

Reviewing national research systems: Responses, the template and country studies

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UNESCO Forum on Higher Education, Research and
Knowledge
18 January 2008

Responses and reflections

- General comments
 - What kind of report is this?
 - Status of the report
 - Coverage of the report
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General comments

- We wish to express our appreciation for the wide range and the specific (deep and also critical) comments and proposals made
 - Three categories of responses
 - Some of these comments/proposals require immediate attention (from the project team) in order to finalize and improve the quality of the report
 - Some comments require medium-term follow-up depending on the next steps
 - Some comments (however interesting and useful) do not require follow-up or action from us
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What kind of report is this?

- Some of the statements made
 - Is a baseline study
 - Not enough (causal) explanations
 - Not enough evaluative and prognostic comments (good practices/ models)
 - Insufficient critical analysis
 - No policy advice or good practice proposals

A reminder: Our purpose was to produce a study -

- Which provides a mapping and stock-taking meta-review of the lesser studied research systems in poor and developing countries which could act as a reference study
 - Together with some more bold (“generalizations” and analytical propositions) that emerged from the individual country studies
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Status of the report

- Strengths: Wide-ranging (even mammoth and mega) and – in some cases – novel coverage of developing and poor countries' research "systems"
 - Limitations
 - Unevenness of country reviews which mainly have to do with the "genesis" of these reports and availability of information
 - Data: reliability/ standardization of definitions (e.g. researchers & R&D workers/ science) & indicators
 - Merle's challenge (the good enough rule): What are the minimum data (& information) quality standards required to enable making policy advice (which does not imply formulating perfect policies)
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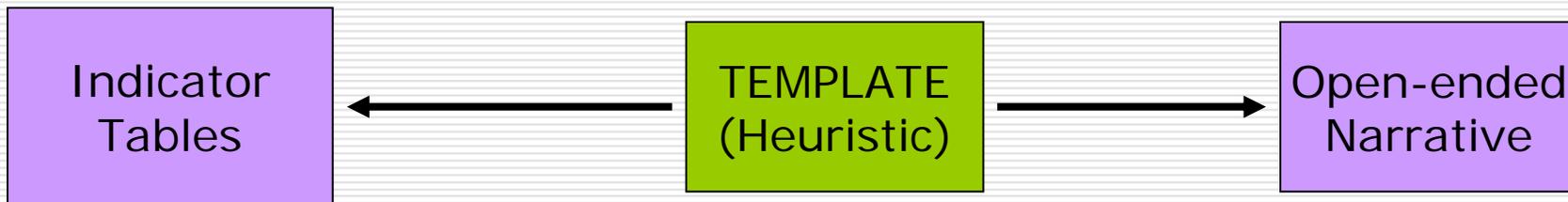
Coverage of the report

- Countries
 - Nigeria/ Egypt/Brazil/Uruguay/Central Asia
 - Themes and issues
 - The nature of science/research
 - Ethics and science
 - Gender and science
 - Regional networks and co-operation
 - Use and usefulness of (social) knowledge
 - Understanding scientific communities and scientific cultures better
 - And others
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The template

Some comments

- Templates are heuristic devices: i. e. they are frameworks (neither completely closed or open-ended) that guide data-collection, analysis and reporting
- They can be used slavishly and mechanistically OR reflexively and critically



Structured Standardized (e.g. Frascati manual)	Free format
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Elements of the template

(Data or information types)

□ **Research and knowledge indicators**

[These are standard quantitative measures that allow for statistical manipulation (e.g. construction of indices) and comparison across units of analysis]

□ **Descriptors**

[These are nominal measures (not standardized) that provide basic information of quantities of units of analysis – listings of these (also chronological) allow for trend and comparative analysis]

- Chronological descriptors (establishment of institutions, societies and journals, release of policies and plans)
- Listing descriptors (lists of institutions, journals, societies, associations)
- Visual descriptors (organogram of governance of science, flow of knowledge products)

□ **Narratives**

Sections of “thicker” textual descriptions and analyses that attempt to capture (historical, social, cultural) context and meaning of phenomena and are organized around themes, issues and topics

The template (1)

Category	Description	Nature of data
1. Contextualization of the science system within broader political, economic, educational and social systems	This section contains a brief narrative description of the political and socio-economic “status” or “climate” of the country highlighting significant strengths, weaknesses and major events and developments.	<i>Historical narrative</i>
	In addition a set of uniform tables listing demographic (6), social (8), economic (4) and technological indicators (8).	<i>Statistical indicators</i>
2. <i>Some considerations about the History of science in the (country, region) under review and especially the development trajectory</i>	Date (decade) of establishment of first research institute (s), of first public university, Scientific journals, Academy of science and/or first professional societies, Ministry for science, research and/or higher education, Science policy documents	Descriptors (listing)
	Description of specific models of scientific organization and governance as influenced by colonial and other powers historically Major periods in the institutionalization of science in country Major events shaping the development of HE and science in country	Narrative

Template (2)

3. <i>The governance of science in the country and available policies (especially S&T, R&D and HE)</i>	List of science policy, research strategy and HE documents as well as formal reviews and commissions into HE and research in the country	Descriptors (listing in chronological order)
	Research and science priorities as identified in science policy documents	Narrative
	Diagrammatic representation of science governance	Visual descriptor
4. <i>Knowledge and R&D performers (Establishments/ Institutions/ Universities/NGO's)</i>	Names of public universities, Names of private universities, Key university/college research centres, Key government funded research institutes/ centres, Key internationally funded research institutes/ centres Key private sector research facilities	Descriptor (listing)
	Description of strengths and weaknesses of the university system Niche areas of research in the system and at universities Modes of knowledge production undertaken in various sectors of the system	Narrative

Template (3)

<p>5. <i>Informal S&T structures (Academies, Associations, Journals) = Scientific Community</i></p>	<p>National scientific journals Scientific societies and associations Academies of science</p>	<p>Descriptor (Listing)</p>
	<p>Status of main journals (still being published or not) (Historical) description of information structures</p>	<p>Narrative</p>
<p>6. <i>S&T Human Resources (Description/s Statistics + The Profession of researcher: status, salaries, etc)</i></p>	<p>Number of researchers/ scientists in country * gender Number of academics in HE institutions * gender Nr of academics by scientific field (6) * gender Nr of Graduate enrolments * field * gender Nr of M and D graduates by field of study (Natural/ Agric/ Engineering/ Health/Social/Humanities) Inbound/outbound student mobility rates Number of researchers per million of labour force</p>	<p>Indicators</p>
	<p>Profession and status of academics and knowledge workers Remuneration compared to other public professions Scientific mobility and brain drain challenges</p>	<p>Narrative</p>

Template (4)

<p><i>7. Research Funding (Public or private; National and international; Trends)</i></p>	<p>R&D intensity (GERD/GDP) Expenditure on R&D per researcher Expenditure by sector Source of funding (incl. overseas agencies) – actual values and proportions Expenditure by scientific field (6)</p>	Indicators
	<p>Role of government and other domestic agencies in funding research Role of international donor and funding agencies in funding and steering research in the country</p>	Narrative
<p><i>8. Research Output (post-graduates/ publications/ papers/ patents)</i></p>	<p>Total output in ISI-journals (by scientific field) Total output in local journals (by field) Nr of PG theses/dissertations Nr of patents Citation impact statistics</p>	Indicators
	<p>Description of specific policies (funding, incentive) and initiatives to encourage participation in innovation, technological learning, and research publications locally and internationally</p>	Narrative

Template (5)

<p><i>9. Scientific co-operation and agreements</i></p>	<p>Nr of bilateral scientific agreements Nr of multilateral and regional agreements Nr of international agencies operating in country Degree of scientific collaboration as measured through share of foreign co-authors of papers Nr of bilateral scientific agreements Nr of multilateral and regional agreements</p>	<p>Descriptors (Listing) Indicators</p>
	<p>Main international and regional scientific partners</p>	<p>Narratives</p>
	<p>Main institutional collaborators</p>	
	<p>Domains and topics of scientific research</p>	
<p><i>10. Tensions, dynamics & challenges</i></p>	<p>Social inscription of science The ethos's of science (values) Science and the state/ contract Legitimacy/ credibility/trust/ accountability Science and its publics Usefulness of science?</p>	<p>Narratives</p>

Using the template

- Context (commissioned vs. self-initiated/ academic vs. governmental)
 - Purpose (descriptive-analytical/ diagnostic/ monitoring/ prognostic/ policy advice)
 - Resources
 - Methodological considerations
 - Desktop documentary analysis (incl. "grey literature")
 - Secondary analysis (survey/ statistical sources)
 - Bibliometric analysis
 - Primary data collection
 - Use of survey questionnaires
 - Personal interviews
 - Ethnographic studies/field observations
 - Expert panels
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And what next...?

Option 1 (Essential)

- ❑ Invitation to country scholars/ experts to comment on existing materials (within specific time frame)
- ❑ Internal cleaning of report (sources/ references)
- ❑ Co-operation with UNESCO Inst of Statistics (Montreal) to check and reconcile statistical data

Product: First standard reference work in this field for developing countries?

Option 2

- ❑ Consultation with (statistical) agencies in fields such as HE, agriculture and health research on their indicator systems
- ❑ Selected country studies using the template

Option 3

- ❑ Establish and support existing and new reference centres/ observatories to undertake this work on a regional basis
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Thank you

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