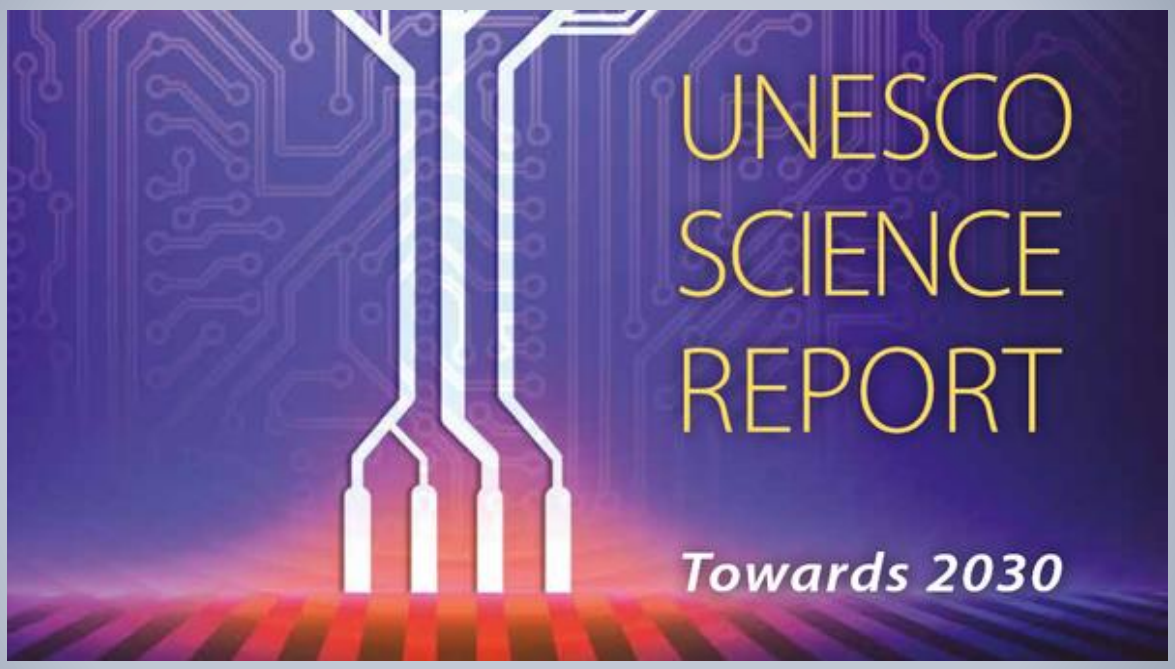
United Nations
Educational, Scientific and
Cultural Organization

Internal Oversight Service

IOS/EVS/PI/163



Evaluation of the UNESCO Science Report – Towards 2030

IOS Evaluation Office

July 2017

ABSTRACT

The UNESCO Science Report (hereafter USR) is one of UNESCO's flagship publications in the Natural Sciences Sector and part of UNESCO's strategy to communicate on Science, Technology and Innovation (STI) with a global perspective. Its priority concern is supporting science and technology policy, planning and management in UNESCO's Member States and the development of scientific capacities to contribute to innovation and to the application of research results to societal development. Under its current format and title, the USR has been produced every 5 years, with the most current edition launched in 2015.

The evaluation found an overall positive appreciation expressed by USR stakeholders and users and confirmed a high degree of relevance of the USR, in particular with a view to the USR's significant potential to influence and monitor progress towards the SDG target 9.5. However, in order to ensure sustainability of the Report, as well the likelihood of generating deeper and longer-term change in the future, the evaluation suggests a major overhaul of the current production process and dissemination strategy.

ACKNOWLEDGEMENTS

The IOS Evaluation Office would like to acknowledge all who participated in and contributed to the evaluation. The evaluation was managed by Ms. Martina Rathner, Principal Evaluation Specialist. It was conducted by a team of independent external consultants from Technopolis group: Mr. Carlos Hinojosa, Senior Consultant, and Ms. Ivette Oomens, Consultant. Ms. Elisabeth Zaparucha, Ms. Judith Vermeer, Mr. Matthias Ploeg and Ms. Anneloes de Ruiter from Technopolis Group provided methodological support and advice. The support provided by Ms. Anathea Brooks, Programme Specialist at the Executive Office of the UNESCO Natural Sciences Sector was highly appreciated.

The Evaluation Office would especially like to thank the staff in the Natural Sciences Sector, in particular Ms. Susan Schneegans, the editor of the UNESCO Science Report , the members of the evaluation reference group, Mr. Ian Denison, UNESCO Chief of UNESCO Publications Unit, Sector for External Relations & Public Information, Mr. Ernesto Fernandez Polcuch, Chief of Section on Science Policy and Partnerships (SC/PCB/SPP), UNESCO Natural Sciences Sector, and Ms. Leila Loupis, Senior Project Officer, Operations and Productions, Global Education Monitoring Report Team, as well as all evaluation interviewees and survey respondents who provided inputs throughout the evaluation process, including the representatives of the Permanent Member State delegations, the UNESCO Science Report authors, and readers who agreed to participate in evaluation interviews.

Special thanks go to Mr. Michael Keenan and Andrés Barreneche from the Organisation of Economic Cooperation and Development; Science, Technology and Industry Directorate; Mr. Mathieu Denis and Ms. Lizzie Sayer, World Social Science Council.

Susanne Frueh

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Cover photo: UNESCO

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List of abbreviations

ADG	Assistant Director-General
BSP	UNESCO Bureau for Strategic Planning
ER	Expected Result
ERI	UNESCO Sector for External Relations & Public Information
ERI/DPI	Division for Public Information, UNESCO Sector for External Relations & Information
EO	Executive Office
GEM	Global Education Monitoring Report
ICSU	International Council for Science
IOC	Intergovernmental Oceanographic Commission
IOS	UNESCO Internal Oversight Service
IPP	Innovation Policy Platform
LDC	Least Developed Countries
M&E	Monitoring and Evaluation
MPII	Major Programme II – Natural Sciences
OECD	Organization for Economic Development and Cooperation
R&D	Research and experimental development
SC	Natural Sciences Sector
SC/PCB/SPP	Section on Science Policy and Partnerships, UNESCO Natural Sciences Sector
SDG	Sustainable Development Goal
SHS	UNESCO Social and Human Sciences Sector
SIDS	Small Island Developing States
STI	Science, Technology and Innovation
ToC	Theory of Change
ToR	Terms of Reference
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDP	United Nations Development Programme
USR	UNESCO Science Report
WB	World Bank
WCS	World Conference on Science
WIPO	World Intellectual Property Organization

Executive summary

The UNESCO Science Report (hereafter USR) is one of UNESCO's flagship publications in the Natural Sciences (SC) Sector and part of UNESCO's strategy to communicate on Science, Technology and Innovation (STI) with a global perspective. Its priority concern is supporting science and technology policy, planning and management in UNESCO's Member States and the development of scientific capacities to contribute to innovation and to the application of research results to societal development. After suspension of all of UNESCO's World Reports in the late 1990s, the USR was re-launched in follow-up to the World Conference on Science (WCS) for the Twenty-First Century in 1999. Under its current format and title, it has since been produced every 5 years, with the most current edition launched in 2015.

The UNESCO Internal Oversight Service (IOS) Evaluation Office mandated Technopolis Group to conduct this first stand-alone external evaluation of the UNESCO Science Report (USR). The evaluation of the USR provided an opportunity to assess the value and influence of the current and past editions of the USR within the global scientific community. It focused on assessing the three editions of the USR since 2005, in terms of its technical quality, the efficiency and quality of its production process as well as the effectiveness of its dissemination, outreach and use. However, the emphasis was on the most recent edition of the Report. Furthermore, the evaluation identified different options for the design and production modalities to help the UNESCO Natural Sciences Sector to improve future editions of the Report and to ensure its sustainability within the 2030 horizon.

This evaluation has been conducted in light of supporting the SC sector in making decisions regarding the necessary adjustments to the USR before the next programme and budget (2018-2021) are adopted by UNESCO in late 2017. It shall also provide insights on the comparative relevance of the Report (both at the global stage and within UNESCO) and its use, as well as its financing and governance structure, the efficiency of the production cycle, and the adequacy of the format and content in order to inform decisions to be taken by SC and as relevant by the UNESCO Governing Bodies for the future editions of the Report.

In addition to extensive document review, the evaluation draws on multiple data collection methods, including semi-structured interviews and online surveys with a broad range of stakeholders from the UNESCO secretariat, Member States, the global scientific community, and UNESCO's science networks and partners, an analysis of outreach metrics as well as a comparative analysis of other similar publications in the field of Sciences (internal or external to UNESCO).

Relevance and coherence

The evaluation shows that overall the USR plays a distinctive role in providing evidence, data and information on the state of science, technology and innovation (STI) at the global level. Compared to other publications and sources of knowledge in comparable policy spheres, the USR is the only publication with a truly global focus, and which gives such a high level of importance to shedding light on the state of STI in low and middle-income countries. UNESCO and the USR are therefore considered to occupy a niche position in the global monitoring of STI policy trends. In addition, while other international organizations producing similar content (e.g. OECD) are also highly valued and recognized for the quality and value of their work, these tend to focus less on the social and economic implications of STI in countries outside of their constituencies (e.g. OECD member states, EU member states).

The majority of USR users and stakeholders consulted as part of the evaluation generally consider the themes addressed by the Report, as well as the Report's different components (e.g. global trends, thematic trends, regional trends and country profiles), as relevant and up to date. Country representatives also agree that the USR and its focus areas, topics, and recommendations are in line with the needs and strategies of their own countries. Yet, efforts to conduct a wide consultation process in the design phases of the Report in order to identify key points of interest and messages for potential readers remain limited.

Of course, the appreciation of the USR's uniqueness varies according to the reader's country of interest. The USR tends to be more relevant and useful for readers with a need or interest in learning about STI in countries and regions where this type of information is scarce. The opposite is true for readers from developed countries, where there tends to be a wealth of pre-existing information on the state of STI. So while in general terms the USR is considered to be geographically balanced and extensive, there are opposing views regarding the relevance of giving equal emphasis to developed vs. developing countries in the Report.

The production of the USR is fully in line with UNESCO's mandate, and particularly with that of UNESCO's Natural Sciences Sector (SC). The USR is generally considered valuable for promoting the importance of STI in achieving UNESCO's overarching goals and sustainable development. Further to this, the USR and its specific objectives are in line with SC's objective of creating an enabling environment for science through capacity building and promoting access to knowledge for policy. The USR also appears to be relevant and coherent vis à vis other UNESCO initiatives and the tools in the field of STI (e.g. the GO-SPIN platform).

In addition, the USR is considered to be in line with the ambitions of the 2030 Agenda for Sustainable Development, which defines the Sustainable Development Goals (SDGs), as well as UNESCO's contribution to achieving these objectives. Specifically, the USR is compatible with SDG 9, through which countries have pledged to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". The thematic coverage has evolved in line with global trends and demonstrates a growing focus on innovation, STI in Africa and monitoring STI governance. The more recent edition of the report demonstrates an expansion of the USR's geographical scope and strengthening of its monitoring function in anticipation of the Sustainable Development Goals. Furthermore, it sheds light on the gender gap in Sciences and Engineering.

Efficiency of the production and dissemination process

The existing production and dissemination process is the USR's Achilles' heel. Despite the fact that the majority of survey respondents expressed positive views regarding a range of production and dissemination aspects of the report (e.g. quality of the USR website, ease of access, presentation and visual style), stakeholders directly and indirectly involved in the development and dissemination of the USR or of other UNESCO global reports express a clear need to overhaul the existing production and dissemination process. Concern stems from the lack of a standardized production process and formal budgetary planning process, a lack of transparency in the expert selection process, a weak quality control system, a somewhat underrated dissemination and communication strategy and resources, the absence of tailored messages and pitches to be used to communicate to specific target audience and compared to other global reports a weak on-line presence and visibility. In addition, some stakeholders, mainly due to concerns regarding its cost-efficiency, have brought the current model used to produce the USR into question. As a result of this, the current production process is not only seen as one of the major threats to the sustainability of the Report, but also as a serious liability in terms of the reliability/precision of its content and its overall quality in future editions.

An additional considerable threat to the sustainability of the Report relates to its sources of funding. Despite the fact that the share of extra-budgetary funding in support of the USR underwent a sharp increase between the 2010 and the 2015 edition (e.g. a number of UNESCO member countries provided in kind contributions to the 2015 USR, particularly for efforts relating to translation, printing and dissemination of the report), the external sources of financial support which the USR did manage to attract appear to be the result of somewhat random fundraising activities. These appear to have been aimed at filling budgetary or production gaps, rather than being the result of a coordinated and planned fundraising strategy. In general, UNESCO stakeholders regret the absence of a stronger and more aggressive fundraising strategy for the USR, based on a clearly defined pitch to be made to high potential donors.

Major concerns were identified in relation to the current management scheme of the Report. The main issues with regard to the management of the USR are three-fold: the first relates to the under-staffing of the USR team, which results in a disproportionately high work burden and responsibilities on the

shoulders of the USR editor. The second is the lack of additional skillsets and capacities required to ensure the adequate implementation of specific tasks and duties related to the production of the USR, mainly the general project management of the USR, its communications and dissemination strategy, as well as its fundraising strategy. Finally, there appears to be a need for stronger involvement of a management-level staff member to allow a more balanced distribution of tasks and responsibilities.

The USR suffers from a lack of a coordinated and targeted effort to provide wider visibility and exposure of the Report vis à vis targeted audiences. From the evaluator's perspective, the dissemination and communication strategy around the USR does appear to be one of the Report's main weaknesses. Some of the difficulties and challenges when it comes to effective communication around the USR include the absence of tailored messages and pitches to be used to communicate to specific target audiences and the lack of a clear and concise communications strategy.

However, one of the major barriers to more efficient targeting of USR users is the Report's current format, which is unanimously considered to be long, heavy and outdated. While the current length of the Report is explained by the ambition to produce a truly global publication, the length of the Report entails strong limitations and drawbacks including difficulties in transporting and disseminating it, difficulties in navigating and searching for specific pieces of information, difficulties in disseminating the Report on-line and limitations on the visual appeal of the Report. The evaluation revealed the existence of calls not only to 'break-up' the report into shorter and lighter knowledge products, but also to increase frequency of publication of these individual products.

Widespread dissemination and uptake of the USR is also hindered by the limited on-line presence of the Report. The analysis of website analytics including social media presence revealed that while the USR fairs comparatively well to other similar UNESCO reports, in absolute terms its on-line presence remains low.

Effectiveness and signs of impact

The USR readership appears to be in line with the intended objectives. It is worth mentioning however, that the readership and target audiences defined by the USR is quite broad. As illustrated by the evaluation's on-line survey outside of UNESCO staff (headquarters, field offices, UIS), the main categories of USR readers are national policymakers and academics and researchers. The survey as well as the analysis of web metrics also indicate that there is an important geographical spread of users across countries and regions of the world. International organisations and UN agencies such as the World Intellectual Property Organisation (WIPO) and the United Nations Development Programme (UNDP) also appear to be consulting the USR as part of their work and remain appreciative of the quality of the Report.

Given the frequency of its use, the USR appears to be more of a reference document (i.e. similar to almanacs, dictionaries, encyclopaedias, etc.), rather than a source of dynamic information which is consulted on a regular basis. The main drivers behind the use of the USR are activities related to research and learning. Policy-making, policy advocacy and monitoring and benchmarking are also frequently cited as USR consultation purposes. Attracting or increasing expenditure levels for STI policy on the other hand, does not appear to be one of the main uses given to the USR.

The different purposes for which the USR is used appear to be leading to a number of tangible outcomes. It appears from the evaluation survey that the areas where the USR has played the most important role are increasing the level of awareness of global emerging STI issues, and increasing the capacity to monitor STI trends. These results are fully in line with the main priorities of the USR. The evaluation showed that the USR's influence on thought leadership, albeit limited, tends to take place through informal channels such as general policy discussions and presentations and mainstream media articles - rather than through academic research articles. A number of interviewees, particularly in international organizations and national governments, indicated they frequently use the USR for example to put together talking points, briefs, and speeches/presentations to be given by government authorities. As such, the influence of the USR on the way the policy making and researcher community thinks about STI and its influence on development is happening somewhat 'under the radar'.

This finding applies also to the influence of the USR on policy-making and the nature of STI policy debates taking place around the world given that examples of cases in which the USR has directly influenced a policy initiative (e.g. legislation, regulation or reform, implementation of a specific program) are extremely rare.

It appears from the evaluation that the data and information provided by the USR is primarily influencing the policy debate in the field of STI in a developing country and international development cooperation context. The influence of the USR on 'developed economy' STI policy-making – outside of international development cooperation considerations – appears to be extremely limited.

However, the fact that the USR has not adopted a formalized intervention logic and corresponding results matrix and indicators to track its level of influence on intended users, limits its own capacity to develop a clear view on the changes it is generating and aiming to achieve.

Recommendations

In light of the evaluation findings, it is recommended that the USR be continued to be produced by UNESCO. The case for continuing to support the USR is strengthened by its high degree of relevance and the overall positive appreciation expressed by USR readers, in particular with a view to the significant potential for the USR in contributing to influencing and monitoring progress towards the SDG target 9.5. However, to better ensure the USR's sustainability, as well as the likelihood of generating deeper and longer-term change in the future, a major overhaul of the current production and dissemination processes is suggested.

This would include, among others, reviewing the USR design based on an updated intervention logic, establishing a formalized planning and budget process, and a dedicated fundraising strategy. In order to best ensure optimal quality management, better value for money, and increased transparency, alternative options to the current USR production model and re-organizing the USR management should be considered. The evaluation also suggests to more closely engage in external and internal partnerships to better utilise complementarities and synergies. Visibility and outreach of the USR could be increased by strengthening the USR's online presence and digital components and through more formalized and targeted dissemination and communication processes. A comprehensive and systematic USR performance monitoring and evaluation framework would enable the Organization to better measure the changes it is generating and aiming to achieve. Continuing to produce the Report under the existing scheme is not only financially risky, but would represent a potential reputational liability for UNESCO and its SC. Reforming the USR will require an important investment, particularly in terms of time and commitment on behalf of UNESCO staff.

Management Response

Overall Management Response	
The evaluation reflects very well both the strengths and the challenges being faced by the UNESCO Science Report (USR). Some recommendations propose options that need to be analysed for cost-effectiveness and strategic value. Based on these considerations, all recommendations will be implemented, subject in some cases particularly to the availability of resources. A sound fund-raising strategy will be the keystone to enable the implementation of the recommendations.	
Recommendations	**Management response**
Recommendation 1: Continue producing the USR, but reform it in line with the following recommendations	The recommendation will be implemented based on availability of resources. The Natural Sciences Sector will create a "USR working group", led by Chief, SC/PCB/SPP, that will include the Division for Public Information of the Sector for External Relations and & Public Information (ERI/DPI) and representatives from the Intergovernmental Oceanographic Commission (IOC), the Social and Human Sciences sector (SHS) and potentially other sectors, to address specifically Recommendation 5 and advise the Natural Sciences Sector in the implementation of all the remaining recommendations..
Recommendation 2: Review the USR design on the basis of an updated logic model that reconfirms its main purpose and is accompanied by a formalized planning and budget process, including a dedicated fundraising strategy	The USR design will be reviewed. SC/PCB/SPP will prepare a redesign proposal for discussion by the USR working group, and for submission to the UNESCO publications board. Further, based on the reviewed design adopted, a formalized planning and budget process and a fundraising strategy will be prepared by SC/PCB/SPP with inputs from the USR working group.
Recommendation 3: Engage more closely in external and internal partnerships to explore possible complementarities and synergies	The USR working group will be tasked with exploring complementarities and synergies internally at UNESCO. It will also advise on an external partnership strategy, to be prepared by SC/PCB/SPP.
Recommendation 4: Strengthen the USR on-line presence and digital components, in particular via modern interactive technology and social media	The USR team in SC/PCB/SPP will prepare content for digital media and handle online presence in cooperation with the SC/EO Information and Knowledge Management (SC/EO/IKM) team, in the framework of the "dissemination and communication strategy" to be prepared (see Rec. 6). In order to obtain additional skills where needed, the team will be expanded subject to the availability of resources, and training will be requested from ERI.

Recommendation 5: Review the current USR production model by considering adopting alternative options to best ensure optimal quality management, better value for money, and transparency	The main task of the USR working group will be to review the USR production model and discuss the alternatives presented in the evaluation, as well as potentially others to be developed by SC/PCB/SPP.
Recommendation 6: Strengthen the visibility and outreach of the USR and formalize the USR dissemination and communication process	SC/PCB/SPP will prepare a dissemination and communication strategy and a set of guidelines, with the participation of SC/EO/IKM and ERI/DPI.
Recommendation 7: Re-organize USR management by establishing a team that ensures required minimum capacities and a broader range of relevant competences	The management model will be adapted based on outcomes of the other recommendations, also aligning with Rec. 5 on production. It should allow efficient and effective procedures and synergies with similar UNESCO publications such as the Social or Ocean Science Reports.
Recommendation 8: Establish a formal, comprehensive and systematic USR performance monitoring and evaluation framework	SC/PCB/SPP, in cooperation with IOS, the Bureau for Strategic Planning (BSP) and the SC/EO evaluation focal point, will prepare a USR performance monitoring and evaluation framework. The USR working group will consider frameworks used in the context of other UNESCO reports, and look into potential mainstreaming of Monitoring and Evaluation (M&E) processes.

1 Evaluation purpose, methodology and limitations

1.1 Purpose and use of the evaluation

1. UNESCO has mandated Technopolis Group to conduct the first stand-alone external evaluation of the UNESCO Science Report (USR). The evaluation was conducted between January and June 2017. This document represents the third and final deliverable of the assignment: the final report. This final evaluation report is structured around the following sections:

- Evaluation Methodology and Approach
- Overview of the USR
- Evaluation findings
- Conclusions
- Recommendations

2. This evaluation has been conducted in light of making the necessary adjustments to the USR before the next programme and budget (2018-2021) are adopted by UNESCO in late 2017. As such, the evaluation was aimed at gathering data to conduct an analysis of the USR's value, effectiveness and outreach (retrospective assessment). The main findings and conclusions on each of these dimensions have fed into the development of concrete and actionable recommendations to improve future editions of the Report, as well as potentially other flagship reports in the field of sciences (prospective analysis).

3. Specifically, the evaluation was aimed at:

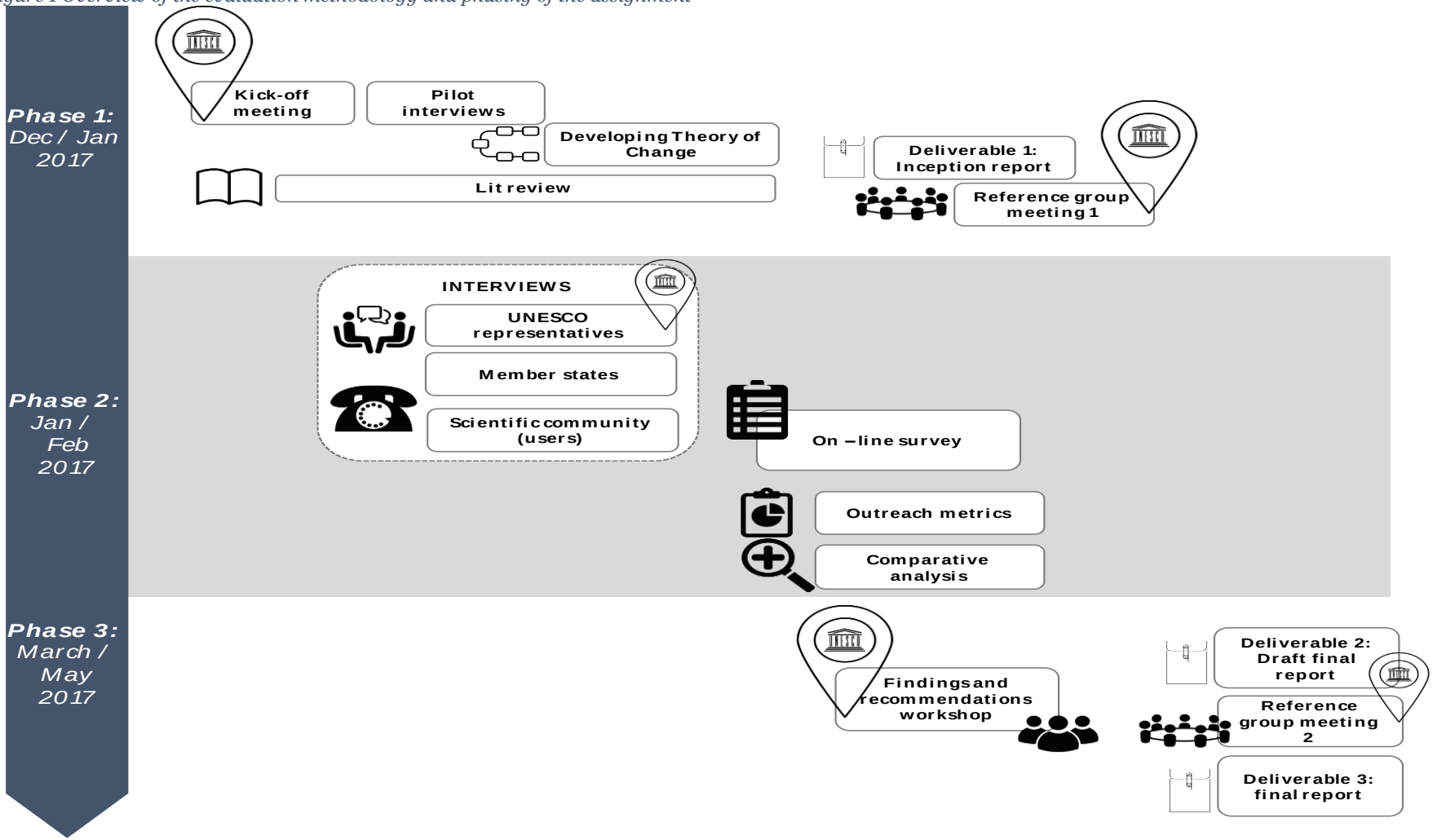
- Assessing the extent to which the USR is generating expected outputs and changes (outcomes, results, impact)
- Assessing the value and influence of the USR within the global science policy community, as well as its specialised bodies and networks
- Analysing the comparative relevance and use of the Report at the global stage and within UNESCO
- Studying how the USR fits into the overall picture of major UNESCO reports
- Assessing the relevance and fitness for purpose of the USR's financing and governance scheme and structure
- Assessing the efficiency of the production cycle
- Studying the adequacy of the USR format and content

4. In total, the evaluation assessed a total of 24 evaluation questions as presented in Appendix A. For each of these questions, the evaluation team developed a series of evaluation indicators and assessment criteria. The approach used to conduct the evaluation was structured around three complementary phases, as illustrated in the following figure.

1.2 Methodology of the evaluation

5. Figure 1 below provides an overview of the evaluation methodology and the phasing of the assignment and Appendix E presents a full list of the tools and methods used to conduct the evaluation

Figure 1 Overview of the evaluation methodology and phasing of the assignment[1]



[1] Icons used in the figure from the noun project : KAPLAM, Anbileru Adaleru, Delwar Hossain, Kokoro, Nikita Kozin, Aldric Rodriguez Iborra, Alex Auda Samora, Piger, Blake Terhune, Lloyd Humphreys, Fiona OM.

6. The tools and methods used to conduct the evaluation included a literature review, a face-to-face and telephone interview campaign, a theory of change development workshop, an on-line survey, and a USR outreach metrics analysis covering bibliometric, media and web metrics.

7. The data and literature review covered a range of documents and data sources such as the UNESCO Programme and Budget for 2014 -2017, the implementation strategy included in UNESCO's SISTER tool, internal 'grey literature' provided by USR staff, particularly the background information note compiled by the editor in January 2016, the Concept Note for the USR 2015 delivered to the editorial board at the outset of the development of the 2015 Report, and the Communication and promotion plan for 2015-2017 developed by the USR editor. The full list of documents consulted during the evaluation are presented in Appendix I. This analysis allowed the evaluation team to better understand and describe the context under which the evaluation took place, provide a general picture of USR and institutional set-up during the period covered by the evaluation, develop a draft Theory of Change of the USR, collect quantitative indicators on USR outputs and outcomes, identify key actors and stakeholders to contact during the course of the evaluation, and finalize the evaluation approach and subsequent derivation of indicators, questions, methodology, and target groups.

8. The list of people interviewed as part of the evaluation is presented in Appendix B. As illustrated by the table, more than 30 interviews were conducted with a range of USR stakeholders. In addition, the evaluation team received detailed written contributions from three additional stakeholders who are familiar with previous editions of the report. Interviews (face-to-face and telephone) generally lasted about one hour, and were semi-structured. The evaluation targeted the following groups of USR stakeholders:

- UNESCO representatives with direct knowledge and participation in the production or oversight of the USR; and the USR management and production team (face-to-face).
- UNESCO Member State representatives: These were mostly conducted on a face-to-face basis when targeting Member State representatives at UNESCO permanent delegations in Paris. However, a couple of telephone interviews were carried out with Member State representatives from relevant government ministries.
- Scientific community members: interviews with representatives from samples of the following organizations such as universities and intergovernmental programmes, research institutions and networks, UNESCO Category 1 and 2 Institutes and Centres, UNESCO chairs, the World Academy of Sciences (TWAS) and IAP Global Network of Science Academies members. In the majority of cases, these organizations were users of the USR.

9. The evaluation approach also included the use of a wide-scale on-line survey to complement the interviews, desk research and outreach indicator analysis. Whereas interviews provided in-depth information about specific dimensions or perceptions of the USR, a broadly distributed survey contextualized this information by providing information on various evaluations aspects. The use of this survey also reduced the inherent risk of interviews sampling biases (e.g. speaking to the most optimistic stakeholders).

10. The main targets of the survey included: UNESCO staff and representatives, Member State Delegations and national Ministries, international organizations, donor organizations, members of the scientific community (i.e. universities, researchers), private sector and non-governmental organizations, UNESCO National Commissions, UNESCO Category 1 and 2 institutes or centres. The survey focused mostly on issues relating to relevance and effectiveness of the USR. While the majority of survey questions were closed (or semi-closed with an 'other' option) in order to facilitate efficient analysis, the survey also included a limited number of open questions where respondents could share their broader thoughts on the issues at hand and their expectation for future editions of the report. Furthermore, the sampling methods also considered gender equality dimensions.

11. The survey dissemination strategy is presented in the table below. The evaluation team used a variety of channels to reach a diverse and large group of relevant stakeholders, based on a two-pronged approach in terms of dissemination strategy:

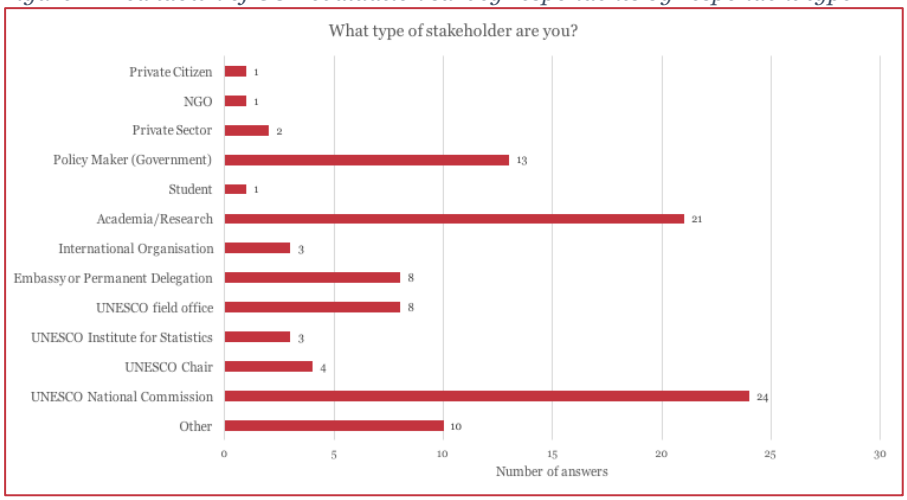
- Targeting known contacts provided by the SC sector and USR team via their contact databases
- An open link which was distributed through 'snowballing' through the known contacts and also via social media channels.

Table 1 Overview of dissemination target groups

Target Group	Known group (reminders possible)	Snowball request for peers / relevant stakeholders	Contact data available through	Expected Population size
Member State Delegations	YES	YES	UNESCO	184
National Commissions	YES	YES	UNESCO	192
UNESCO Cat 1 & 2 Institutes and UNESCO chairs	YES	YES	UNESCO	c.a. 50 UNESCO Cat 1 & 2 institutes
Known clients/readers who ordered the USR	YES	YES	UNESCO	N/A
USR Author & Contributor Network	YES	YES	UNESCO	50+
Open link via Technopolis Twitter	NO	YES	Technopolis	N/A
Open link via networks of contacts of USR management team	NO	YES	USR management team members	N/A

12. This approach was designed to reach the broadest possible audience of actual and potential USR users and stakeholders. The on line survey was available in English, French and Spanish. Given that there was no identified population size at the outset of the survey (i.e. it is impossible to know the actual number of USR readers), a survey response rate could not be defined. Instead, the evaluation team set the goal of collecting 100 complete responses before proceeding to the survey result analysis. This goal was established to ensure a minimum level of robustness in the results of the survey. As detailed in Appendix H which includes the full set of summary on-line survey responses, the on-line survey allowed to collect a total of 99 responses from the following types of USR stakeholders:

Figure 2 Breakdown of USR evaluation survey respondents by respondent type



13. As a major policy publication, the main impact mechanism of the USR is through the dissemination, uptake, and use (by setting agenda's or inspiring policy action for example) of this publication. An outreach metrics analysis was designed to assess the extent to which the UNESCO Science Report has been successfully disseminated and taken up by various target audiences. The analysis consisted of three complementary approaches: analysis of website statistics; bibliometric analysis; media-analysis.

14. The website statistics analysis was conducted on the basis of google analytics data provided by UNESCO. The website analysis will focus on indicators such as the number of downloads of the USR and it's different components and language versions (and evolution over time), the total number of page views of the relevant UNESCO Science Report page; the number of unique visitors to the UNESCO Science Report page and the geographical location of the (unique and returning) visitors of the UNESCO Science Report page.

15. The bibliometric analysis was aimed to assess the extent to which the UNESCO Science Report reached and was used by academic researchers. The evaluation team used Elsevier Scopus the key tool in identifying the (peer-reviewed) publications that cite the UNESCO Science report (focusing on the 2010 and 2015 editions). However, given the very limited number of citations which resulted from the preliminary citation analysis conducted by the evaluation team during the initial phases of the evaluation, further resources were used to conduct the online media analysis.

16. Finally, in order to assess the online presence and the use of the USR by a wider audience, an online media-analysis was performed. For this, two web-scraping tools were used. Results from the tool 'Cision' were used to perform a general media analysis. 'Cision' is a tool that enables a search in different news articles to see what is the reach of the USR. For the social media analysis, the tool 'Meltwater' was used, which covers more than 200,000 electronic media sources, including Twitter, Facebook and YouTube.

1.3 Limitations to the evaluation methodology

17. The evaluation team did not face any significant challenges during the course of the evaluation and was able to successfully implement the foreseen evaluation methodology. However, a number of methodological limitations are worth highlighting:

- First and foremost, the resources available to conduct such an ambitious evaluation exercise were limited. Assessing such a broad number of evaluation questions within the limited time and resources dedicated to the evaluation represented a significant challenge from a methodological standpoint. It required ensuring each evaluation method covered as many of the evaluation questions as possible, while remaining lean and streamlined. In addition, limited resources also implied making significant compromises when it came to the number of stakeholders interviewed. Finally, as a result of this, the evaluation team also decided to focus first and foremost on the assessment of the 2015 edition of the USR.
- The level of familiarity of UNESCO Member State permanent delegation representatives of the USR was often limited. In a number of cases, these representatives requested input for the evaluation interview from government representatives in their home countries which were more familiar with the USR, but which they had not or not yet received at the time of the interview.
- Given that the USR can be downloaded and accessed publicly, it is very difficult to establish the size of the readership. This made it also very challenging for the evaluation team to reach out to real USR readers and users in order to collect information on their perceptions of the quality and usefulness of the report.
- Developing the Theory of Change of the USR, which was necessary to build relevant performance indicators, also provided to be challenging. This was mainly due to the fact that the main founding document of the USR - the Programme and Budget for Natural Sciences for the second biennium of the quadrennium 2014-2017 (Document 38 C/5) – includes objectives

which are very difficult to measure and grasp. These objectives are extremely broad and lack some degree of precision, for instance Strategic Objective 4 which is to strengthen science, technology and innovation systems and policies – nationally, regionally and globally. A second major issue stems from the fact that there is no direct and explicit indicator that connects Specific Objective 4, the Main Line of Action 1 (Strengthening STI policies, governance and the science-policy-society interface) and its corresponding expected result (STI policy and governance bolstered nationally, regionally and globally), and the specific performance indicator relating to the USR (STI policies, systems and emerging trends globally monitored). In other words, it is not made explicit how the global monitoring of STI policies and systems, and the identification of major trends is meant to contribute to the bolstering of STI policy and governance more generally.

2 Overview of the UNESCO Science Report and its Theory of Change

2.1 UNESCO and its support to STI policies and governance

18. Since its inception in 1945, UNESCO has aimed to promote a culture of peace by fostering the generation and exchange of knowledge, including scientific knowledge, through international cooperation, capacity building and technical assistance to its Member States. SC contributes to UNESCO's mission by using science to build peace and to eradicate poverty mainly by creating an enabling environment for science though capacity building and access to knowledge for policy; and by applying science to the management of water, terrestrial ecosystems and biodiversity and the sound management of mineral resources and geo-heritage. [2]

19. The 37th session of the UNESCO General Conference (in 2013) adopted the Medium-Term Strategy for 2014 to 2021 (Document 37 C/4) which sets out the strategic vision and programmatic framework for UNESCO's action for this period. The two overarching priorities for this period are: Africa and gender equality. This strategy is in line with the broader strategic ambitions of the United Nations, as set out in the 2015 General Assembly resolution "Transforming our world: the 2030 Agenda for Sustainable Development". The latter sets the priorities for the 2015-2030 era, with a central focus on means to eradicate poverty (including extreme poverty). In this resolution, the role of STI is recognized as a key driver of sustainability.

20. In its 37 C/4, UNESCO explicitly recognizes that STI are key to develop the solutions needed to address some of the most pressing challenges the world is facing (e.g. green growth, climate change adaptation, existing and emerging diseases). UNESCO also acknowledges that disparities between and within countries are significant in the fields of STI capacity and policies. Thus, a major effort is needed, at national and international levels to foster policies and capacity in STI. This effort should be focused on the following objectives: Improving the policy environment; Redesigning infrastructure and enterprise development; and Investing in higher education, science and engineering. As such, the strategy includes two strategic objectives (SO) which are of direct relevance to science and SC:

- SO 4: Strengthening science, technology and innovation systems and policies - nationally, regionally and globally;
- SO 5: Promoting international scientific cooperation on critical challenges to sustainable development.

21. As illustrated in Section 2.2, the preparation of the USR is part of the mandate given to SC of UNESCO. The Programme and Budget for Natural Sciences for the second biennium of the 2014-2017 quadrennium (Document 38 C/5) is being implemented within the framework of the Medium Term Strategy referred to in previous paragraphs. Implementation of the natural sciences activities within the context of UNESCO's strategic planning and result-based budgeting are grouped under six Main Lines of Action[3]. The first Main Line of Action is entitled "Strengthening STI policies, governance and the science-policy-society interface". The expected result of this line of action is "STI policies, the science-policy interface, and engagement with society, including vulnerable groups such as SIDS and indigenous peoples, strengthened".[4]

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[2] From interview with the Chief, Executive Office of the Natural Sciences Sector.

[3] MLA 1: Strengthening STI policies, governance and the science-policy-society interface; MLA 2: Building institutional capacities in science and engineering; MLA 3: Promoting knowledge and capacity for protecting and sustainably managing the ocean and coasts; MLA 4: Fostering international science collaboration for earth systems, biodiversity and disaster risk reduction; MLA 5: Strengthening the role of ecological sciences and biosphere reserves; MLA 6: Strengthening freshwater security.

[4] The three expected results (i.e . STI policies and governance bolstered nationally, regionally and globally; Science-policy interface enhanced and sustainability science both promoted and applied; Mutual engagement of science with society reinforced to promote equity and inclusion of vulnerable groups, including Small Island Developing States and indigenous peoples) included in the 2014, *2014-2017 Approved Programme and Budget* (http://unesdoc.unesco.org/images/0022/002266/226695e.pdf), have now been merged into a single Expected Result.

22. In order to achieve these results, UNESCO supports different types of activities. The USR is one of UNESCO's flagship initiatives within its strategy to strengthen STI policy and systems across the globe. It particularly ties into the organization's ambition to build capacity and provide access to knowledge for policy in the field of science. It is worth noting that UNESCO is the only United Nations specialized agency that has a specific mandate for science. In this sense, it occupies a 'niche' in the broader context of the United Nations system. In addition, no other global organization or United Nations agency on a regular basis prepares a monitoring report of the support system for STI worldwide, informed by data that is collected and analysed by UNESCO itself.[5]

2.2 The UNESCO Science Report: history, content and objectives

23. As part of its strategy to communicate on STI with a global perspective, UNESCO has been publishing different documents on science since the 1950s. UNESCO decided to publish regular reports in its fields of competence. The first to be approved by the General Conference was the World Communication Report in 1987. UNESCO's General Conference then approved the launch of the World Education Report in 1989, which appeared in 1991, 1993, 1995, 1998 and 2000. The launch of these two reports created a momentum within the Secretariat to generalize the world reports to all of UNESCO's fields of competence. SC was urged to develop its own World Science Report, which was first published in 1993 then again in 1996 and 1998. Shortly after the publication of the 1998 edition of the World Science Report, UNESCO's Executive Board called for an evaluation of the organisation's policy with regard to world reports. The evaluation recommended keeping the regular sectoral reports as "status reports", while enriching them with statistics from the UNESCO Institute for Statistics (UIS). It also recommended publishing the reports every 4-6 years.

24. Prior to the evaluation of UNESCO's policy regarding world reports, the Organization had decided to suspend the publication of all its world reports, including the World Science Report. However, in the early 2000s the World Science Report was re-launched under the name 'UNESCO Science Report'. One of the reasons which led to the re-launching of the Report under its new format and title were the engagements acquired by UNESCO during the World Conference on Science (WCS) for the Twenty-First Century which took place in 1999. In his follow-up note to the Conference, the then Director-General of UNESCO stated that 'science and technology policy, planning and management in the Members States will be another priority concern of UNESCO, as requested by the WCS (…) with special attention given to the development of scientific capacities that can contribute to innovation and to the application of research results to societal development'.

25. The UNESCO Science Report or USR, has been published every five years since its first version which was produced in 2005. The following table provides a brief overview of the different flagship publications on science since the 1950s.

[5] UNESCO, Concept note for UNESCO Science Report 2015

Table 2 Evolution of UNESCO Science reports (and other flagship science publications) since the 1950s

Period	Titles
1950 - 1992	Journal: Impact – Science and Society (quarterly)
1965 – 2010	Science Policy Series
1993 - 1998	World Science Report (1993, 1996, 1998)
2002 – 2013	A World of Science (quarterly newsletter)
2003	Study: Global Investment in R&D Today
Since 2005	UNESCO Science Report (2005, 2010, 2015)
Since 2013	GO-SPIN Country Profiles in STI Policy

Source: ToR of the evaluation

26. The content and focus of UNESCO science publications has changed over time. Our intention here is not to provide a detailed account of how these publications have evolved over the last 60 years. However, we will focus our analysis on the main changes taking place since the late 90s. According to the concept note for the 2015 USR, the initial intention of the World Science Report series was to monitor developments not only in the support system for science (STI policy and governance) but also in partnerships in science and in the basic sciences and mathematics. This agenda proved to be overambitious. Moreover, UNESCO was one player among many when it came to producing thematic essays but global geographical coverage of trends in STI policy and governance was a niche area for UNESCO, thanks to its mandate for collecting and disseminating education and research and development (R&D) statistics and its technical work advising developing countries on STI policy and governance issues. In a highly competitive world, it was thus decided to focus on UNESCO's comparative advantage, especially as no other report provided regular monitoring of the status of the support system for STI worldwide.

27. When it comes to the three editions of the USR (2005, 2010 and 2015) the basic concept and rationale behind the publication has broadly remained the same: the Report provides monitoring of the support system for STI worldwide on a regular basis (i.e. every five years), informed by data provided mainly by the UNESCO Institute for Statistics that is analysed by the authors. Despite this overall 'single' rationale, there have been changes introduced to the three reports – particularly with regard to scope and content – which are worth highlighting:

- Innovations of the 2010 Report are an increase of the number of chapters on individual countries from three to 11, and the placement of STI policy and governance in a wider socio-economic and political context with subsequent expansion of the Report's intended audience (cf. following section). Environmental factors influencing STI policy and governance and a statistical annex were added as well.
- The main innovations in the 2015 edition of the USR compared to earlier editions are:
    - **Growing focus on innovation, including in less developed countries:** new indicators were added to the Report on innovation following a survey by the UIS of innovation trends in manufacturing firms. The main findings of this survey featured in a thematic chapter co-authored by experts from United Nations University (UNU)-Merit and the UIS.
    - **Growing emphasis on monitoring STI governance:** Authors of the 2015 edition were asked to analyse the extent to which STI policies were being implemented effectively and to analyse the reasons hindering effective implementation. They were also asked to identify extraneous factors which affected STI governance and vice versa.

- **Growing role of STI in Africa:** The 2015 edition includes three chapters on sub-Saharan Africa, compared to one previously. This was intended to reflect the growing number of initiatives in Africa to develop STI policy and improve governance, as well as the diversity of approaches.

28. The increasing desire to monitor the extent to which STI is contributing to achieving progress in Sustainable Development Goals: In the Statistical Annex, the Report includes a table with data for selected sustainable development indicators. Furthermore, authors were asked to analyse which development path countries were following and how public policies for STI and related fields were framing their choices, on the eve of adoption of the Sustainable Development Goals (September 2015).

29. The addition of sections showing how STI policy and governance are influenced by (geo)political, environmental and socio-economic factors.

30. The introduction of key targets per individual country in light of facilitating monitoring of STI policy and governance in a new USR in 2020.

31. The addition of chapters on countries and sub-regions that had not been covered in the 2010 edition, to broaden the global coverage of the Report. The 2015 edition contains 27 chapters, compared to 21 for the previous edition in 2010.

32. More generally, with the development of the internet and the work conducted in recent years to raise science and research capacity in developing countries, statistics on research and development in developing countries became increasingly available. Consequently, this facilitated the expansion of the Report's geographical scope and strengthening of its monitoring function. Furthermore, capacity building and awareness raising by the UIS increased data availability. This increase in scope has also resulted in a larger size of the subsequent science reports, to enable regional and global comparisons.

33. Other changes in content to the UNESCO Science Reports are the growing focus on STI as a driver of socio-economic and sustainable development and the accentuation of the monitoring function, in anticipation of the Sustainable Development Goals to 2030. Furthermore, the latest Report provides baseline information and data that subsequent reports can use for monitoring progress towards the SDG targets. In particular target 9.5: "*enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of R&D workers per 1 million people and public and private research and development spending*."[6]

34. In general, the UNESCO Science Reports are structured by region, with several extra chapters on individual countries. Every chapter is backed by statistics that are provided mainly by the UIS. There are baseline statistics on financial and human investment in R&D and R&D output. Furthermore, the chapters are written by a group of individual international experts with the intention of safeguarding the intellectual independence of the Report. UNESCO has decided to publish the reports every five years to be able to capture fluctuations in science policy and governance.[7]

35. The last Report, published in 2015, is called "UNESCO Science Report – Towards 2030" and contains data on 189 countries, short profiles of 140 countries and 11 chapters on individual countries. It was written under the direction of the SC, by 60 experts from 40 countries. As stated in the Report's foreword section, its objective is to draw a "*comprehensive picture of the many facets of science in an increasingly complex world*", in order to "*inform on policies*" and "*take the world on a more sustainable path*". The Report shows how STI policies are also influenced by socio-economic, geopolitical and environmental trends.

[6] Sustainable Development Goals (2016), *Sustainable Development Goal 9*. URL: https://sustainabledevelopment.un.org/sdg9

[7] USR Communication and promotion plan 2015 – 2017 (2015), UNESCO

36. The Report is organized around 4 sections:

- A section on emerging and transnational issues;
- A section focusing on global trends;
- A section providing insights on 24 geographic areas (regions and countries).
- Statistical annex

37. The different sections and chapters are presented in the following table:

Table 3 Sections and chapters of the UNESCO Science Report – Towards 2030

Sections	Content
Perspective on emerging issues	• Universities: increasingly global players • A more developmental approach to science • Science will play a key role in realizing Agenda 2030 • Science for a sustainable and just world: a new framework for global science policy? • Local and indigenous knowledge at the science-policy interface
Global overview	• A world in search of an effective growth strategy • Tracking trends in innovation and mobility • Is the gender gap narrowing in science and engineering?
A closer look at regions and countries	Chapters per region or country including the major developments in STI policy since the 2010 edition, Gross Expenditure on Research and Development / Gross Domestic Product ratios, trends in R&D investment, trends in industrial R&D, public interest science and higher education, fostering of the innovation culture and key targets. Canada, United States of America, Caribbean Community (CARICOM), Latin America, Brazil, European Union, Southeast Europe, European Free Trade Association, Countries in the Black Sea basin, Russian Federation, Central Asia, Islamic Republic of Iran, Israel, The Arab States, West Africa, East and Central Africa, Southern Africa, South Asia, India, China, Japan, Republic of Korea, Malaysia, Southeast Asia and Oceania

Source: UNESCO (2015), *UNESCO Science Report – Towards 2030*

38. Key messages of the *UNESCO Science Report 2015* include[8]:

1. Countries are in search of a growth strategy that works
2. The tendency to invest in sustainable technologies is growing
3. Compared to the past, there are fewer grounds in research and innovation to deplore a simple 'North-South' divide
4. Science is increasingly mobile
5. Science powers commerce (among other things)
6. The number one interest in STI is generating greater potential for scientific co-operation

39. The *UNESCO Science Report 2020* should be able to analyse progress on the Sustainable Development Goals indicators in national policies between 2015 and 2020.

Table 4 From science to innovation: the spectrum of topics covered by the Report

An analysis of the USR by the evaluation team reveals that the Report covers the whole spectrum from basic science to innovation. The Report starts with a section on the changing role of universities and the closing innovation gap between universities and industries. Topics such as the developments in the approach to science

[8] These key messages were extracted from the Communication and promotion plan 2015-2017 developed by the editor.

with more collaborative science, the use of open data and a changing focus from basic science to 'relevant' science are addressed. The Report also covers topics such as big data, knowledge systems and the framework for global science policy. Other trends that are mentioned are trends on knowledge generation, human capital and scientific publications. A chapter on tracking trends on innovation and mobility was added, which includes trends in business R&D, innovation, knowledge related Foreign Direct Investment (DFI) projects and trends in scientific mobility. Finally, the gender gap in science and engineering is also addressed. It can therefore be concluded that the scope of the Report is fairly broad.

2.3 USR target audiences and dissemination strategy[9]

40. According to the USR 2015 - 2017 communication and promotion plan, the expected audience of this edition of the Report is quite broad [10]: government officials, parliamentarians, policy analysts (both STI policy and other fields), economists, scientists, academic researchers, university students and teachers, international development and co-operation agencies, United Nations agencies and other institutional partners, economists, regional economic communities, the media, and the private sector.

41. The target audience as defined by the USR team appears to have been gradually broadened. For instance, the 2010 edition expanded its target audience by 'placing STI policy and governance in their wider socio-economic and political contexts'. The intention was to make the Report more accessible to digest for non-STI policy experts. In 2015, the audience seems to have been broadened further due to the emphasis set on influencing the wider development agenda at the national, regional and international levels. Target audiences have also been implicitly enlarged with the larger geographical coverage of the Report.

42. After the launch of the UNESCO Science Report —Towards 2030, a communication and promotion plan 2015 – 2017 was drafted, which aimed to ensure that the Report reached its target audiences. The plan states that the Report aims to inform and inspire different target groups, and has therefore been designed to appeal to a wide audience. This way, national and regional debates on key policy issues should be stimulated and international scientific co-operation is fostered.

43. The main distribution and dissemination channels for the USR have changed with each of the different editions of the Report. For example, the 2010 edition was distributed via CD-ROMs for the first time, in addition to the traditional hard copies. For the purpose of this evaluation, the evaluation team has been given access to the communication and promotion plan mentioned above. The information presented in the following paragraphs of this section draws mainly from this document.

44. As a prelude to the presentation of the dissemination and communication strategy of the Report, it is worth highlighting that the Report is open access, facilitating its dissemination to all parties across the world. In the case of the 2015 edition, this resulted in long processes regarding information sharing rights that ensure not only UNESCO but also third parties have the right to share information stated in the Report (e.g. a user of the USR using the data contained in the Report for other purposes and publications).

45. The dissemination and promotion of the USR started with the launch of the Report that took place on the World Science Day for Peace and Development on the 10th of November. After the ceremony, delegates were handed a copy of the Report, a USB key, a mug and an executive summary in various languages. Furthermore, a press release was prepared in French, Chinese, English, Russian, Arabic and Spanish. Regional and national launches of the Report around the world were also foreseen and organised by UNESCO field offices or National Commissions for UNESCO. These field offices also contribute to the promotion of the Report through book fairs, specialised meetings and other events.

[9] USR Communication and Promotion Plan 2015 – 2017 (2015). UNESCO

[10] See also categories of users as defined in the customer satisfaction survey for the Report. URL: https://docs.google.com/forms/d/e/1FAIpQLSdGSNXepHK091exKjucsFB7HdoiZXgRA8c_fUiGOU9n_KtDJw/viewform?c=0&w=1

46. The overall strategy to reach the target audience consists of both virtual and physical promotion:

- **Virtual promotion:** through a website (http://en.unesco.org/unesco_science_Report) where interested parties can find the Report itself and all material related to the Report (open access). Visitors of the website can decide to either purchase (hard copy) or download the Report (in full or in part). Furthermore, circular emails are sent out to target groups announcing the publication of the report and its key findings.
- **Physical promotion:** by distributing hard copies of the Report, USB card keys, posters, CD-ROMs and executive summaries to key target audiences via UNESCO field offices or directly to the recipients. These recipients include heads of UN agencies and other institutional partners, UNESCO Chair holders and UNESCO Institutes (categories 1 and 2). Furthermore, a hard copy of the Report is sent to every parliament library around the world. Before the launch, a total of 1,500 copies of the English edition of the Report were printed. After stocks were exhausted, a further 600 copies were printed in September 2016. Some 1600 copies of the French edition have also been printed and distributed. UNESCO senior staff and management often mention and distribute copies of the report during their participation in international conferences and events.

47. The above also corresponds with the overall UNESCO publications marketing strategy, which focuses on three main actions:

- A circular mailing to all national distributors informing them of the imminent release of a new publication
- Promotion via the website: unesco.org/publishing
- The UNESCO bookshop at the headquarters in Paris, receiving 300 copies of the Report to put on sale.
- Development of publications catalogues, participation in book fairs and promotion conducted by UNESCO publication sales agents.

48. To ensure wide dissemination of the findings of the *UNESCO Science Report – Towards 2030*, several language editions of the full Report were prepared in 2016, together with additional promotional material in several languages (earlier promotional material was prepared in the fall of 2015). In the 12 months following the launch of the English edition of the Report, the aim was to produce as many language editions as possible.[11] As of June 2017, the Report is available in English, French and Russian. Eventually, the Report will also exist in Arabic and Chinese. This material is grouped on a dedicated, bilingual (English – French) UNESCO website and there are dedicated pages on the same website in Arabic, French, Russian, and Spanish. The executive summary of the Report is available in all six official United Nations languages, as well as German, Portuguese and Catalan (9 languages in total).

49. In previous years, for example with the UNESCO Science Report 2010, there were concerns that the Report was not available in external online bookshops such as amazon.com or the United Nations online bookshop. This absence is partly because UNESCO publishes through national distributors. To resolve this problem, an email message was sent to a number of United Nations staff, inviting them to promote the Report and integrate it into the new United Nations library. The 2015 edition's editor has also proposed to adopt preferential pricing of the Report for developing countries.

50. Several National Commissions for UNESCO have volunteered to help with the communication of the findings of the Report to their own readership. A promotional message for the diffusion to all National Commissions was written by the 2015 edition's editor. The authors of the Report and the members of the Editorial Board have also been invited to act as ambassadors of the Report through

[11] The different language editions are sponsored by: China Science and Technology Press (Chinese), Government of Djibouti (French), Egyptian Academy of Scientific Research and Technology (Arabic), Magister Press and ITMO University in St Petersburg (Russian).

promotion of the Report's findings and by providing feedback on related media coverage in their respective countries.

51. Furthermore, briefings (PowerPoint presentations) are made by the editor, authors and other UNESCO staff on the Report's findings. These briefings are tailored to a specific audience and may be requested by UNESCO partners or UNESCO colleagues responsible for hosting visitors to UNESCO. After each presentation, the audience has the possibility to ask questions and to receive a USB key and executive summary. The 2015 edition's editor also periodically drafts blogs on the findings of the Report (2-4 blog posts per month), which link the Report to current events and convey a specific message from the Report. These blog posts are available on the USR website. The blogs are posted online in English and French. Several Wikipedia pages on the USR and related topics are also maintained by the editor of the USR. Approximately 60 articles have been created or enriched so far on this on-line platform through an agreement with Wikimedia. These include pages on: Economic Community of West African States (ECOWAS), Policy on Science and Technology (ECOPOST), the UNESCO Science Report, the South-South cooperation in science, higher education in Afghanistan and Innovation in Malaysia. Currently, the section on the Chinese Academy of Sciences that is part of the UNESCO Science Report page has had the most page views. Finally, a poster exhibition was designed in English and French, that was on display at the launch of the Report and at other events.

2.4 Production process

52. The production process is not explicitly described in a formal document. The process described below is mainly based on the account provided by the editor, who was interviewed during the inception phase of this evaluation. The editor also provided subsequent details on the nature of this process during the final stages of the evaluation. The 2015 USR was prepared over a two-year period leading up to its launch in November 2015. The main steps in the production process of the USR are the following (as illustrated on the example of the 2015 edition):

- In 2013, the table of contents of the USR were drafted by the editor following consultations with colleagues at headquarters and in regional country offices. The draft table of content and budget for 2014 – 2015 was proposed to the Director of the Division, who fixed the budget for the duration of the production process in 2014 – 2015.
- Once the proposal was accepted by the Director the editor began consulting UNESCO colleagues at headquarters and in the field, as well as UNESCO partners, to identify authors and reviewers. Once finalized, the list of members of the Editorial Board, Internal Review Committee and authors were approved by ADG/SC and the Publication Board.
- Once the budget became available in February 2014, the editor started commissioning authors. Authors were selected on the basis of recommendations provided by UNESCO staff and chairs, as well as through the network of contacts of the USR team. There is no formal, open and competitive selection procedure foreseen. Once authors were identified, they were briefed by the editor on the work they are expected to carry out, and were also provided with Terms of Reference for their work.
- Authors were contracted in a specific order with the most developed and BRIC countries being assigned deadlines closer to the final publication date, to ensure these chapters capture the latest developments. Authors were asked to put the region or country in its social, political and environmental context and to indicate which development-path each country was choosing, what indicators were of importance and what the research priorities were. Authors were also asked to analyse the status of implementation of STI policies and whether specific targets have been met.
- During the first months of production, the editor was in close contact with the UNESCO Institute for Statistics on the data and indicators that they had collected and available. The list of R&D input and output indicators for the report was finalised and the UIS provided the editor with the baseline indicators and statistics that the authors were to use. In parallel, the UIS organised a call for tenders to identify the company to be responsible for treating the Thomson

Reuters publication data in the report. The editor subsequently received a spreadsheet with country-data that was shared with the authors.

- The chapters arrived between June 2014 and July 2015. Once the individual chapters had been developed and edited, they were sent to the Internal Review Committee and Editorial Board for review. Each member of the Editorial Board reviewed between one and four chapters. Designated staff from the UNESCO Institute for Statistics - that were part of the Internal Review Committee - checked the data in each chapter for accuracy and updated the data as necessary. The chapters were also reviewed by UNESCO programme staff from different sectors and by the editor.
- Once the content of each chapter had been finalised in liaison with the author(s), the chapter was sent to the graphic designer for lay-out. Once laid-out, each chapter was checked again by the editor and author(s).
- In July 2015, the editorial team created a restricted access website via UNESTEAMS where ADG/SC, ADG/ERI and the members of the Internal Review Committee and Editorial Board could freely consult the PDF of the chapters as they were finalized.
- In September 2015 the executive summary of the Report was drafted. The executive summary and final Report were shared with ERI for review. Subsequently, the executive summary was translated and preparations for the launch were made.
- On 10 November 2015, the Report was launched.

53. Appendix G presents the detailed timetable for the production process of the 2015 edition of the USR.

2.5 Governance and management of the USR[12]

54. As previously mentioned, responsibility for the production of the USR lies within UNESCO's SC which is led by an Assistant Director-General (ADG). The Natural Sciences Sector is composed of three different divisions which are in charge of executing the sector's work programme: the Division of Water Sciences, the Division of Ecological and Earth Sciences, and the Division of Science Policy and Building (SC/PCB). The USR is produced by the Science Policy and Partnerships Section (SC/PCB/SPP) of SC/PCB. Since 2016, SC/PCB/SPP is headed by a Chief of Section who, along with the section's editor, are currently the two main people responsible for the preparation of a future Report, under the guidance of the ADG/SC. The configuration of the core USR team has evolved over time, and with each of the editions of the Report, as illustrated in the following table:

Table 5 Evolution of the USR core production team

USR edition	Core team configuration
2015	Director (ADG/SC) Editor Administrative assistant
2010	Director (Director of Division) Editor Administrative assistant
2005	Director (Director of Division) Editor
1998	Editor (Chief of Strategic Partnerships and Information Section (SC/EO/SPI)) Assistant editor Editorial assistant

[12] Pilot interviews

Source: UNESCO

55. The current editor[13], who is presented as the Editor in Chief of the 2015 Report (cf. page iv - presentation of the Report team), has been involved in the production of the 1998, 2005, 2010 and 2015 editions; while the Chief of Section took on his current functions in 2016 two months after the launch of the 2015 USR edition. The 2015 edition of the report was mainly produced through the work of the current editor, under the guidance of the DIR/SC/PCB and the ADG/SC. It is worth noting that for the last three reports, the editor has been supervised by the Director of the Division[14] who oversaw the production of the report, with the support of an editor or an assistant editor.[15] For most previous reports, the USR team included a P5-level staff member with subject matter expertise (i.e. science policy) who oversaw the production of the report. For the first three reports, (World Science Report 1993, 1996, 1998) the editor was a P5 staff member, with subject matter expertise in the field of sciences.[16]

56. There is no formal document, which outlines the roles and responsibilities of the different members of the USR team. However, based on the interviews conducted as part of this evaluation, the roles and responsibilities of UNESCO staff in the preparation of the 2015 USR can be summarized as follows:

- **ADG/SC:** provided general strategic orientations with regard to the content of the Report, and the links between the USR and other publications and activities of the SC. The ADG/SC and Chief SC/EO exceptionally engaged in fundraising efforts for the 2015 edition, and provided support in the selection of the consultant hired for this purpose.
- **Director of the Division for Science Policy and Capacity-building, SC/PCB**[14] , in the absence of an experienced chief of section, supervised the editor, liaised with ADG/SC and ADG/ERI together with the editor on related matters; involved in fundraising efforts and relations with identified donors; allocated the budget and oversaw the use of funds, approved the structure and content, piloted the launch ceremony.
- **Chief of the Science Policy & Partnerships Section/SC:** was not directly involved in the production of the 2015 Report but has become the project owner and USR team manager since taking office in early 2016. The development of the USR has since become part of the Chief of Section's mandate and portfolio of activities. The Chief of Section is now in charge of developing the concept, and the implementation plan, overseeing spending and use of resources.
- **Editor:** was responsible for the production of the Report and the dissemination of its findings, involved in the delivery of the implementation plan and day to day operations linked to the production of the USR (e.g. proposing content and structure of the report, coordinating the consultations to identify authors and defining their terms of reference, managing authors' contracts, liaising with UNESCO field colleagues liaising with external providers communications), in charge of coordinating the experts involved in developing content and reviewing it, and also overseeing input provided by other parties (e.g. UIS). For the 2015 edition, the editor was also strongly involved in the drafting of specific sections and chapters of the Report, and did significant work in terms of proof-reading and editing the content.
- **Additional support:** It is worth noting that SC receives support from staff in the UIS. In addition to these key internal staff members, UNESCO also hired (on a short-term contractual basis for the 2015 edition) additional short-term staff to cover specific positions such as deputy editor, graphic designer and proof-reader.

57. Until the 2010 edition, the role of Editorial Board and Internal Review Committee as part of the USR production process was limited. There was an ad hoc Advisory Board for the 1993, 1996 and 1998

[13] Term used in the official SC organigram.

[14] Science Policy and Sustainable Development, SC/PSD later renamed Division for Science Policy and Capacity-building, SC/PCB

[15] For the 2015 edition, extrabudgetary funds made it possible to take on a short-term deputy editor

[16] PhD in marine biology; title: Science Editor for Natural Sciences Sector

editions of the Report. The content of the 2010 edition was peer reviewed and reviewed internally prior to publication. For the 2015 edition of the Report, it was decided to formalize this function by creating an Editorial Board and Internal Review Committee. As such, the 2015 edition of the Report (or specific sections of it) was screened by the following bodies:

- **An Editorial Board** of 13 people established for the purpose of the USR: The main responsibility of the editorial board is to peer review the chapters of the Report. Each member is responsible for reviewing between one and four chapters of the Report, and providing feedback to authors. The 2015 edition's Editorial Board was composed of 9 professors and professional/research fellows from different universities (University of Tunis, Zheijang University, Seoul National University, the Autonomous Metropolitan University of Mexico, National Graduate Institute for Policy Studies, University College London, UNU-MERIT, and Massachusetts Institute of Technology), and 4 other experts that take part in different committees on Science, Education and Technology (National Academy of Science and Technology of Senegal, Policy and International Affairs at the White House Office of Science and Technology Policy, Ministry of Education and Science Kazakhstan and Euroscience). The board was constituted as a result of consultations initiated by ADG/SC. As part of this consultation, the USR editor wrote to UNESCO colleagues at HQ to invite them to recommend experts. These names were submitted to ADG/SC for approval. These experts were not paid for the time they dedicated to the USR.
- **An Internal Review Committee** (of eleven members) has also been put in place. The members of this committee were drawn from the UNESCO Institute for Statistics (3), UNESCO's Nairobi office (1), UNESCO's Beijing office (1), UNESCO's Bangkok office (1), UNESCO's Cairo office (1) and UNESCO's Montevideo office (1). Three additional members were drawn from UNESCO's Education Sector, Communication Sector and Social and Human Sciences Sector. After the chapters have been edited (for a large part by the Editor), they are submitted to the Internal Review Committee. Other UNESCO staff may also be asked to provide feedback on an ad-hoc basis, depending on the topics covered by the Report.
- As with all other UNESCO publications the USR is subject to approval by the Organization's P**ublications Board** established in 2011. The board does not actually review the publication, but rather the concept note at the outset pf the production process.

58. Finally, and as mentioned in previous sections, the great majority of the content of the Report is drafted by independent, external experts who are hired by UNESCO to draft specific chapters of the Report. For the 2015 Report, this included over 50 individual experts from around the globe. Experts are generally researchers, policy analysts, or consultants. Seven UNESCO staff members also authored parts of the 2015 Report.

2.6 Resources mobilised for the USR

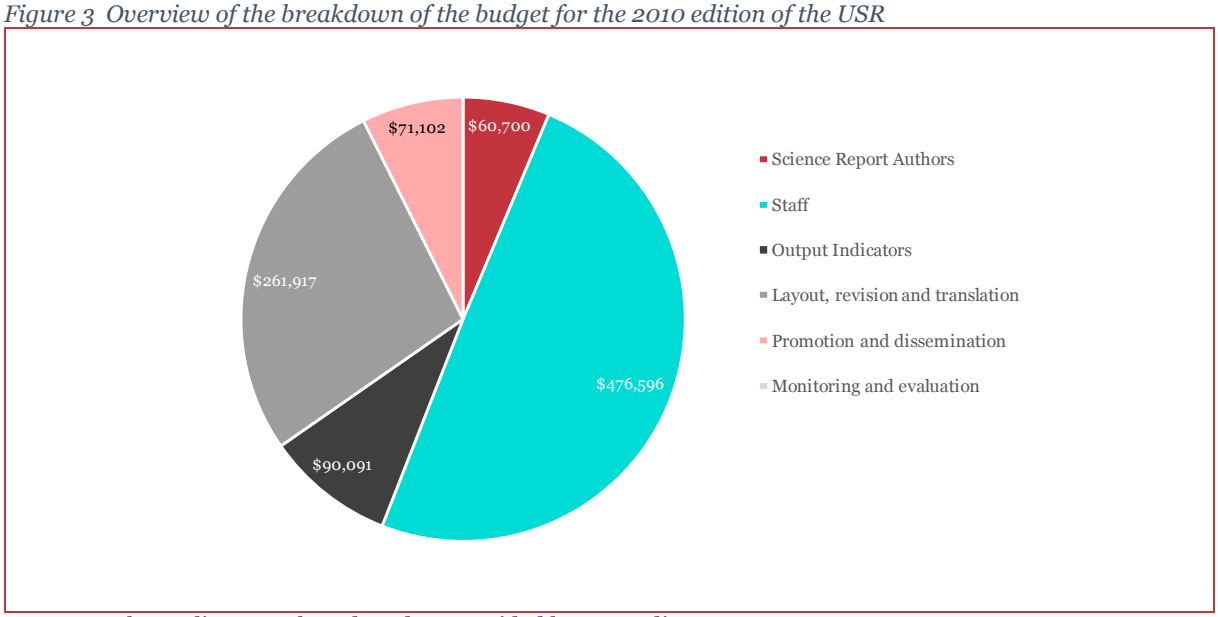
59. Information has been provided by SC to the evaluation team on the budget for the 2010 and 2015 editions of the USR Report. Due to the fact that the format and structure of the budgetary information provided was different for both editions, the evaluation team built a common typology of expenses for both editions allowing to compare expenses across both editions (cf. Appendix F). It is important to mention that the 2010 edition budget covers the 2008-2013 period (6 years) and includes dissemination and communication expenses but has no provision for monitoring and evaluation, while the 2015 edition covers only the 2014-2017 period (4 years) and does not include budget allocated to dissemination and communication of the 2015 edition[17].

60. The cost for the 2015 edition was $1.9 m. This is more than double the cost of the 2010 edition which amounted to $960k. It is worth noting however that as opposed to the 2010 edition which only includes approximately $10k in translation costs, the 2015 edition budget includes almost $660k - most of which were in-kind contributions from USR partners. As such, the real difference in production costs

[17] It is not clear whether any additional funds outside this budget have been earmarked for this purpose for the 2015 edition.

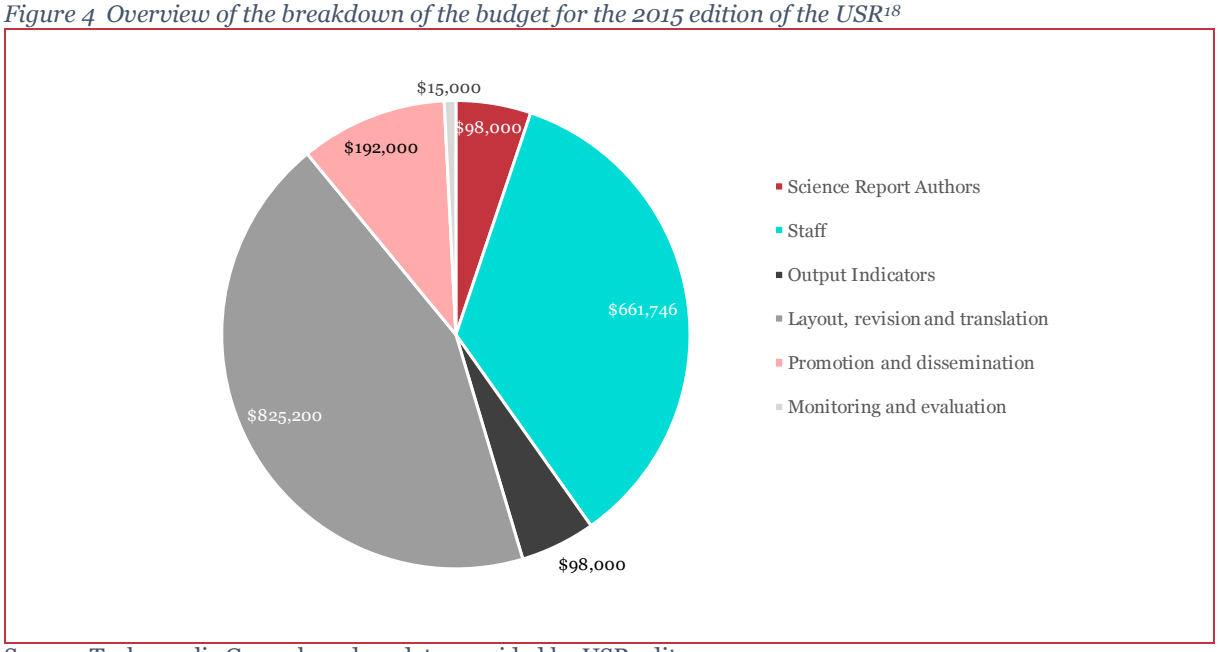
(setting aside the gaps in translations costs between the two editions) between the 2010 and the 2015 editions is approximately $400k. This difference stems mainly from increased spending in 2015 on staff ($476k in 2010 vs. $661k in 2015), fees for science report authors ($40k in 2010 vs. $86k in 2015), and layout (c.a. $63k in 2010 vs. $100k in 2015).

Figure 3 Overview of the breakdown of the budget for the 2010 edition of the USR



Source: Technopolis Group based on data provided by USR editor

Figure 4 Overview of the breakdown of the budget for the 2015 edition of the USR[18]

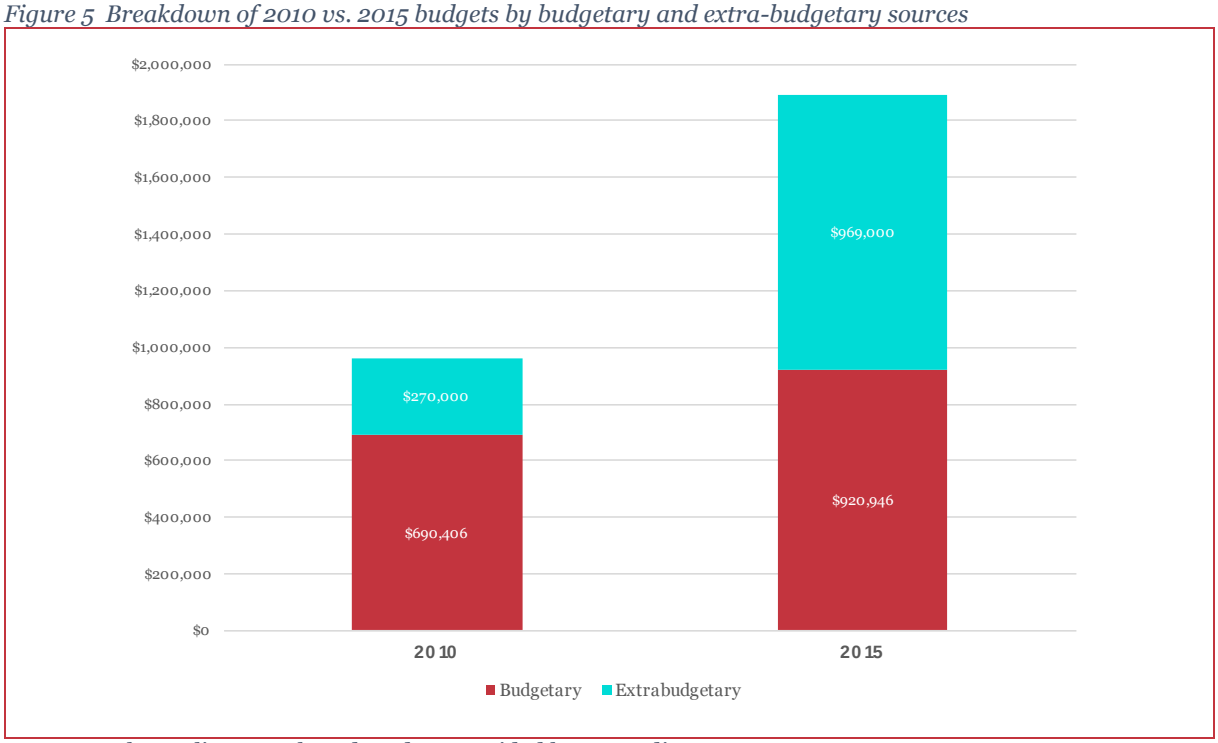


Source: Technopolis Group based on data provided by USR editor

[18] Although the sister workplan showed $30,000 originally planned for evaluation purposes, by the time the TOR was being developed only USD 15000 remained unspent. The Division Director approved the transfer of unspent funds from other projects and IOS contributed to cover the gap.

61. For the 2015 edition; approximately 51% of the budget was covered from the regular UNESCO budget to cover staff and production costs and 49% from extra-budgetary sources (cf. following figure). For the 2015 edition the extra-budgetary funding consisted of $585,000 in-kind contributions by (e.g. patent and publication data from Thomson Reuters, printing of additional language editions of the report and executive summary and the translation of the webpages), $242,000 of additional appropriations (e.g. baseline work costs shared with the Ecole Polytechnique Federale de Lausanne and funding of language editions) and $142,000 in additional contributions. Partners of the USR that provide these other contributions are for example the OPEC Fund for International Development (OFID) that finances staff and promotional materials or the L'Oréal Foundation for sponsoring the chapter on women in science. The volume of extra-budgetary resources raised to produce the 2015 Report was significantly higher than for the 2010 edition.

Figure 5 Breakdown of 2010 vs. 2015 budgets by budgetary and extra-budgetary sources



Source: Technopolis Group based on data provided by USR editor

62. The USR is a non-profit undertaking. Only a few copies (300 initially in English and 50 in French) have been put on sale. The table below presents a breakdown of the printing and distribution of hard copies of the Report and executive summaries.

Table 6 Printing and distribution of the 2015 Report and the executive summary

Material (Language)	Printed	Distributed	UNESCO Publishing (ERI)	Stock in Paris
Report (EN)	2100	1650	300	150
Report (FR)	1600	1364*	52	184
Report (AR)	50			10
Report (CH)	3085			30
Report (RU)	1000			50
Executive Summary (CH)	200	150		50

Material (Language)	Printed	Distributed	UNESCO Publishing (ERI)	Stock in Paris
Executive Summary (EN)	4000	3930		70
Executive Summary (FR)	3000	2860		140
Executive Summary (ES)	2500	2460		60
Executive Summary (RU)	700	620		80
USB key cards/pens (EN)	10,000	8,300		1,700
USB key cards (EN/FR)	4,000	2,550		1,450

Source: data provided by UNESCO. * = 900 of these have been distributed by the Republic of Djibouti

63. Overall, a total of 3700 hard copies of the report were printed (2,100 in English + 1600 in French). According to data provided by the USR editor on the cost of printing of the report, printing each reports has a cost of approximately $18 USD. The great majority of printed reports these were distributed for free at UNESCO headquarters, field offices or launch events. A number of these were also shipped for free to key partners and target readers (e.g. WIPO). Until June 2017, only 141 copies of the report had been sold by the UNESCO on-line bookshop and , generating a total of $6,345 in revenue ($45 unit price plus shipping).

2.7 The USR Theory of Change

64. As part of the USR evaluation, the evaluation team along with the evaluation reference group developed a USR Theory of Change (ToC) for the purpose of the analysis . The development of the ToC was agreed as a tool for the evaluation's assessment to illustrate the USR's contributions to achieving desired outputs, outcomes and impact (i.e. its effectiveness – cf. section 3.3). The approach used to develop the ToC and presented in Figure 6 is explained in more detail in Appendix D.

65. While this ToC helped define the types of outputs, outcomes and impacts the evaluation would seek to measure, it is meant to further evolve and contribute to the development of an official and final ToC or intervention logic of the USR. As indicated in the recommendations section of the Report, (cf. section 5), one of the key steps to be taken in moving forward with the Report is to further detail, streamline and polish this approach or develop an intervention logic, as part of ongoing efforts to define the USR's broader value proposition. Figure 6 presents the overall objectives and corresponding assumptions of the agreed ToC. A more detailed ToC including possible measurement indicators is presented in Appendix D.

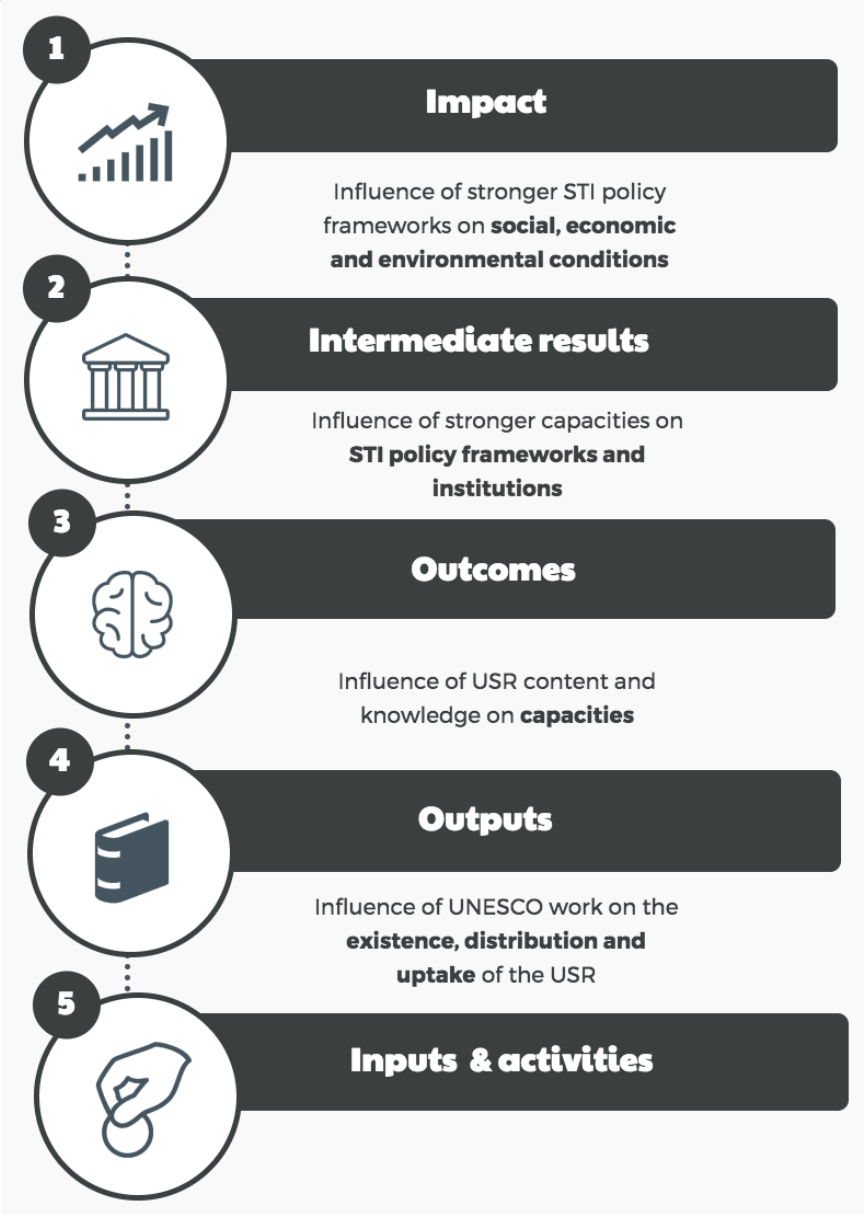
66. Putting together a Theory of Change for the USR has proven to be challenging. This is mainly due to the limited existence of official internal documents providing a clear indication on what the USR is meant to achieve, as well as the specific performance metrics for the USR. However, developing a Theory of Change was crucial to developing a sound evaluation framework and approach. The approach adopted to developing a ToC for the purpose of the current USR evaluation was based on the following:

- Starting from a very general level of UNESCO strategic ambitions as presented in the Programme and Budget for 2014 -2017.
- The implementation strategy included in UNESCO's SISTER tool.
- Building on high level objectives on the basis of internal 'grey literature' provided by USR staff, particularly the background information note compiled by the editor in January 2016, the Concept Note for the USR 2015 delivered to the editorial board at the outset of the development

of the 2015 Report, the Communication and promotion plan for 2015-2017 developed by the USR editor.

- Completing the Theory of Change based on the information provided through the pilot interviews conducted at the beginning of the evaluation.

Figure 6 Overview of the structure of the Theory of Change developed for the USR (the full proposed ToC is presented in Annex D)



Source: Technopolis Group

3 Evaluation findings

67. This section of the Report presents the key findings of the evaluation, for each one of the analysed evaluation criteria. Section 4 of the Report will go on to summarize the main evaluation conclusions per evaluation question.

3.1 Relevance

3.1.1 A unique source of STI monitoring data and information

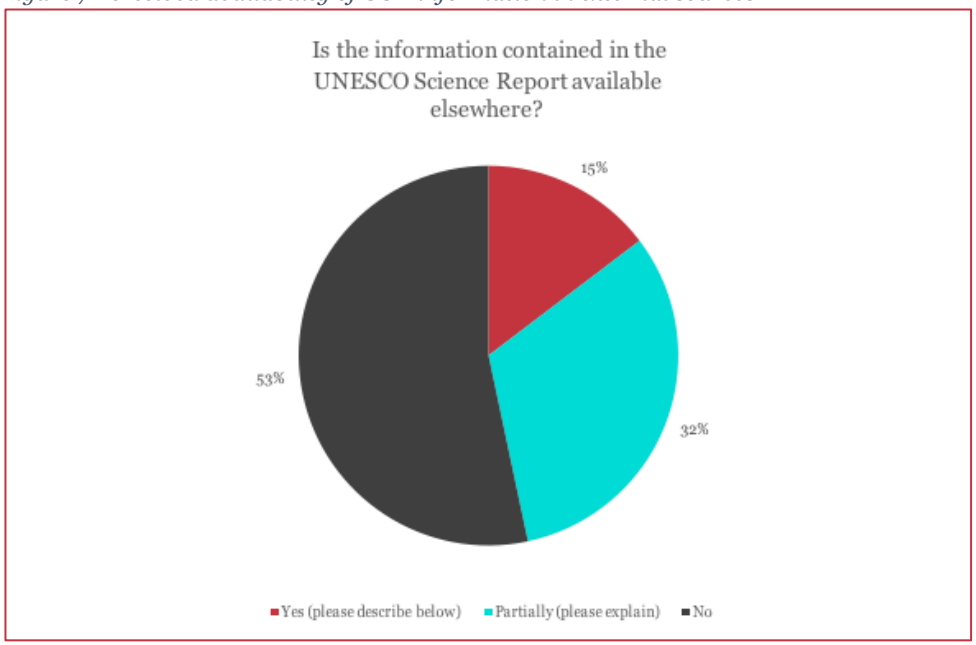
68. Overall, the USR plays a distinctive role in providing evidence, data and information on the state of STI at the global level. Compared to other publications and sources of knowledge in comparable policy spheres, the USR is the only publication with a truly global focus, and which gives such a high level of importance to shedding light on the state of STI in low and middle income countries. UNESCO and the USR are therefore considered to occupy a niche position in the global monitoring of STI policy trends. This is reinforced by the fact that the USR is partly based on the datasets provided by the UIS on R&D globally. Given that UIS is the only organisation collecting R&D for developed and developing countries alike, this puts the USR in the unique position to report on trends around the globe. Furthermore, it also sheds light on the global gender gap in Sciences and Engineering.

69. While other international organizations producing similar content (e.g. OECD) are also highly valued and recognized for the quality and value of their work, these tend to focus less on the social and economic implications of STI in countries outside of their constituencies (e.g. OECD member states, EU member states), and are thus to be viewed as less 'global' in terms of data availability. The uniqueness of the USR vis à vis external STI information and data sources is clearly identified by USR stakeholders and users. For instance, almost half the evaluation survey respondents (53%) indicate that the information contained in the USR is not available elsewhere, while a remaining 32% consider it to be only partially available elsewhere. In this sense, the USR appears to be considered by many as a 'bundler' of information which may or may not be available elsewhere, which in itself represents an added value to the reader. According to survey respondents for instance:

> *"I mostly look for country/regional trends. These data are available but in disparate sources. The UNESCO Science Report can act as a one-stop-shop for such information."*

> *"As it is public information, it can be obtained from other sources too, but in the (USR) it is presented in a convenient form, for a researcher".*

Figure 7 Perceived availability of USR information in external sources



Number of responses: 75

70. Despite the high recognition of the USR as one, or perhaps the only global STI monitoring source of information, external stakeholders do agree that in terms of data, the USR only provides a basic level of data – particularly statistical - compared to other sources. This is illustrated by the fairly limited scope of STI indicators provided by the USR, compared to for instance, the OECD STI policy outlook or the EU's Eurostat database. As part of this evaluation, two external sources of STI information have been analysed: the OECD STI outlook and e-outlook, and the OECD's and World Bank's Innovation Policy Platform.

71. Additional external sources of information in the same policy sphere that were identified by survey respondents, which offer similar information to that contained by the USR but in a less comprehensive format, include scientific journals, Thompson Reuters, social media, and the EU's Eurostat website.

3.1.2 Relevance of USR vis à vis other UNESCO knowledge products and information sources

72. The USR also appears to be relevant and coherent vis à vis other UNESCO initiatives and the tools in the field of STI. For instance, the UIS is generally considered as a complementary source of 'raw data' on STI at the global level, rather than as a competing source of information. In addition, the UIS plays a major role in producing the USR and providing the data which feeds into the development of regional and country chapters.

73. The nature of the relationship between the USR and UNESCO's Global Observatory of Science, Technology and Innovation Policy Instruments (GO-SPIN) is less explicit. While there is consensus that there are no conflicting overlaps between the USR and GO-SPIN, the extent to which both initiatives complement each other, and how they do so exactly is not entirely clear[19]. According to one UNESCO staff member, "while the GO-SPIN platform displays how countries are investing (in STI), the USR gives a more global picture". According to another UNESCO representative, "USR is more analytical, while GO-SPIN is more descriptive". In addition, despite the existence of strong complementarities between both initiatives, pooling of resources in terms of production and dissemination is very limited. Cross-fertilisation between both appears to take place on a case-by-case basis (i.e. based on authors' choices),

[19] This may however be due to the fact that the GO-SPIN platform was not yet fully operational at the time of the evaluation

and there is no formal process to ensure information and data is systematically shared or compared between both. Finally, at the strategic level, there is no common vision yet on how both initiatives should evolve to further complement each other and play off-of each other's strengths. However, contrary to the previous practice since the inception of either the USR or GO-SPIN, both initiatives are currently managed by the same Section Chief of UNESCO's SC, which is an opportunity to develop such a vision.

3.1.3 Varying degree of relevance depending on the geographic origin of readership

74. Of course, the appreciation of the USR's uniqueness as described above tends to vary according to the reader's country of interest. It is clear that the value and relevance as expressed by USR readers is enhanced by the existence of STI data gaps in their countries and regions of interest. As such, the USR tends to be more relevant and useful for readers with a need or interest in learning about STI in countries and regions where this type of information is scarce. On the other hand, USR relevance and value is perceived to be less important to readers with an interest in developed countries, where there tends to be a wealth of pre-existing information on the state of STI.

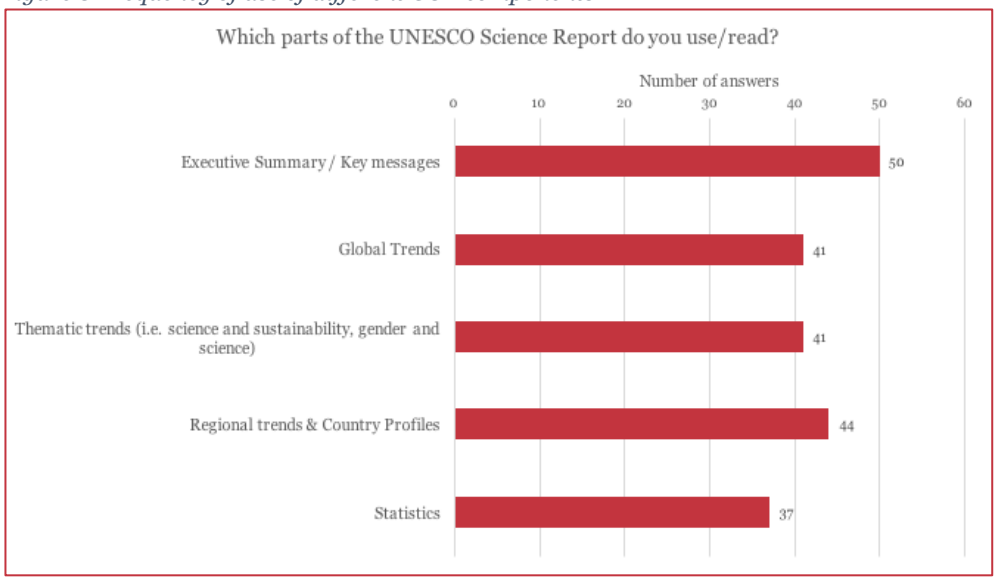
75. While this finding seems to be obvious, it does have important implications on the geographical focus and efforts dedicated by the USR team, to the production of information on countries and regions where the USR is perceived to be as being of less added value. A number of interviewees indicated that rather than seeking to achieve a global coverage, the USR should focus on countries – particularly developing ones – where the lack of reliable and up-to-date data on STI is still considered to represent a major roadblock to the promotion of STI policies and support. In spite of this, survey respondents tend to consider the geographical focus of the Report to be well balanced (over 80% of respondents consider the geographical balance of the Report to be good or very good, cf. Figure 9). This issue is further explored in the recommendations section of the Report (cf. section 5).

3.1.4 A seemingly similar degree of relevance across USR chapters, sections and themes covered

76. The on-line survey results indicate that USR users and stakeholders generally consider the themes addressed by the Report as relevant. As illustrated by Figure 9, around 90% of respondents consider the relevance of the themes covered by the Report to be good or very good.

77. In addition to this, the level of use and relevance of the different components and sections of the USR appears to be roughly the same. As illustrated by the following figure, the frequency of use of the different parts of the USR appears to be spread evenly, according to survey respondents. The executive summary does appear however to be the most frequently consulted section of the Report, but only by a slight margin.

Figure 8 Frequency of use of different USR components



Number of responses: 213 (several replies possible)

78. In spite of this, the qualitative interviews did reveal that there are specific chapters and sections of the 2015 edition of the USR, which are more frequently cited, when it comes to describing the value and use of the Report. For instance, the chapter on the gender gap in science and engineering (authored by Sophia Huyer) was frequently cited by interviewees as one of the pieces contained in the Report which is of particular interest. In addition, USR readers tend to cite the country or regional chapters of their home countries and regions as the sections of the Report they most often consult, or have read in detail. Yet, according to the website metrics analysis, the number of visitors of the individual chapters' webpages differed significantly. Chapter 15 'Iran' was visited the most, with 1,479 visitors; followed by chapter 2 'Tracking trends in innovation and mobility' with 986 visitors; and by chapter 1 'A world in search of an effective growth strategy' with 821 visitors.

3.1.5 The USR is fully in line with UNESCO's overarching strategy and the 2030 agenda (SDGs)

79. The production of the USR is fully in line with UNESCOs mandate, and particularly with that of UNESCO's SC. This was confirmed by all of the members of UNESCO staff and Member State Permanent Delegations interviewed as part of this evaluation. The USR is generally considered valuable for promoting the importance of STI in achieving UNESCO's overarching goals and sustainable development. Further to this, the USR and its specific objectives are in line with SC's objective of creating an enabling environment for science through capacity building and promoting access to knowledge for policy. According to one SC representative "the Science Report is fundamental to our mandate, and it should get the attention it deserves".

80. In a similar manner, the USR is in line with the ambitions of the 2030 Agenda for Sustainable Development which defines the Sustainable Development Goals (SDGs), as well as UNESCO's contribution to achieving these objectives. Specifically, the USR is compatible with SDG 9, through which countries have pledged to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". In particular, Target 9.5 calls upon countries to encourage innovation and substantially increase the number of researchers, as well as public and private spending on research and experimental development (R&D). UNESCO, the UIS, and the USR are seen as legitimate sources of information to monitor this target[20]. The USR could also potentially contribute to monitoring the contribution of STI to reaching other SDGs.

[20] The UIS is the official source of data to monitor SDG 4 (Education) and key targets in Science (SDG 9.5) and Culture (SDG 11.4).

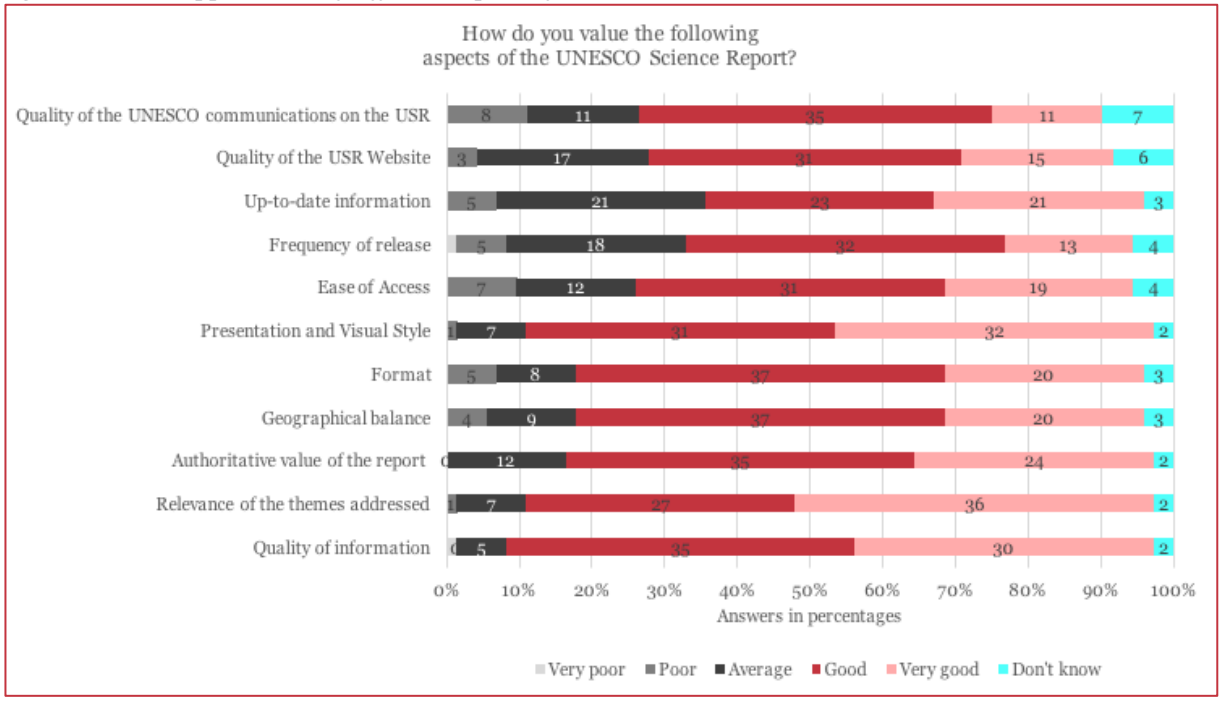
81. Finally, according to an important number of UNESCO stakeholders, the USR provides UNESCO with a high level of visibility in the international STI community and positions it as a key player in this particular policy field. According to one UNESCO staff member, "UNESCO is highly identified through the USR, it represents a flagship publication".

Recommendation: Continue producing the USR, but reform it.

3.2 Efficiency of the production and dissemination process

82. The existing production and dissemination process is the USR's Achilles' heel. The following sub-sections go into further detail for each one of the components and dimensions of this process: production, budgetary planning, dissemination and communication strategy, quality management, etc. From the internal stakeholders' perspective, there is a clear need to overhaul the existing production and dissemination process in order to enhance the quality and potential to achieve impact of the Report, as well as to realise efficiency gains internally. However, before going into further detail on each one of these issues, the following figure provides an overall picture of the USR's stakeholder perception of the main aspects of the production and dissemination process. As illustrated by the figure, survey participants expressed a high level of satisfaction with regard to the presentation and visual style of the Report and its format (i.e. over 80% of respondents indicated these aspects of the USR to be good or very good). Respondents appeared to be a bit more critical of UNESCO's communications on the USR, the quality of the website and the frequency of release of the Report. In general terms however, the majority of respondents expressed positive views (i.e. aspects qualified as good or very good) across the range of production and dissemination aspects of the Report.

Figure 9 Overall appreciation of different aspects of the USR



3.2.1 A lack of a standardized production process

83. Much of the criticism expressed by stakeholders during the course of the evaluation with relation to the USR, stems from the current production process leading to the publication of the Report. A significant number of stakeholders who are well acquainted with the inner workings of the Report, expressed significant concern when it comes to the design, production, quality review, publication and dissemination process implemented as part of the USR 2010 and 2015 edition production cycles. The underlying reasons for this concern are manifold, and include:

- The fact that the production process relies heavily on one person (the USR editor) who lacks the time to ensure adequate oversight and management of all production / dissemination stages and related tasks;
- The lack of a standardized and codified production process which ensures full transparency, clearly indicates roles and responsibilities, timing, resources and objectives associated to each of the production/dissemination stages;
- The lack of a more robust review and quality control procedure, which ensure a high level of consistency and the strict observation of UNESCO's quality standards when it comes to the publication of this type of Report;
- A lack of resources to ensure each stage is implemented at high quality standards; as well as a more adequate balance of resources dedicated to each stage (e.g. front-end production investments are too heavy as compared to downstream communication and dissemination activities).

84. As a result of this, the current production process is not only seen by internal stakeholders as one of the major threats to the sustainability of the Report, but also as a serious liability in terms of the accuracy and precision of its content and its overall quality.

85. On top of the rather informal and step by step nature of the current production process, particular concern was also expressed on the lack of a more fine-tuned budgetary planning exercise, as part of the development plan of the Report. UNESCO stakeholders regret the absence of a more detailed budgetary planning exercise for the production and dissemination of the USR, and its potential linkage to a formal fundraising strategy. The evaluation found that the USR management team had not developed a formal USR budget at the outset of the planning phase of the 2015 edition leading to the lack of a formal monitoring of project expenses throughout the production process as is a fundamental component of sound project management.

3.2.2 The use of external experts as authors of USR chapters

86. As described in chapter 6 of the Report, the current production model of the USR is based on the outsourcing of the drafting of specific thematic, country and regional chapters to a network of external experts. Under the existing scheme, the USR editor is responsible for identifying, contracting, and managing this network of experts as part of the overall USR production process, with the support of the Director or the ADG who regularly make suggestions; and through informal consultations with field offices in the respective regions and countries. Once they have been identified, the editor is also responsible for providing them with 'terms of reference' which state the nature of the work they are to deliver; and provides them with the necessary inputs (e.g. data) in order for their chapters to be produced. This production 'outsourcing' model entails a number of advantages, and drawbacks. The main assets of this model include:

- The capacity to benefit from 'local' expertise on behalf of experts who are in direct contact with analysed countries and regions, and have strong insight into the existing STI conditions in these countries. This also applies to experts in charge of developing thematic chapters, which have a very strong level of expertise and specialization on these selected themes.
- It reduces the internal burden linked to the production process of the USR, given that a significant share of the work is carried out by a network of external individuals and organizations.

- Linked to the above, it significantly reduces the cost of production of the Report. There is a clear competitive advantage in remunerating an external expert to draft a chapter for the Report, compared to the equivalent in staff costs required for a member of UNESCO staff to conduct a similar task. For the USR 2015 edition, authors were paid on average $2 000 USD to produce one chapter[21].

87. On the other hand, this model also entails significant risks and challenges. These include:

- The obligation to closely monitor and quality control the work conducted by the network of external experts.
- The risk that the quality of chapters being produced might vary greatly across the network of experts, which puts the reputation of the Report at risk, and requires a substantial review process.
- Despite the fact that many high-level experts feel closely committed to UNESCO's mission and their contribution to the USR provides non-monetary compensation in terms of prestige, the current low pricing scheme establishes a risk of not always attracting highest-level experts to produce Report chapters. In addition, the relatively low prices also imply the possibility that the formally contracted senior experts delegate work to either peers, staff or students. It is worth noting however, that the level to which these risks do materialise could not be verified by the evaluation team.
- The level of competition leading to the selection of experts may be sub-optimal, subject to path dependencies within the non-formalized selection procedure, and lack transparency.

88. The extent to which the above-mentioned advantages and drawbacks drive or limit the quality of the USR didn't clearly emerge from the evaluation. Some interviewees did point out for example that the authors in charge of drafting their home country/region's Report were not necessarily always the best qualified to do so. Some interviewees wished to see a stronger involvement of national governments and administrations in the development of the Report's national and regional chapters. Finally, the current pricing scheme used by the USR to contract external consultants is considered to be low, if compared to common practice in other settings. This could have several implications for the USR: it could either limit its capacity to attract truly 'high level' experts, it could act as a disincentive for selected experts to deliver an end product of high quality, or it may incite experts to delegate work to other individuals at a lower cost. In all three cases, the current pricing scheme may establish an impediment to achieving excellence in the production of USR content.

3.2.3 A weak quality control system, despite recent efforts to strengthen reviewing bodies

89. As indicated in section 3.2.1, one of the main concerns regarding the USR's production process relates to the procedures used to ensure an adequate level of quality control of the information and analyses being produced for / by the USR. The quality management of the USR production process is of particular importance given the current production model of the Report, which relies heavily on a network of external consultants to draft the content of the Report (cf. 3.2.2). Such a decentralised production model requires the implementation of a strict and heavy quality review process in order to ensure not only a certain level of consistency across different chapters, but also to eliminate the risk of sub-par-quality content being developed and published. Currently, there appears to be consensus around the USR community at UNESCO that the USR's quality management needs to be strengthened.

90. The evaluation did not however reveal the existence of any major flaws, errors or inconsistencies in the information presented in the 2015 edition of the Report. One national government representative contacted as part of the evaluation only highlighted that the data presented in the report did not necessarily fully match the data included in national statistical sources. In addition, and paradoxically perhaps, the quality of the USR's content is generally viewed as high by its readers and users (cf. Figure 9). Approximately 90% the evaluation's on-line survey respondents consider the quality of the USR's content as good or very good. This illustrates a more general finding of the evaluation, which is that

[21] The chapter on Iran for example is c.a. 20 pages long.

direct UNESCO stakeholders tend to be more critical of the Report than external ones (e.g. users and authors). In other words, perceived deficiencies of the inner workings of the USR do not systematically translate into a lack of quality or lack of satisfaction as expressed by end users and beneficiaries.

91. The perception gaps between UNESCO insiders (i.e. stakeholders directly or indirectly involved in the production of the USR or of other UNESCO global reports and USR users, such as the one relating to the robustness of the Report's quality assurance system, are potentially explained by differences in expectations when it comes to the impact to be generated by the USR. Insiders' expectations as to the changes to be brought about by the USR are likely to be much higher than those of individual users, who may tend to think only about the benefits the Report brings to them, rather than the benefits is should be bringing to all of its target audiences. In addition, insiders are much more familiar with the 'inner workings' of the report, are more conscious of the cost and efforts required to produce it, as well of the trade-offs of investing in this particular activity vis à vis other activities supported by the Organization.

Recommendation: Review the USR design on the basis of an updated logic model that reconfirms its main purpose and is accompanied by a formalized planning and budget process, including a dedicated fundraising strategy.

3.2.4 Uncertainties regarding the cost-effectiveness of the production model

92. The current model used to produce the USR has been brought into question by some stakeholders, mainly due to concerns regarding its cost-efficiency. Interviews during the course of the evaluation highlighted the need to compare the cost of producing the USR under the current model (i.e. the cost of 1 full-time staff member for 2 years approximately, and delegation of production to a network of experts), to other alternatives such as delegating the entire production of the Report to a single entity. The bottom line question appears to be whether UNESCO could obtain a higher 'bang-for-buck' by adopting a different production model.

93. Answering this question would certainly require conducting a full-fledged 'feasibility study and cost analysis' of alternative options, which could include potentially delegating the production of the USR to an academic institution or a private consultancy. This type of approach is common practice in other organisations such as the European Commission, which often times tenders out work to independent external organisations, while keeping a limited quality control and oversight role in-house. The former ERAWATCH policy inventory developed by the European Commission is a clear example of this. Tackling this issue would require UNESCO perhaps to discuss with partner organizations on what have been the models which have worked for them, and under which circumstances. From the evaluator's perspective, it does appear that with a $2M USD cost for instance, UNESCO would be in a strong position to further outsource the production of the USR (or parts of it). The ratio of staff costs vs. external consultant costs in the 2015 edition budget (cf. Figure 4), compared to the ratio of internally vs. externally produced information within the Report; makes quite a compelling argument in favour of reducing the involvement of UNESCO staff and increasing that of external consultants in the production process.

Recommendation: Review the current USR production model by considering adopting alternative options to best ensure optimal quality management, better value for money, and transparency**.**

94. Further to the issue of internally vs. externally-sourced work described in the previous paragraphs, UNESCO staff members indicate that there are economies of scale to be made if certain functions in the Report production process were to be conducted in common, with other UNESCO and SC reports. For instance, tasks such as editing, layout, translation could all probably benefit from a further integration of existing Report production process, resources and staff.

95. The case for closer coordination between the USR and other UNESCO – and particularly SC – reports has not only been made from an efficiency standpoint. There are also numerous voices which advocate for closer proximity and collaboration across these reports in order to ensure a consistent identity of the UNESCO 'series' of reports in the fields of science (social and natural), technology, engineering. This would entail developing a more common visual identity across all reports, but also a common development and dissemination strategy (or at least in part), crosscutting messaging, and most importantly, a coordinated timetable for release and publication.

Recommendation: Engage more closely in external and internal partnerships to explore possible complementarities and synergies.

3.2.5 An increased share of extra-budgetary financial resources, despite the lack of an organized fundraising strategy

96. As illustrated by Figure 4 the share of extra-budgetary funding in support of the USR underwent a sharp increase between the 2010 and the 2015 edition. Given the strong budgetary constraints UNESCO is currently facing, this increase could be interpreted as a positive sign the USR is moving towards a path of higher financial sustainability. A number of UNESCO member countries provided in kind contribution to the 2015 USR, particularly for efforts relating to translation, printing and dissemination of the Report. Fundraising in support of the 2015 edition was facilitated in part by the hiring of a part-time staff member.

97. Yet, in spite of the significant increase in extra-budgetary sources which allowed to produce, translate and disseminate the 2015 edition of the USR, the external sources of financial support which the USR did manage to attract appear to be the result of somewhat random and last minute fundraising activities. These appear to have been aimed at filling budgetary or production gaps; rather than being the result of a strategic and planned fundraising strategy. In addition, most of the extra-budgetary support the 2015 USR benefitted from came from in-kind contributions for specific tasks (e.g. translations), rather than financial contributions for the general development of the Report. In general, UNESCO stakeholders regret the absence of a stronger and more aggressive fundraising strategy for the USR, based on a clearly defined pitch to be made to high potential donors. The increased availability of extra-budgetary funding for the development of the USR would not only increase its sustainability and reduce vulnerability vis à vis potential internal budgetary restrictions, but could also potentially increase buy-in from additional donors. Additional resources could also be allocated to ensure a more competitive compensation scheme for external experts contributing to the Report.

3.2.6 A mismatch between the configuration of the USR management and production team, and the ambitions of the USR

98. In addition to the identified weaknesses in relation to the USR's production process, quality management and budgetary planning, major concerns were expressed in relation to the current management scheme of the Report (cf. section 2.5). The main issues with regard to the management of the USR are three-fold:

- The first relates to the under-staffing of the USR team, which results in a disproportionately high work burden and responsibilities on the shoulders of one person: the USR editor. The current editor, as the name of her position indicates, was originally in charge of editing the USR. However, given her strong involvement in the production of the USR over the course of several production cycles, requires her to not only undertake editorial responsibilities of the Report, but also general project management responsibilities, quality assurance, and in some cases, development of Report content.
- The second is the lack of complementary skillsets and capacities required to ensure the adequate implementation of specific tasks and duties related to the production of the USR. This refers particularly to the general project management of the USR, its communications and dissemination strategy, as well as its fundraising strategy. These tasks require a much-specialised set of skills in order to be successfully implemented.
- Finally, there appears to be a need for stronger involvement of a management-level staff with a strong background and competences in the field of STI, to complement the work and skills of the current USR team.

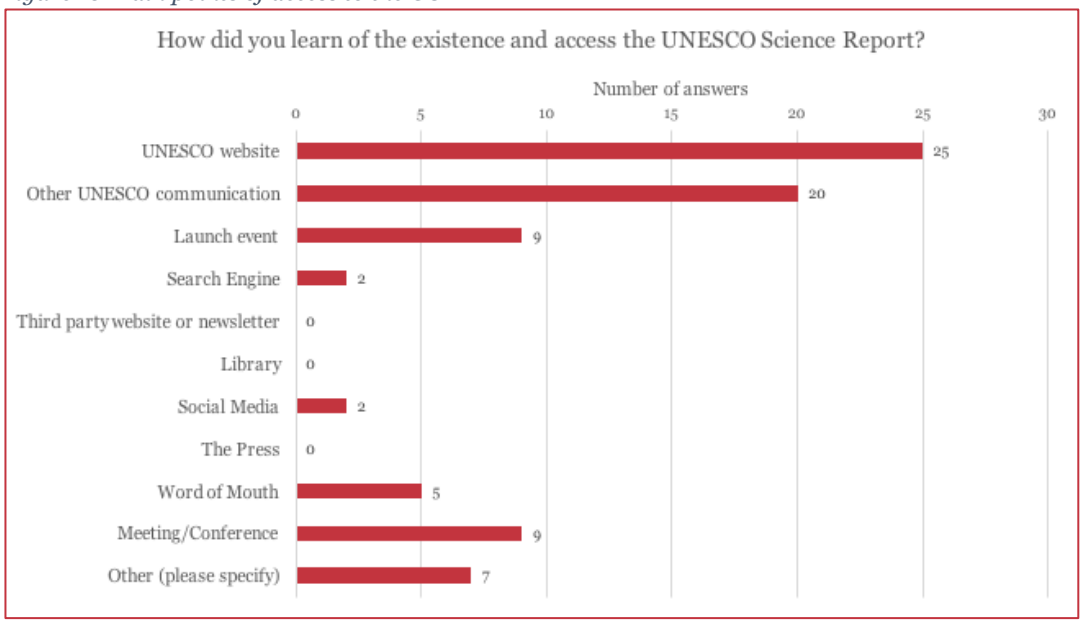
Recommendation: Re-organize USR management by establishing a team that ensures required minimum capacities and a broader range of relevant competences.

3.2.7 Underrated dissemination and communication strategy and resources

99. Section 2.3 of the Report provides and overview of the 2015 USR's dissemination and communication strategy. The electronic survey conducted as part of the evaluation indicates that despite a generally positive view of the USR's communications activities, a number of respondents did express some level of criticism on this topic. As seen in Figure 9, approximately 25% of respondents indicate that the quality of UNESCO's communications on the USR are poor or average, while a remaining 70% state that they are good or very good. This figure is roughly the same when it comes to the quality of the USR's website.

100. The website does appear to be the main point of access for USR readers, as illustrated by the following figure. On-site events such as the launch events and conferences also appear to be important venues where users come into contact with the Report. Surprisingly however, only two out of 79 respondents indicate having learned of the existence and accessing the Report via social media. In addition to this, some interviewees from the scientific community did indicate that the distribution channels of the USR could be improved. Several interviewees consider their colleagues to be unaware of the USR.

Figure 10 Main points of access to the USR



Number of responses: 79

101. On this point again however, opinions are much harsher when expressed on behalf of internal UNESCO stakeholders, than on behalf of external users. The cross-cutting message drawn from the interactions with UNESCO stakeholders on this topic is that there is serious lack of a coordinated and targeted effort to provide wider visibility and exposure of the Report vis à vis targeted audiences. From the evaluation's perspective, the dissemination and communication strategy around the USR does appear to be one of the Report's main weaknesses. Some of the difficulties and challenges expressed when it comes to effective communication around the USR include:

- The lack of resources at the institutional level (i.e. UNESCO central communications team) to provide dedicated support to the design and implementation of the USR communications strategy within the context of the broader UNESCO communication strategy.
- The absence of tailored messages and pitches to be used to communicate to specific target audiences. On this point, one communications officer at UNESCO indicated that the USR was a hard sell to media outlets given that there is no clear overarching message which can be drawn from it.
- The lack of a clear, concise and timely communication strategy, accompanied by resources for implementation. As mentioned in section 2.3, the communication strategy for the 2015 edition of the Report was only adopted after the launch of the Report.
- The format of the Report and its length (cf. section 3.2.8) which make it difficult to share and disseminate.
- The lack of stronger local level communication and dissemination actions, involving particularly UNESCO field offices and national governments, which should be also part of the overarching communication strategy.

102. Based on the information collected by means of the evaluation, there does not appear to be a clear messaging strategy in place as part of the USR production process. As described in section 2.4 of the report, the themes to be covered in the 2015 edition of the USR were identified during the initial phases of USR planning, mainly at the discretion of the USR production team. There does not appear to be any type of formal consultation process in place in order to identify the most relevant themes, as well as their intended audiences. However, when it comes to specific messages to be conveyed, it appears that these are mostly developed by the authors which are selected to draft individual chapters.

3.2.8 The USR is considered to be too long and heavy, which limits its capacity to appeal to the reader

> *"Format could be much shorter, frequency should be increased" – survey respondent*

> *"The printed copy is FAR too big. Even online, it is a very large publication and while all sections are useful, the format is just very big (too big?)" – survey respondent*

103. If there is one clear and overarching message drawn from this evaluation, there is an issue with that the USR has become too long and too heavy – both in its printed and online version. Interviewees systematically criticized the Report due to its length and physical weight, which tends to limit its user-friendliness, and may act as a disincentive for potential readers and users. The sheer size of the hard copy of the Report makes it very difficult to transport and share during conferences and visits conducted by UNESCO staff for example. Sending out these hard copies to UNESCO field offices and other points of distribution is not only complex, but can also become expensive. USR stakeholders unanimously call for a revision of the current format of the Report, in order to make it lighter, more flexible and accessible, and more user friendly.

104. The main reason for which the Report has become so long is the ambition for it to be a global source of data and information on the state of STI. This global coverage has led the USR to develop chapters and sections on the large majority of countries and regions of the world. However, given the current format of the USR as a one-shot publication with a five-year frequency of release, this has translated into the development of a quite heavy publication. Some of the main limitations and negative externalities stemming from this format are:

- Difficulties in transporting and disseminating the Report
- Difficulties in navigating and searching for specific pieces of information of the Report
- Difficulties in disseminating the Report on-line
- The lack of focused and targeted messages stemming from the Report
- Limitations on the visual appeal of the Report
- The cost of translating the Report (full version) into other languages

105. These limitations seem to clearly outweigh the advantages associated with the possibility of offering a Report, which is truly global in nature. The USR needs to reflect on possible alternatives on how to better manage the trade-off between scope and user-friendliness/appeal of the Report's format. Based on the experience of the evaluation team, if the hard copy of the Report is heavier than a modern laptop computer, it is unlikely readers will be incited to use it and carry it with them. In this case, a diversified on-line access is likely to be more relevant.

Recommendation: Strengthen the visibility and outreach of the USR and formalize the USR dissemination and communication process.

3.2.9 The frequency of release: a delicate balancing act between hindsight capacity and generating a continuous flow of relevant information

106. An additional debate surrounding the USR relates to the relevance of its current frequency of release. The main argument behind the existing five-year periodicity is that there is a need for at least five years' worth of data series in order to make any analytical appreciation of the main (confirmed) trends in the field of STI. Most USR stakeholders tend to agree with this assumption, and consider that the current frequency of release serves the purpose of the USR, to the extent that it allows to provide a sound picture of how the world is evolving. Reducing this timeframe would inevitably lead to higher levels of speculation when it comes to making assertions on the global trends or the directions support for STI in different regions of the world are taking.

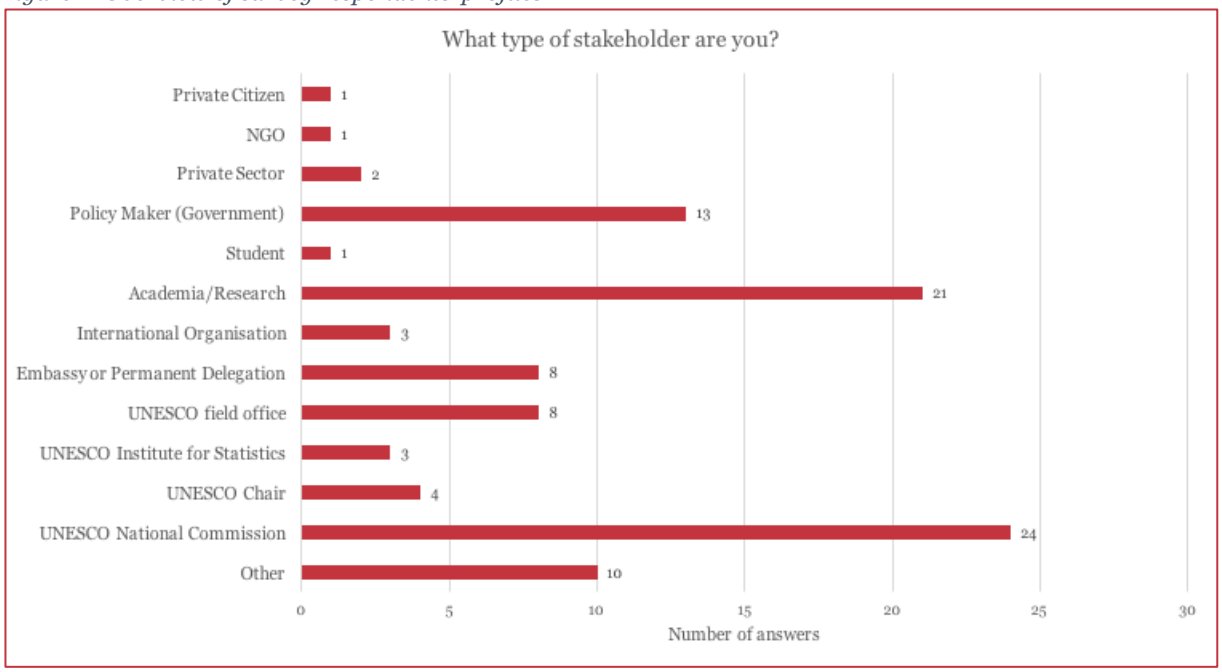
107. Yet here again, the USR seems to be facing an important trade-off between the need to acquire a critical mass of data on STI in order to make sound judgements on global trends, and the capacity to maintain a continuous flow of information in order to sustain its readership, and provide up to date analyses on a continuous basis. As will be discussed in the following section of the Report, while the general level of appreciation of the Report among its readership is high, there were calls expressed by interviewees in favour of increasing the frequency of release of the USR or some of its components. Alternatives as to how to address the trade-offs identified in this section as well as in section 3.2.8 regarding the format of the USR, are explored in the recommendations section of the Report (cf. section 5).

3.2.10 USR readership is in line with intended targets

108. There is no clear-cut way to determine the average profile of USR readers and users. By means of the data collected through this evaluation, the evaluation team was able to put together some indicators providing insight as to who uses and consults the USR. The general message drawn from the analysis of this data is that USR readership appears to be in line with the intended objectives, as described in Section 2.3 of this Report. It is worth mentioning however, that the readership and target audiences defined by the USR is quite broad, making the achievement of this goal all the easier.

109. The first of these indicators relates to the types of respondents who participated in the on-line survey. As illustrated by the following figure, outside of UNESCO staff (headquarters, field offices, UIS), the main categories of respondents are national policymakers, academics and researchers. The USR also appears to be very visible among UNESCO National Commissions. The survey also indicates that there is an even geographical spread of users across countries and regions of the world (cf. Appendix H). It is worth highlighting however that while these results may provide an approximate picture of the composition of the 'immediate circle of USR users', this vision might be somewhat skewed by the survey dissemination methodology used. While the survey was indeed open to any type of participant, the main dissemination channels were UNESCO stakeholder databases which included representatives of UNESCO sciences and research networks, USR authors and UNESCO Member State National Commissions and Permanent Delegations. By no means did the survey reach all actual USR readers and users. Given the simple fact that it was impossible to trace who consults the USR, reaching out to all real users is not technically feasible.

Figure 11 Overview of survey respondents' profiles

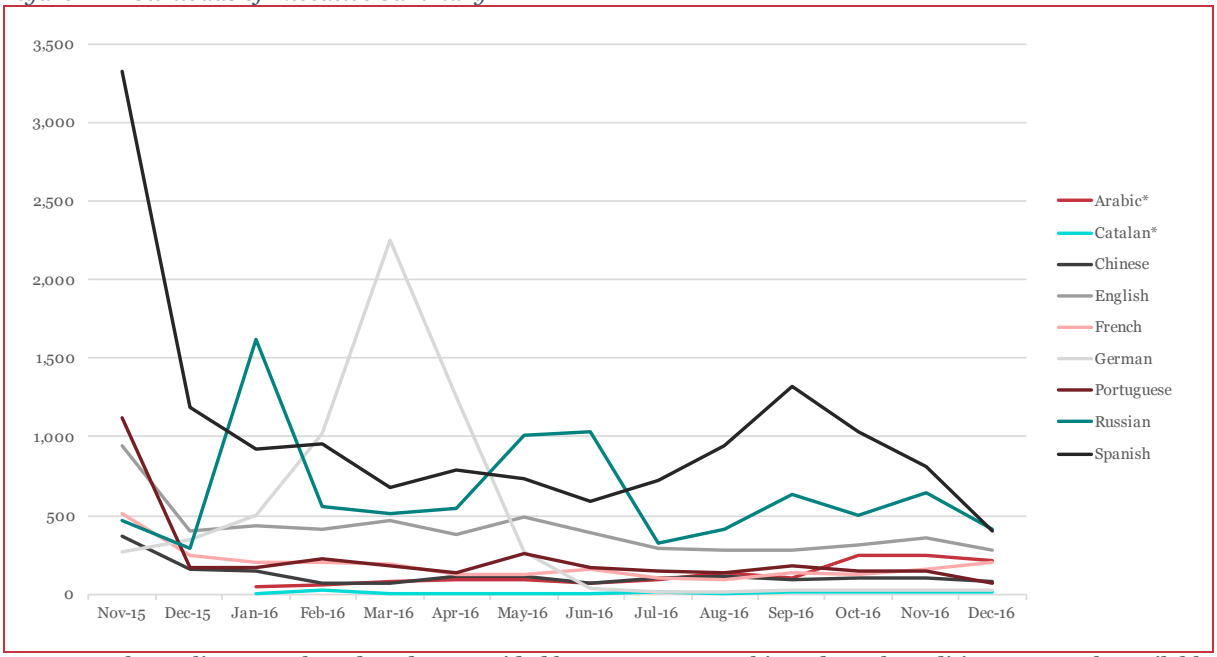


Number of responses: 99. Approximately 34% of respondents indicated they had contributed to the development of the USR (regardless of its edition).

110. It is worth noting that in addition to the survey respondents, the USR team also provided evidence of the use of the Report by other international organisations and UN agencies such as the World Intellectual Property Organisation (WIPO) and the United Nations Development Programme (UNDP). One WIPO representative indicated to the editor for example that, "the USR is mandatory reading in our team, and we just discussed it during our Global Innovation Index calls".

111. The second indicator is the number of downloads of the different language versions of the USR's executive summary. As illustrated in the following figure, outside of the Spanish and Russian version of the summary, the number of downloads appears to be roughly equally spread out across all other available languages. The Spanish and Russian version of the executive summary surprisingly come out in front of the English version in terms of number of downloads. The following figure also speaks to the importance of having USR executive summary reports in several languages, in addition to English. The diversity of language coverage of the Report undoubtedly represents one of its key attributes and distinguishing factors, as well as a driver for a diversified readership across the globe.

Figure 12 Downloads of Executive Summary[22]



Source: Technopolis Group, based on data provided by UNESCO. * Arabic and Catalan editions were only available online from January 2016 onwards

112. The third and last indicator is the geographical location of visitors to the USR's website (English version). Here, there appears to be a balance of visitors from both developed and developing countries, The English homepage was visited from the following top-10 locations: (1) Japan, (2) South Africa, (3) Canada, (4) Italy, (5) Egypt, (6) France, (7) Brazil, (8) Chile, (9) Sweden and (10) Belgium. The French homepage was visited mostly from: (1) Canada, (2) France, (3) Morocco and (4) Senegal.

3.2.11 The results of USR communication and dissemination: overall USR media and on-line presence

113. The following sub-sections present the results of the website and media metrics analysis conducted by the evaluation team. The main objective of this exercise was to develop a feel for the visibility and presence of the USR in both traditional media outlets (e.g. written press), as well as on social media (e.g. Twitter). This issue is addressed here, given the intricate relation between the media presence and visibility of the Report and the frequency of use of its website; and the quality of the promotion and dissemination strategy of the Report. To the extent possible and in order to provide a sense of proportionality, the figures presented for the USR in this section (e.g. web metrics, media presence metrics) are compared to other UNESCO global reports, or similar external sources of information. It must be stated however, that these types of comparisons are often difficult to make given key differences in the reports being compared, such as lengths of existence, periodicity and dates of publication, targeted audiences, and resources used to develop and promote these reports. This can influence for example the number of visitors each of these reports receives via their website. These limitations should be kept in mind when interpreting the results below.

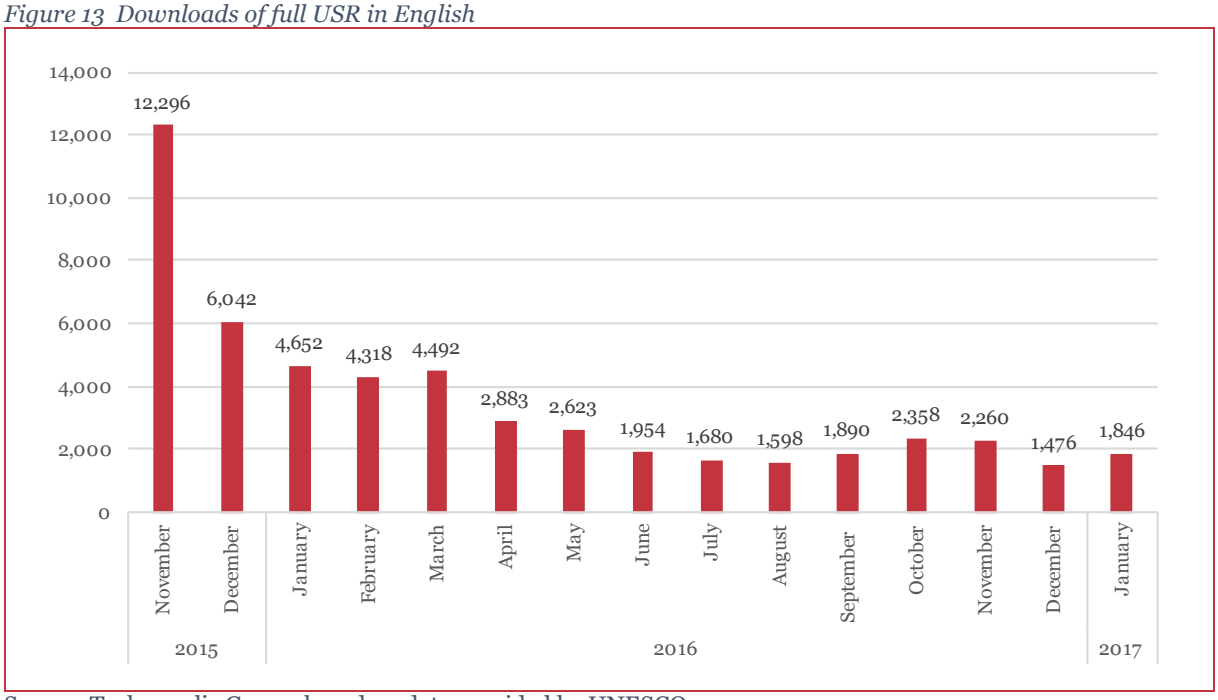
114. Overall, the main finding drawn from this analysis is that while the USR fairs relatively well in terms of viewership as compared to other UNESCO reports, the USR's on-line presence appears to be limited, particularly in the sphere of social media.

[22] The figure shows that the executive summary was downloaded most frequently in Spanish, Russian and German. In 2016, these respective versions were downloaded a total of 9,884, 8,207 and 5,451 times. The English version was downloaded a total of 4,370 times.

3.2.11.1 USR downloads

115. The figure below presents the number of downloads of the English version[23] of the USR between November 2015 and January 2017. In total, the Report was downloaded 52,368 times from the website during this 14-month period. During the first four months after the publication of the USR, the English version was downloaded approximately 27 000 times. In comparison, the English version of the 2016 World Social Science Report was downloaded 10,361 times over 3,5 months since its launch in September 2016. Unsurprisingly, there was a sharp decrease in the number of downloads of the USR after its launch in November 2015. The download rate seems to have reached its cruising altitude in May 2016, at an average of around 2 000 downloads per month.

Figure 13 Downloads of full USR in English

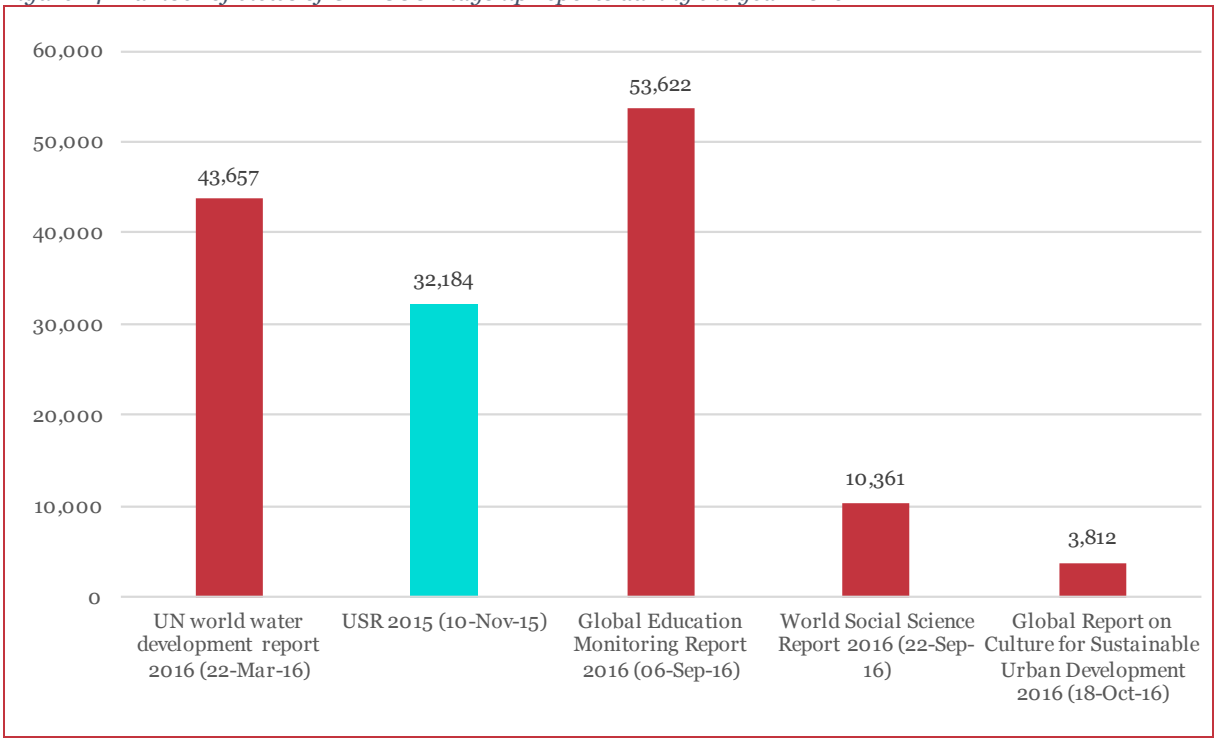


Source: Technopolis Group, based on data provided by UNESCO

116. The following figures compare the number of downloads of the USR over the 12 months period in 2016 to those of other UNESCO flagship reports. As indicated previously, the USR seems to perform well in light of these comparisons, considering also that this figure does not include the first two months following the launch of the USR.

[23] The French version of the USR was available from December 2016 and was downloaded 243 times in December 2016 and 193 times in January 2017.

Figure 14 Number of views of UNESCO Flagship reports during the year 2016[24]



Source: Technopolis Group, based on data provided by UNESCO. In brackets, publication dates for each Report.

3.2.11.2 Website visits

117. Between November 2015 and January 2017, the USR website (and all related pages) was viewed approximately 55,000 times (of which over 32,000 times during 2016, see Figure 12) and most visitors to the USR pages also downloaded the Report. The English homepage was viewed the most (33,808 times by 20,643 visitors), almost ten times as much as the French homepage (3,762 times by 1,621 visitors)[25]. French visitors, however, spent more time on the website (4:13 minutes), and reviewed on average 2.97 pages per session. Visitors of the English website on average visited 2.18 pages per session and spent a total of 2:59 minutes on the website. The webpage with key messages of the USR (in English) was visited a total of 1,432 times, mostly by people from (1) Germany, (2) Russia, (3) Ukraine and (4) Zimbabwe. Almost one tenth of these visitors also downloaded the PDF version of the Report.

118. In the first 4 months after its launch, the USR was viewed a total of 27,308 times. As a point of reference, the GEM Report was viewed 53,622 times within the first 4 months of its launch.

119. The GEM homepage instead was viewed a total of 207,554 times between the launch of the GEM Report in September 2016 and December 2016, with a total of 65,523 unique visitors. 27,076 visitors were returning visitors. The average time spent on the GEM Report homepage was 3:10 minutes. The homepage of the GEM Report received visits from the following top-10 countries: (1) United States, (2) France, (3) India, (4) United Kingdom, (5) Mexico, (6) Brazil, (7) Spain, (8) Canada, (9) Colombia and (10) Peru.

120. The OECD's and World Bank's Innovation Policy Platform[26] website received a total of 407,000 page views in 2016. In other words, total page views of the IPP is approximately seven-fold that of the USR. It should be highlighted however that contrary to the USR, the IPP does not produce any printed publications. As such, the total page views for the IPP represent all of its readership, while the page views

[24] it is to be noted that compared to the other reports the USR was launched in late 2015 and therefore the data does not include the first two month after the USR launch

[25] note that the French edition of the report was only available from December 2016 onwards.

[26] Comparison possible thanks to the information kindly shared by IPP representatives for the purpose of this evaluation

of the USR excludes users who only use the hard copy of the Report. In addition, the IPP includes a much higher number of pages than the USR.

121. Additional key indicators on website visitors include:

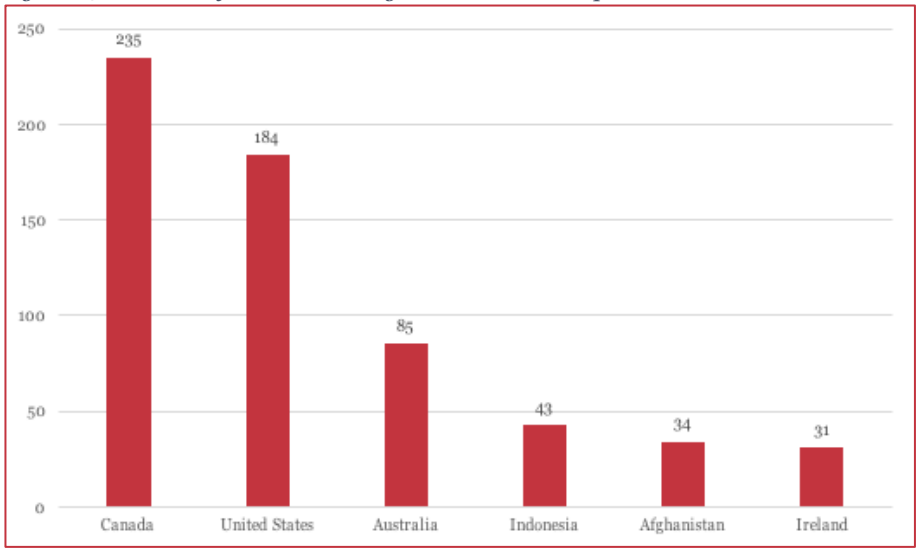
- Most visitors of the home page arrived there via Google and unesco.org.
- The poster website (76.84%) and the English (58.82%) and French (66.67%) press releases received the highest number of returning visitors (76.84%).
- The number of visitors of the individual chapters' webpages differed significantly. Chapter 15 'Iran' was visited the most, with 1,479 visitors; followed by the chapter 2 'Tracking trends in innovation and mobility' with 986 visitors; and by chapter 1 'A world in search of an effective growth strategy' with 821 visitors.
- The regional summary of the Arab States (in English) received the most page views, followed by Europe, North-America and Latin America-Caribbean. The French regional summary on the Arab States received most returning visitors (81.32%).
- The UNESCO website has 35 blogs on the USR. Blogs that were viewed the most are on the automotive industry in Iran (1,702 views), the importance of nanotechnology for innovation leaders (1,429 views) and the impact of Brexit on British and EU science (687 views).

3.2.11.3 General Media Analysis based on the Cision tool

122. To assess the online presence and the use of the USR by a wider audience, an online media-analysis was performed. For this, two web-scraping tools were used. Results from the tool 'Cision' were used to perform a general media analysis. 'Cision' is a tool that enables a search in different news articles to see what is the reach of the USR. For the social media analysis, the tool 'Meltwater' was used, which covers more than 200,000 electronic media sources, including Twitter, Facebook and YouTube.

123. Between April 2016 and January 2017, the USR was mentioned on a total of 925 different online media sources (for example newspapers, websites, etc.). The figure below presents the top-6 countries of media sources that mentioned the Report. It shows that the Report was most frequently mentioned in Canadian and US media, followed by Australian, Irish, Afghan, and Indonesian media.

Figure 15 Number of articles in the general media in top 6 countries



Source: Technopolis Group, based on Cision data

124. The table below presents the main media sources in which the USR was mentioned in the period February 2016 – February 2017. The Vancouver Star, Herald Globe, Argentina Star and Cambodian Times are all similar online newspapers that provide both local and international news and are administered by Midwest Radio Network in Australia. It is worth noting that based on these results, the USR was not mentioned in any major news outlets or news wires which have a large multiplier effect (e.g. Reuters, Associated Press).

Table 7 Main media by number of news articles (CISION)

Media	Number	About
Vancouver Star	218	An online newspaper, providing both local and international news, administered by Midwest Radio Network in Australia
EIN News Publications	54	A news desk that shares 'just published' news, aggregated from thousands of sources and tailored to the customer
Afghanistan Sun	31	Online Afghan newspaper providing breaking news on the country
India Gazette	29	Public journal, published weekly by the Department of Publication from the Ministry of Urban Development of the Government of India.
Big News Network	25	Specialist online news service, signature site of a global news wire and distribution platform
The Irish Sun	20	The Irish Sun is an online newspaper that presents breaking news from Ireland
Herald Globe	20	An online newspaper, similar to the Vancouver star, administered by Midwest Radio Network in Australia
Argentinastar.com	20	An online newspaper, similar to Vancouver star, administered by Midwest Radio Network in Australia
The Sun (Malaysia – online)	19	Malaysia's first national free daily newspaper in tabloid form.
Cambodian Times	19	An online newspaper, similar to the Vancouver Star, administered by Midwest Radio Network in Australia

125. Based on information shared by the USR editor and prepared by the UNESCO press office, between 10 November and 4 December 2015, 407 press stories were published around the world which included mention of the USR. More than half of these were published in China (225), with other leading countries being Mexico (35), the United States (28), Germany (26) and Spain (16).

126. There appear to be stark difference between the media coverage given to the 2015 edition of the USR compared to that of the 2010 edition. Based on information provided by the UNESCO press office, the launching of the 2010 event generated a significant level of interest press-wise, as illustrated by the coverage given to the report in several major news outlets: The Economist, Libération, Le Monde, Expansion, Nature, Straits Times. The message conveyed by these news pieces focused on the rising importance of emerging countries in the field of STI. As was the case with the 2015 edition of the Report, a significant share of the press coverage given to the USR came from China.

127. It is difficult to pinpoint the reasons behind the gap in the level of press coverage between the 2010 and the 2015 edition of the USR. According to one interviewee, this may be explained by the lack of a sharper message to share and convey with media outlets stemming from the 20150 Report. Another reason may be linked to the potentially stronger level of support provided by the UNESCO press office in dissemination the 2010 edition, as compared to the 2015 edition.

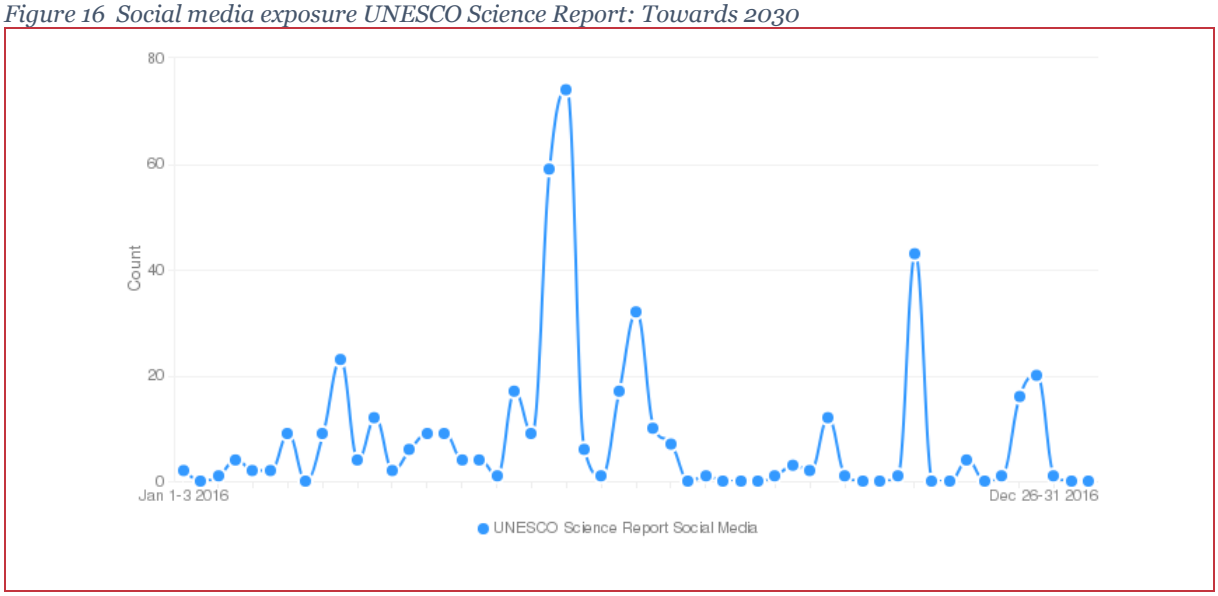
3.2.11.4 Social media presence

128. In order to analyse the exposure of the USR in Social Media, a social-media analysis was conducted with the tool Meltwater. The social media included in the analysis are Twitter, Blogs, Facebook and YouTube, with especially Twitter getting the most results.

129. In the search, the key word "UNESCO" had to appear together with the words "Science Report", "Towards 2030", "sur la science" or "vers 2030", to ensure that both the French and English version of the Report would be included in the search. To exclude several outliers that were unrelated to the USR, results with the words "world", "social" and "agenda" were excluded from the search (otherwise results would for example include the Social Science Report, or the 2030 agenda, without mentioning the USR).

130. The results of the Meltwater analysis in terms of media exposure show several peaks. The first peak is in March 2016, when the USR was launched at Bindura University, Zimbabwe. The highest peak is in May 2016, during the EU Green Week. The third peak took place in October 2016, where a tweet on Pakistan's scientific output was retweeted multiple times.

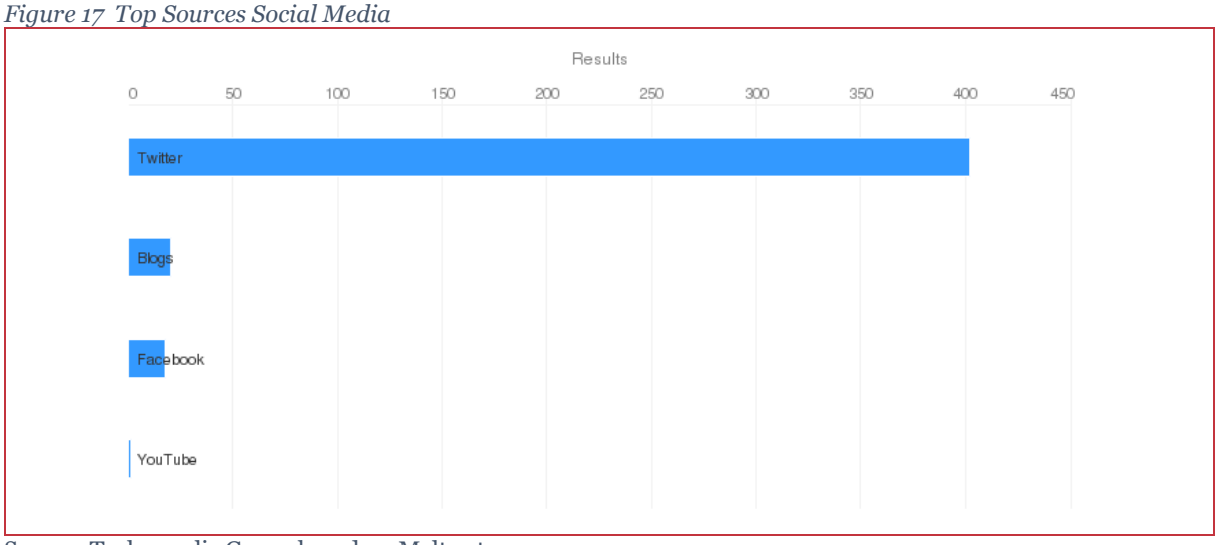
Figure 16 Social media exposure UNESCO Science Report: Towards 2030



Source: Technopolis Group based on Meltwater. Count = number of references to the USR in social media channel.

131. In 2017, the Report was mentioned several times on social media because of several tweets on women in science and the gender-gap (February) and the release of the Russian edition (March- these are peaks of around seven tweets). The USR was mentioned most on Twitter (400 times). It was also mentioned in blogs, on Facebook and on YouTube.

Figure 17 Top Sources Social Media



Source: Technopolis Group based on Meltwater

132. It is worth highlighting that the USR does not have its own Twitter of Facebook account. As such all references to the USR came from third parties or in a limited number of cases, the UNESCO institutional social media accounts.

Recommendation: Strengthen the USR on-line presence and digital components, in particular via modern interactive technology and social media.

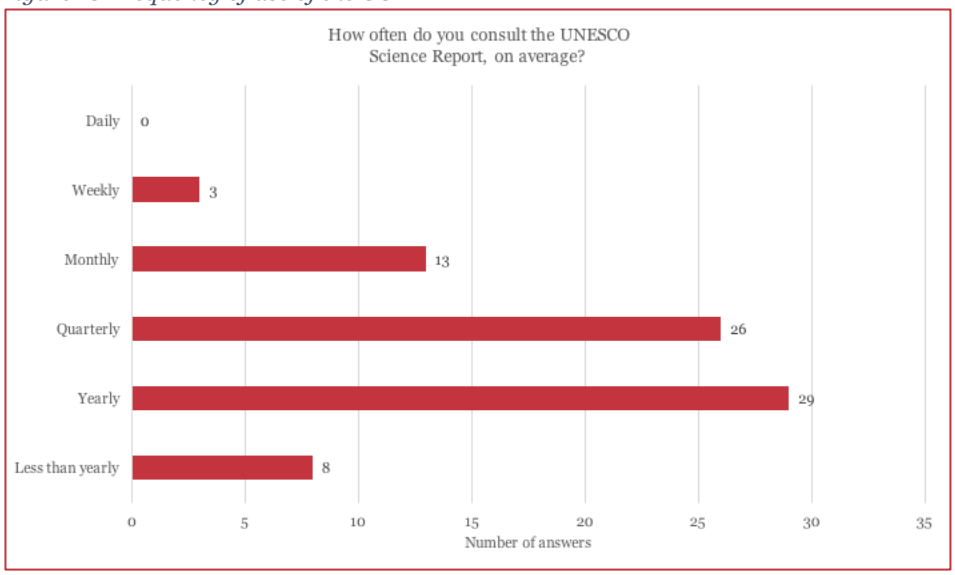
3.3 Effectiveness and signs of impact

3.3.1 Use and frequency of use of the USR

133. The evaluation has shed light on the types of users of the USR as illustrated in section 3.2.10. However, an additional challenge was identifying how and for what purpose these users are consulting the USR. This is a fundamental indicator in assessing the extent to which the USR is generating the right types of expected changes within its target audience (cf. Theory of Change in section 2.7 for more information for USR expected outcomes). The on-line survey and telephone interviews conducted as part of the evaluation proved to be the most useful in understanding how members of the policy-making, academic, research and international organisation community are using the USR in their daily work.

134. Given the frequency of its use, the USR appears to be more of a reference document (i.e. similar to almanacs, dictionaries, encyclopaedias, etc.), rather than a source of dynamic information which is consulted on a regular basis. In other words, given the static nature of the Report and its content, users tend to consult it only from time to time, for the most part on a quarterly or yearly basis (cf. following figure). In addition to this, the survey shows that the majority of users (62%) tend to consult the on-line version of the Report rather than the hard copy (21% of users indicating using only the hard copy). It is interesting to note however that a share of users (18%) indicate consulting both the on-line and the hard copy of the Report. As a result, a total of 40% of respondents indicate consulting the hard copy.

Figure 18 Frequency of use of the USR

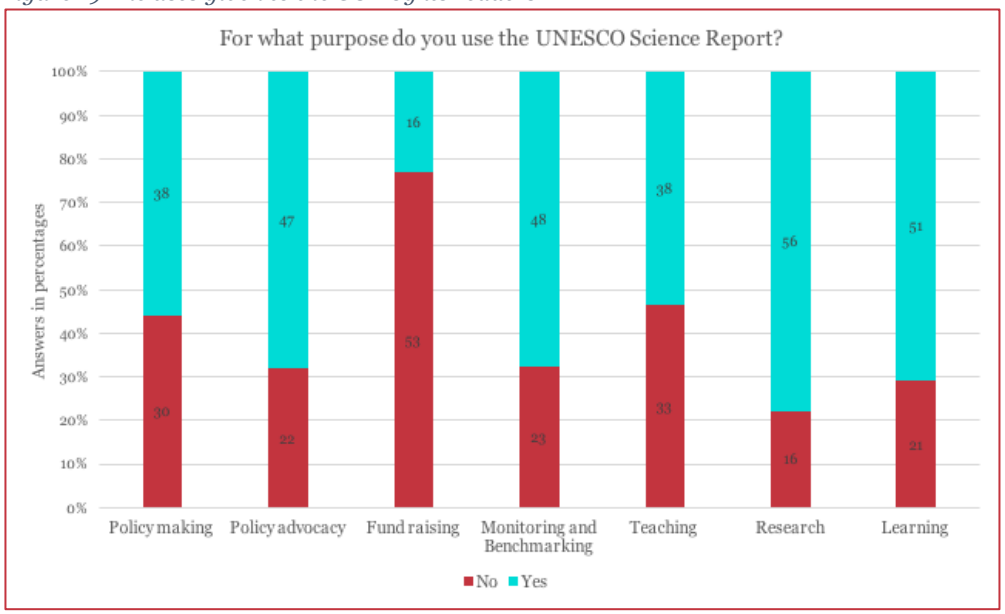


Number of responses: 79

135. As illustrated by Figure 18, the frequency of consultation of the USR appears to be spread relatively evenly, with 37%, i.e. the highest share of survey respondents, indicating to consult the USR only on a yearly basis. However, the reasons and purposes for which readers consult the USR do appear to vary considerably (cf. following figure). The main drivers behind the use of the USR are activities related to research and learning. One interviewee for instance indicated using the Report "for teaching purposes to provide students with emerging trends and data", while another indicated using USR content to develop and deliver a series of workshops on science and sustainable development.

136. This appears to indicate that the USR plays a major role in the academic/research sphere, in addition to policy-making and advocacy. As will be described in section 3.3.4 however, this does not necessarily translate into a frequent and explicit citation of USR content in the publication of scientific articles. Policy-making, policy advocacy and monitoring and benchmarking are also frequently cited as purposes for consulting of the USR (on average 60% of respondents indicate consulting the USR for these purposes). Fundraising on the other hand, does not appear to be one of the main uses given to the USR, as only approximately 20% of respondents indicate consulting it for this purpose.

Figure 19 The uses given to the USR by its readers



137. Internally, the USR is used by UNESCO's senior management (i.e. Director-General, Deputy Director-General, ADG/SC and Dir SC/PCB , as well as senior staff in UNESCO field offices) in the preparation of keynote speeches and presentations given in the framework of specialist meetings. For instance, the USR was reference during the SC/PCB's November 2016 address to the Ministerial Session on Innovation for Sustainability during the General Meeting of The World Academy of Sciences (TWAS) – for the advancement of science in developing countries. The USR has also been used to brief the Office of the Director-General prior to meetings with high ranking government figures, or prior to interviews given by the DG.

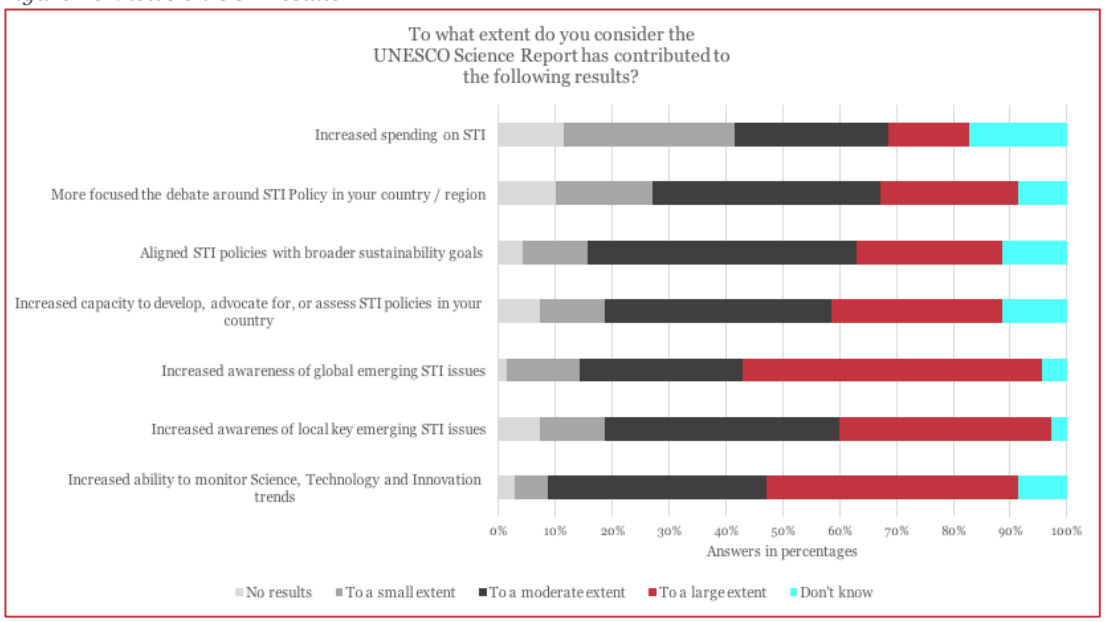
3.3.2 Views on the quality of USR content and information

138. Perceptions regarding the quality of the USR information and content tend to vary significantly across different types of stakeholders. As previously mentioned, survey respondents for the most part describe the quality of the information contained in the USR, as well as the authoritative value of the Report as good or very good (cf. Figure 9). This however was not necessary always the view expressed by evaluation interviewees. Some interviewees did point out some deficiencies in the quality of the analysis produced in national and regional chapters for example, as well as strong inconsistencies between the data presented in the Report and the data contained in other (national) sources of information.

3.3.3 General view on USR outcomes and intermediate results

139. The following figure presents an overview of what survey respondents consider to be the most representative results stemming from the publication of the USR. Most respondents indicate that the USR has had a 'moderate' level of influence on the great majority of expected results – which points to a certain level of ambiguity in the answers provided by survey participants. Yet, it appears from the survey that the areas where the USR has played the most important role are: increasing the level of awareness of global emerging STI issues, and increasing the capacity to monitor STI trends. These results are fully in line with the main priorities of the USR as presented in the ToC (cf. section 2.7). The extent to which the USR has contributed to increased STI spending as well as to the development of a more focused debate around STI policy in respondents' countries and regions appears to be rather limited.

Figure 20 Views on USR results



140. The following section takes a closer look at the set of expected USR results, including its influence on thought leadership, the promotion of the 2030 agenda, and policy-making.

3.3.4 Influence on thought leadership and policy-making

141. Capturing the influence of the USR on thought leadership in the field of STI is extremely challenging, given the diffuse nature of the 'thought leadership' concept. The approach adopted in the framework of this evaluation was based on the one hand, on an analysis of the presence of the USR in academic literature, and specifically scientific articles; and on the other hand, on a qualitative inquiry of USR users. The first of these approaches was conducted by means of a bibliometric analysis aimed at assessing the extent to which the USR reached and was used by academic researchers[27]. This analysis quickly demonstrated that the USR is clearly not directly feeding into the development of scientific and research publications. As a result, in can be stated in all confidence that the USR is not a source of information which is formally and explicitly used by the scientific community to conduct and publish the result of research activities. The citation analysis conducted by the evaluation team showed that:

- The UNESCO Science Report 2010 was only cited 4 times (Elsevier Scopus) in total in the academic journals Research Policy (2017), Scientometrics (2016), Science of the Total Environment (2017) and the Revue Francaise de Sociologie (2016)
- The UNESCO Science Report – Towards 2030 was only cited 4 times (Elsevier Scopus) in total in the academic journals Arctic (2016), Scientometrics (2016), Middle East Policy (2016) and the Trends in Molecular Medicine (2016)

142. This does not necessarily indicate that USR is not used for other research purposes. As indicated previously (cf. Figure 19) research was identified by survey respondents as one of the main uses given to the USR. According to one respondent for example (researcher), the USR "has served as a quick access ledger, and offered me comparative statistics for my research work".

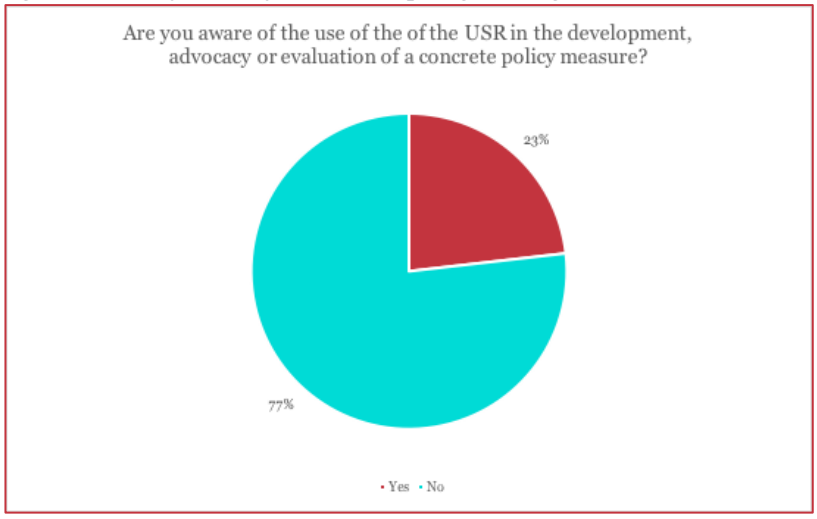
143. The evaluation did show that the USR's influence on thought leadership, albeit limited, tends to take place through more informal channels such as general policy discussions and presentations and mainstream media articles (cf. section 3.2.11.3). A number of interviewees, particularly in the

[27] The evaluation team used Elsevier Scopus as our key tool in identifying the (peer-reviewed) publications that cite the USR (focusing on the 2010 and 2015 editions). Scopus covers over 22,748 peer-reviewed journals and is one of the largest database of academic publications. Such a citation analysis provides insight whether the report add specific unique value to the research community in disciplines such as development economics, or science, research and innovation policy.

international organization and national government respondent communities, indicated they frequently use the USR for example to put together talking points, briefs, and speeches/presentations to be given by government authorities. One National Commission representative indicated that they use "the USR in different social and official activities emphasizing the data in the Report". As such, it is possible that the influence of the USR on the way the policy making and researcher community thinks about STI and its influence on development is happening somewhat 'under the radar'. One recurrent phenomenon highlighted by government representatives was the use of USR data on behalf of lower ranked public officials, to increase awareness of the importance of investing in STI among higher ranking or elected officials. One interviewee even spoke of using the USR to compare their country with a neighbouring one, in light of making senior officials 'jealous' of their neighbour's situation and incite them to take action. Other interviewees also highlighted the role the USR has played in increasing awareness and focusing policy debates around specific topics or issues. For instance, one interviewee indicated that the USR has "substantially raised the profile and importance of the issue of gender in science" in the context of their own organisation / country.

144. This finding applies also to the influence of the USR on policy-making and the nature of STI policy debates taking place around the world. Examples of cases in which the USR has directly influenced a policy initiative (e.g. legislation, regulation or reform, implementation of a specific program) are extremely rare to come across. The great majority of survey respondents (77%) are not aware of the use of the USR in the development, advocacy or evaluation of a concrete policy measure (cf. following figure).

Figure 21 The influence of the USR on policy-making



Number of responses: 69

145. As for the remaining 23% of respondents who indicated knowing a policy initiative which was influenced by the USR, the examples provided do not always allow to assess the extent to which this is actually the case. Some of the most representative examples identified by the survey include the following:

- Discussion within the EU on open science
- Kenya STI policy
- The 2010 Report was useful during the Country (Brazil) S&T National Conference
- Annual National STI Fair
- The Portuguese National Commission (UNESCO) strategy in the Science sector and the support of the Ministry of Foreign Affairs in this strategy

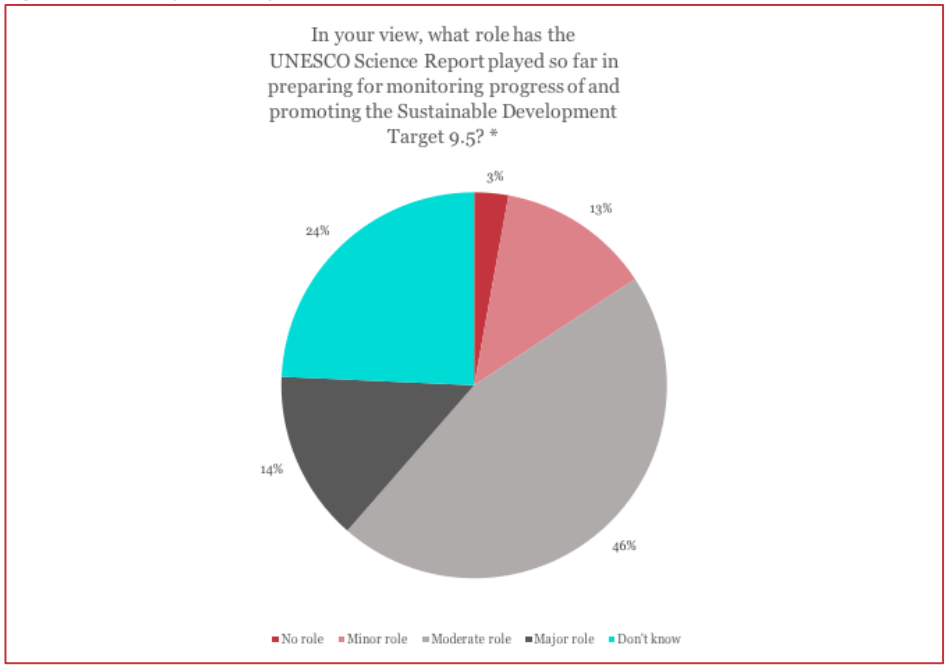
146. What does appear to be clear from the evaluation is that the data and information provided by the USR is primarily influencing the policy debate in the field of STI in a developing country and international development cooperation context. The influence of the USR on 'developed economy' STI national policy-making – outside of international development cooperation considerations – appears to be extremely limited.

147. While the USR's enormous potential for influencing and contributing to monitoring the progress and promoting the SDG target 9.5 is fully recognised, there is a perception that this potential still needs to be realized. As illustrated by the following figure, only 14% of respondents consider that the USR has already played a major role in doing so. This however can be explained in part by the fact that the 2015 edition of the USR was published only two months after the SDGs were adopted.

148. Some of the main suggestions provided by USR stakeholders to further enhance the link between the Report and the SDG include:

- Add a specific chapter on SDG target 9.5 with an annual reporting, reviewed every 5 years in the USR
- Showing the progress of regions towards the goals
- A survey could be conducted with governments and other stakeholders to assess what, if any measures, have been taken or are being considered, since the adoption of the SDGs and the publication of this USR, in relation to STI policies and this target specifically.
- Create a link and work with the UN Global Sustainable Development Report
- Have the next version focus its chapters on the SDG and its various dimensions
- Develop an interactive USR portal in collaboration with UIS

Figure 22 The influence of the USR on SDG 9.5



Number of responses: 70. * target 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.

149. The findings presented in this section as well as in sections 3.3.1 and 3.3.3, confirm the fact that the USR ensures the existence of a number of basic functions in the field of STI advancement and promotion. This includes for instance general awareness raising on the importance of STI, cross-country and regional benchmarking and comparisons, general stock-taking, research and education and training. These functions reflect the fact that the USR is used and perceived mainly as a reference document by the community of users. This contribution to the field of STI has made it a respected Report, and has given UNESCO strong recognition as an important player in promoting STI capacity building at the global level.

150. Yet in spite of this, concern was expressed by some UNESCO representatives regarding the USR's capacity to contribute to high level and long-lasting change, particularly when it comes to influencing how governments plan and envision the role of STI in the context of promoting development. There are also uncertainties regarding the extent to which the USR is actually allowing UNESCO to convey a pro-active message, whether it be related to the importance of promoting gender equality in science, or focusing the efforts of science and innovation on long term sustainability goals, to the policy-making community globally. Currently, rather than conveying a message, the USR is more generally seen as a source of objective and 'message-neutral' information and data.

Recommendation: Establish a formal, comprehensive and systematic USR performance monitoring and evaluation framework.

4 Conclusions

151. The following conclusions are based on the findings presented in the previous sections of this report. They are seeking to provide answers to the questions that have guided the evaluation exercise.

4.1 Overall Conclusion

152. The need and relevance of the USR as the only global report that is shedding light on the state of STI in low and middle-income countries is unanimously confirmed. Furthermore, the significant potential for the USR to play a major role in influencing and assisting Member States in monitoring progress towards the SDG target 9.5 establishes an opportunity for UNESCO to clearly position its contribution to the 2030 Agenda in this field.

153. Nonetheless, there are several shortcomings in the current production and dissemination processes as well as the USR outreach strategy that establish a risk for both the quality and sustainability of the report. A major rethinking of the current Report format, its production, dissemination, and outreach processes may increase the USR's potential of generating deeper and longer-term change in the future.

154. This would include, among others, considering different models for the USR design based on an updated intervention logic, establishing a formalized planning and budget process, and a dedicated fundraising strategy. In order to best ensure optimal quality management, better value for money, and increased transparency, alternative options to the current USR production model and re-organizing the USR management will be necessary. Furthermore, close engagement in external and internal partnerships can help better utilise complementarities and synergies. Visibility and outreach of the USR could also be increased by strengthening the USR's on-line presence and digital components and more formalized and targeted dissemination and communication processes. A comprehensive and systematic USR performance monitoring and evaluation framework would enable the organization to better measure the changes it is generating and aiming to achieve.

4.2 Relevance

Compared to other publications and sources of knowledge in comparable policy spheres, the USR is the only publication with a truly global focus, and which gives such a high level of importance to shedding light on the state of STI in low and middle-income countries. Overall, it therefore plays a distinctive role in providing evidence, data and information on the state of STI at the global level. However compared to other comparable data sources, the level of USR data is considered as basic.

155. UNESCO and the USR are considered to occupy a niche position in the global monitoring of STI policy trends. This is reinforced by the fact that the USR is built in part on the basis of the datasets provided by UIS on R&D globally. In addition, while other international organizations producing similar content (e.g. OECD) are also highly valued and recognized for the quality and value of their work, these tend to focus less on the social and economic implications of STI in countries outside of their constituencies (e.g. OECD member states, EU member states). Yet, despite the high recognition of the USR as one, or perhaps the only global STI monitoring source of information, external stakeholders do agree that in terms of data, the USR only provides a basic level of data – particularly statistical - compared to other comparable sources.

The USR promotes the importance of STI in achieving UNESCO's overarching goals and the SDG agenda. In particular, stakeholders recognise a significant potential for the USR to influence and monitor progress towards the SDG target 9.5 and an opportunity for UNESCO to clearly position its contribution to the 2030 Agenda.

156. The USR is fully in line with UNESCO's mandate, and particularly with that of its Natural Sciences Sector's contribution to the 2030 Agenda by creating an enabling environment for science

through capacity building and promoting access to knowledge for policy. The potential of the USR to contribute to SDG target 9.5 to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation" is fully recognised, in particular by promoting the sustainable development target 9.5, and by influencing, and contributing to the monitoring of its progress.

157. Considering that the USR was published only two months after the adoption of the SDGs in 2015, the influence and contribution of the USR to monitoring the progress of SDG target 9.5 is perceived as limited for the time being. However a majority of stakeholders expect UNESCO to clearly position the role of the USR's in contributing to the monitoring the 2030 Agenda, in particular SDG target 9.5.

The USR's thematic coverage evolved in line with global needs and trends, including on highlighting the increasing importance of women and science.

158. The thematic coverage of the USR has evolved in line with global trends and demonstrates a growing focus on innovation, STI in Africa and monitoring STI governance. The most recent edition of the report demonstrates an expansion of the USR's geographical scope and strengthening of its monitoring function in anticipation of the Sustainable Development Goals. Furthermore, it sheds light on the gender gap in Sciences and Engineering, a topic which is deeply appreciated by many of the USR's current readers.

159. The majority of users expressed a high level of satisfaction with regard to the topics addressed, the depth of the analysis, the presentation of trends and the progress of individual countries or regions, included in the USR.

While the USR is generally considered as geographically balanced and extensive, there is a trade-off between producing a global report with equal emphasis on developed versus developing countries and a focus on countries where information and data on the state of STI is scarce.

160. Overall, the geographical scope of the USR is considered as satisfactory, as well as that of the team of contributing experts. The great majority of survey respondents qualified the authoritative value of the Report as good or very good.

161. The themes addressed by the Report and its different components (e.g. global trends, thematic trends, regional trends and country profiles), are found relevant and its focus areas, topics, and recommendations are in line with the needs and strategies of Member States. Nonetheless, the appreciation of the USR varies and tends to be more relevant and useful for readers with an interest in learning about STI in countries and regions where this type of information is scarce. For readers from developed countries there tends to be a wealth of pre-existing information on the state of STI outside the USR.

Although the production of USR content is based on a geographically extended consultative process by reaching out to a vast network of national-level experts and consultants with deep insight into the existing STI conditions in these countries, Member States and other international stakeholders are not consulted in the initial process of definition of the structure and thematic focus of the report.

162. The USR is based on a wide-reaching consultative process to the extent that its content is developed and reviewed by a wide network of national-level experts and consultants. One of the main assets linked to this production model is the capacity for the USR to benefit from 'local' expertise of experts that are in direct contact with analysed countries and regions, and have strong insight into the existing STI conditions in these countries.

163. This also applies to experts in charge of developing thematic chapters, which have a very strong level of knowledge, expertise and specialization on these selected themes. However, the definition of the structure and thematic focus of the report is the result of a mostly closed process in the hands of the

editor and his or her supervisor (e.g. ADG or Director). Countries and other international stakeholders are not consulted as part of the USR content definition process.

4.3 Efficiency of the Production and Dissemination Process

The existing USR production and dissemination process is the USR's Achilles' heel, and points to the lack of standardized processes that ensure full transparency, as well as to inadequate quality control and accountability mechanisms. Furthermore, sub-optimal presentation, limited on-line presence and visibility, in particular in the sphere of social media also limit the USR's outreach and uptake. The current production model also raised concerns regarding its governance and its cost-efficiency.

164. Despite the overall appreciation by its users of the quality of the USR, its website, ease of access, presentation and visual style, concerns stem among others from the current lack of a standardized production process, insufficient transparency in the expert selection process, a weak quality control system, and a sub-optimal on-line presence and visibility, in particular in the sphere of social media.

165. From several internal stakeholders' perspective there is a clear need to overhaul the existing production and dissemination process in order to enhance the quality and potential to create impact of the Report, as well as to achieve efficiency gains internally. Concern stems from the lack of a standardized production process, an over-reliance on external experts as sources of USR content (despite a lack of transparency in the expert selection process) due to a weak quality control system, a somewhat underrated dissemination and communication strategy and resources, the absence of tailored messages and pitches to be used to communicate to specific target audiences, and a relatively weak on-line presence and visibility. In addition, the current model used to produce the USR has been brought into question by several stakeholders, mainly due to concerns regarding its governance and cost-efficiency.

There is a need for a significant overhaul regarding the USR's structure, periodicity, content and presentation, and dissemination.

166. There is one clear and overarching message drawn from this evaluation, it is that the USR has become too long and heavy – both in its printed and online version. Interviewees systematically criticized the report due to its length and weight, which tends to limit its user-friendliness, and may act as a disincentive for potential readers and users. The sheer size of the hard copy of the report makes it very difficult to transport and share during conferences and visits conducted by UNESCO staff for example.

167. At this point the USR seems to be facing an important trade-off between the need to acquire a critical mass of data on STI in order to make sound judgements on global trends, and the capacity to maintain a continuous and dynamic flow of information in order to sustain its readership, and provide up to date analysis on a continuous basis. As such, there were numerous calls expressed by interviewees in favour of increasing the frequency of release of the USR or some of its components.

168. Given that the appreciation of the USR's relevance varies according to the reader's country of interest (i.e. the perceived value and relevance of USR readers is enhanced by the existence of STI data gaps in those countries and regions of interest), rather than seeking to achieve a global coverage, it was often times suggested that the USR should focus on those countries – particularly developing ones – where the lack of reliable and up-to-date analysis of STI policies and trends is still a major roadblock to the promotion of STI policies and support.

There is room for additional collaboration with external partners in the production and dissemination process of the USR.

169. Some of the possible alternatives regarding collaborations with external as well as internal partners include:

- Strengthening ties and seeking synergies with the production teams of other UNESCO/SC publications including the Social Science Report, the Engineering Report, and the Ocean and Water reports in areas such as production cycles, dissemination and branding
- Reviewing and formalizing the nature of the relationship between the UIS and the USR
- Exploring options on how to embed institutional partnerships into the USR's design particularly with 'sister' initiatives such as the Innovation Policy Platform and the OECD's e-outlook
- Full outsourcing to research /consulting organizations, or developing a joint-venture production model along the lines of the existing partnership between UNESCO and the International Social Science Council for the production of the World Social Science Report.

The USR's website is the main access point to the Report for its readers. Yet, while the USR fairs relatively well in terms of on-line viewership as compared to other UNESCO reports, the USR's on-line presence appears to be limited (e.g. number and frequency of website visits), particularly in the sphere of social media. The current format of the report (on-line and hard copy) limits the capacity to disseminate it on a wide scale, and at a reasonable cost.

170. There is a clear need to further explore the opportunities offered by modern internet technologies to further enhance the level of targeted dissemination and outreach of the report. Recent efforts to further disseminate USR content via blogs and Wikipedia articles have undoubtedly strengthened the outreach of the Report, but further strategically directed outreach initiatives would be beneficial.

4.4 Effectiveness/ Signs of Impact

Despite recent improvements, the insufficient transparency in the expert selection process and an overall weak quality control system raise concerns regarding the consistent quality and reliability of the USR.

171. The selection process used to identify USR external contributors is far from being fully transparent. It is unclear to what extent this selection process is taking place by means of a merit-based mechanism, and if so, what the established criteria for selection are. Reaching out to contacts of the USR team and informal consultations with field offices appear to lead to strong path dependencies in the selection of external contributors, which have led some USR users and staff to be critical of the academic and intellectual credentials of some of the contributing authors. In spite of this, until the 2010 edition, there were no editorial or peer review instances in place as part of the USR production process. For the 2015 edition however the report (or specific sections of it) have been screened by the an editorial board to peer review the chapters of the report and providing feedback to authors, and an internal reading committee (review committee) to provide feedback and comments after the chapters have been edited (for a large part by the Editor), and as all other UNESCO publications the USR concept note including its outreach and dissemination strategy are subject to approval on behalf of the Organization's publications board established in 2011.

172. Challenges in the quality management of the USR production arise form the current production model of the Report, which relies heavily on a network of external consultants to draft the content of the Report. Such a decentralised production model requires the implementation of a strict and heavy quality review process in order to ensure not only a certain level of consistency across different chapters, but also to eliminate the risk of sub-par-quality content being developed and published.

The USR intended readership and its use are in line with the intended objectives and geographical spread, in particular on raising awareness of global emerging STI issues and increasing the capacity to monitor STI trends. However, being defined quite broadly, and in the absence of a specific key theme or clear purpose, the USR's ability in addressing the needs of specific target groups of readers or directing its use for specific purposes is somehow limited.

173. Outside of UNESCO (headquarters, field offices, UIS), the main categories of USR readers are national policymakers, academics and researchers, as well as international organisations and UN agencies representing an important geographical spread of users across countries and regions of the world.

174. The use of the USR is broadly in line with its intended objectives in raising awareness of global emerging STI issues and increasing the capacity to monitor STI trends The frequency of its use is limited and mainly focused on providing a reference document for research and learning, and to some extent on policy advocacy and monitoring, however, its actual influence on thought leadership albeit limited, is happening somewhat 'under the radar' and not least due to the current format and frequency, tends to take place mostly through informal channels such as general policy discussions and presentations and mainstream media articles -rather than through academic research articles. International organizations and national governments frequently use the USR to put together talking points, briefs, and speeches/presentations to be given by government authorities. As such, the influence of the USR on the way the policy making and researcher community thinks about STI and its influence on development is difficult to determine.

175. As shown by the limited frequency of its use, the USR appears to be more of a reference document (i.e. similar to almanacs, dictionaries, encyclopaedias, etc.), rather than a source of dynamic information which is consulted on a regular basis. The main drivers behind the use of the USR are activities related to research and learning. Policy-making, policy advocacy, monitoring, and benchmarking were also frequently cited as USR consultation purposes, while using the USR to support fundraising appears to be less frequent.

176. It appears from the evaluation that the data and information provided by the USR is primarily influencing the policy debate in the field of STI in a developing country and international development cooperation context. The influence of the USR on 'developed economy' STI policy-making – outside of international development cooperation considerations – appears to be extremely limited.

The lack of a formalised and comprehensive communication and outreach strategy for promoting the Report is among its key weaknesses, which limit the ability of formulating and communicating key messages to its intended audiences.

177. Despite a generally positive view of the USR's communications activities by its users, the cross-cutting more critical message from UNESCO strategic level stakeholders points to a significant lack of a coordinated and targeted effort to provide wider visibility hand outreach of the report vis à vis its targeted audiences. Difficulties and challenges for effective communication around the USR as the result of the lack of a clear and concise communications and outreach strategy include: limited resources at the organisational level (i.e. UNESCO central communications team) to provide dedicated support to the design and implementation of the USR communications strategy, the absence of tailored messages and pitches to be communicated to specific target audiences, the current format of the Report and its length which make it difficult to share and disseminate, the lack of stronger national and regional level communication and dissemination actions, involving particularly UNESCO field offices and national governments. Not least, in the absence of a formal consultation process for identifying the most relevant themes at, as well as their intended audiences at the design stage of the USR, key messages resulting from the individual chapters are mostly developed at the discretion of the authors.

4.5 Sustainability

The USR's high degree of relevance for contributing to the SDG Agenda and the overall positive appreciation strengthen its institutional and political sustainability, and support the need for UNESCO to continue producing the USR. However, the challenges in the production and dissemination processes, a lack of a formalized planning and budgetary process, as well as the so far limited engagement in external and internal partnerships, and the lack of a targeted outreach strategy are undermining the USR's financial sustainability and establish a reputational liability.

178. The high relevance for Member States, the overall appreciation of the report and its potential in influencing and contributing to measuring SDG target 9.5 confirm the need for UNESCO to continue producing the USR. To better ensure the USR's sustainability, as well as the likelihood of generating deeper and longer-term change in the future, a major reform of the current production and dissemination processes are required. This would include, among others, reviewing the USR design based on an updated intervention logic, establishing a formalized planning and budget process, and a dedicated fundraising strategy. In order to best ensure optimal quality management, better value for money, and increased transparency, alternative options to the current USR production model and re-organizing the USR management should be considered. More closely engaging in external and internal partnerships to better utilise complementarities and synergies as well as strengthening visibility and outreach of the USR through a stronger on-line presence and digital components and more formalized and targeted dissemination and communication processes.

Credible and purposeful management of the USR production requires more adequate resources: anticipated budgetary and human resources planning as well as a targeted fundraising strategy are required to better ensure financial predictability and longer-term sustainability.

179. Currently limited sources of funding pose a considerable threat to the sustainability of the Report. The share of extra-budgetary funding underwent a sharp increase for the 2015 edition[28], but appears to be the result of somewhat random fundraising activities, aimed at filling budgetary or production gaps, rather than the effect of a coordinated and planned fundraising strategy. Long-standing under-staffing of the USR team results in a disproportionately high work burden and responsibilities for the current USR editor, while additional skillsets and capacities in particular regarding the general project management, communication, dissemination, and fundraising would allow a more balanced distribution of tasks and responsibilities.

180. The share of extra-budgetary funding in support of the USR underwent a sharp increase between the 2010 and the 2015 edition. Given the strong budgetary constraints UNESCO is currently facing, this increase could be interpreted as a positive sign that the USR is moving towards a path of higher financial sustainability. Yet, in spite of the significant increase in extra-budgetary sources which allowed to produce, translate and disseminate the 2015 edition of the USR, the external sources of financial support which the USR did manage to attract appear to be the result of somewhat random fundraising activities. These appear to have been aimed at filling budgetary or production gaps; rather than being the result of a coordinated and planned fundraising strategy prior to or from the beginning of the production process. In addition, most of the extra-budgetary support the 2015 USR benefitted from came from in-kind contributions for specific tasks (e.g. translations), rather than financial contributions for the general development of the report. Adopting a sound and formal fundraising strategy while moving forward, will be one of the key determinants of USR sustainability and success.

[28] Note: several UNESCO Member States provided in kind contributions to the 2015 USR, particularly relating to translation, printing and dissemination of the report.

A comprehensive and systematic USR performance monitoring and evaluation framework would enable the Organization to better measure and demonstrate the changes it is generating and thus be an incentive for Member States and partners to invest in the USR.

181. Except information that is collected at a more ad hoc and voluntary basis, such as the user feedback questionnaire, the USR has not adopted any indicators or monitoring system to more systematically track its uses and level of influence on intended users.

182. The evaluation has also shed light on the lack of a formal USR Theory of Change or intervention logic and corresponding results matrix and indicators. There are currently no mechanisms in place to systematically and strategically collect data and report and monitor the status of the effectiveness and efficiency of the production, dissemination and use of the USR.

5 Recommendations

183. This section presents the key recommendations to the UNESCO SC sector that have been developed by the evaluation team and discussed and validated during the workshop with the evaluation reference group on the basis of the findings and conclusions discussed earlier in this report. These are followed by a number of possible suggested action points for their implementation by the Section on Science Policy and Partnerships, SC/PCB/SPP and under supervision of the SC sector Senior management.

Recommendation 1: Continue producing the USR, but reform it in line with the following recommendations

184. The USR should be continued to be produced by UNESCO given its high degree of relevance and the overall positive appreciation expressed by USR readers. However, in order to ensure sustainability of the Report, as well as the likelihood of generating deeper and longer term change in the future, a major overhaul of the current production process needs to be undertaken. Continuing to produce the Report under the existing scheme is not only financially risky, but would represent a potential reputation liability for the UNESCO and its SC. Reforming the USR along the following recommendations will require a significant investment, particularly in terms of time and commitment on behalf of UNESCO.

Recommendation 2: Review the USR design on the basis of an updated logic model that reconfirms its main purpose and is accompanied by a formalized planning and budget process, including a dedicated fundraising strategy

185. Possible action points include:

i) The USR should review and update its underlying intervention logic, and develop a logic model and value proposition. This implies a formal document to be developed and adopted by the USR management team which fleshes out the general and specific objectives of the Report, its target audiences, its activities, intended outputs, outcomes and results. This should also include an indication of key messages to be conveyed by the Report, and message-level synergies with other UNESCO publications, at least in the short and medium term. Given the feedback collected during the evaluation, it is suggested future editions of the USR focus on STI in developing countries as well as on the role of STI in reaching SDGs. The value proposition of the USR should also include a clear explanation of how the Report builds into the strategy of the UNESCO and the SC; as well as its specific added value compared to other STI flagship reports. This should be accompanied by specific, measurable, assignable, achievable, relevant and time-bound (SMART) indicators.

ii) Ensuring an adequate budget planning and budget monitoring exercise is implemented prior to the URS production cycle. This should be accompanied by the development of a fund-raising strategy, which is in line with the USR's value proposition and on the basis of a clear and crisp pitch (see previous recommendation).

Recommendation 3: Engage more closely in external and internal partnerships to explore possible complementarities and synergies

186. Possible action points include:

i) Enhancing the links between the USR and UNESCO's GO-SPIN programme. At the very minimum, a formal explanation should be provided on paper as to how both initiatives complement each other, and what the intended links between them are – from an outcomes perspective, as well as from an operational one. Depending on the production and dissemination model to be adopted for future editions of the USR, both initiatives could be formally linked through - for instance - the use of GO-SPIN country profiles as USR country chapters.

ii) Enhancing the links between the USR and other UNESCO or SC publications including the Social Science Report, the Engineering Report, and the ocean and water reports. At the least, a common overarching messaging and communications strategy should be developed, along with a minimum common visual identity and branding across all reports.

iii) Exploring ways to embed institutional partnerships into the USR's design particularly with 'sister' initiatives such as the Innovation Policy Platform and the OECD's STI e-outlook.

iv) Reviewing and formalizing the nature of the relationship between the UIS and the USR. The role and position of the UIS vis à vis the USR should be clarified by means of, for instance, a Memorandum of Understanding between SC and UIS. This should include a detailed description of the resources to be dedicated to the production of USR related information by the UIS, and potential compensation for work conducted.

v) Exploring ways of involving national governments in the review of national or regional chapters of the USR.

Recommendation 4: Strengthen the USR on-line presence and digital components, in particular via modern interactive technology and social media

187. Possible action points include:

i) The digital and on-line component of the USR should be thoroughly strengthened. The USR has the potential of becoming a web-based source of information, complemented by the production of case-by-case printed material. This should be complemented by a stronger and more pro-active on-line communications strategy, including a strategic use of social media to deliver key messages to its potential target audiences.

ii) Breaking down the USR monolith into smaller pieces, while ensuring consistency across all USR-related products and developing a USR brand which covers a range of knowledge products and publications, but also events. This brand (e.g. the 'USR series') should be linked to a visual identity and logo. This would allow to increase frequency of publication of USR-related knowledge pieces by for instance, developing a five or six-year production cycle which would cover a series of regional reports, thematic reports, and one overview Report.

Recommendation 5: Review the current USR production model by considering adopting alternative options to best ensure optimal quality management, better value for money, and transparency

188. Possible action points include:

i) Strengthening the quality management of the USR. This includes developing a standardized and codified quality control process and quality review criteria and indicators. This should also include allocating resources for quality reviewers and develop a clear and transparent selection procedure for quality reviewer selection. The USR could potentially involve national government representatives to provide feedback on national and regional reports.

ii) Developing more formal and transparent selection procedures for contributing authors and reviewers and increase the level of rates used to pay external contributors.

iii) Assessing the relevance and feasibility of adopting alternative production models such as:

   a. Full outsourcing to research / consulting organization(s)

   b. Two-tiered outsourcing model (experts producing background notes which are then used by a smaller group of experts to develop the bulk of the content – cf. GEM Report model)

   c. Joint-venture model (e.g. World Social Science Report)

Recommendation 6: Strengthen the visibility and outreach of the USR and formalize the USR dissemination and communication process

189. Possible action points include:

i) Developing a clear dissemination and communication strategy and earmark resources for the implementation of this strategy. Ensure the UNESCO communications team and publications board validate the communication and dissemination strategy in the context of the wider UNESCO communication strategy for global reports.

ii) Increasing local-level communication activities (e.g. local launches and events).

iii) Developing a USR ambassador kit allowing anyone who wishes to do so, to provide a clear presentation of the USR at external events, as well as a pitch for fundraising purposes.

Recommendation 7: Re-organize USR management by establishing a team that ensures required minimum capacities and a broader range of relevant competences

190. Possible action points include:

i) Re-organizing the USR production and management team and bring on additional complementary capacities and expertise to manage the planning, communications and fundraising.

ii) Appointing a USR project manager in charge of overseeing the production and dissemination team, managing the USR development plan, oversee fundraising activities, managing the USR budget and developing strategic partnerships. This project manager would report to the Chief of the Science Policy & Partnerships Section of the Natural Sciences Sector.

Recommendation 8: Establish a formal, comprehensive and systematic USR performance monitoring and evaluation framework

191. Possible action points include monitoring and evaluating the performance of the USR on a regular basis, based on a results matrix and indicators. This should include the establishment and use of a formal media (on-line and printed), presence monitoring system and systematic consultation with potential and actual target audiences.

Table 8 SWOT analysis of potential alternative production scenarios

Production model	Strengths and Opportunities	Weaknesses and Risks
Full outsourcing to research / consulting organizations	• Reducing internal overhead costs • Reducing costs linked to internal UNESCO staff • Increasing value for money • Possibility of obtaining co-financing from academic institution • Quality and depth of information is even across all sections and chapters of the report • Possibility of tapping into high level experts or academics	• If issues with quality arise, they are likely to apply to all sections of the report • UNESCO has more limited oversight of content development • Need for a very strong quality assurance and backstopping role within UNESCO • Changing 'service provider' half way through the development process would prove to be difficult
Two-tiered outsourcing model (experts producing background notes which are then used by a smaller group of experts to develop the bulk of the content – cf. GEM Report model)	• Reduced risk of sub-par quality of content being produced • Allows to tap into thematic and local expertise • Lesser degree of decentralization of content production compared to current model • Reduced burden on editor	• More expensive than current model based on low fees for external experts • High administrative burden, including contracting of first-level experts • First tier of experts are considered as 'in-house' staff, meaning that they are recruited on a short term basis and locally (i.e. difficulties attracting foreign experts for these jobs)
Joint-venture model e.g. World Social Science Report	• Burden and cost of production are shared with partner • Possibility of using partner networks as a platform for dissemination and communication • Increasing coherence vis à vis existing initiatives	• Need for mutual agreement on content, messaging, use of resources • Complexity of intellectual property sharing rights • Might dissuade donors from providing funding • Risk of partner 'taking over' the publication • Reduced visibility for UNESCO as main sponsor

Appendix A Evaluation questions, indicators and criteria

Table 9 List of evaluation questions, indicators and assessment criteria (preliminary)

#	Evaluation criteria / question	Indicators and assessment criteria
1	**Relevance**	
1.1	What is the comparative advantage/unique value of the USR compared to other landmark publications in the field of STI policy and governance?	• Comparison of value propositions of USR vs other landmark publications: target audience, means of communication, type of content, tone and message, rationale of the publication, value. • Perception of USR stakeholders and users of the additionality and uniqueness of USR • Existence of overlaps in theory of change /geographic coverage/ value proposition between USR and other landmark publications
1.2	Are the thematic contents / focus areas and regional issues addressed in the Report providing most current trends and current monitoring data that are considered as useful and influential within the global, regional and national scientific communities, including its specialised bodies and networks, as well as to national STI policy makers?	• Perception expressed by USR stakeholders and users regarding the relevance and 'cutting-edge' nature of USR thematic content, focus areas and regional issues • Critical comparison of USR thematic content, focus areas and regional issues with that of other landmark publications
1.3	Are the focus areas addressed, topics and recommendations in line with Member States' needs and strategies in view of the 2030 Agenda for Sustainable Development? Has the Report been used as an opportunity for UNESCO to position its contribution to the 2030 Agenda?	• Prevalence of 2030 Agenda for Sustainable Development topics and priorities in USR (and evolution over time) • Views of UNESCO staff and stakeholders on contribution of USR to UNESCO's contribution to the 2030 agenda
1.4	Is the current periodicity, structure, content and presentation of the Report the most appropriate in line with users' needs?	• UNESCO strategic considerations within the overall picture of UNESCO global flagship reports • User satisfaction and future expectations regarding the periodicity, structure, content, language and presentation of the Report
1.5	To what extent is the Report based on a wide-reaching consultative process, among others in consideration of crosscutting topics such as gender equality, needs and values of disadvantaged groups, and a balanced approach to address issues relevant for all Member States and regions (all development levels, special geographic circumstances,	• Perceptions of USR stakeholders and users regarding the relevance of geographical scope and thematic scope of USR content • Evolution over time of USR geographical scope and thematic content

	indigenous and local knowledge, green innovation and full life cycle accounting , post conflict and post disaster[29])	• Geographical spread of USR downloads and site visits & hard copy dissemination • Selective use of specific chapters
2	**Efficiency of the Production and Dissemination Process**	
2.1	Has there been a fundraising strategy accompanying the evolution of the development and dissemination of the Report? If yes, how successful was it for each edition?	• Existence of formal fundraising strategy for the development of the different editions of the USR and level of its implementation • Evolution of sources of funding and overall budget • Relevance of funding scheme and sources, as well as USR budget, given the expected outputs, outcomes and impacts of the Report
2.2	Is the current production and dissemination process including media coverage the most adequate to ensure timely and cost efficient delivery of the Report?	• Perception of USR stakeholders and users regarding the quality and efficiency of the production and dissemination process and channels • Length vs cost of production and outreach of dissemination cycle, compared to other landmark publications
2.3	To what extent does the current production process of the Report ensure a transparent and regionally balanced selection of authors contributing to the Report? To what extent is the current production process standardized and properly codified in order to ensure transparency as well as proper knowledge management for future editions?	• Perception of USR stakeholders and users regarding the geographical balance of selected contributing authors and the (perceived vs documented) transparency of the selection process • Comparison of author selection process for USR, with other UNESCO reports (i.e. GEM) • Geographical spread of USR downloads and site visits & hard copy dissemination • Geographical spread of contributing authors. (vs geographical focus) • Perception of USR stakeholders regarding the quality of the production process and knowledge management procedures set in place to produce the USR
2.4	To what extent could external partners be brought in to play significant roles in the production as well as the dissemination of the Report?	• Existence of institutional partnerships in the production and dissemination of the Report • Perception of USR stakeholders and users on potential future partnerships and scenarios

[29] Original question included in the ToR included in braquets « North/South, Post Conflict /Post Disaster, Small Island Developing States (SIDS), Less Developed Countries (LDCs), etc.)? »

2.5	Are all intended target groups reached via the most appropriate/modern dissemination channels, through the most appropriate format (hard copy/electronic, different language versions)? What other channels, if any, should be explored (including social media)?	• Perception of USR stakeholders on the relevance and efficiency of current dissemination channels and formats • Comparison of USR dissemination channels and formats, and outreach data compared to other landmark publications
3	**Effectiveness/ Signs of Impact**	
3.1	Does the Report provide the most current knowledge on trends and developments in STI policy and governance?	• Comparison of 'cutting-edge' nature of USR content and knowledge on STI policy and governance, with other landmark publications • Perception of USR stakeholders and users regarding 'cutting-edge' nature of USR content and knowledge on STI policy and governance
3.2	What mechanisms of quality assurance and control are foreseen to ensure the transparency, and reliability of data sources and accuracy of the data and its analysis, as well as the representation of all perspectives from different stakeholder groups? To what extent and how are scientific communities, unions, networks of academies of sciences involved, such as in the selection of key topics within the country/regional context, or via a peer review?	• Existence of a formal and codified internal and external quality assurance process as part of the USR production process • Quality and volume of control feedback outputs (peer reviews, iterations with authors) • Number and types of stakeholders involved in the definition of key topics and the review of the USR • Perception of USR stakeholders and clients regarding the quality and intellectual 'robustness' of USR content and quality control procedures • Scientific prestige of contributing authors and peer reviewers
3.3	How does UNESCO engage with the authors/contributors of the Report?	• Selection process for authors (transparency, evaluation, etc.) • Level of communication and steering on behalf of UNESCO staff towards USR authors and contributors (i.e. formal communication mechanisms, clarity of terms of reference, frequency of communication) level of contractual commitment / prestige • Existence of 'path-dependency' in selection of authors / contributors
3.4	Who are the users of the Report and what are the major purposes for its use (considering regional differences, and differences between the various stakeholder groups, e.g. universities, research institutes, line ministries, private sector)?	• Uses given to the Report as expressed by users as expressed in survey and web analytics (i.e. policy making, teaching, capacity building) vs expected uses • Geographical spread of users • User typology (i.e. academic, NGO, public sector) as identified in survey, web analytics

3.5	Do the topics addressed, the depth of analysis, presentation of trends and progress in individual countries or regions satisfy users' needs?	• USR user perception on the relevance of topics addressed, the depth of analysis and the presentation of trends and progress in individual countries and regions
3.6	What mechanisms are in place for reporting and monitoring on the production, dissemination and use of the USR? Are the indicators used appropriate?	• Existence of a results framework and Key Performance Indicators (KPIs) for the production, dissemination and use of the USR • Frequency of monitoring and reporting on USR KPIs • Efficiency of monitoring and reporting procedures, existence of resources made available to conduct monitoring and reporting of USR • Quality of USR production, dissemination and use of KPIs
3.7	How effective is the communication and outreach strategy for promoting the Report's key messages to its intended audiences? To what extent is the current format of the USR conducive to formulating such key messages?	• Perception of USR stakeholders and users regarding the quality of communications and outreach activities conducted by the USR • Visibility of USR key messages among USR users • Perception of USR stakeholders and users regarding the relevance of USR format given the key messages the Report seeks to convey
3.8	How are key messages identified, at what stage of the Report preparation, and what strategies are put into place for identifying the audiences for whom the messages are the most relevant for any given issue?	• Relevance of key messages vis à vis overall USR Theory of Change vis a vis the contribution to SDGs • Perception on relevance of key messages as expressed by USR stakeholders and users
3.9	Are there indications of the Report influencing levels of awareness, knowledge and actions of different groups of intended users? How are related indicators tracked, measured and reported to relevant stakeholders?	• Presence of USR in academic literature • Web analysis of USR data and information use: user types, uses • Existence of a results framework and KPIs regarding outcomes and results of USR • Existence of reporting on outcome and result KPIs on behalf of USR to target audiences
3.10	In what ways do the key messages of the USR feed into or influence academic and/or policy debates and reviews at the global, regional and at the Member State level (e.g. universities, line ministries, private sector)?	• Web analysis of USR data and information use: user types, uses • Presence of USR in academic literature • Perception of USR stakeholders and users regarding the influence of USR key messages on academic and policy debates and reviews at the global, regional and national level

4	Sustainability	
4.1	Way forward: What are possible and most optimal options for the future design and production modalities for a UNESCO science Report within the 2030 horizon?	• Perception of USR stakeholders and users on potential future scenarios
4.2	Is the current governance model the most adequate to ensure continuation and relevance of the Report within the 2030 horizon? What are other potential options?	• Perception of USR stakeholders on quality and relevance of governance scheme • Frequency of governance stakeholders meetings, quality of governance dialogue
4.3	Is a fundraising and/or partnership strategy in place that considers the requirements for the future evolution of the Report? Is it /are these sufficient to ensure the Report's sustainability?	• Existence of funding partnerships, possibility to further diversify sources of funding • Existence of fundraising events and strategy, evolution of co-financing rate of the USR • Perception of USR stakeholders and users on potential future funding opportunities
4.4	Is the Report considered or used as a tool by UNESCO, or other global and regional players or at the national level to provide evidence for donors to invest in science and technology?	• Perception of USR stakeholders and users on the contribution of USR to channelling donor funds into the field of STI • Perception of (potential) donors on the overall value, evidence base and influence of the USR

Appendix B List of evaluation interviews

Organisation	Name	Position
International Centre for South-South Cooperation in Science, Technology and Innovation (ISTIC), Kuala Lumpur, Malaysia	Dr Samsudin Tugiman	Chairman
Government of South Africa	Mr. Daan du Toit	President, NAM S&T Centre and Deputy Director-General, International Cooperation and Resources, Department of Science & Technology
Permanent Delegation of Togo to UNESCO	Akama Kidema	Ministre Conseiller
Permanent Delegation of Libya to UNESCO	H. E. Mr Abdulkadr El Maleh	Ambassador, Permanent Delegate
Permanent Delegation of the People's Republic of China to UNESCO	H. E. Mr Yang Shen	Ambassador, Permanent Delegate
Permanent Delegation of Brazil	Mr. Gerarldo Cordeiro Typynamba	Counsellor, Permanent Delegation
Permanent Delegation of Germany to UNESCO	Dr Lutz Möller	Stellvertretender Generalsekretär Leiter Fachbereich Nachhaltige Entwicklung, Wissenschaft
Permanent Delegation of the Russian Federation to UNESCO	H. E. Mr Alexander Kuznetsov	Ambassador, Permanent Delegate
Permanent Delegation of the United Kingdom to UNESCO	Mr Maxim Polya-Vitry	Chargé d'Affaires a.i. Third Secretary
Natural Sciences, UNESCO	Ms. Flavia Schlegel	Assistant Director-General for Natural Sciences
Natural Sciences, UNESCO	Ms. Anne Candau	Chief, Executive Office, SC/EO (retired)
Natural Sciences, UNESCO	Mr. Kristof Vandenberghe	Chief, Executive Office, SC/EO
Natural Sciences, UNESCO	Mr. Roman Murenzi	Director of the Division of Science Policy and Capacity Building
Natural Sciences, UNESCO	Mr. Ernesto Fernandez Polcuch	Chief of Section on Science Policy and Partnerships
UNESCO Institute for Statistics, Montreal	Mr. Martin Schaaper	Head of Section, Science, Culture & Communication
UNESCO Sector for External Relations	Mr. Ian Denison	Chief of Publications Unit
UNESCO Division of Public Information	Mr. Vincent Defourny	Director

Press Office, ERI, UNESCO	Ms. Agnes Bardon	French Editor, Media Relations Section
UNESCO Montevideo field office	Ms. Lidia Brito	Director and Former maanger of the 2010 USR
World Academy of Sciences (TWAS)	Mr. Edward Lempinen	Programme Coordinator
INGSA	Prof. Sir Peter Gluckman	Chair of INGSA and the first Chief Science Advisor to the Prime Minister of New Zealand
UNCTAD	Mr. Angel Gonzalez-Sanz	Chief, Policy Review Section Science, Technology and ICT Branch Division on Technology and Logistics
WIPO	Mr. Sacha Wunsch-Vincent	Senoir Economic Officer, Economics and Statistics Division
UNESCO Chair on Science, Technology and Innovation Policy (2016), l'Ecole Nationale d'Ingénieurs de Tunis (ENIT) (1164)	Prof Jelel Ezzine	Chairholder
UNESCO Chair on gender equality policies in science, technology and innovation (2016), Universidad Politécnica de Madrid (1144)	Dr Inés Sánchez de Madariaga	Professor of Urban Planning
UNESCO Chair in Science, Technology and Innovation (STI) and Leadership (2016), The Nelson Mandela African Institution of Science and Technology (NM-AIST) (1179)	Dr Burton Mwamila	Vice Chancellor
UNESCO Institute for Statistics, Montreal	Ms Luciana Marins	Assistant Programme Specialist
UNESCO	Prof. Maciej Nalecz	Former Dir/SC/PCB, currently Professor and Responsible for Contacts with the EU Polish Academy of Sciences, Warsaw, Poland (written contribution)
UNESCO	Dr. Jaques Richardson	Former Head of UNESCO's Science and Society Section from 1972 to 1985 and former editor of Impact of Science on Society the publication which preceded the UNESCO Science Report.
University of Campinas (Unicamp), Campinas, Brazil	Mr Renato Hyuda de Luna Pedrosa	Associate Professor in the Department of Science and Technology Policy
Centre for Development Studies in Trivandrum in the State of Kerala (India)	Mr. Sunil Mani	Professor
Organisation for Economic Cooperation and Development	Mr. Michael Keenan	Senior Policy Analyst

International Social Science Council	Mr. Mathieu Denis	Executive Director

Appendix C Evaluation Terms of Reference

1. Introduction

This document outlines the Terms of Reference for the first stand-alone external evaluation of the *UNESCO Science Report* (USR). The evaluation will take place early in 2017. This will enable UNESCO's Natural Sciences Sector (SC) to make any recommended adjustments to the USR in time to be able to incorporate them into the planning for the next Programme and Budget, for the period 2018-2021, which will be approved in late 2017.

2. Background

Starting in 1950 UNESCO published a quarterly review called *Impact – Science and Society*. This was replaced in 1993 by the biannual *World Science Report* which included scientometric information as well as by a quarterly newsletter, "A World of Science", in 2002. This popular newsletter was discontinued in hard copy due to the lack of financial resources after 2011 and the electronic version ceased in 2013 for the same reason.

The *World Science Report* was published in 1993, 1996 and 1998, and was followed by a statistical report in 2003, entitled *Global Investment in R&D Today*. The series later resumed under the revised name *UNESCO Science Report* (USR) with issues published in 2005, 2010 and 2015. Only the 2015 edition had an expanded title, *UNESCO Science Report – Towards 2030* to emphasize the link with the 2030 Agenda for Sustainable Development, which is underpinned by science, technology and innovation (STI). The series reports on the evolution of the support systems for STI worldwide over time, which are monitored by an independent team of experts from the different regions.

Following a global overview[30], the report identifies and discusses emerging trends and developments in scientific research and higher education, in consideration of the respective socio-economic and political context of the country or region under study[31], before concluding with a number of policy recommendations.

A previous evaluation (2009-10) concluded that the flagship USR indeed contributed to Strategic Programme Objective (SPO) 4 "Fostering policies and capacity-building in science, technology and innovation" as "It meets the objectives of providing an overview of the world's science, trends and implications", one of the objectives of SPO 4.

In the current Medium-Term Strategy (2014-2021) SPO 4 has been revised to read "Strengthening science, technology and innovation systems and policies - nationally, regionally and globally". Within the current programme and budget (2014-2018) the USR is contained within Expected Result 1, "STI policies, the science-policy interface, and engagement with society, including vulnerable groups such as SIDS and indigenous peoples, strengthened" under SPO 4.

The funding for the 2015 edition came to roughly US$ 2.1 M. Of this, 45% was covered from the regular budget to cover staff and production costs and 55% from extrabudgetary sources, including considerable in-kind contributions (36% of the overall funding) and additional appropriations to cover the translation and printing of the report into the other five languages of the United Nations in 2016.

Given the changes over the years in the governance of the USR, the increasing attention required from outside the dedicated Division, including by the Sector's Executive Office and Assistant Director-General, as well as the overall financial situation of the Sector, the SC management requested an external evaluation of the USR.

[30] Since 2010 the Report has been accompanied by a self-standing Executive Summary in all six official languages of the United Nations, which corresponds to the global overview.

[31] based on most recent data that is primarily provided by the UNESCO Institute for Statistics (UIS))

3. Purpose and Use

The main purpose of the evaluation is to assess the value, effectiveness and outreach of the USR, and to generate recommendations that can feed into improvements of its future editions. It shall also provide insights on the comparative relevance of the Report (both at the global stage and within UNESCO) and its use, as well as its financing and governance structure, the efficiency of the production cycle, and the adequacy of the format and content in order to inform decisions to be taken by SC and as relevant by the UNESCO Governing Bodies for the future editions of the Report.

The evaluation shall also provide insights into how the USR fits in to the overall picture of major UNESCO reports and draw lessons that are relevant to be considered for the future editions of the USR as well as for other flagship reports in the field of sciences, e.g. the World Social Science Report and the Global Ocean Science report.

4. Scope

4.1. Main dimensions

As the first external evaluation of the USR, the current evaluation should assess the value and influence of the current and past editions within the global scientific community, as well as its specialised bodies and networks. To achieve this, the evaluation should assess the technical quality of the USR, the effectiveness of its dissemination, outreach and use. A specific focus should be given to the most recent Report produced in 2015, and its associated materials and activities.

The evaluation should also focus on identifying the most adequate options for the future design and production modalities for a science report within the 2030 horizon. As part of this forward looking exercise, the evaluation should also assess and consider governance and financing modalities of the USR, including its financial and staffing needs to ensure its sustainability in the future.

On each of these dimensions the evaluation will adopt a retrospective and forward-looking perspective with action-oriented recommendations formulated on the basis of substantive findings to feed into the future design and production as well as future strategic planning of SC. Furthermore, the findings of this evaluation may also be useful for consideration by stakeholders of other UNESCO landmark publications in SC and other sectors.

4.2 Evaluation Questions

The main questions of the evaluation will be further prioritised and refined in the evaluation's inception report. Indicative questions are provided below.

Relevance (comparative added value and influence of the report)

- What is the comparative advantage/unique value of the USR compared to other landmark publications in the field of STI policy and governance?
- Are the thematic contents / focus areas and regional issues addressed in the Report providing most current trends and current monitoring data that are considered as useful and influential within the global, regional and national scientific communities, including its specialised bodies and networks, as well as to national STI policy makers?
- Are the focus areas addressed, topics and recommendations in line with UNESCO's and Member States' needs and strategies in view of the 2030 Agenda for Sustainable Development? Has the Report been used as an opportunity for UNESCO to position its contribution to the 2030 Agenda?
- Is the current periodicity, structure, content and presentation of the Report the most appropriate in line with users' needs?
- To what extent is the report based on a wide reaching consultative process, in consideration of crosscutting topics such as gender equality, needs and values of disadvantaged groups, and a

balanced approach to address issues relevant for all Member States and regions (North/South, Post Conflict /Post Disaster, SIDS, LDCs, etc.)?

Efficiency of the Production and Dissemination Process

- Has there been a fundraising strategy accompanying the evolution of the development and dissemination of the report? If yes, how successful was it for each edition?
- Is the current production and dissemination process including media coverage the most adequate to ensure timely and cost efficient delivery of the Report?
- To what extent does the current production process of the Report ensure a transparent and regionally balanced selection of authors contributing to the Report? To what extent is the current production process standardized and properly codified in order to ensure transparency as well as proper knowledge management for future editions?
- To what extent could external partners be brought in to play significant roles in the production as well as the dissemination of the Report?
- Are all intended target groups reached via the most appropriate/modern dissemination channels, through the most appropriate format (hard copy/electronic, different language versions)? What other channels, if any, should be explored (including social media)?

Effectiveness/ Signs of Impact

- Does the report provide the most current knowledge on trends and developments in STI policy and governance?
- What mechanisms of quality assurance and control are foreseen to ensure the transparency, and reliability of data sources and accuracy of the data and it analysis, as well as the representation of all perspectives from different stakeholder groups? To what extent and how are scientific communities, unions, networks of academies of sciences involved, such as in the selection of key topics within the country/regional context, or via a peer review?
- How does UNESCO engage with the authors/contributors of the Report?
- Who are the users of the Report and what are the major purposes for its use (considering regional differences, and differences between the various stakeholder groups, e.g. universities, research institutes, line ministries, private sector)?
- Do the topics addressed, the depth of analysis, presentation of trends and progress in individual countries or regions satisfy users' needs?
- What mechanisms are in place for reporting and monitoring on the production, dissemination and use of the USR? Are the indicators used appropriate?
- How effective is the communications and outreach strategy for promoting the Report's key messages to its intended audiences? To what extent is the current format of the USR conducive to formulating such key messages?
- How are key messages identified, at what stage of the Report preparation, and what strategies are put into place for identifying the audiences for whom the messages are the most relevant for any given issue?
- Are there indications of the Report influencing levels of awareness, knowledge and actions of different groups of intended users? How are related indicators tracked, measured and reported to relevant stakeholders?
- In what ways do the key messages of the USR feed into or influence academic and/or policy debates and reviews at the global, regional and at the Member State level (e.g. universities, line ministries, private sector)?

Sustainability

- Way forward: What are possible and most optimal options for the future design and production modalities for a UNESCO science report within the 2030 horizon?
- Is the current governance model the most adequate to ensure continuation and relevance of the report within the 2030 horizon? What are other potential options?
- Is a fundraising and/or partnership strategy in place that considers the requirements for the future evolution of the Report? Is it /Are these sufficient to ensure the Report's sustainability?
- Is the report considered or used as a tool by UNESCO, or other global and regional players or at the national level to provide evidence for donors to invest in science and technology?

5. Methodology

The evaluation will include the methodological elements below. This will be further refined by the evaluation team during the inception phase.

- Desk study of relevant material, comprising a mapping of all relevant activities for the development, production and dissemination of the USR, as well as in-depth review of previous pertinent evaluations in the field of natural sciences (e.g. SPO 4); review of documentation such as the Director-General's report on the implementation of the programme (EX/4 report, Programme Implementation Report, Strategic Results Report); the report of the head of the Natural Sciences Commission to the General Conference, project documents, annual progress reports, internal think pieces; evaluations, studies and research of other UN organizations and stakeholders with relevance to the subject.
- The development of a Theory of Change for the UNESCO Science Report.
- Semi-structured interviews with a selected number of key stakeholders (e.g. from UNESCO, Member State Delegations, relevant Ministries, UNESCO National Commissions, universities, intergovernmental programmes, research institutions and networks, UNESCO Category 1 and 2 Institutes and Centres, UNESCO Chairs).
- Questionnaires and surveys addressed to various stakeholders including from the global and national scientific community, from UNESCO and other UN and international agencies, civil society, governments, donors, private foundations, research communities and the media.
- Specific information should be collected via surveys amongst those receiving copies of the USR.
- Bibliometric analysis of grey and academic literature, media analysis and internet searches for the Report's use by organizations and researchers; and use of tools for monitoring media and other forms of outreach.
- Field visits (tentatively one or two visits to UNESCO Headquarters in Paris).

6. Roles and Responsibilities

The evaluation will be managed by the UNESCO Internal Oversight Service (IOS) Evaluation Office with support from SC Executive Office. It will be conducted by an independent external evaluation team. The evaluators are expected to contribute specific expertise and knowledge of the global STI policy and development landscape as well as experience in evaluating landmark publications, networks and/or partnerships in the natural sciences.

The UNESCO Evaluation Office is responsible for the overall management of the evaluation and quality assurance of the deliverables.

As part of the inception phase the external evaluation team will be expected to further develop the Theory of Change (i.e. Intervention Logic for the USR), the evaluation methodology including data collection tools, to conduct data collection and analysis, fieldwork and to prepare the draft and final reports in English.

Evaluation Reference Group

A reference group has been established to accompany the evaluation process and provide overall guidance and quality assurance, including feedback on the Terms of Reference, the Inception Report, evaluation methodology and the Draft Evaluation Report. The reference group comprises a member from the IOS Evaluation Office; the Division of Science Policy and Capacity-Building's Section on Science Policy and Partnerships; the Executive Office of SC; the Sector for External Relations and Information (ERI) Publications Unit, and the Global Education Monitoring Report team. The Reference Group shall be consulted periodically during the evaluation, and meet as necessary.

Logistics

The evaluation team will commonly be responsible for their own logistics: office space, administrative and secretarial support, telecommunications, printing of documentation, etc. Suitable office space will be provided for the consultants if/when they are working from UNESCO premises. The evaluation team will also be responsible for administering and disseminating all methodological tools such as surveys. SC will provide access to contact details of all relevant stakeholders and distribution lists. It will also facilitate access to UNESCO staff from Headquarters, the UNESCO Institute for Statistics, and Field Offices.

Evaluation Team and Resources

Qualifications

The consultants comprising the evaluation team should possess collectively the following mandatory qualifications and experience:

- Extensive knowledge of the global trends and developments in STI policy with a minimum of seven years of relevant work experience.
- Experience in applying qualitative and quantitative evaluation methods, with a minimum of 10 years of professional experience in programme and policy evaluation demonstrating a strong record in designing, conducting and leading evaluations. At least some of this experience shall be in the science area.
- Experience in the evaluation of gender dimensions in publications and/or programmes.
- An advanced university degree with specialisation in a natural science, science policy, public policy, development studies or related fields.
- Excellent language skills in English (oral communication and report writing).
- No previous involvement in the implementation of the activities under review.

It is desirable that the evaluation team possess the following qualifications and characteristics:

- Knowledge of the role of the UN and its programming.
- Experience with assignments for the UN.
- Understanding and application of UN mandates in Human Rights and Gender Equality.
- Experience with assignments focusing on publications, networking, and partnerships.
- Good language skills in French.
- Other UN language skills (Spanish, Arabic, Russian and Chinese) will be considered an advantage.

Verification of these qualifications will be based on the provided curriculum vitae. Moreover, references, web links or electronic copies of the two or three examples of recently completed evaluation reports should be provided together with the technical proposal. Candidates are also encouraged to submit other references such as research papers or articles that demonstrate their familiarity with the subject under review.

The recommended composition of the evaluation team is one senior and one junior evaluator. Attention will be paid to establishing an evaluation team that is gender and geographically balanced (as applicable).

7. Budget

The evaluation has a draft budget allowing for approximately 40-45 days of professional time, including travel. Additionally, the external team members are expected to travel to Paris at least once to participate in a kick-off meeting during the inception phase, to conduct interviews during the data collection phase, and/or to hold a stakeholder workshop for discussing and validating findings and recommendations. Some of these tasks may be conducted through virtual meeting via skype or video conference.

8. Deliverables and Schedule

The evaluation is expected to commence in December 2016 and be concluded by May 2017. The indicative timetable of key activities and deliverables is shown below. The evaluation team will begin by preparing a comprehensive design for the evaluation during the inception phase which will inform the future stages of the work:

- ✓ ***Inception Report*** containing the evaluation design, Theory of Change and refined evaluation questions, assessment framework, detailed methodology, work plans and logistics, around 10-15 pages.
- ✓ ***Workshop*** for presenting and validation the key findings and recommendations
- ✓ ***Draft and Final Evaluation reports*** should be written in English and comprise no more than 50 pages excluding annexes. It should indicatively be structured as follows:
  - Executive Summary
  - Description of the Report and its Intervention Logic/Theory of Change
  - Evaluation purpose
  - Evaluation methodology
  - Findings
  - Lessons learned
  - Conclusions and Recommendations
  - Annexes including TOR, interview list, data collection instruments, key documents consulted.

Activity / Deliverable	**Timing**
Procurement – Request for Proposals	December 2016
Selection of external evaluation team; contractual arrangements completed	December 2016
Evaluation launch – Kick Off meeting in Paris	December 2016
Inception report	January 2016
Data collection & analysis	January/February 2017
Stakeholder workshop	Early March 2017
Draft Evaluation report	End March 2017
Final Evaluation report	Early May 2017

Appendix D Approach to the development of a USR Theory of Change

Table 10 Theory of Change

	Objectives hierarchy	*Indicators*	*Assumptions/Threats (or underlying hypotheses)*
Impact (Goal/ Overall objective – long term) Influence of stronger policy frameworks on social, environmental and economic conditions Target populations and beneficiaries: civil society, NGOs, private sector, media, academia and policy makers.	• **Contribute to progress towards achieving to the SDGs (e.g. reducing poverty, protecting the environment, promoting inclusion)** • Reduce disparities in STI support across countries and regions, with a specific focus on Africa and LICs	• Evolution of national STI spending between the 2005 and 2015 period • Perception of STI stakeholders in Member States regarding the level of collaboration between academia and industry • Perception of STI stakeholders in Member States regarding the participatory nature of STI governance systems	• The contribution of STI policies and frameworks to achieving broader social, economic and environmental ambitions is extremely complex (attribution / contribution dilemma)
Intermediate results (programme objectives – medium term) Influence of stronger awareness and capacities on STI policy frameworks Target populations and beneficiaries: Policy makers and relevant government bodies, private sector and NGOs.	• Develop closer linkages between academia, policy makers and industry and stronger and more participatory STI governance systems that promote a culture of science and innovation geared towards achieving SDGs • Develop stronger, more relevant, and more robust STI policy frameworks and governance systems • Increase spending on STI in Member States • Support the development of STI policy frameworks geared towards addressing SDGs (poverty reduction, gender equality, environmental protection, social inclusion, peace and other SDGs)	• Evolution of national STI spending between the 2005 and 2015 period • Perception of STI stakeholder in Member States regarding the level of robustness of STI policy and governance systems • Existence of more 'SDG-sensitive' STI policy frameworks • Existence of increasingly 'gender-sensitive' measures of STI policy frameworks developed as a result of USR data and information / content • Perception of STI stakeholders in Member States regarding the level of focus and relevance of STI policy frameworks, and evolutions in recent years • USR content and knowledge is /is not in line with other international/regional frameworks and trends (discourse) in the evolution of STI	• Stronger, more relevant and more effective policy frameworks are developed as a result of the exposure of those involved in their design, to the USR • There are many other reasons for which STI policy frameworks may have undergone improvements in recent years, not directly linked to the existence of the USR • Assessing 'strength' of policy frameworks is complex and costly

		• USR content and knowledge is setting the trend in the international/regional discourse on STI evolution	
Outcomes (programme objectives – short term) Influence of USR content and knowledge on capacities Target populations and beneficiaries: Policy makers and relevant government bodies, academia, media.	• Improve capacities for STI policy planning, management, monitoring and evaluation at the regional and national levels • Support the monitoring of progress in the implementation of regional (e.g. Lisbon Strategy of the European Union, Africa's Science and Technology Consolidated Plan of Action) and international strategies (e.g. Addis Ababa Action Agenda), as well as of activities in support of SDGs. • Facilitate the benchmarking of countries' performance in STI among each other and improve the level of understanding of other countries' STI policies (and related good practices) among USR target audiences • **Increase the level and intensity of debate and discussion within Member States on the need to support STI policies and governance** • Increase the level of awareness and visibility on STI trends and emerging issues at the national level among USR target audiences • Increase the level of awareness and visibility on STI trends and emerging issues at the international level among USR target audiences • Influence thought leadership in the academic and scientific sphere working on STI • **Provide input for the formulation of evidence-based STI policies and strategies such as planning and vision documents**	• Use of USR by international donor organisations to identify spending priorities • Share of STI policy makers and practitioners who consider the USR has contributed to improving their capacity to design, implement and evaluated STI policies • Evidence of the use of USR data and knowledge as part of the monitoring of regional and international strategies (STI and non STI) • Evidence of the use of USR as benchmarking tool in the context of national or international STI policy-making • Perception of STI stakeholders in Member States regarding the level of intensity of the public debate around the importance of STI in reaching development goals through the USR • Perception of STI stakeholders in Member States regarding the level of awareness and visibility of STI trends and emerging issues showcased by the USR • Existence of adopted policy initiatives which were inspired from good practices from abroad • Evidence of use of USR data and knowledge in the development of STI policies and strategies (e.g. policy initiatives and legislation referring to the USR or its key messages) • Citations of the USR in scientific publications • Citations of the USR in national and international press articles	• **The USR is read by policy makers and policy practitioners at the local, national and international level** • The USR is read by scientific communities across the globe • The USR is read by members of international organisations working on STI policy • Knowledge gained from the USR is translated into policy-making (directly or indirectly) • Knowledge gained from the USR is translated into other types of knowledge (e.g. scientific publications) • The content of the USR is adapted to the needs of intended users (incl. geographical coverage, thematic scope, tone) • There are many other reasons for which STI policy capacities may have undergone improvements in recent years, not directly linked to the existence of the USR • Assessing 'strength' of policy capacities is complex and costly

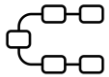
		• Citations of the USR in national and international policy websites, and social networks	
Outputs The USR itself Influence of UNESCO work on the existence, distribution and uptake of the USR Target populations and beneficiaries: UNESCO staff and government bodies, Policy makers and relevant government bodies, academia	• Publication of the UNESCO Science Report • Promotional activities of the UNESCO Science Report • Dissemination of the USR and individual chapters via the on-line platform • Dissemination of the USR via ad-hoc events at the country level • Sales of USR hard-copies via different sales points • Development of spin-off publication and knowledge products • UNESCO thematic focus and focus of events/conferences	• USR is published on time and according to its original time table • USR is approved by internal peer review instances for publication • Number of downloads and purchases of the Report • Level of visibility of the USR among STI policymaking and researcher communities • Share of surveyed stakeholders who agree that content and knowledge of USR is tailored to their needs and their level of technical expertise in the field of STI • level of discussion and interest by UNESCO governing bodies and MS delegations	• The USR is being disseminated in a way that target audiences are aware of its existence and can access it easily • The format of the USR is adequate for wide-scale distribution and dissemination • Resources are allocated to the distribution and dissemination of the Report after its publication • The activities result in a quality Report that is readable and contains interesting, current and relevant content for its intended audiences • **Report presents faithful reflection of the state of STI in the world over the past five years** • **The Report highlights the links between national STI policy and governance and broader development plans and policies** • **The Report demonstrates how external shocks can affect research and innovation and how good governance can buffer these negative impacts**

Inputs (Activities)	• UNESCO staff mobilised to produce the Report • Contributions on behalf of network of authors • Communication and promotion plan & resources allowing to implement it • Fundraising strategy and personnel responsible for implementing it • Funding for the UNESCO Science Report (budgetary and extra budgetary) • Input from UIS in terms of staff and resources	• Mapping of latest trends based on data from the UNESCO Institute for Statistics • Contributions from country experts • Peer reviewing of the Report • Publications board agrees with publications plan	• Resources dedicated to the development of the USR are adapted to its ambitions, and sufficient to implement work plan • Production process is adapted to ambitions, and ensures quality • Management of USR budget is strategic, sound and effective • Management and production cycle of USR is based on strategic considerations

Source: Technopolis Group, based on USR background info *(in **bold** are objectives as presented in the USR background info document)

Appendix E Detailed presentation of evaluation methodological tools

Table 11 Overview of methodological tools and activities[32]

Methodological tool	*Main characteristics*	*Relevance to the evaluation*
Pilot interviews	Face to face interviews with key USR UNESCO stakeholders. Potential interviewees include the USR editor, SC staff, UNESCO field office representative, USR contributing author.	• Setting the scene for the evaluation: identifying key priorities for the evaluation, clarifying stakeholders expectations vis à vis the evaluation • Clarifying the scope of the evaluation • Understanding the basic principles and mechanisms behind the production and dissemination of the USR • Gaining insight into the history of the USR and key evolutions
 **Developing Theory of Change**	• Develop a clear and concise Theory of Change for the USR on the basis of existing documentation, including 'underlying hypotheses' to be tested during the evaluation • A meeting will be organized at UNESCO to discuss and validate the Theory of Change	• Provides a detailed framework upon which the evaluation is conducted • Allows to identify indicators and variables to be measures as part of the evaluation • Contributes to solving the 'attribution' dilemma • Identifying USR activities, inputs, outputs, outcomes and intermediate impact; as well as key targets and audiences

[32] Icons used in the table from the noun project : KAPLAM, Anbileru Adaleru, Delwar Hossain,Kokoro, Nikita Kozin, Aldric Rodriguez Iborra, Alex Auda Samora, Piger, Blake Terhune, Lloyd Humphreys, Fiona OM.

Literature review and analysis of available data sources[33]	Thorough analysis of USR documentation (internal and external) and other sources of data for the evaluation	• Provide the basis of the development of USR Theory of Change and development of KPIs • Provide a precise and updated understanding of the USR financing and governance scheme, quality control procedures • Understand the key messages of USR, key targets and evolution over time • Analyse USR data and information and content • Collect quantitative and qualitative data that serves as a basis to develop a retrospective view of USRs achievements • Capitalize on the findings of previous evaluations • Development of an exhaustive list of relevant stakeholders to contact throughout the evaluation • Assessment USR users and uses
Interviews with UNESCO representatives (8 -10 face-to-face interviews)	Individual or collective face to face interviews at UNESCO headquarters with : USR production team, former editors, current and past members of SC, UIS, ERI, ICSU	• Gain qualitative insight and collect UNESCO stakeholder perceptions on all key evaluation questions • Identify potential recommendations for improvement of future editions of USR
Interviews with UNESCO Member State representatives (10 face-to-face or telephone interviews)	Individual telephone or face-to-face interviews with a sample of Member State representatives from: 192. UNESCO Member State delegations 193. Member State ministries	• Gain qualitative insight and collect Members State representative perceptions on key evaluation questions, particularly regarding relevance, effectiveness, and sustainability • Identify potential recommendations for improvement of future editions of USR
Interviews with representatives of the international scientific community (10 telephone interviews)	Telephone interviews with as sample of universities and intergovernmental programmes, research institutions and networks, UNESCO Category 1 and 2 Institutes and Centres, UNESCO chairs)	• Gain qualitative insight and collect user perceptions on key evaluation questions, particularly regarding relevance, effectiveness, and sustainability • Identify potential recommendations for improvement of future editions of USR

[33] It is important to note that the literature review will be conducted throughout the lifetime of the evaluation.

On-line survey	• One on-line survey targeting the USR stakeholder and user community • The majority of questions will be close-ended	• Develop quantitative indicators on stakeholder and user perceptions regarding the relevance, effectiveness and sustainability of the USR
Comparative analysis	• Compare USR to other international publications (i.e. OECD STI outlook, World Bank's Doing Business; Global Education Monitoring Report) • Telephone interviews with representatives of the selected comparison publications / platforms	• Identify comparative advantage and unique value of the USR • Compare production and distribution processes and means to other landmark publications • Compare thematic content and focus areas to other landmark publications • Gain qualitative insight and collect external stakeholder perceptions on key evaluation questions, particularly regarding relevance & effectiveness • Identify potential recommendations for improvement of future editions of USR
Outreach metrics analysis	Analysis of the following types of indicators: • Bibliometrics: citations in scientific articles and geographical spread, disciplines • Web metrics: distribution and frequency of USR site and download visits, geographical distribution • Social media analysis	• Analyse the types of user and uses given to the USR • Identify level of outreach of the USR and main dissemination channels • Assess overall visibility of USR among targeted audiences
Findings and recommendations workshop at UNESCO headquarters	• 1/2 day workshop at UNESCO headquarters to discuss evaluation findings and identify recommendations	• Increase visibility of recommendations stemming from the evaluation and buy-in from key program stakeholders • Increase robustness of recommendations

Appendix F Detailed break-down of the 2010 and 2015 USR budgets[34]

	Expenditures	USR 2010	USR 2015	
	Science Report Authors	$ 60 700,00	$ 98 000,00	
	Staff	$ 476 596,00	$ 661 746,00	
	Output Indicators	$ 90 091,00	$ 98 000,00	
	Layout, revision and translation	$ 261 917,00	$ 825 200,00	
	Promotion and dissemination	$ 71 102,00	$ 192 000,00	
	Monitoring and evaluation		$ 15 000,00	
	Total	**$ 960 406,00**	$ 1 889 946,00	
		2010		**2015**
Science Report Authors	Authors	$ 40 700,00	Authors	$ 86 000,00
	Sponsored chapter on Africa	$ 20 000,00	Sponsored chapter on women in scie	$ 12 000,00
Output Indicators	Data purchase	$ 80 000,00	Data purchase & treatment	$ 98 000,00
	Data treatment	$ 10 091,00		
Layout, revision and translation	Design and layout	$ 63 917,00	Design and layout	$ 100 000,00
	Executive summary in Portuguese	$ 10 000,00	*Iconographer*	$ 3 200,00
	Executive summary in six official UN la	$ 23 000,00	Photo purchase	$ 4 000,00
	Full report: other language editions	$ 165 000,00	Proofreader	$ 6 000,00
			Translation and layout Exec Summa	$ 42 000,00
			Translation	$ 660 000,00
			Web translation	$ 10 000,00
	$ 261 917,00		**$ 825 200,00**	
Promotion and dissemination	Launch of English edition	$ 10 000,00	Launch, production and shipping US	$ 9 500,00
	Printing of English edition for launch	$ 34 000,00	Printing	$ 38 000,00
	Burning of CDs	$ 1 894,00	*Consultant fundraising and promot*	$ 26 500,00
	Shipping	$ 20 000,00	Printing executive summary	$ 15 000,00
	Shipping post launch	$ 1 208,00		
	Sotrage and final distribution	$ 4 000,00		
			Promotion and shipping	$ 103 000,00
Staff	Staff	$ 476 596,00	Staff	$ 661 746,00
Extra		$ -	Monitoring and evaluation	$ 15 000,00
	GRAND TOTAL	**$ 960 406,00**		**$ 1 889 946,00**

[34] The actual amount allocated to evaluation of the 2015 USR amounts to $ 32,975, including savings from other budget lines and a contribution from the Internal Oversight Service.

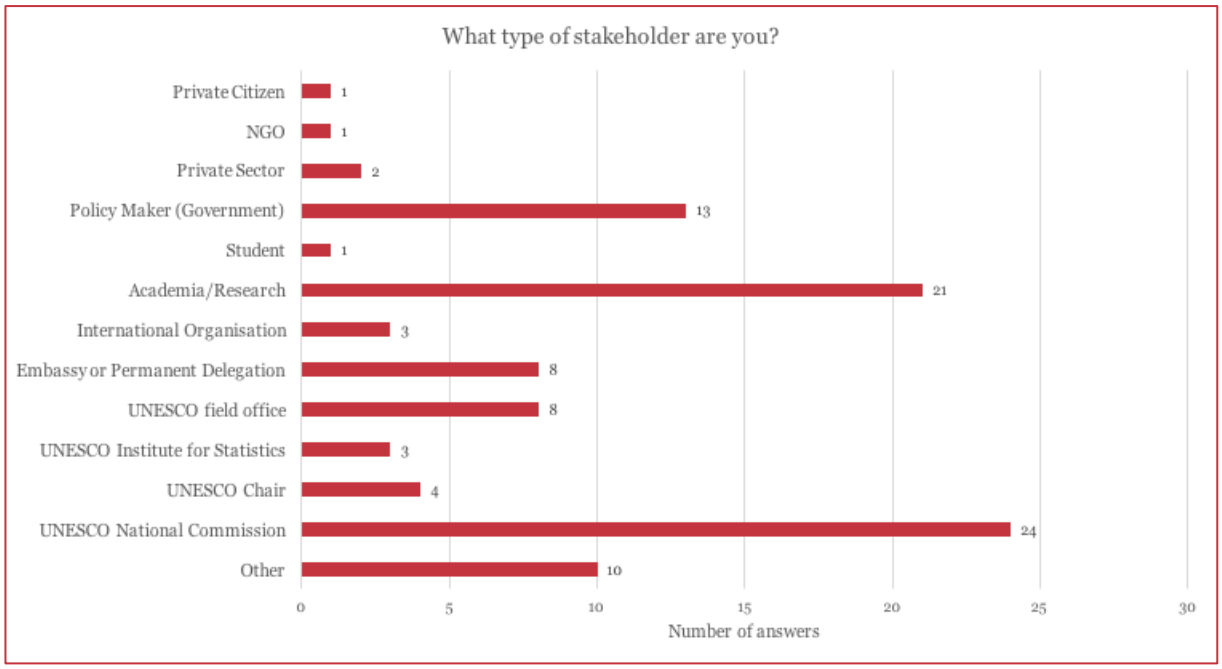
Appendix G Overview of the time table of the production of the 2015 edition of the USR

	2014				2015			
	Jan-March	**April-June**	June-September	**October-December**	**Jan-March**	**April-June**	**July-September**	**October-November**
Data collection: R&D and higher education statistics prepared by UIS for authors, call for tenders for bibliometric data collection and treatment contract (Science-Metrix), update in 2015								
Author's contracts established								
Publication Board								
Deputy editor (with gaps)								
Selection of peer-reviewers (later appointed to Editorial Board)								
Circulation of chapters for review to Editorial Board members and Internal Review Committee								
Restricted access page created to host all completed chapters for easy access by reviewers, ERI (including press), ADG/SC								
Manuscript check for political sensitivity, by ERI								
Graphic designer's work (design, layout and promotional material for launch and post-launch)								
Proofing								
Central Asia								
Caricom								
Canada								
Southeast Europe								
Rep. Korea								
East and Central Africa								
Southern Africa								
West Africa								
Iran								
South Asia								
Black Sea Basin								
India								
Malaysia								

China								
Russian Federation								
Japan								
Brazil								
Arab States								
Southeast Asia and Oceania								
European Free Trade Association								
Israel								
European Union								
Latin America								
USA								
Is the gender gap narrowing ?								
Trends in innovation and mobility								
Perspectives on emerging issues								
Global overview (Executive Summary)								
Printing								
Launch (including preparation, website, press kit, invitations, etc)								

Appendix H On-line survey responses

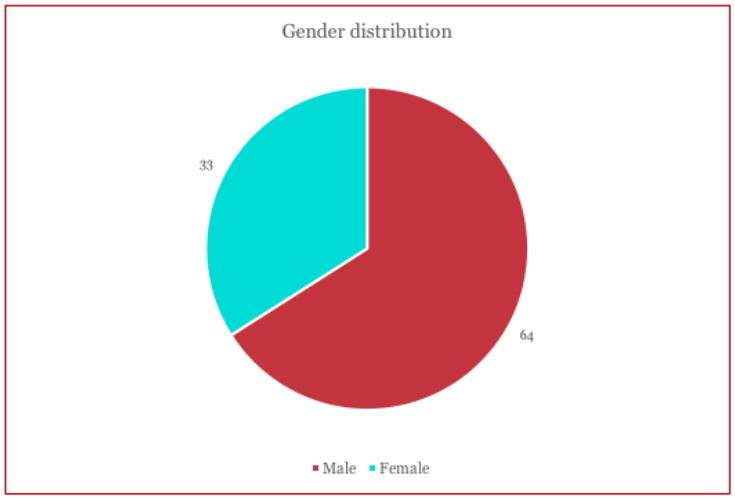
Total responses: 99

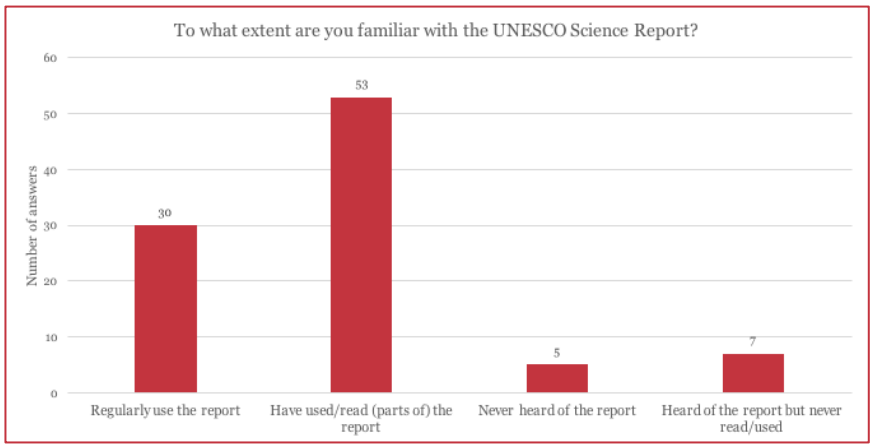


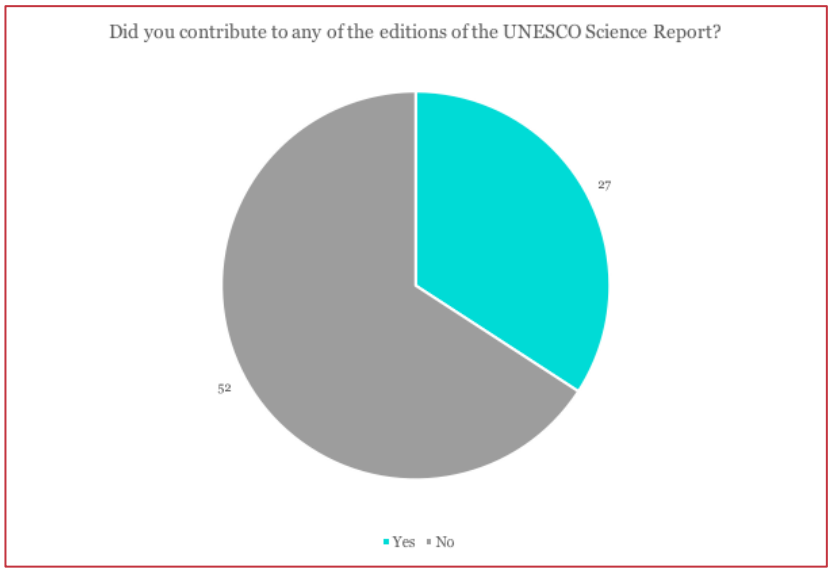
What country do you live/work in? (The questionnaire will refer to 'your country' as this country)

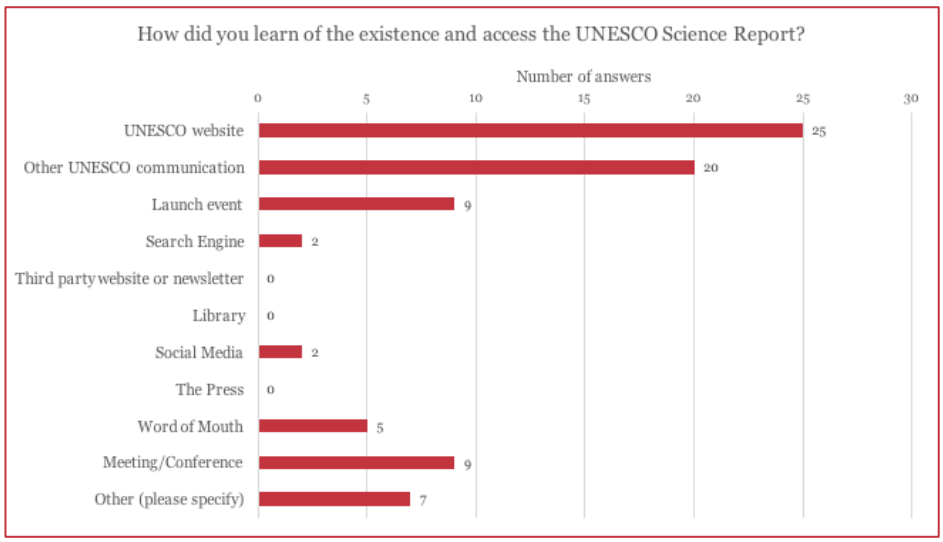
Armenia	2	Gambia	1	Philippines	1
Australia	2	Germany	1	Portugal	1
Austria	5	Honduras	1	Romania	2
Azerbaijan	2	Iran	1	Russian Federation	3
Bahamas	1	Italy	1	Rwanda	1
Bahrain	1	Ivory Coast	1	Sao Tome and Principe	1
Belarus	2	Jamaica	2	Singapore	1
Belgium	1	Kenya	1	Somalia	1
Brazil	2	Korea South	1	South Africa	1
Burundi	1	Kuwait	3	Spain	1
Canada	6	Malaysia	1	Switzerland	2
China	2	Malta	1	Togo	1
Colombia	1	Marshall Islands	1	Tunisia	2
Croatia	1	Mongolia	1	Turkey	3
DR Congo	1	Montenegro	1	Uganda	1
East Timor	1	Netherlands	2	Ukraine	2
Equatorial Guinea	1	New Zealand	1	United States	3
Finland	1	Nigeria	1	Uzbekistan	1
France	5	Norway	1	Zimbabwe	1

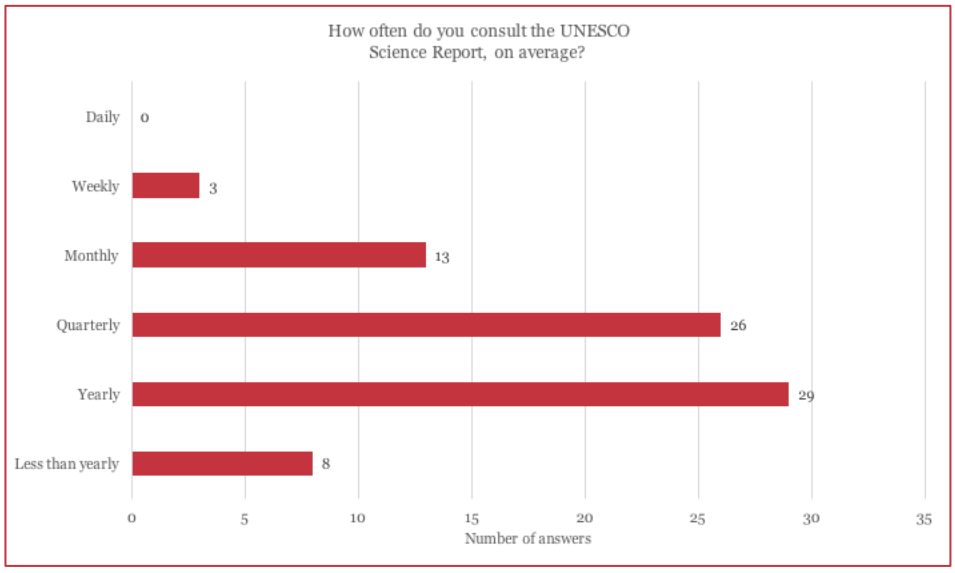
				France	4

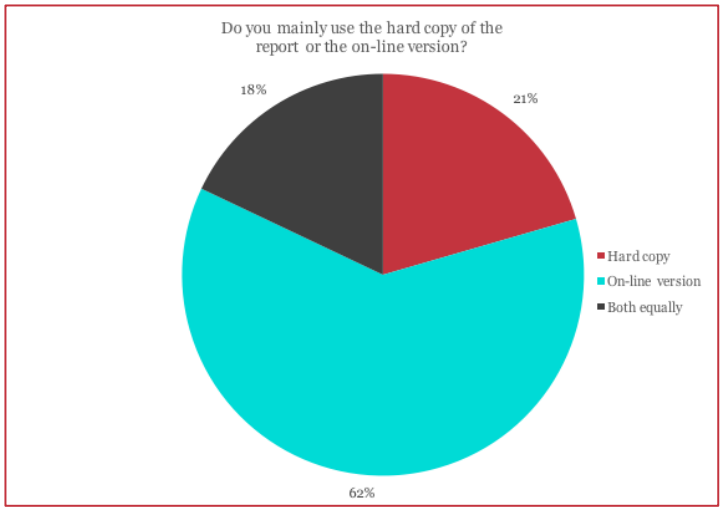

Gender distribution
33
64
Male
Female

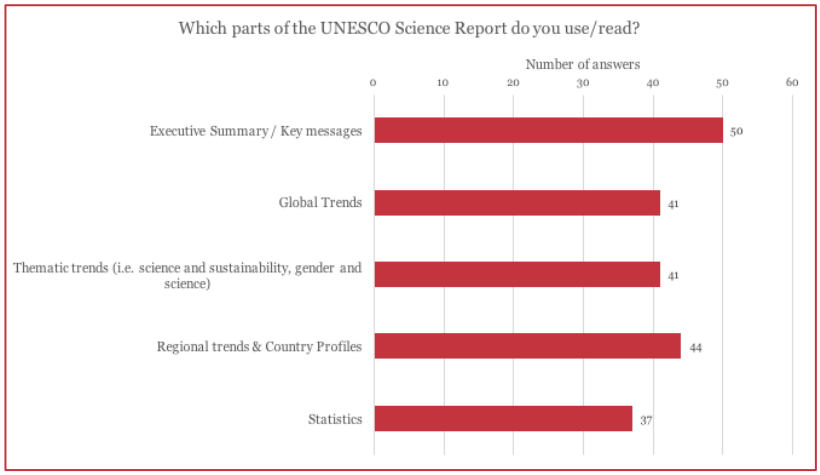

To what extent are you familiar with the UNESCO Science Report?
Number of answers
60
50
40
30
20
10
0
30
53
5
7
Regularly use the report
Have used/read (parts of) the report
Never heard of the report
Heard of the report but never read/used

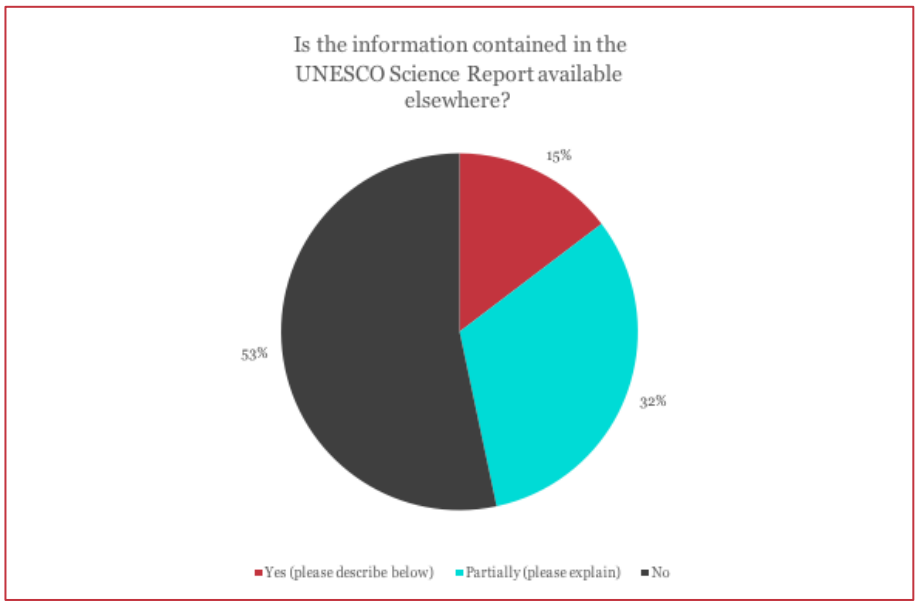

Did you contribute to any of the editions of the UNESCO Science Report?
27
52
Yes
No

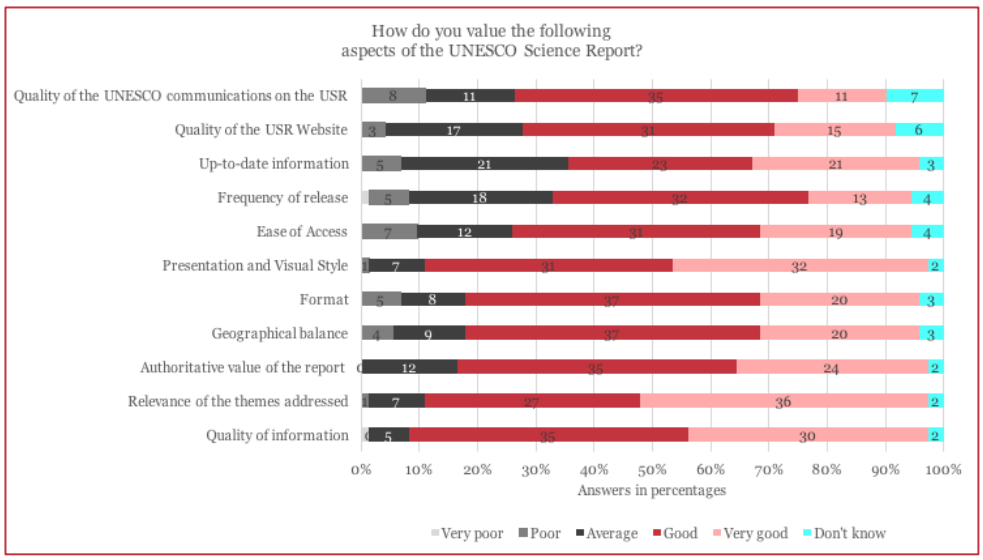

How did you learn of the existence and access the UNESCO Science Report?
Number of answers
0
5
10
15
20
25
30
UNESCO website
25
Other UNESCO communication
20
Launch event
9
Search Engine
2
Third party website or newsletter
0
Library
0
Social Media
2
The Press
0
Word of Mouth
5
Meeting/Conference
9
Other (please specify)
7

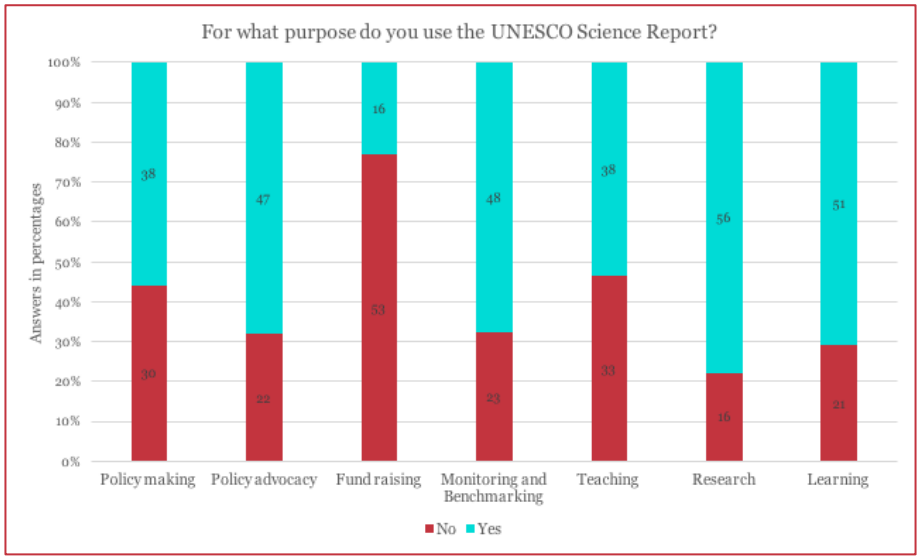

How often do you consult the UNESCO Science Report, on average?
Daily
0
Weekly
3
Monthly
13
Quarterly
26
Yearly
29
Less than yearly
8
0
5
10
15
20
25
30
35
Number of answers

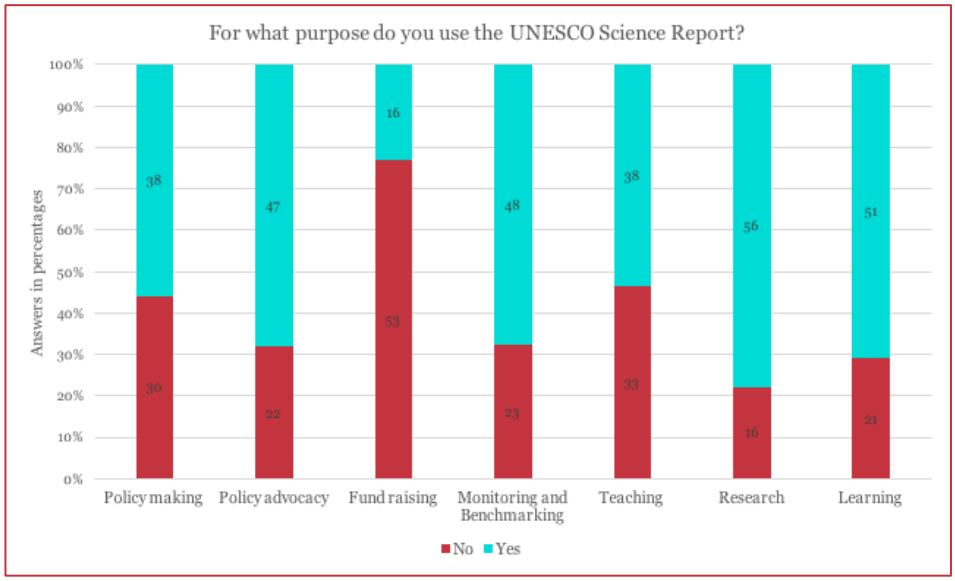

Do you mainly use the hard copy of the report or the on-line version?
18%
21%
62%
Hard copy
On-line version
Both equally

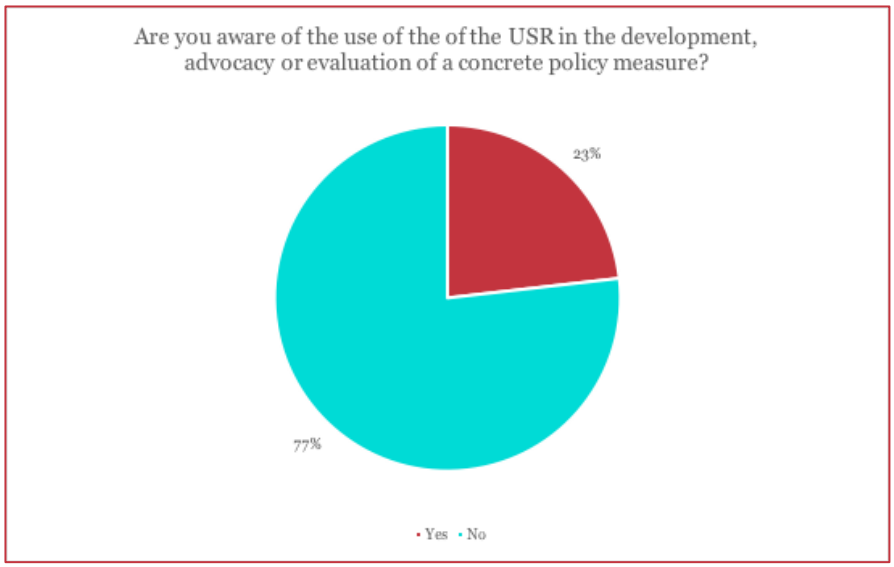

Which parts of the UNESCO Science Report do you use/read?
Number of answers
0
10
20
30
40
50
60
Executive Summary / Key messages
50
Global Trends
41
Thematic trends (i.e. science and sustainability, gender and science)
41
Regional trends & Country Profiles
44
Statistics
37

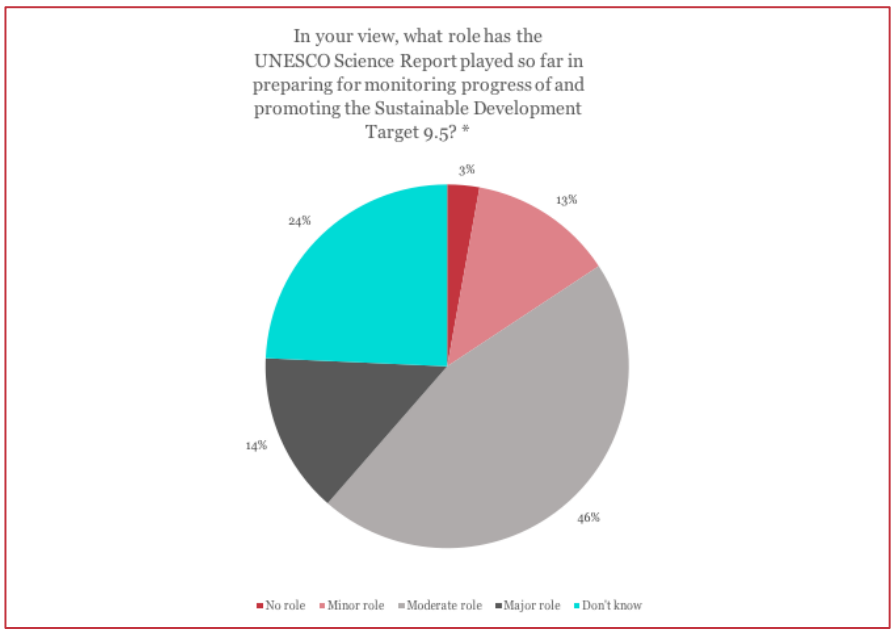

Is the information contained in the UNESCO Science Report available elsewhere?
15%
32%
53%
Yes (please describe below)
Partially (please explain)
No


How do you value the following aspects of the UNESCO Science Report?
Quality of the UNESCO communications on the USR
Quality of the USR Website
Up-to-date information
Frequency of release
Ease of Access
Presentation and Visual Style
Format
Geographical balance
Authoritative value of the report
Relevance of the themes addressed
Quality of information
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Answers in percentages
Very poor
Poor
Average
Good
Very good
Don't know


For what purpose do you use the UNESCO Science Report?
Answers in percentages
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
38
47
16
48
38
56
51
30
22
53
23
33
16
21
Policy making
Policy advocacy
Fund raising
Monitoring and Benchmarking
Teaching
Research
Learning
No
Yes


For what purpose do you use the UNESCO Science Report?
Answers in percentages
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
38
47
16
48
38
56
51
30
22
53
23
33
16
21
Policy making
Policy advocacy
Fund raising
Monitoring and Benchmarking
Teaching
Research
Learning
No
Yes


Are you aware of the use of the of the USR in the development, advocacy or evaluation of a concrete policy measure?
23%
77%
Yes
No


In your view, what role has the UNESCO Science Report played so far in preparing for monitoring progress of and promoting the Sustainable Development Target 9.5? *
3%
13%
24%
14%
46%
No role
Minor role
Moderate role
Major role
Don't know

Appendix I List of key documents consulted as part of the literature review

- UNESCO Programme and Budget for 2014 -2017
- USR implementation strategy and progress reports included in UNESCO's SISTER tool
- Internal 'grey literature' provided by USR staff, particularly the background information note compiled by the editor in January 2016, the Concept Note for the USR 2015 delivered to the editorial board at the outset of the development of the 2015 Report, the Communication and promotion plan for 2015-2017 developed by the USR editor.
- The UNESCO Science report 2005, 2010 and 2015 editions
- Director-General's report on the implementation of the programme (EX/4 reports, Programme Implementation Report, Strategic Results Report);
- The report of the head of the Natural Sciences Commission to the General Conference
- Project documents such as the communication strategy
- Annual progress reports
- Evaluations, studies and research of other UN organizations and stakeholders with relevance to the USR evaluation
- World Science Reports 1993, 1996, 1998
- UNESCO Science Reports 2005, 2010, 2015
- SPO 4 evaluation (2010)
- Evaluation of the Global Monitoring Report
- Evaluation of the World Water Assessment Programme

Appendix J Evaluator team and justification of team composition

The team responsible for the delivery of the assignment consisted of three consultants, two junior and one senior. For quality control purposes however, the team included one additional consultant (Deputy Director, Technopolis France) to conduct systematic quality control of evaluation deliverables and outputs. An additional advantage of adding a fourth member to the team (quality reviewer) was that she could have replaced the project manager in case of temporary absence or *force majeure*. The following table presents the members of the evaluation team, as well as key skills and expertise.

Figure 23 Presentation on evaluation team members

Team member	*Academic credentials / Nationality*	*Key responsibilities*
 Carlos Hinojosa Senior consultant Technopolis Group (France) **Project manager**	**M.A. Regional and urban development policy, Institute of Political Studies of Paris** **Nationality**: Mexican	• Overseeing the implementation of the evaluation, managing the assignment and ensuring timely production of deliverables • Main contact point for UNESCO • Developing evaluation methodology • Conducting data collection activities i.e. interviews, design of survey, workshops • Drafting of reports
 Ivette Oomens Consultant Technopolis Group (The Netherlands) **Junior evaluator**	**Bachelor Psychology at the University of Maastricht** **Master Innovation Sciences at the Technical University of Eindhoven.** **Nationality**: Dutch	• Providing support in data collection and analysis • Implementation of on-line survey • Preparation of workshops and meetings • Interviews and outreach metrics assessment • Providing inputs for reports
 Judith Vermeer Consultant Technopolis Group (The Netherlands)	**M.S. in Public Policy and Human Development, Maastricth Unversity (UNU Merit)** **Nationality**: Dutch	• Providing support in data collection and analysis (outreach metrics) • Providing inputs for reports

Evaluator and data analyst		
 Elisabeth Zaparucha Deputy Director and Senior consultant, Technopolis Group (France) **Quality Reviewer**	**Master "Enterprise and European market" Paris XI University** **Nationality**: French	• Review all deliverables prepared as part of the evaluation, as well as the evaluation methodology

The following sub-sections provide short biographies for the evaluation team members.

J.1 Carlos Hinojosa, Senior Consultant

Carlos is an experienced policy evaluator specialising in the fields of research & development, innovation and higher education.

Since joining Technopolis in 2010, Carlos has contributed and managed to more than two dozen evaluations for national, European and international clients including UNESCO, the World Bank, the Inter-American Development Bank and the OECD. This includes the evaluation of UNESCO's Abdus Salam International Centre for Theoretical Physics (ICTP) and the independent external evaluation of the Technical Centre for Agriculture and Rural Cooperation's (ACP-UE) Science, Technology and Innovation programme. Carlos recently authored a background paper on the impacts of greening economies on educational systems as part of UNESCOS Global Education Monitor report. In addition to his evaluation expertise, he is well acquainted with global STI policy trends and has worked in a variety of geographical contexts (i.e. Northern Africa and Latin America). Between 2013 and 2014, Carlos joined the World Bank's Innovation, Technology and Entrepreneurship unit as the Innovation Policy Platform (IPP) project manager. The IPP a web-based knowledge platform targeting policy practitioners working in the field of innovation.

Shortly before joining Technopolis, Carlos worked for the OECD Local Economic and Employment Development Programme in Paris and Italy. Carlos obtained his undergraduate degree in Political Science from the Universidad de las Américas-Puebla, Mexico; and his Master's degree from the Institute of Political Studies of Paris. Between 2005 and 2007 he worked as the assistant to the political section of the Embassy of Canada in Mexico City.

Carlos is fluent in English, French and Spanish and has working knowledge of Italian.

J.2 Ivette Oomens, Consultant

Ivette Oomens MSc is a consultant at Technopolis Group in Amsterdam. In that function, she works on evaluation studies and projects around ICT, regional and sustainable innovation, policy and smart cities. She has experience with desk research, interviews, surveys, case studies and workshops.

Before Ivette started working at Technopolis Group, she studied a Bachelor Psychology at the University of Maastricht, in which she gained experience with statistical analysis and research methods, followed by a pre-Master and a Master Innovation Sciences at the Technical University of Eindhoven. Main topics of this study were globalisation and ICT, but also other topics such as knowledge infrastructures, governing innovation and economic policy.

During this Master programme Ivette has worked as a trainee at the European Commission DG CONNECT in Brussels, with a focus on broadband and the socio-economic benefits of high speed

internet. In the final year of her Master - after a semester at Edinburgh Napier University - Ivette was an intern at Technopolis Group in Amsterdam, where she started working after her graduation. Her thesis was on upscaling smart city initiatives, where she used literature on transitions and innovation ecosystems.

Ivette's native language is Dutch and she is fluent in English.

J.3 Judith Vermeer, Consultant

Judith Vermeer is a consultant based in the Amsterdam office of Technopolis Group. She is specialised in designing and implementing studies and evaluations of policies, programmes and public agencies in the area of science, technology, and innovation policy. Within this field, Judith has specific knowledge of monitoring and evaluating the effectiveness and impact of science communication. Judith has managed and contributed to a large number of evaluation assignments for a number of Directorate Generals of the European Commission as well as national public bodies.

Judith is currently involved in the evaluation of the ten Federal Scientific Institutes of the Belgian Science Policy Office (BELSPO). She is also involved as an external expert and rapporteur in the interim evaluation of the LEIT-NMBP programme for the European Commission (DG RTD). More recently, Judith managed the evaluation of the Executive Agency of Competitiveness and Innovation (now EASME).

Judith has extensive experience in designing and testing qualitative and quantitative data collection tools, developing sampling strategies and collecting and analysing large amounts of data and information. Judith has successfully applied a range of evaluation tools and methods, including online surveys and statistical analyses, in-depth interviews, media-analysis using the Meltwater software, case studies, and benchmarking studies.

Prior to joining Technopolis Group, Judith worked for Coffey International Development in London. During this time, she carried out evaluations for various Directorates General of the European Commission. These included a number of communication evaluations, including two studies on the communication strategy, tools, and activities of the European Research Executive Agency (REA) in 2014 and the European Research Council (ERC) in 2013.

Judith has an MSc in Public Policy and Human Development from the Maastricht Graduate School of Governance and a BA in European Studies from Maastricht University.

J.4 Elisabeth Zaparucha, deputy Director & Senior consultant

Elisabeth Zaparucha is the deputy Director of the Technopolis Group Paris office. She joined the Technopolis Group in January 2006.

Elisabeth's experience is built on studying and evaluating public policies as well providing policy advice. Her main fields are innovation, research, technology transfer and higher education policies at regional, national and European levels as well as from an international perspective. She has a solid experience in project management. She develops and implements qualitative and quantitative tools such as stakeholder interviews, literature review, survey analysis, case studies, focus groups and workshops facilitation, benchmarking studies, writing reports and recommendations.

Elisabeth is specialised in science, technology and innovation (STI) policies. She conducted and participated to the evaluation of major French STI policies (e.g., the evaluation of the National competitiveness Cluster Policy, the evaluation of the national competition for the creation of new technology based firms, the evaluation of the Technology Transfer Acceleration Companies - SATT).

She is expert in collecting and analysing STI data and participated to EU wide benchmarking platforms of innovation policies as country correspondent for the INNO-Policy TrendChart project (2006-2009), of research policies (ERAWATCH project), and of social sciences and humanities research policies (METRIS project since 2010).

Elisabeth has undertaken several international cooperation studies for the French Ministry for European and Foreign Affairs, the French Agency for Development (AFD), the International Organisation for Francophonie (OIF) and UK's Department for International Development (DFID) or the UNESCO.

Prior to joining Technopolis Group, Elisabeth has spent six months in the Commissariat Général au Plan (now *France Stratégie*) working mostly on eco-technologies. In 2004, she worked as a trainee at the European Commission (DG Economic and Financial Affairs in Luxembourg). Elisabeth graduated from Paris Sud-XI, Grenoble II, and Sussex University.

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