series

1. Malawi: mapping the landscape of a small-economy innovation system
2. Women in Science and Engineering
3. R&D indicators for Malawi
4. A scientometric analysis of Malawi
5. Historical background to SETI policies in Malawi
6. The SETI policy cycle in Malawi
7. The analytical content of Malawi’s SETI policy
8. Analysis of the SETI organizational chart and flows in Malawi
9. Inventory of SETI Institutions in Malawi
10. Inventory of Malawi’s legal framework for SETI
11. Inventory of SETI operational policy instruments in Malawi
12. SWOT analysis of Malawi’s research and innovation system
Contents of UNESCO’s GO→SPIN Country Profile series

1. A long-term description of the political, economic, social, cultural and educational contextual factors;
2. Analysis of gender in science and engineering national behaviour
3. A study of R&D and innovation indicators;
4. A long-term scientometric analysis of scientific publications, patents, trademarks and utility models;
5. Historical analysis of SETI policies and institutions;
6. A standard content analysis of the explicit SETI policies, including those research and innovation policies implemented in other sectors, such as the agricultural, energy, health, industrial and mining sectors;
7. A description of the SETI policy cycle;
8. A complete analysis of the SETI organizational chart at five different levels (policy-making level; promotion level; research and innovation execution level; scientific and technological services level and evaluation level);
9. An inventory of all the SETI government bodies and organizations related both to research and innovation and to science and technology services;
10. An inventory of the SETI legal framework, including acts, bills, regulations and international agreements on SETI issues;
11. A standard inventory with 18 different analytic dimensions of all the SETI operational policy instruments in place;
12. A SWOT analysis of the country’s research and innovation landscape.
Who provides the information?

Focal points from Member States will feed the platform through periodical surveys

https://gospin.unesco.org/
GO→SPIN as a tool to make the follow-up of international recommendations

I. Introduction

1. The Recommendation on Science and Scientific Researchers (hereafter the “Recommendation on Science”) was adopted by some 195 States on 13 November 2017 meeting in the General Conference of UNESCO at its 37th session [1]. The Director-General transmitted the certified text in six languages by the letter of 30 May 2018 [2] to all UNESCO Member States, including yours government. In that letter, she reminded each government of its duties to transmit and implement the Recommendation as well as to report back to UNESCO’s Secretariat by the second quarter of 2021. The present document invites these reports, explains how to submit online, and proposes that Member States may use the online questionnaire (a copy of which appears in Annex A). Other formats are also welcome before 31 March 2021.

2. About the Recommendation on Science

2. This Recommendation to UNESCO Member States provides the internationally-agreed model set of framework policies, regulations and institutional practices for national science technology and innovation (STI) systems in all countries. It is in place for the long term, and Member States are meant to comply.

3. Overall aim is to strengthen science and, while ensuring other interests including peaceful uses of the knowledge and other benefits that science can produce. This framework addresses all of science technology and innovation together, including science education and professional training. It addresses all disciplines of science, including the social sciences, and the context of research and innovation in all settings, including the private sector or citizen science.

4. There is a particular focus today on strong research institutions and regenerating human capital in relation to delivering sustainable development goals, as well as moving quickly toward more inclusive and more global science. There is a particular focus that each State develops capabilities to use scientific knowledge and advice for decision-making and public policy. Shaping data and knowledge across borders involves rules that must be managed.

5. One particular feature of this Recommendation is that it makes explicit as an internationally-agreed balance of rights and responsibilities based on integrating science in society. The legal basis for scientific freedom is clarified, as based on internationally-agreed human rights including gender equality, but it is also by this Recommendation, applicable for all institutes of science. Further information and background, as well as the online Day, and communications materials can be found online at: https://unesco.org/recommandation-on-science. Member States are now in a phase of implementing the Recommendation.

5. Assessing the national experience of implementation

6. On a four-year basis, each Member State is meant to report on its experience implementing the Recommendation on Science (this is an obligation in the UNESCO Constitution). Having comparable assessments over time can be extremely valuable for decision-makers being able to develop and achieve the common global standards of the Recommendation.

7. Each report is an evidence-based self-assessment in which compliance is supported by documentation and remedies, involving analysis that typically is based on some data collection and consultation to assess the impact of measures that have been taken. Where there is less data, it may take longer to substantiate.
• For the national reports by Member States on the implementation of the *Recommendation on Science and Scientific Researchers* (2017), the UNESCO Executive Board approved guidelines that call for the national reports to be submitted online through the [GO→SPIN online platform](https://www.gospin.org/) (209 EX/Decision 18.IV).

• The same Committee meeting that handled the item had some discussion of (even favored) without decision that future national reports against future science-related instruments could be foreseen in the same platform, aiming to eliminate duplication and to make the national reports’ information more accessible and in one place.
The GO→SPIN methodological approach is used by the United Nations Inter-Agency Task Team on Science, Technology and Innovation for the SDGs (IATT), Sub-Working Group on STI Roadmaps co-led by World Bank, DESA, UNCTAD and UNESCO
UNESCO MANAGEMENT:
+ UNESCO MONTEVIDEO-Jorge Grandi (DIR) ---- UNESCO HQ Div Science Policy & Capacity Building- Lidia Brito (DIR) ---- UNESCO HQ, Section SPP S. Bahri /S. Arico (CS) ---- UNESCO HQ, Section SPP Ernesto Fernández (CS) ---

M D F +---------UNESCO RP FUNDING---------+--------AECID FUNDING--------+--------------------- SIDA FUNDING------------------>

Jan. Publication of a study on National STI Systems in 34 LAC countries
Nov. GO-SPIN side event at 36th GC
Mar. Second GO-SPIN Training workshop In Dakar (6 MS)
Mar. Second GO-SPIN Training workshop In Dakar (6 MS)
Nov. GO-SPIN Training workshop In Kigali
Apr. GO-SPIN Training workshop in Cairo
Mar. GO-SPIN Platform in Vientiane
Nov. GO-SPIN Training workshop in Khartoum
Mar. GO-SPIN Training workshop in Amman
Nov. GO-SPIN Training workshop in Vientiane
March GO-SPIN Platform in Vientiane
March Public. of GO-SPIN Vol. 5
April GO-SPIN Training workshop in Cairo
April Publication of GO-SPIN Vol. 7
Vol. 8


Aug. Launching SPIN Platform by UNESCO Montevideo
Jun – Aug Publication of GO-SPIN Vols. 2 ad 3
Mar – Aug GO-SPIN survey development
Nov. First GO-SPIN Training workshop In Maputo (4 MS)
Nov. GO-SPIN Country Profile Presented during 37th GC
March Publication of GO-SPIN Vol. 4
June GO-SPIN Training workshop in Guatemala
April Publication of GO-SPIN Vol. 6
April Publication of GO-SPIN Vol. 7
March GO-SPIN Training Workshop in Beirut & in April in Amman

November 2018 GO-SPIN platform Launching Event
The Constitution of UNESCO establishes five main functions for the organization: (1) laboratory of ideas, (2) standard-setter, (3) clearinghouse, (4) capacity builder and (5) catalyst for international cooperation. Based on this mandate, UNESCO has developed a “theoretical framework” to help Member States to evaluate and design their own national research and innovation ecosystems, their SETI policy instruments, and their SETI regulatory frameworks through the GO→SPIN Methodological Approach.

Karl Popper (1902-1994) - Founder of the Hypothetico-Deductive Method

All measurements, observations, experiment results, or “indicators” are always implicitly or explicitly “theory-dependent” and paradigm-dependent.
1. Before the Second World War there wasn’t any “explicit” science and technology public policy, research and innovation activities were driven by the industrial sector and by the military arm races (demand side)

2. After the Second World War, the first “social contract of science” was established (V. Bush’s *Science the Endless Frontier*) and the first explicit policies appeared with the goal of maximizing the outputs of research and innovation, by applying specific incentives, mechanisms and policy instruments

3. Between 1960 and 1988, UNESCO played a fundamental role diffusing the creation of national institutions to design, promote and monitor science policies worldwide
Diffusion of Techno-Economic Paradigms for the Organization of STI Structures and Policies

Social Contract of Science
Linear Model of Science (LMS)
"Science the Endless Frontier"

New Social Contract of Science
Sustainability Science Paradigm

Social Contract of Science
Linear Model of Science (LMS)
"Science the Endless Frontier"

Formulation
Organization
Action
Questioning
Formulation
Organization
Action
Questioning
Formulation
Organization
Action

1945
Nov 1974
Nov 1974
Nov 2017


1945 1999

SDGs
2030

Lemarchand (2012, 2016)

SPD

Nov 1974

"Sciencethe Endless Frontier"
UN & UNESCO:
More than 60 years working with S&T policies for development

Geneva, 1963

Lagos, 1964

Santiago, 1965
Final Report

Conference of Ministers of African Member States Responsible for the Application of Science and Technology to Development

organized by Unesco with the co-operation of the Economic Commission for Africa and the Organization of African Unity

Dakar
21 - 30 January 1974

Unesco
Examples of recent publications under the new “paradigm”

- **2011**: Science, Technology, and Innovation in Uganda
- **2019**: Co-Designing Science in Africa
- **2020**: Uganda
Recommendation No. 1: FINANCIAL RESOURCES DEVOTED TO R&D

Recommends:

1. That the African Member States improve their budgetary procedures and national accounting systems in regard to R&D proper and the supporting scientific and technological public services, so as to enable them to compile serviceable statistics in this regard, according to the standards proposed by Unesco and to carry out comparative international studies in this field;

2. That African Governments improve their financing, fiscal and customs regulations so as to enable R&D institutions to operate with a high degree of efficiency and with the maximum possible freedom for the management of their financial resources;

3. That public expenditure for R&D and supporting scientific and technological public services (STS) be recapitulated in the annual state budget in the form of an aggregate functional budget constituting, as it were, the total budgetary allocation for R&D and supporting scientific and technological public services (STS);

4. That Member States, taking into account national demand for R&D, increase their annual expenditure on R&D and supporting scientific and technological public services (STS) so as to attain, if possible before 1980, the target figure of a minimum of 1% of their Gross National Product as proposed by UNACAST in the World Plan of Action;

5. That the African Member States undertake a careful study, with the technical assistance of Unesco if they so desire, in regard to the budgetary and programming procedures that are needed for the purpose of preparing functional budgets for R&D and supporting scientific and technological public services (STS) and formulating long-term plans for inclusion in their National Development Plans.
Gross Domestic Expenditure on R&D (GERD) as percentage of GDP by region, 2011, 2013, 2015 and 2017

Source: UNESCO Institute for Statistics, July 2020

43 years later
Recommendation No. 3: HUMAN RESOURCES FOR SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES

Recommends:

1. That Member States take the measures needed to attain, if possible before 1980, the targets set out in the table below, having regard to the fact that the target of 200 scientists and engineers engaged in R&D activities per million inhabitants is that adopted for Africa by UNACAST in its "World Plan of Action" and that it is barely half of those established for Asia and Latin America:

<table>
<thead>
<tr>
<th>Economic development level (per capita GDP)</th>
<th>Number of scientists and engineers per million inhabitants</th>
<th>Number of scientists and engineers engaged in R&amp;D per million inhabitants (10% of the figure in column (2))</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 or over</td>
<td>2,000</td>
<td>200</td>
</tr>
<tr>
<td>100 to 200</td>
<td>1,400</td>
<td>140</td>
</tr>
<tr>
<td>Under 100</td>
<td>1,000</td>
<td>100</td>
</tr>
</tbody>
</table>

2. That Member States continue their efforts to implement the Lagos Conference recommendation advocating the training of two specialized technicians for each scientist or engineer engaged in R&D activities.
Researchers per million inhabitants by region, 2011, 2013, 2015 and 2017

Source: UNESCO Institute for Statistics, July 2020

43 years later
Are STI indicators the appropriate tool to understand how STI policies generate effects on societies or to understand how “National Research and Innovation Systems” work?

Usually, we are groping in the dark
Christopher Freeman (1921 – 2010)

F. Machlup (1902 – 1983)

How suitable are the indicators of the Frascati–Manual family to generate “evidence-based policies”?

NRIS is a Black Box

Input indicators: R&D Funding, R&D Labour force, R&D Infrastructure, Foreign Direct Investment

Output indicators: Patents & Licenses, PhDs, Scientific Publications, Innovations, Number of High Tech Enterprises, Strategic Information

National and international contextual factors, geopolitics, fluxes of goods, human and financial resources, information, etc.
Opening the “Black Box”
by measuring the implementation and impact
of SETI policy instruments

NRIS is a
Scholarships
Tax incentives
Priority settings and funds allocation
Venture capitals
Competitive funds

Input

Output
• Policy instruments are the means employed by those who exercise power and authority to influence the decisions made by other agents.

• They induce and motivate individuals, groups, firms, organizations and institutions to behave in accordance with the guidelines and criteria established by the policies.

• They are the connecting link between the purpose expressed in a policy statement and its implementation in practice.
Different stages of SETI policy instruments implementation.
The structure of GO→SPIN analytic units
Pathologies of instruments: policy implementation failures
The GO→SPIN mapping represents the interaction between "explicit" policies, "implicit" policies and their contextual factors.

Lack of co-ordination

"Implicit" policies affect the performance of SETI policies

Effects on the SETI policies and goals (effective performance of the policy)
**SINGAPORE: COORDINATION OF INNOVATION INSTITUTIONS**

Research, Innovation and Enterprise Council (RIEC)

- Prime Minister, 7 ministers, 10 private-sector representatives
  - Former Deputy Prime Minister, 5 ministers, 6 research centre and university representatives, 5 academic representatives and 3 private-sector representatives

Scientific Advisory Board

- Biomedicine
- Interactive digital media
- Water

Deputy Prime Minister, relevant ministers

- Senior civil servants, representatives of research centres, A*STAR and EDB

A*STAR

Financing agencies

EDB

Research centres/universities
Time

Variable analysed

INDICATORS: R&D+i, governance, social, economic, industrial, educational, ICT, environmental, etc.

Political stability and National Contextual Factors

Implicit Policies

Explicit policies and policy instruments

* Texts of SETI policies
* SETI legal instruments
* SETI institutional ecosystems
* SETI operational policy instruments

Explicit policies and policy instruments
ASANTE
SANA
Time for questions