Sierra Leone SGC semi-structured interview guide

(Where appropriate, use the SGC's name rather than "the SGC", once it is confirmed which organisation is the current SGC in Siera Leone)

QUESTION 1: Verification of official name, position and status of the SGC

To confirm, is the **Sierra Leone Science, Technology and Innovation Council (NSTIC)** the official name for the national funding agency, which is hosted by the **Ministry of Technical and Higher Education (MTHE)**? Or is there another official name? If not, please elaborate on the relationship between these organisations, the SGC and the SGCI.

QUESTION 2: VALIDATION OF INFORMATION PROVIDED ON FOREIGN STI FUNDING FLOWS INTO SIERRA LEONE

2.1 Verification on the existence and operational functionality of a Research Information System

In the factsheet it is indicated that Sierra Leone does not have a National Research Information System (RIMS), nor does it have a Research Information System (RIS).

- Is this correct? Please elaborate? Does the SGC keep information on the grants disbursed / funding granted by them?
- Could you elaborate on what the grant management process entails? On the factsheet it is described as follows:

NSTIC Grant-Making Cycle include:

- Determination of the themes
- Do a call for proposal and shared with researchers
- Mobilise researchers and target groups to respond to calls
- Receive the applications
- Evaluation of the applications
- Approve who and what to fund
- Monitor the progress and impact of the grants (MEL)

- At what level of detail does the SGC track those sources of funding and what are the main data points/fields collected?
- Is information captured both of foreign and regional funders/ funding agencies and the recipients of any funding/grants?
- If information is captured about grants, can these be disaggregated by grant value, scientific field, time frame, etc?
- Does the SGC monitor and evaluate the impact of their awards?
- Are you able to share the grants data with the IDRC project team?

2.2 Verification of information provided about current funders of research in Botswana

(Customised section - probe on "Sources of R&D and Innovation Funding" from factsheet and based on above questions) I**n the factsheet the following funding sources were identified – we want to probe on each to get further clarity on what each entails:**

- SGCI,
- SARIMA,
- AAU/ATPS,
- EVI-POL

IN GENERAL: WE NEED TO GATHER MORE INFORMATION ON WHETHER THE FUNDING FROM THESE LISTED ORGANISATIONS ARE IN FACT CAPTURED BY THE SGC?

WE ALSO NEED TO CHECK AGAIN WHETHER ANY OTHER MAJOR FUNDER WAS NOT INCLUDED?

FOR THE FUNDERS LISTED IN THE FACT SHEET, DO THEY KEEP TRACK OF THE FUNDING? OF THE AMOUNTS AND THE RECIPIENTS AND FOR WHAT RESEARCH PROJECTS?

2.3 Foreign funders of STI in Sierra Leone identified through the Dashboard

Are you aware of other local and international sources of STI funding in your country for which the SGC are not disbursing funds? In the table below, we have already identified other foreign funders of STI and Research in Sierra Leone. Were you aware of these?

1) Do any of these listed funders surprise you?
2) In your experience, do these organizations PRIMARILY provide funding for local researchers or for foreign researchers?

Country's funders and their contribution based on the number of received grants since 2000	
funder	n_grant
Sweden through SIDA	19
World Health Organization	15
International Development Research Centre	5
Deutsche Forschungsgemeinschaft	4
Economic and Social Research Council	4
International Foundation for Science	3
Bill & Melinda Gates Foundation	2
Medical Research Council	1
Ministry of Foreign Affairs, Denmark (Danida)	1
Grand Challenges Canada	1
Wellcome Trust	1
Council for International Exchange of Scholars	1

QUESTION 3. ASSOCIATED PARTNERSHIPS (no partnerships are listed in the factsheet)

- Are there any organisations that your SGC is in partnership with?
- Can you speak about why the SGC has joined these partnerships?

Probe on each of the mentioned partnerships and the nature of the relationship

QUESTION 4. OTHER SUPPORT FOR STI (ESPECIALLY IMPORTANT IF SGC DOES NOT DISBURSE FUNDS)

3) What mechanisms are in place in your country to support the capacity development of research institutions, knowledge translation, innovation, collaboration and networking?
4) Does the SGC support STI in other ways?

In the factsheet it is indicated that the vision/mission of the SGC in Sierra Leone is as follows:

"The Council's Vision is "To ensure sustainable growth and development that is led by Science and Technology" and its Mission is "strengthening advocacy and management of STI interventions in Sierra Leone"."

What are some of the main steps that are currently being undertaken by the SGC in Sierra Leone to realise this vision/mission?

QUESTION 5. THE SGC AND STI POLICY

- What has been the SGC's experience of the SGCI and their involvement? (Probe on what have been the benefits to them in being part of the SGCI)
- What is the SGC's sustainability strategy beyond being part of the SGCI?
- Does the SGC generally feel that the funding that comes into the country are aligned with the country's goals?
- Is the **National Science, Technology, and Innovation (STI) Policy - Final Draft 2023**, the most recent strategic document or policy on STI funding for the country?
    - If yes, would you be able to share this document with us after this interview?
    - If no, what is the most recent strategic document or policy on STI funding for the country?

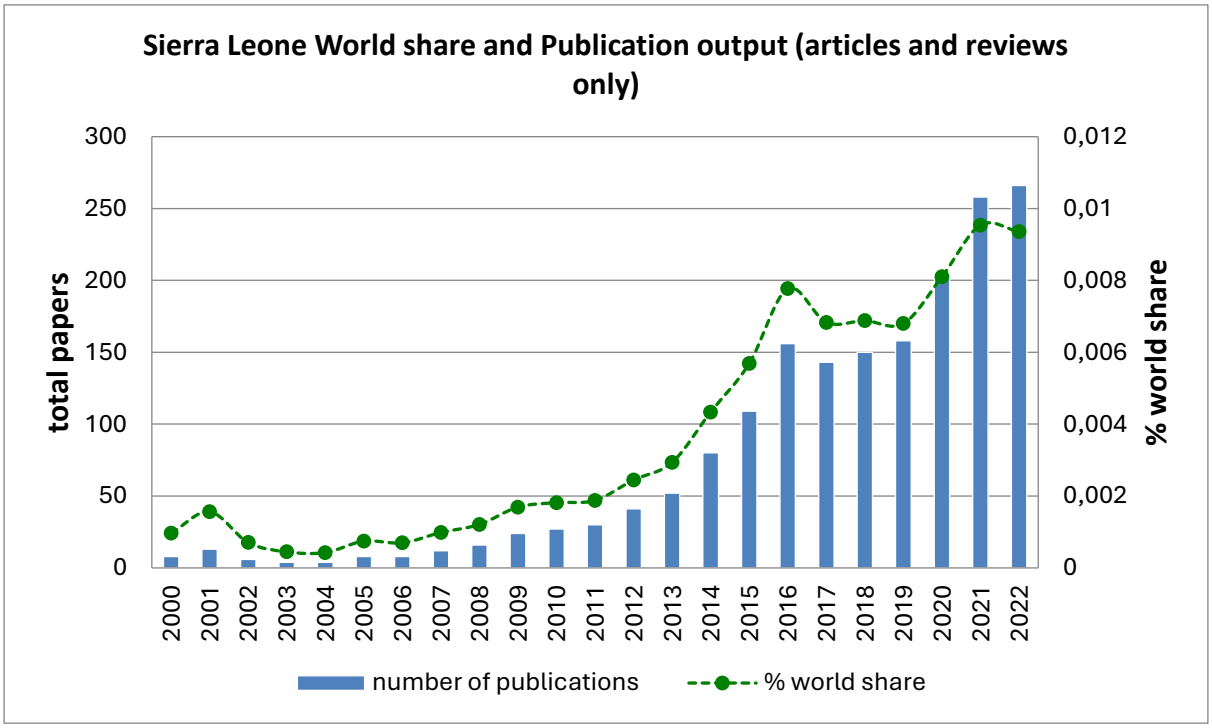
QUESTION 6: GENERAL ISSUES

- What are your main concerns regarding STI financing in the country?
- Are there other important issues influencing STI funding in the country that we should be aware of?
- For follow-up. [Ensure we have their emails]. Would it be possible to email you if we have any short follow -up questions?

ANNEXURE 1

GENERAL STI LANDSCAPE AND SCIENTOMETRIC INDICATORS ABOUT SIERRA LEONE SCIENCE (CREST DATA)

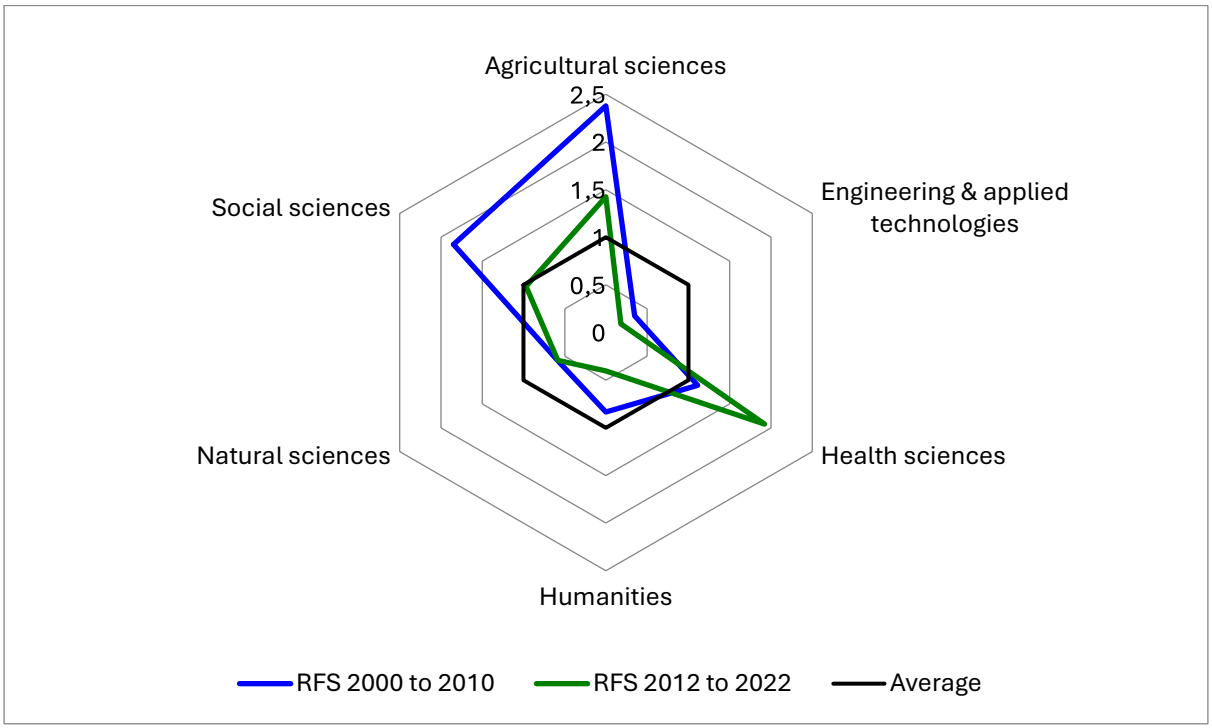
Total article output and world share in Web of Science



The graph (blue bars) shows that while Sierra Leone's article output in the Web of Science before 2008 was limited to a few papers (fewer than 20 per year), it has since steadily increased – with some stagnation of output between 2016 and 2019. From an initial output of 8 articles in 2000, it reached 266 by 2022. The green line shows the country's world share of article output in the Web of Science. This shows a similar trend to the number of publications, with the world share being stable and below 0.002 up to 2012, after which the world share increased from being at 0.001% in 2000 to 0.0094% in 2022.

Relative field strength

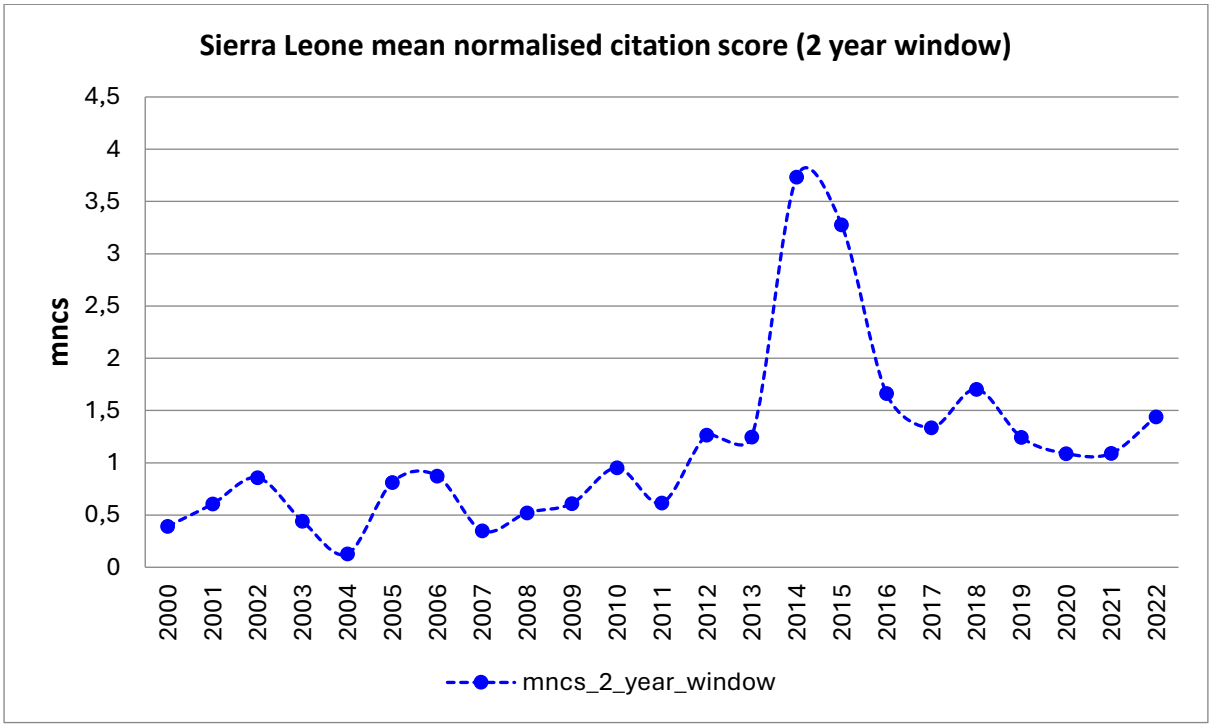
The relative field strength (RFS) is displayed as a spider diagram (also known as a radial/radar diagram) where the average performance is represented by a line at the value of 1. A scientific field with an RFS value above 1 indicates that the share of the field in the total entity's publications is larger than the corresponding share of the same field in the world's total publications. This implies that the entity exhibits strength or specialization in such a field relative to the world. Conversely, values less than 1 signify *weak or de-emphasized* fields.



The figure shows that the strength of Sierra Leone for the most recent period 2012 to 2022 (green line) is in agricultural sciences and health sciences. This shows a shift from the previous period of 2000 to 2010; while agricultural sciences remained a strength of Sierra Leone, social sciences have become de-emphasized whereas the health sciences used to only be commensurate with the world average (as 1). The shares of the natural sciences and engineering to national output is much less than one would expect.

Citation impact of Sierra Leone (co-) authored papers in WoS

The mean normalized citation score (MNCS) is a proxy for citation impact, visibility (and arguably quality). A value of MNCS above 1.0 indicates that the entity's performance in terms of citation impact or visibility is higher than the world's average. Conversely, the value of MNCS below 1.0 suggests worse performance than the world's average.



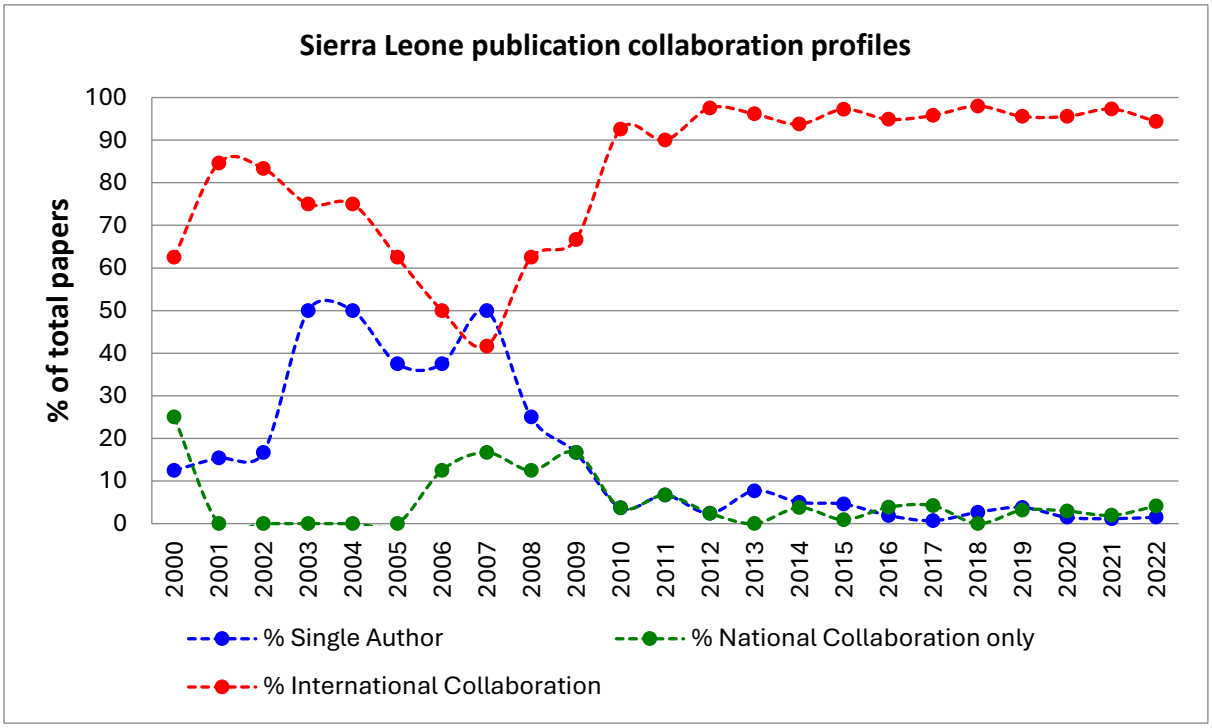
The graph shows that the overall trend in terms of the citation impact of the country's scientific articles reveal two distinct phases. Between 2000 and 2011 the average values were below 1 which is the world average baseline for articles in these fields. Since then, we have witnessed a significant increase in MNCS-values with high spikes for 2014 and 2015. Given the small outputs, spikes such as these are not uncommon because of the small number of papers published in a year.

Trends in research collaboration

In bibliometrics, collaboration is defined based on co-authorship of scientific publications. This indicator classifies research collaboration into four categories based on co-authorship patterns:

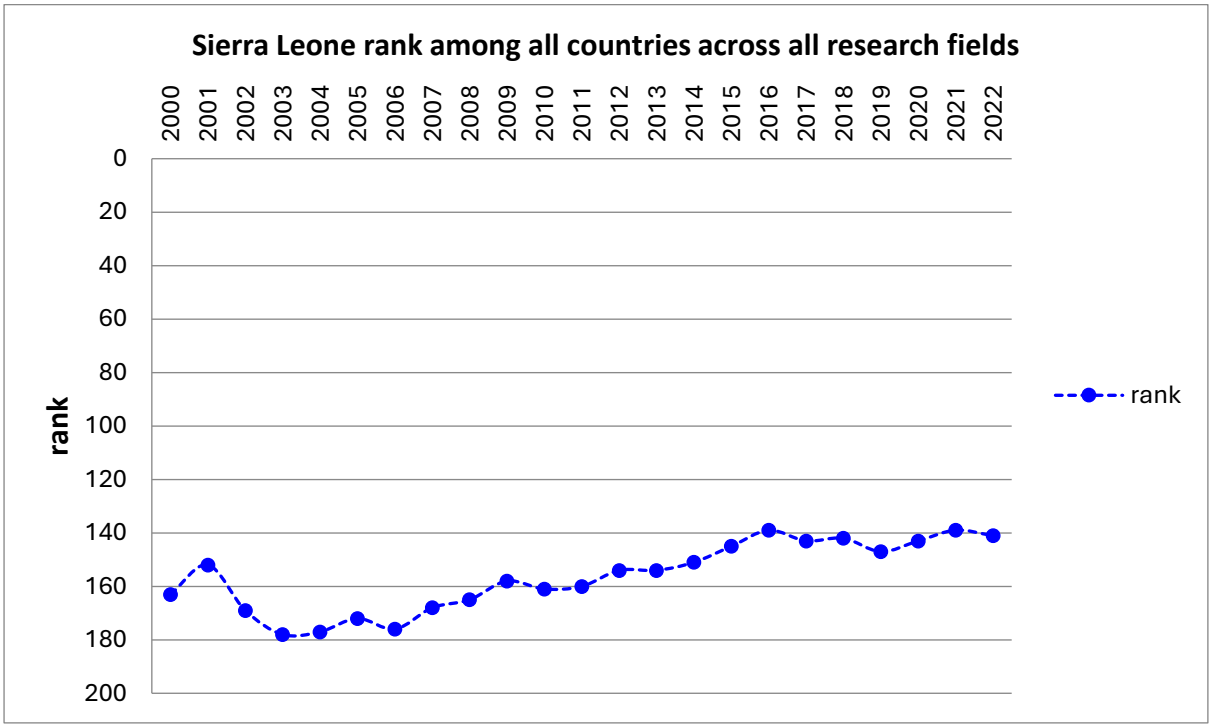
1. Single authorship: the article is authored by a single author (no collaboration).
2. National collaboration: the article is authored by at least two authors affiliated with institutions in the same country.
3. African-only collaboration: the article is authored by two or more authors affiliated with institutions belonging to at least two different "African" countries and no author has an affiliation outside Africa.
4. International collaboration: the article is authored by two or more authors with at least one author affiliated with a foreign institution.

This indicator is calculated using the articles and review articles from the CAWeb of Science and is presented in percentages (not in absolute numbers).



The graphs show some significant differences in collaboration trends before and after 2007, though the data needs to be interpreted carefully since it is based on a small number of papers (especially in the early years). This would suggest that the general growth in publications for the country in recent years is due to international collaboration, which after 2010 constituted over 90% of all publications in Sierra Leone. Given the predominance of foreign co-authored papers, interpreting the trend lines for the other domains must be cautious. It is clear, however, that the percentage of single-authored papers declined substantially after 2007 (again keeping in mind the very small numbers).

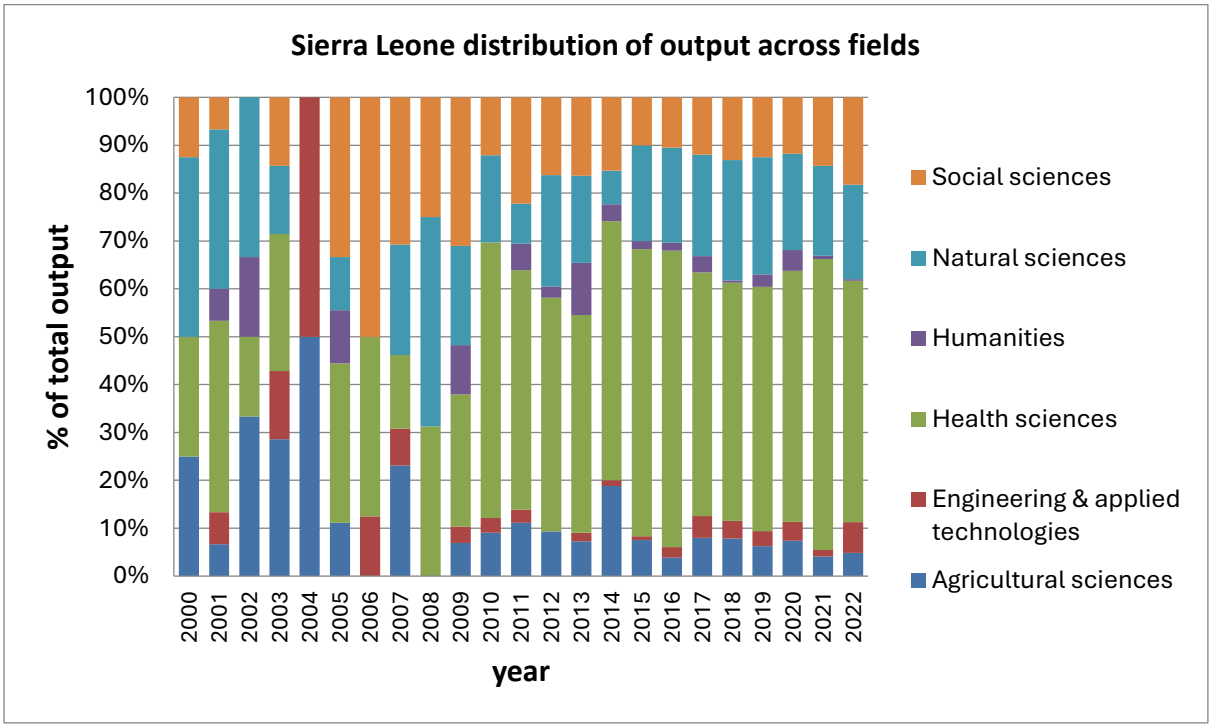
World rank in terms of absolute numbers of scientific articles



The world rank of a country is calculated by simply ordering countries in the Web of Science in terms of their absolute number of full paper authored counts. This, of course, means that small countries are at a major disadvantage when compared to the largest science producing countries in the world.

The graph above shows that Sierra Leone's world rank has significantly improved over the past 23 years, from position 163 in 2000 to 141 in 2022. This is no mean achievement as small and developing countries continue to compete with the large science producing countries in the world (China, USA, Germany, France, UK).

Distribution of scientific articles by main science domain



In the figure above, we disaggregated the annual articles produced by 'main science field or domain' according to the Web of Science subject categories. This disaggregation is useful because it shows how a country's output may have shifted over time in terms of capacity and prioritisation.

Considering that the number of papers per year only exceeded 20 after 2008, and exceeded 50 after 2012, no trends can be discerned for the initial years in terms of the relative shares of the main science fields. Between 2013 and 2022 one can observe a slight increase in the proportion of papers in engineering and applied technologies as well as a decrease in humanities, although both these fields constitute only a small share of the total papers for the country. The shares of the other fields remained relatively stable, with the papers in the health sciences representing the largest share (on average over 50%) of the total papers.

Top contributing R&D organisations in Sierra Leone to output between 2000 and 2022 (>30 papers)

Research Institution	nPubs	rank
Ministry of Health & Sanitation Sierra Leone	451	1
Univ Sierra Leone	387	2
Njala University	225	3
Connaught Hospital	98	4
Kenema Government Hospital	81	5
Sierra Leone Agr Res Inst	43	6
University of Makeni	35	7
Mercy Hosp Res Lab	32	8
Stat Sierra Leone	30	9