

# UIS activities in relation to R&D Metadata

*V Taller de Armonización de Indicadores de Ciencia y Tecnología  
Panama City, Panama  
17-18 November 2011*

# Objectives of this presentation

- Present the UIS activities related to collection of S&T metadata
  - What is it?
  - Why collect metadata?
  - How do we (UIS) collect?
  - What do we collect?
  - How do we disseminate?
  - What about partner organizations?

# What is Metadata?

- Metadata: data that define and describe other data
- Statistical metadata: data about statistical data, and comprise data and other documentation that describe objects in a formalised way
- Some metadata, however, describe other resources that are relevant to the collection, processing and dissemination of data rather than relating directly to data themselves

## Importance of capturing metadata related to R&D statistics

- More information about R&D data
- More information about national R&D data collection
- Details about the coverage
- Details on methodologies followed and any methodological changes
- Details on significant changes in the trends
- etc, etc

## How does UIS collect R&D metadata?

- **Survey on Statistics of Research and Development (R&D):** Biennially
- 2004, 2006, 2008 and 2010 R&D surveys completed.
- Results released on UIS website (<http://stats.uis.unesco.org>).
- OECD and Eurostat provide data for their Member States.
- RICYT provides data for Latin America and for a few Caribbean countries.
- RICYT includes UIS annex to its questionnaire

# UIS R&D Data collection

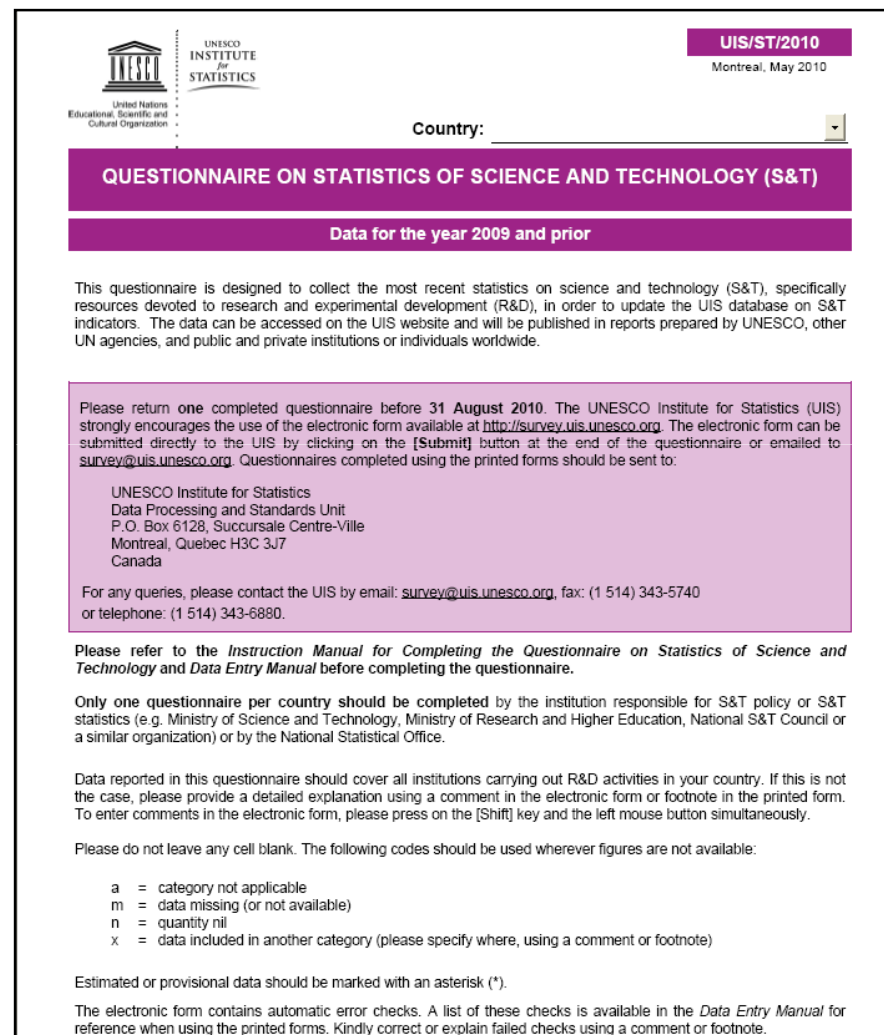
## Section 1: Metadata

## Section 2: R&D Personnel

- By sector of employment, occupation, qualification, and field of science
- In headcount and FTE
- By gender

## Section 3: R&D Expenditure

- By sector of performance and source of funds
- By type of activity and field of science



The screenshot shows the top portion of a questionnaire form. At the top left is the UNESCO logo and text. At the top right is the reference 'UIS/ST/2010' and the date 'Montreal, May 2010'. Below this is a 'Country:' dropdown menu. The main title 'QUESTIONNAIRE ON STATISTICS OF SCIENCE AND TECHNOLOGY (S&T)' is in a large purple box, followed by a subtitle 'Data for the year 2009 and prior' in a smaller purple box. The text explains the purpose of the questionnaire and provides instructions for submission, including a deadline of 31 August 2010 and contact information for the UIS. A legend at the bottom defines codes for non-applicable, missing, and nil data.

UNESCO  
INSTITUTE  
for  
STATISTICS  
United Nations  
Educational, Scientific and  
Cultural Organization

UIS/ST/2010  
Montreal, May 2010

Country: \_\_\_\_\_

**QUESTIONNAIRE ON STATISTICS OF SCIENCE AND TECHNOLOGY (S&T)**

**Data for the year 2009 and prior**

This questionnaire is designed to collect the most recent statistics on science and technology (S&T), specifically resources devoted to research and experimental development (R&D), in order to update the UIS database on S&T indicators. The data can be accessed on the UIS website and will be published in reports prepared by UNESCO, other UN agencies, and public and private institutions or individuals worldwide.

Please return **one** completed questionnaire before **31 August 2010**. The UNESCO Institute for Statistics (UIS) strongly encourages the use of the electronic form available at <http://survey.uis.unesco.org>. The electronic form can be submitted directly to the UIS by clicking on the [Submit] button at the end of the questionnaire or emailed to [survey@uis.unesco.org](mailto:survey@uis.unesco.org). Questionnaires completed using the printed forms should be sent to:

UNESCO Institute for Statistics  
Data Processing and Standards Unit  
P.O. Box 6128, Succursale Centre-Ville  
Montreal, Quebec H3C 3J7  
Canada

For any queries, please contact the UIS by email: [survey@uis.unesco.org](mailto:survey@uis.unesco.org), fax: (1 514) 343-5740 or telephone: (1 514) 343-6880.

Please refer to the *Instruction Manual for Completing the Questionnaire on Statistics of Science and Technology* and *Data Entry Manual* before completing the questionnaire.

Only **one** questionnaire per country should be completed by the institution responsible for S&T policy or S&T statistics (e.g. Ministry of Science and Technology, Ministry of Research and Higher Education, National S&T Council or a similar organization) or by the National Statistical Office.

Data reported in this questionnaire should cover all institutions carrying out R&D activities in your country. If this is not the case, please provide a detailed explanation using a comment in the electronic form or footnote in the printed form. To enter comments in the electronic form, please press on the [Shift] key and the left mouse button simultaneously.

Please do not leave any cell blank. The following codes should be used wherever figures are not available:

a = category not applicable  
m = data missing (or not available)  
n = quantity nil  
x = data included in another category (please specify where, using a comment or footnote)

Estimated or provisional data should be marked with an asterisk (\*).

The electronic form contains automatic error checks. A list of these checks is available in the *Data Entry Manual* for reference when using the printed forms. Kindly correct or explain failed checks using a comment or footnote.

# What does UIS questionnaire collect in terms of metadata?

- Respondent information
- Institutional information
  - Type of institution: Public, Higher education, Private enterprise, Private non-profit, other
  - Primary activities of the institution: Official statistics, S&T policy, research and development, higher education, technology transfer or S&T services
  - Whether institution publish S&T statistics or indicators periodically
  - Type of responsibility the institution has over S&T statistics: National coordination, sectorial coordination, data producer for the institution only with no responsibility for collecting statistics from other institutions

# What does UIS questionnaire collect in terms of metadata? cont...

- Basic methodologies used to collect data
  - Frequency of national data collection
  - Methodology followed to obtain data for R&D Personnel and R&D expenditure from each sector (Business, Government, Higher education, Private non-profit):
    - » Survey – census; Survey – sample; Budgetary information; Database; Estimation; Other sources
  - Any additional information on methodologies used
  - If surveys (both census and sample) are used to obtain data, more details on how it is conducted (target population, sampling techniques, etc)
  - If budgetary information are used, details on stage of budgetary information is used to obtain data



# What does UIS questionnaire collect in terms of metadata? cont...

- Scope of the responses to the questionnaire
  - Degree of coverage for different sectors (Business, Government, Higher education, Private non-profit):
    - » Completely covered; Partially covered; Not covered
  - If coverage for some sectors is partial, more details (i.e. which institutions or sub-sectors are included and which are not)

# What does UIS questionnaire collect in terms of metadata? cont...

- **R&D Personnel** (16 Tables)
  - By sector of employment, occupation, qualification, and field of science (by headcount and FTE, by gender)
- **R&D Expenditure** (5 Tables)
  - By sector of performance and source of funds; By type of activity and field of science
- Each table contains “Notes” section to provide any additional information
- Request to describe the nature of data presented under “Not specified” column or row
- Comment can be attached to each cell of the electronic form
- General comments section: explanations or clarifications which will help with the interpretation of data

# How does UIS disseminate R&D metadata?

- Annual R&D data release in UIS Data centre (<http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx>)
  - includes data collected from UIS Global R&D survey
  - includes data received from partner organizations (OECD, Eurostat, RICYT)
  - includes predefined footnotes at data level, table level, country level
- R&D Metadata release (annual)
  - Short-term arrangements
  - Long-term arrangements

## UIS R&D Metadata release: Short-term arrangements

- Compiled metadata from 2004, 2006, 2008 and 2010 R&D surveys
- Publish metadata files (pdf) at the UIS Data centre **(soon)**
- Refer to the OECD metadata tool for OECD countries:  
([http://webnet.oecd.org/rd\\_gbaord\\_metadata/default.aspx](http://webnet.oecd.org/rd_gbaord_metadata/default.aspx))
- Refer to the Eurostat metadata tool for Eurostat countries: (<https://webgate.ec.europa.eu/estat/sti-rdmetadata>)
- **Metadata for RICYT countries: to be included**

## R&D metadata files (pdf)

1. Respondent information
2. Institutional information
  - 2.1 Type of institution
  - 2.2 Primary activity
  - 2.3 Publication
  - 2.4 Principal responsibility
  - 2.5 Collection frequency
3. Survey methodology
  - 3.1 Base methodology + survey details
  - 3.2 Budget information
  - 3.3 Coverage plus notes

## 4. Human resources

- 4.1 R&D personnel by occupation – Notes
- 4.2 R&D personnel by sex - Notes
- 4.3 R&D personnel by sector of employment and occupation – Notes
- 4.4 R&D personnel by sector of employment and sex – Notes
- 4.5 Researchers by formal qualification and sector of employment – Notes
- 4.6 Researchers by formal qualification and sex – Notes
- 4.7 Researchers by fields of science and sector of employment – Notes
- 4.8 Researchers by fields of science and sex – Notes

## 5. R&D expenditure

- 5.1 Type of period considered
- 5.2 Total expenditure on R&D – Notes
- 5.3 Total expenditure on R&D by sector of performance – Notes
- 5.4 Total expenditure on R&D by source of funds – Notes
- 5.5 Total expenditure on R&D by fields of science – Notes
- 5.6 Total expenditure on R&D by type of R&D activity

Country: XXXXXXX

### 1. Respondent information

National Science Technology and Innovation Policy Office (STI): Web address:

### 2. Institutional information

2.1. Type of institution: Public organization

2.2. Primary activity: STI Policy Office: S&T policy;

2.3. Publication: Yes

2.4. Principal responsibility: National co-ordination

2.5. Collection frequency of R&D statistics: Annually

### 3. Survey methodology

#### 3.1 Base methodology + survey details

For data from 1997 to 2006:

Government and higher education: Survey (census) for personnel and expenditure data as well as budgetary information for expenditure data. Private non-profit: survey (census) for personnel and expenditure data. Business enterprise: survey (sample) for personnel and expenditure data as well as budgetary information for expenditure data.

Notes for data related from 1997 to 2006:

1. Business enterprise in Thailand consists of:

a) Public enterprise: biannually collected on a census survey and biannually collected on budgetary information.

b) Private enterprise: annual

2. Data of R&D activities in government, higher education sector and private non-profit sector are collected by the following methods;

a) Census survey (biannually)

b) Budgetary information (biannually)

For example;

1) Year 2006: data of R&D activities in government, higher education, public enterprise sector are collected on budgetary information.

2) Year 2005: data of R&D activities in government, higher education, public enterprise and private non-profit sector are collected on a census survey.

Survey details: Methodology of sample survey (only private enterprise sector)

1) Target population: all firms with annual revenue of at least 12 million baht in 2006 as reported to the Commercial Registration Department, Ministry of Commerce.

2) Sampling procedure



# UIS Data Centre:

<http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx>

Beyond 20/20 WDS - Report Folders - Windows Internet Explorer

http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx

File Edit View Favorites Tools Help

☆ Favorites Beyond 20/20 WDS - Report Folders

UNESCO INSTITUTE for STATISTICS  
United Nations Educational, Scientific and Cultural Organization

Français Useful Links

Reports Help

Actions

All Reports > Public Reports > Science and Technolo...

Folders	Name
All Reports	S&I Metadata
Public Reports	Guide to science and technology statistics
Education	Regional totals for R&D Expenditure (GERD) and Researchers, 2002 and 2007
Science and Technolo	Table 1: Total R&D personnel by sex (in Full-time equivalents - FTE and Headcounts - HC)
Communication	Table 2: Total R&D personnel by sector of employment (FTE and HC)
Culture	Table 3: Total R&D personnel by sector of employment (FTE and HC) - Female
Literacy and Educatic	Table 4: Researchers by sex (FTE and HC)
	Table 5: Researchers by sector of employment (FTE and HC)
	Table 6: Researchers by sector of employment (FTE and HC) - Female
	Table 7: Researchers by formal qualification (FTE and HC)
	Table 8: Researchers by formal qualification (FTE and HC) - Female
	Table 9: Researchers by formal qualification (FTE and HC) - Business enterprise sector
	Table 10: Researchers by formal qualification (FTE and HC) - Government sector
	Table 11: Researchers by formal qualification (FTE and HC) - Higher education sector
	Table 12: Researchers by formal qualification (FTE and HC) - Private non-profit sector
	Table 13: Researchers by field of science (FTE and HC)
	Table 14: Researchers by field of science (FTE and HC) - Female
	Table 15: Researchers by field of science (FTE and HC) - Business enterprise sector
	Table 16: Researchers by field of science (FTE and HC) - Government sector
	Table 17: Researchers by field of science (FTE and HC) - Higher education sector
	Table 18: Researchers by field of science (FTE and HC) - Private non-profit sector
	Table 19: Researchers per million inhabitants, per thousand labour force, per thousand total employment: (FTE and HC)
	Table 20: Technicians and equivalent staff by sex (FTE and HC)
	Table 21: Technicians and equivalent staff by sector of employment (FTE and HC)
	Table 22: Technicians per million inhabitants, per thousand labour force, per thousand total employment: (FTE and HC)
	Table 23: Other supporting staff by sex (FTE and HC)



## UIS R&D Metadata release: Long-term arrangements

- Establish metastore system at the UIS: pilot product for R&D metadata (2012)
- Lead by UIS Data Processing and Standard (DPSS) Unit
- Follow OECD model
- Statistical Metadata System (SMS): A data processing system that uses, stores and produces statistical metadata\*

# How do partner organizations disseminate R&D metadata?

## ■ OECD

- OECD.Stat: (<http://www.oecd-ilibrary.org/statistics>)
- OECD R&D Sources and Methods Database: ([http://webnet.oecd.org/rd\\_gbaord\\_metadata/Filter.aspx?base\\_id=1](http://webnet.oecd.org/rd_gbaord_metadata/Filter.aspx?base_id=1))
- OECD GBAORD Sources and Methods Database: ([http://webnet.oecd.org/rd\\_gbaord\\_metadata/Filter.aspx?base\\_id=2](http://webnet.oecd.org/rd_gbaord_metadata/Filter.aspx?base_id=2))

## ■ Eurostat

- Metadata and Quality Reports collection tool: R&D and GBAORD Statistics: (<https://webgate.ec.europa.eu/estat/sti-rd-metadata>)

## ■ RICYT

- RICYT website: (<http://www.ricyt.org>)
- El Estado de la Ciencia. Principales indicadores de ciencia y tecnología



UNESCO  
INSTITUTE  
for  
STATISTICS

# OECD: OECD.Stat

Educational  
Cultural

OECD Statistics (GDP, unemployment, income, population, labour, education, trade, finance, price - Windows Internet Explorer

http://stats.oecd.org/index.aspx?r=913956

File Edit View Favorites Tools Help

Favorites

OECD Statistics (GDP, unemployment, income,...

ORGANISATION  
FOR ECONOMIC  
CO-OPERATION  
AND DEVELOPMENT



OECD.Stat

Login | Version française | Contact Us | User G

Search

Merged Queries ?

Browse Queries ?

Frequently requested data

Browse Themes ?

Find in Themes Reset

General Statistics

Agriculture and Fisheries

Demography and Population

Development

Economic Projections

Education and Training

Environment

Finance

Globalisation

Health

Industry and Services

Information and Communication Technology

International Trade and Balance of Payments

Labour

Monthly Economic Indicators

National Accounts

Prices and Purchasing Power Parities

Productivity

Public Sector, Taxation and Market Regulation

Regional Statistics

Science, Technology and Patents

Patents Statistics

Research and Development Statistics

Expenditure

Gross domestic expenditure on R-D by sector of performance and source of funds

Gross Domestic Expenditure on R-D by sector of performance and type of cost

R-D expenditure by sector of performance and type of R-D

## Gross domestic expenditure on R-D by sector of performance and source of funds <sup>i</sup>

Change data selection: Sector of Performance [5 / 5] Source of Funds [17 / 20] Units for Expenditure [3 / 3] Country [42 / 42] Year [30]



Data extracted on 07 Nov 2011 21:09 UTC (GMT) from OECD.Stat

Country	Australia
Units for Expenditure	Million National Currency (Euro For Euro Area)
Sector of Performance	Total intramural
Year	1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Source of Funds	
Total (funding sector)	1 585 ... 2 405.9 ... 3 368.9 3 685.1 4 276.5 ... 5 222 ... 6 482.9 ... 7 466.637 ... 8 792.431
Business enterprise	(*) 319.4 ... 674.2 ... 1 262.5 1 480.3 1 783.5 ... 2 148.3 ... 2 852 ... 3 450.948 ... 4 203.889
Sub-total government	(*) 1 154.2 ... 1 648.6 ... 1 993.6 2 088.9 2 317 ... 2 868.2 ... 3 257.2 ... 3 542.182 ... 4 023.36
Direct government	(*) 772.5 ... 1 100.3 ... 1 353.7 ... 1 558.4 ... ... ... 2 376.382 ... 2 515.077
General university funds	(*) 381.7 ... 482.4 ... 839.9 ... 758.8 ... ... ... 1 185.8 ... 1 508.282
Higher education	(*) 0.4 ... 17.3 ... 27.4 35.2 29.2 ... 6.6 ... 11.1 ... 16.158 ... 16.109
Private non-profit	(*) 32.2 ... 41.3 ... 56.4 66.4 90 ... 134.7 ... 244.8 ... 312.097 ... 388.428
Funds from abroad	(*) 16 ... 26 ... 29 36.4 56.8 ... 64.1 ... 118 ... 145.253 ... 180.646
Foreign Business Enterprises	
Enterprises within same group	
Other business enterprise companies	
Other National Governments	
Higher Education	
PNP	
European	

### Metadata

Gross domestic expenditure on R-D by sector of performance and source of funds

Source

Contact person/organisation

RDSurvey@oecd.org

Data Characteristics

Date last updated

March 2011; forthcoming update March 2012.

Reference period

1981 onward.

Unit of measure used

Data are provided in million national currency (for the euro zone, pre-EMU euro or EUR), million current PPP USD and million constant USD (2000 prices and PPPs).

Variables collected

This table contains research and development (R&D) expenditure statistics. Data include gross domestic R&D expenditure by sector of performance (business enterprise, government, higher education, private non-profit, and total

org


# OECD: OECD R&D Sources and Methods Database

Metadata - Windows Internet Explorer

http://webnet.oecd.org/ind\_gbaord\_metadata/Filter.aspx?base\_id=1

File Edit View Favorites Tools Help

★ Favorites Metadata

  
**Metadata Application**  
**OECD R&D Sources and Methods Database**

Select all categories, a topic, a sector or custom categories:

☒ All categories

☐ Topic

☐ Sector

☐ Custom

Select countries:

OECD	Non-Member
<input type="checkbox"/> All	<input type="checkbox"/> All
<input type="checkbox"/> Australia	<input checked="" type="checkbox"/> Argentina
<input type="checkbox"/> Austria	<input type="checkbox"/> China
<input type="checkbox"/> Belgium	<input type="checkbox"/> Chinese Taipei
<input type="checkbox"/> Canada	<input type="checkbox"/> Romania
<input type="checkbox"/> Chile	<input type="checkbox"/> Russian Federation

< Back Clear Go

# OECD: OECD R&D Sources and Methods Database

## cont...



### Metadata Application

#### OECD R&D Sources and Methods Database

#### Argentina

##### 0 General information

##### 1 Agency and person responsible - General

Ministry of Science, Technology and Productive Innovation (MinCyT), Argentina, webpage <http://www.MinCyT.gov.ar>

##### 1.1 Business enterprise - Agency and person responsible

Ministry of Science, Technology and Productive Innovation (MinCyT), Argentina and the National Institute of Statistics and Census (INDEC), Ministry of Economy and Production, Argentina (registered since 1996).

##### 1.2 Government - Agency and person responsible

See Agency - General

##### 1.3 Higher education - Agency and person responsible

See Agency - General

##### 1.4 Private non-profit - Agency and person responsible

See Agency - General

##### 2 Coverage and Classifications (1)

##### 2.1 R&D coverage - General (2)

Frascati Manual definitions are followed.

Since 1997, data for human resources are strictly R&D. Before that, data for human resources were expressed only in terms of Science and Technology Activities (STA) (these have not been transferred to the OECD database). STA involve R&D and diffusion activities of S&T (library services, training services, conferences, etc.).

Since 2002, the source of funds data for private non-profit organisations, universities and S&T public organisations are asked in R&D. Before that, the source of funds data were asked in STA. These data were converted into R&D terms by means of a coefficient for each sector of performance. The main source of funds for science and technology activities in Argentina is the National Budget.



# Eurostat: Metadata and Quality Reports collection tool: R&D and GBAORD Statistics

R&D and GBAORD Statistics metadata and quality reports collection tool - Windows Internet Explorer

https://webgate.ec.europa.eu/estat/sti-rd-metadata/framees.jsp

File Edit View Favorites Tools Help

★ Favorites R&D and GBAORD Statistics metacata and qual..

Queries Compare Instances Instances by Cou

## R&D and GBAORD Statistics Metadata and Quality Reports collection tool

Navigation Tree

- Quality Reports
- National Metadata
  - R & D**
  - GBAORD

Countries

Select an Instance:

Country	Last update	Completeness
Austria	-	●
Belgium	-	●
Bulgaria	-	●
Croatia	-	●
Cyprus	-	●
Czech Republic	-	●
Denmark	-	●
Estonia	-	●
Finland	-	●
Former Yugoslav Republic of Macedonia	-	●
France	-	●
Germany	-	●
Greece	-	●
Hungary	-	●
Iceland	-	●
Ireland	-	●
Italy	-	●
Latvia	-	●
Lithuania	-	●
Luxembourg	-	●
Malta	-	●
Netherlands	-	●
Norway	-	●
Poland	-	●
Portugal	-	●
Romania	-	●
Russian Federation	-	●
Slovak Republic	-	●
Slovenia	-	●
Spain	-	●
Sweden	-	●
Switzerland	-	●
Turkey	-	●
United Kingdom	-	●


● All answers have been filled. ● Not all of the answers have been filled. ● None of the answers has been

R&D and GBAORD Statistics Metadata and Quality Reports collection tool - Version 1:1:8 (Jul. 2011)

# Eurostat: Metadata and Quality Reports collection tool: R&D and GBAORD Statistics

cont...

"Bulgaria" on "R&D national metadata 2011 March collection - reference period 2009"

 [Export to Microsoft Word](#)

## 1 National Organizations/Agencies

### 1.1 Business Enterprise sector (BES)

**1.1.1: Organisation's name (BES):** National Statistical Institute of Bulgaria  
**1.1.2: Responsible person(s) (BES)** Vania Jeleva  
 2, P. Volov str.,  
 Sofia 1038  
**1.1.3: Contact information (BES)** E-mail: vjeleva@nsi.bg  
**1.1.4: Additional information (BES)** -  
**1.1.5: test**

### 1.2 Government sector (GOV)

**1.2.1: Organisation's name (GOV)** National Statistical Institute of Bulgaria  
**1.2.2: Responsible person(s) (GOV)** Vania Jeleva  
 2, P. Volov str.,  
 Sofia 1038  
**1.2.3: Contact information (GOV)** E-mail: vjeleva@nsi.bg  
**1.2.4: Additional information (GOV)** N/A

### 1.3 Higher Education sector (HES)

**1.3.1: Organisation's name (HES)** National Statistical Institute of Bulgaria  
**1.3.2: Responsible person(s) (HES)** Vania Jeleva  
 2, P. Volov str.,  
 Sofia 1038  
**1.3.3: Contact information (HES)** E-mail: vjeleva@nsi.bg  
**1.3.4: Additional information (HES)** N/A

### 1.4 Private non-profit sector (PNP)

**1.4.1: Organisation's name (PNP)** National Statistical Institute of Bulgaria  
**1.4.2: Responsible person(s) (PNP)** Vania Jeleva  
 2, P. Volov str.,  
 Sofia 1038  
**1.4.3: Contact information (PNP)** E-mail: vjeleva@nsi.bg  
**1.4.4: Additional information (PNP)** N/A

## 2 Coverage and Classifications



org

# RICYT: RICYT main questionnaire

## Indicadores de Ciencia y Tecnología Iberoamericanos / Interamericanos

Datos solicitados por la Red Iberoamericana de Indicadores de Ciencia y Tecnología (RICYT)



# RICYT

**ATENCIÓN: LEA EL INSTRUCTIVO PREVIAMENTE**

Año de relevamiento

País

Denominación de moneda local

Unidad de expresión de los valores monetarios

## A. DATOS GENERALES

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
------	------	------	------	------	------	------	------	------	------	------

### 1. Población

millones de personas

--	--	--	--	--	--	--	--	--	--	--

Citar fuente de información

Nota

--

### 2. Población Económicamente Activa (PEA)

millones de personas

--	--	--	--	--	--	--	--	--	--	--

Citar fuente de información

--





# RICYT: UIS Annex



## Indicadores de Ciencia y Tecnología Iberoamericanos / Interamericanos

*Datos solicitados por la Red  
Iberoamericana de Indicadores de Ciencia y Tecnología (RICYT)*

*Datos del año 2008*

### 1. Metodología Básica

País:

#### 1.1 Periodicidad de la realización de encuestas de I+D

(Marque con una X cuán seguido su institución realiza encuestas de I+D)

Nunca ☐

Anualmente ☐

Bianualmente ☐

Cada tres años ☐

Cada cuatro años ☐

☐ Otros (describir):





United Nations  
Educational, Scientific and  
Cultural Organization

UNESCO  
INSTITUTE  
for  
STATISTICS

# RICYT: RICYT Website



Red Iberoamericana de Indicadores de Ciencia y Tecnología - RICYT

[Descargar Excel](#) / [Download Excel](#)

## Argentina

POBLACIÓN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
millones de personas	32.28	32.42	32.46	32.31	32.66	34.03	34.39	34.76	36.00	36.39	36.78	37.15	37.51	37.86	38.22

POBLACIÓN ECONÓMICAMENTE ACTIVA (PEA)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
millones de personas	12.09	12.32	12.53	12.82	14.08	13.2	13.2	13.7	13.94	14.26	14.48	14.66	14.85	15.15	15.42

Notas:

- PEA: Corresponde a Población Económicamente Activa

PRODUCTO BRUTO INTERNO (PBI)	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
millones moneda local	68922	180928	225636	236505	257440	258032	272150	292859	298948.35	283523.02	284203.73	258696.70	312580.14	375909.36	447643.42
millones de u\$s	141337	185625.44	228774.99	236505	257440	258032	272150	292859	298948.35	283523.02	284203.73	258696.70	103071.04	129544.77	153144.80
millones de dólares expresados en PPC	176203.74	205502.80	235297.58	254923.92	275492.03	273111.85	293692.72	322817.72	338971.38	332227.77	336791.45	329697.82	298920.23	332268.99	372549.07

Notas:

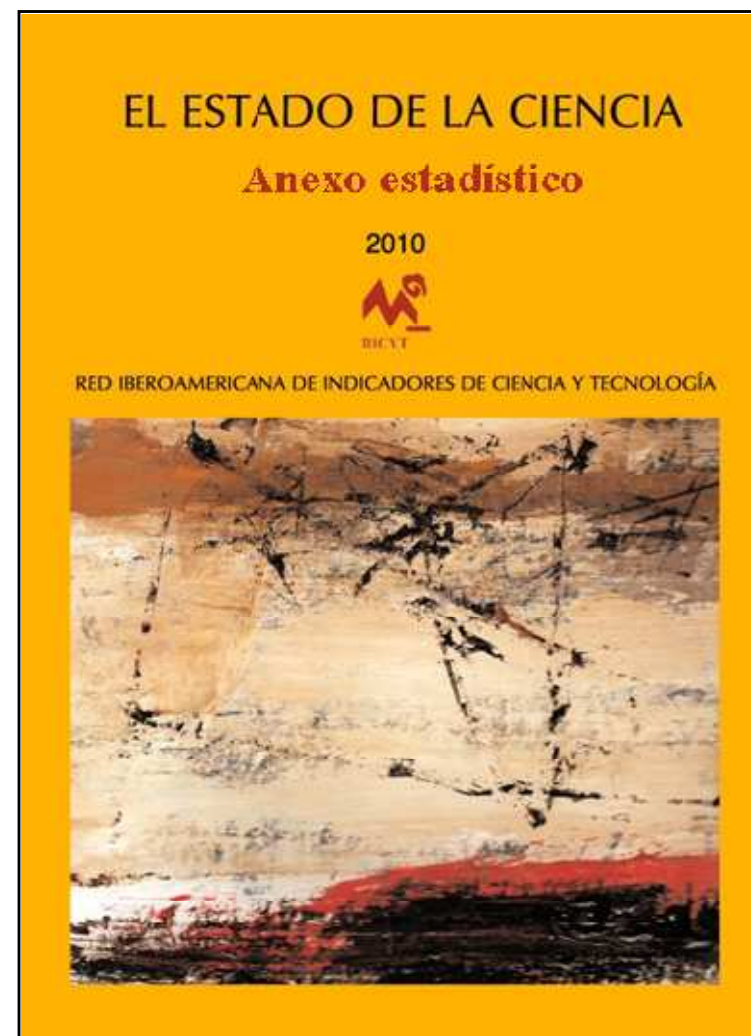
- PPC: Paridad de Poder de Compra.
- Las estimaciones en dólares fueron obtenidas aplicando los datos de Tipo de Cambio del Fondo Monetario Internacional sobre la información en moneda local, provista por el país.
- Las estimaciones en PPC fueron obtenidas aplicando los factores de conversión del Banco Mundial sobre los datos provistos por el país.

GASTO EN CIENCIA Y TECNOLOGÍA	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
millones moneda local (ACT)	224.00	623.30	854.8	1015.7	1124.9	1252.7	1353	1456.3	1495.6	1481.8	1430	1290.2	1388.7	1742.5	2194.5
millones de u\$s (ACT)	459.36	653.26	862.86	1015.7	1124.9	1252.7	1353	1456.3	1495.6	1481.8	1430	1290.2	457.91	600.95	750.76
millones de dólares expresados en PPC (ACT)	572.68	707.96	887.46	1094.80	1203.77	1325.91	1460.10	1616.29	1695.83	1736.34	1694.60	1583.10	1328.01	1540.20	1826.36
millones moneda local (I + D)	--	--	--	--	--	--	1136.2	1228.8	1229.6	1285.4	1247.2	1140.9	1215.5	1541.7	1958.7
millones de u\$s (I + D)	--	--	--	--	--	--	1136.2	1228.8	1229.6	1285.4	1247.2	1140.9	405.80	531.70	670.09
millones de dólares expresados en PPC (I + D)	--	--	--	--	--	--	1226.13	1354.50	1394.21	1506.21	1477.97	1399.91	1152.38	1362.71	1630.11

Notas:

- ACT: actividades científicas y tecnológicas.
- I+D: Investigación y Desarrollo Experimental.
- PPC: Paridad de Poder de Compra.

# RICYT: El Estado de la Ciencia. Principales indicadores de ciencia y tecnología



[http://www.ricyt.org/index.php?option=com\\_content&view=article&id=211:el-estado-de-la-ciencia-2010&catid=6:publicaciones&Item](http://www.ricyt.org/index.php?option=com_content&view=article&id=211:el-estado-de-la-ciencia-2010&catid=6:publicaciones&Item)



United Nations  
Educational, Scientific and  
Cultural Organization

UNESCO  
INSTITUTE  
for  
STATISTICS

# RICYT: El Estado de la Ciencia. Principales indicadores de ciencia y tecnología cont..

## INDICADOR 5:

### GASTO EN CIENCIA Y TECNOLOGÍA EN RELACIÓN AL PBI

## INDICADOR 5:

### GASTO EN CIENCIA Y TECNOLOGÍA EN RELACIÓN AL PBI

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Argentina</b>										
ACT	0.52%	0.52%	0.48%	0.44%	0.40%	0.40%	0.53%	0.58%	0.61%	0.61%
I+D	0.45%	0.41%	0.42%	0.39%	0.41%	0.44%	0.48%	0.42%	0.51%	0.52%
<b>Bolivia</b>										
ACT	0.56%	0.54%	0.52%	0.51%						
I+D	0.29%	0.28%	0.27%	0.26%						
<b>Brazel</b>										
ACT	1.30%	1.27%	1.30%	1.20%	1.24%	1.27%	1.28%	1.28%	1.43%	
I+D	1.02%	1.04%	0.99%	0.99%	0.97%	0.97%	1.06%	1.07%	1.09%	
<b>Canadá</b>										
I+D	1.86%	1.81%	2.00%	2.04%	2.06%	2.47%	2.65%	1.87%	1.86%	1.84%
<b>Chile</b>										
I+D	0.81%	0.53%	0.52%	0.80%	0.67%	0.87%				
<b>Colombia</b>										
ACT		0.31%	0.28%	0.31%	0.35%	0.40%	0.40%	0.42%	0.41%	0.38%
I+D	0.20%	0.12%	0.12%	0.13%	0.18%	0.18%	0.18%	0.18%	0.18%	0.15%
<b>Costa Rica</b>										
ACT	0.80%	0.80%			0.84%	1.09%		1.30%	1.30%	1.30%
I+D	0.38%	0.38%			0.38%	0.37%		0.43%	0.38%	0.40%
<b>Cuba</b>										
ACT	1.01%	0.89%	0.86%	0.86%	0.84%	0.83%	0.84%	0.88%	0.75%	0.80%
I+D	0.50%	0.48%	0.53%	0.53%	0.54%	0.58%	0.51%	0.51%	0.44%	0.49%
<b>Ecuador</b>										
ACT			0.15%	0.17%	0.18%		0.30%	0.30%	0.38%	
I+D			0.09%	0.08%	0.07%		0.18%	0.18%	0.28%	
<b>El Salvador</b>										
ACT								0.79%	0.87%	
I+D								0.39%	0.11%	
<b>España</b>										
I+D	0.88%	0.81%	0.81%	0.80%	1.06%	1.08%	1.12%	1.20%	1.27%	1.34%
<b>Estados Unidos</b>										
I+D	2.64%	2.73%	2.74%	2.64%	2.64%	2.47%	2.60%	2.58%	2.89%	2.77%
<b>Guatemala</b>										
ACT	0.008%	0.003%	0.007%	0.002%	0.002%	0.002%	0.004%	0.008%		
I+D	0.003%	0.003%	0.002%	0.002%	0.001%	0.002%	0.002%	0.005%	0.02%	0.00%
<b>Honduras</b>										
ACT		0.07%	0.08%	0.06%	0.06%					
I+D		0.05%	0.05%	0.06%	0.06%	0.06%				
<b>Jamaica</b>										
ACT		0.73%	0.74%							
I+D		0.60%	0.67%							
<b>México</b>										
ACT	0.41%	0.42%	0.41%	0.38%	0.38%	0.30%	0.34%	0.32%	0.32%	0.30%
I+D	0.43%	0.27%	0.29%	0.42%	0.41%	0.40%	0.41%	0.38%	0.38%	
<b>Nicaragua</b>										
ACT				0.00%		0.07%				
I+D				0.00%						
<b>Panamá</b>										
ACT	0.84%	0.81%	1.03%	0.80%	0.74%	0.80%	0.73%	0.88%	0.51%	0.50%
I+D	0.35%	0.45%	0.45%	0.50%	0.54%	0.54%	0.58%	0.55%	0.55%	0.51%
<b>Paraguay</b>										
ACT			1.10%	1.17%	0.80%	0.85%	0.83%			0.41%
I+D			0.09%	0.11%	0.06%	0.06%	0.06%			0.08%
<b>Perú</b>										
ACT	1.55%	1.30%	1.45%	1.41%	1.15%					
I+D	0.50%	0.14%	0.14%	0.10%	0.10%	0.15%				
<b>Portugal</b>										
I+D	0.71%	0.78%	0.80%	0.78%	0.74%	0.74%	0.77%	0.81%	1.00%	1.20%
<b>Trinidad y Tobago</b>										
ACT	0.04%	0.33%	0.38%	0.31%	0.27%	0.25%	0.27%	0.27%	0.27%	0.17%
I+D	0.02%	0.11%	0.10%	0.14%	0.12%	0.12%	0.12%	0.11%	0.10%	0.08%
<b>Uruguay</b>										
ACT					0.28%				0.09%	0.09%
I+D					0.20%				0.20%	0.16%
<b>Venezuela</b>										
ACT	0.38%	0.38%	0.50%	0.43%	0.31%	0.25%	0.26%	1.78%	2.02%	2.54%
<b>América Latina y el Caribe</b>										
ACT	0.84%	0.73%	0.73%	0.71%	0.88%	0.66%	0.73%	0.84%	1.02%	1.07%
I+D	0.66%	0.58%	0.58%	0.64%	0.63%	0.62%	0.67%	0.82%	0.92%	0.98%
<b>Iberoamérica</b>										
I+D	0.66%	0.64%	0.65%	0.67%	0.70%	0.70%	0.74%	0.77%	0.82%	0.85%
<b>Total</b>										
I+D	2.18%	2.25%	2.28%	2.24%	2.22%	2.14%	2.14%	2.16%	2.66%	2.13%

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Portugal</b>										
I+D	0.71%	0.78%	0.80%	0.78%	0.74%	0.74%	0.77%	0.81%	1.00%	1.20%
<b>Trinidad y Tobago</b>										
ACT	0.04%	0.33%	0.38%	0.31%	0.27%	0.25%	0.27%	0.27%	0.27%	0.17%
I+D	0.02%	0.11%	0.10%	0.14%	0.12%	0.12%	0.12%	0.11%	0.10%	0.08%
<b>Uruguay</b>										
ACT					0.28%				0.09%	0.09%
I+D					0.20%				0.20%	0.16%
<b>Venezuela</b>										
ACT	0.38%	0.38%	0.50%	0.43%	0.31%	0.25%	0.26%	1.78%	2.02%	2.54%
<b>América Latina y el Caribe</b>										
ACT	0.84%	0.73%	0.73%	0.71%	0.88%	0.66%	0.73%	0.84%	1.02%	1.07%
I+D	0.66%	0.58%	0.58%	0.64%	0.63%	0.62%	0.67%	0.82%	0.92%	0.98%
<b>Iberoamérica</b>										
I+D	0.66%	0.64%	0.65%	0.67%	0.70%	0.70%	0.74%	0.77%	0.82%	0.85%
<b>Total</b>										
I+D	2.18%	2.25%	2.28%	2.24%	2.22%	2.14%	2.14%	2.16%	2.66%	2.13%

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
--	------	------	------	------	------	------	------	------	------	------

**Notas:**  
Los datos de los subregiones de América Latina y el Caribe, Iberoamérica y Total son estimados.  
ACT: Actividades Científicas y Tecnológicas  
I+D: Investigación y Desarrollo  
Colombia: Para el año 2002 no incluye el gasto del sector empresas.  
El Salvador: Los datos consignados corresponden al gasto realizado por los sectores de Educación Superior y Gobierno.  
Guatemala: Los datos consignados corresponden a la inversión en I+D del sector público y del sector educación superior. A partir del año 2005 se recopilaban datos del sector educación superior y público de todo el país, por lo que los datos reportados para años anteriores corresponden a los montos invertidos únicamente por la Secretaría Nacional de Ciencias y Tecnología (SENACYT).  
México: El gasto en ACT comprende solamente el Gasto Federal en Ciencia y Tecnología.  
Paraguay: Incluye el gasto del Instituto Smithsonian de Investigaciones Tropicales (SIIT) el cual representa un 19% (16,72 millones de dólares) del gasto total en ACT, y un 26% (12,7 millones de dólares) del gasto total en I+D para el año 1999.  
Perú: A partir del año 1997 el RICYT/TEC ha reportado en Gasto en ACT e I+D.  
Venezuela: El crecimiento sustancial del gasto en ACT a partir del año 2004 se debe a la creación de la Ley Orgánica de Ciencia, Tecnología e Innovación (LOCTI).

## Way forward

- Publish metadata at UIS Data Centre
- Collaborate with partner organizations to provide access to their R&D metadata
- Collaborate with any RICYT's initiatives to capture and disseminate metadata
- Improve the collection of metadata
  - Capturing additional metadata in future UIS R&D survey (2012?)

# Thank you!

<http://www.uis.unesco.org>

Rohan Pathirage

[r.pathirage@unesco.org](mailto:r.pathirage@unesco.org)