



SESSION 02: LITERATURE REVIEW

18TH DECEMBER 2023

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REGIONAL RESEARCH LEAD

GENDERING WATER AND CLIMATE SCIENCE RESEARCH IN SOUTH ASIA



CONTENT

- What is a **Literature Review**?
- **Why do we write** a review?
- **Types** of literature reviews
- What is the difference between a **Narrative literature review** and a **systematic review**?
- Systematic Literature Review
 - a) **how and where to look** for literature;
 - b) **evaluation of sources** and **critical appraisal** of literature;
 - c) how to **manage and analyze** your literature

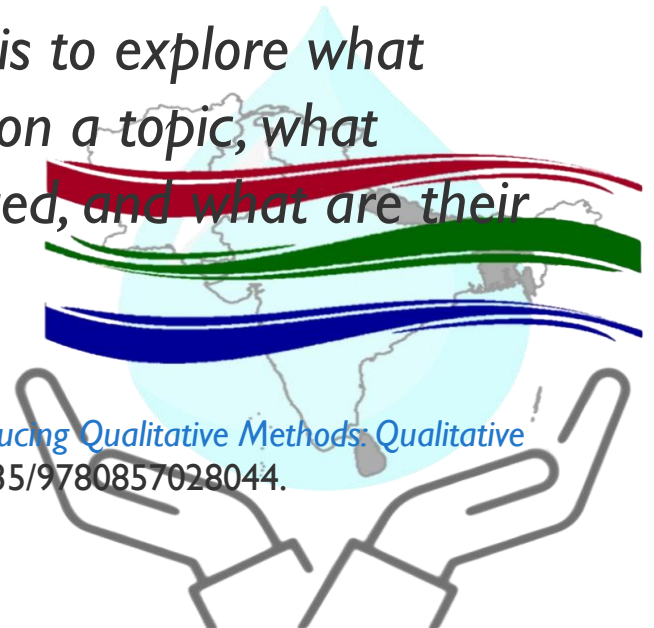


WHAT IS LITERATURE REVIEW

- A literature review is **a survey and critical analysis** of what has been written on a particular topic, theory, question or method.

"In writing the literature review, the purpose is to explore what knowledge and ideas have been established on a topic, what approaches and viewpoints have been adopted, and what are their strengths and weaknesses."

Source: "Focus and frame". (2008). In Eriksson, P. & Kovalainen, A. *Introducing Qualitative Methods: Qualitative methods in business research*. London: SAGE Publications Ltd. doi: 10.4135/9780857028044.

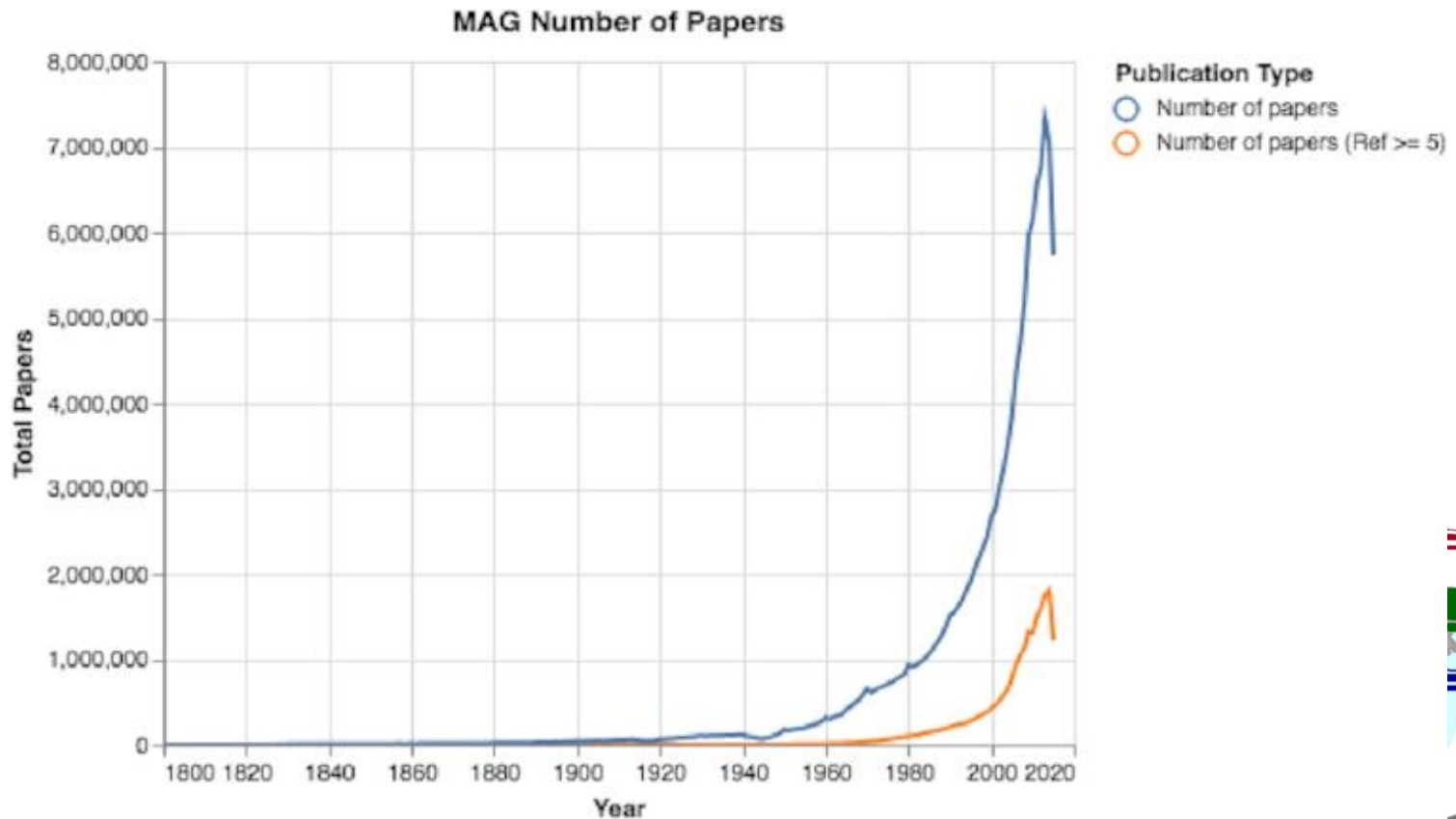


WHY DO WE WRITE A REVIEW?

- Demonstrating and clarifying **understanding of the field of research**;
- Identifying **patterns and trends** in the literature;
- Identifying **gaps** in the literature and seeking **new lines of inquiry**;
- Identifying **similarities and differences** in previous research and place your work in perspective;
- **Justifying** the research;
- Increasing **breadth of knowledge** of the subject area;
- Identifying **seminal and influential published works** in designated field;
- Providing the **intellectual context** for research work
- **Carrying on** from where others have already reached



WHY DO WE WRITE A REVIEW?



Source: Fire, M., & Guestrin, C. (2019). Over-optimization of academic publishing metrics: Observing Goodhart's Law in action. *GigaScience*, 8. <https://doi.org/10.1093/gigascience/giz053>

TYPES OF LITERATURE REVIEWS

Traditional Review Family	Systematic Review Family	Review of Review Family	Rapid Review Family	Qualitative Review Family	Mixed Method Review Family	Purpose Specific Reviews
Critical Review	Cochrane review of effects	Review of reviews	<i>Rapid Evidence Synthesis</i>	Qualitative Evidence Synthesis	Mixed Methods Synthesis	Concept Synthesis
Integrative Review	Comparative effectiveness review	Umbrella Review	Rapid evidence assessment	Qualitative Interpretive Meta-synthesis	Bayesian Meta-Analysis	Content Analysis
Narrative review	Diagnostic Systematic Review		<i>Rapid Realist Review</i>	Qualitative meta-synthesis	EPPI-Centre Review	Expert Opinion/Policy Review
Narrative Summary	Meta-analysis			Qualitative research synthesis	Critical interpretive Synthesis	Technology Assessment Review
State of the art review	Network meta-analysis			Best fit framework synthesis	synthesis Narrative	Scoping Review
	Prognostic review			Framework synthesis	Realist Synthesis	Mapping Review
	Psychometric review			Meta-aggregation	Rapid Realist Synthesis	<i>Methodological Review</i>
	Review of economic evaluations			Meta-Ethnography		Systematic Search and Review
	Systematic review			Meta-interpretation		Systematized Review
	Systematic Review of Epidemiology Studies			Meta-narrative review		
				Meta-Study		
				Meta-Summary		
				Thematic Synthesis		

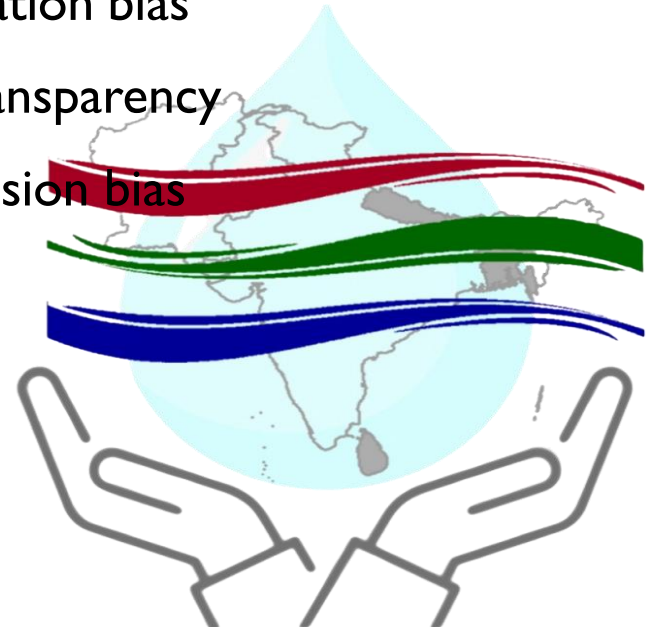
TRADITIONAL REVIEW

Scope

- an **overview of the significant literature** on a topic
- typically includes **a critical analysis of each work** included
- demonstrates the **reviewer's knowledge of the topic**

challenges

- Selection bias
- Lack of comprehensiveness
- Publication bias
- No transparency
- Discussion bias



TRADITIONAL REVIEWS WILL CONTINUE TO BE VALUABLE

in at least 6 situations:

1. when a systematic **review team cannot be formed**,
2. when **resources are limited**,
3. when **time is severely limited**,
4. **where systematic review is not an accepted method**,
5. where **aspects of a systematic review are unnecessary**, and
6. when the **review topic does not warrant a full systematic review**.

Source: Haddaway, N. R., Woodcock, P., Macura, B., & Collins, A. (2015). Making literature reviews more reliable through application of lessons from systematic reviews. *Conservation Biology*, 29(6), 1596–1605.
<https://doi.org/10.1111/cobi.12541>



SYSTEMATIC LITERATURE REVIEW

- A systematic literature review (SLR) **identifies, selects and critically appraises research** in order to answer a clearly formulated question (Dewey, A. & Drahota, A. 2016).
- **a critical assessment** of all research studies on a particular research question
- **has specific criteria for collecting and evaluating** the literature
- **includes a synthesis of the findings** of the included studies

key principles behind systematic literature reviews

- **Transparency**
- **Clarity**
- **Integration**
- **Focus**
- **Equality**
- **Accessibility**
- **Coverage**

Source: Pittway, L. (2008) Systematic literature reviews. In Thorpe, R. & Holt, R. The SAGE dictionary of qualitative management research. SAGE Publications Ltd doi:10.4135/9780857020109

WHAT IS THE DIFFERENCE BETWEEN A LITERATURE REVIEW AND A SYSTEMATIC REVIEW?

Characteristic	Narrative	Systematic
Scope	Presents the significant literature, or a sample of the literature, on a topic	A comprehensive, systematic search for all the relevant literature on a topic must be conducted
Search strategy	Search strategy does not have to be included	Details of the search strategy are included
Inclusion/exclusion criteria	The criteria for selecting what literature to include does not have to be documented	Inclusion/exclusion criteria for selecting the literature is documented and defined in advance
Quality and methodology	The quality and methodology of the literature may not affect the decision to include it	Comprehensive assessment of the quality and methodology of each study is conducted to decide on inclusion
Presentation of included literature	A summary of the included literature is provided	A synthesis of the findings of all the included studies is provided
Interpretation	The reviewer's own beliefs may influence their interpretation of the findings	The reviewer must present an unbiased, objective interpretation of the findings



Speed

Dependent on research area

Methodological detail

No methods

Risk of bias

High risk of bias

Comprehensiveness

Dependent on author

Narrative review

Rapid

Fewer methods

Increased risk

Possibly incomplete

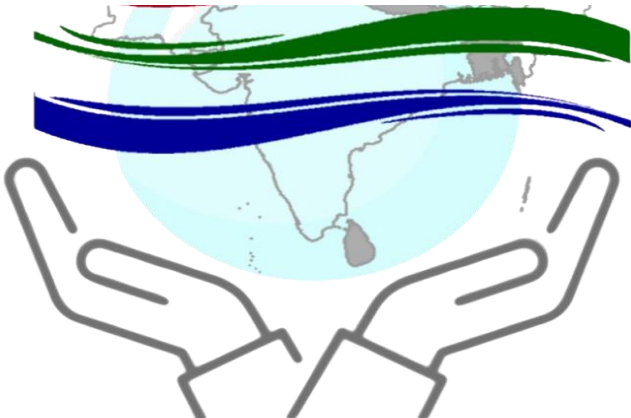
Systematic review +/- meta-analysis

Slow

More explicit methods

Decreased risk

Comprehensive



SYSTEMATIC LITERATURE REVIEW - STEPS

Question Formulation



Protocol



Searching



Article Screening



Data Extraction



Critical Appraisal



Data Extraction and Synthesis



Writing and Publishing



WHAT KIND OF STUDIES CAN BE SYSTEMATICALLY REVIEWED?

Qualitative	Quantitative	Mixed Method
Challenges experienced by women relating to inadequate WASH resources and their intersection with health	The association between consumption of chlorinated drinking water with bladder cancer.	Relationship between drinking water management and exposures and gender equity and empowerment outcomes (GEE)
<p>Pouramin, P., Nagabhatla, N., & Miletto, M. (2020). A Systematic Review of Water and Gender Interlinkages: Assessing the Intersection With Health. <i>Frontiers in Water</i>, 2.</p> <p>https://www.frontiersin.org/articles/10.3389/frwa.2020.00006</p>	<p>Villanueva, C. M., Fernández, F., Malats, N., Grimalt, J. O., & Kogevinas, M. (2003). Meta-analysis of studies on individual consumption of chlorinated drinking water and bladder cancer. <i>Journal of Epidemiology & Community Health</i>, 57(3), 166–173.</p> <p>https://doi.org/10.1136/jech.57.3.166</p>	<p>De Guzman, K., Stone, G., Yang, A. R., Schaffer, K. E., Lo, S., Kojok, R., Kirkpatrick, C. R., Del Pozo, A. G., Le, T. T., DePledge, L., Frost, E. L., & Kayser, G. L. (2023). Drinking water and the implications for gender equity and empowerment: A systematic review of qualitative and quantitative evidence. <i>International Journal of Hygiene and Environmental Health</i>, 247, 114044.</p> <p>https://doi.org/10.1016/j.ijheh.2022.114044</p>

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STEP 01: FORMULATING RESEARCH QUESTION

- A research question is a **clear, focused, concise, and arguable question** around which you centre your research
- **To arrive at your research question:**
 - **Do some quick searches** of the literature in the field
 - **Start asking questions** about your topic.
- **When you think you've come up with a question, evaluate it:**
 - What **new knowledge** would come out of the research?
 - Is the question **very clear?**
 - Is the question **focused but not too complex?**



SLR Research Question Examples

SYSTEMATIC REVIEW article
Front. Water, 15 April 2020
Sec. Water and Human Systems
Volume 2 - 2020 | <https://doi.org/10.3389/frwa.2020.00006>

A Systematic Review of Water and Gender Interlinkages: Assessing the Intersection With Health

 Panthea Pouramin^{1*}  Nidhi Nagabhatla^{1,2}  Michela Miletto³

Do WASH-based deficiencies disproportionately burden women?









Technological Forecasting and Social Change

Volume 164, March 2021, 120440



Women in innovation processes as a solution to climate change: A systematic literature review and an agenda for future research


[Séverine Le Loarne-Lemaire](#)^a  [Gaël Bertrand](#)^b  [Meriam Razgallah](#)^c  [Adnane Maalaoui](#)^d   [Andreas Kallmuenzer](#)^e 

What can women contribute in the fight against climate change?

Climate change effects on vulnerable populations in the Global South: a systematic review

Review Article | [Open access](#) | Published: 04 July 2023 | 118, 977–991 (2023)

Download PDF 

 You have full access to this [open access](#) article

[Bethuel Sibongiseni Ngcamu](#) 

How vulnerable populations have been impacted by climate change in the Global South?

ASSESS SUITABILITY OF RESEARCH QUESTIONS

To help formulate a focussed research question the **PICO/ PECO tool** has been created.

P= Population

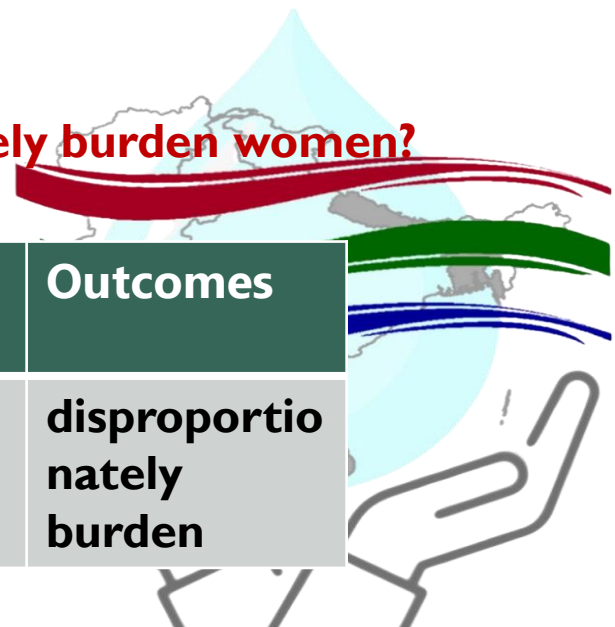
I/ E= Intervention/ Exposure

C = Comparison

O = Outcomes

RQ: Do WASH-based deficiencies disproportionately burden women?

Population	Intervention / Exposure	Comparison	Outcomes
Women	WASH-based deficiencies	No Deficiency in WASH	disproportionately burden



OTHER FRAMEWORK

- **PICOT**: the T stands for time frame – useful if your outcomes need to be measure within a specific period
- **PICOC**: the C stands for context – useful in social science reviews
- **PICOS**: the S stands for study designs – useful if you want to examine specific study designs
- **PICOTS**: Patient/ Population; Intervention; Comparison; Outcomes; Timing; Setting



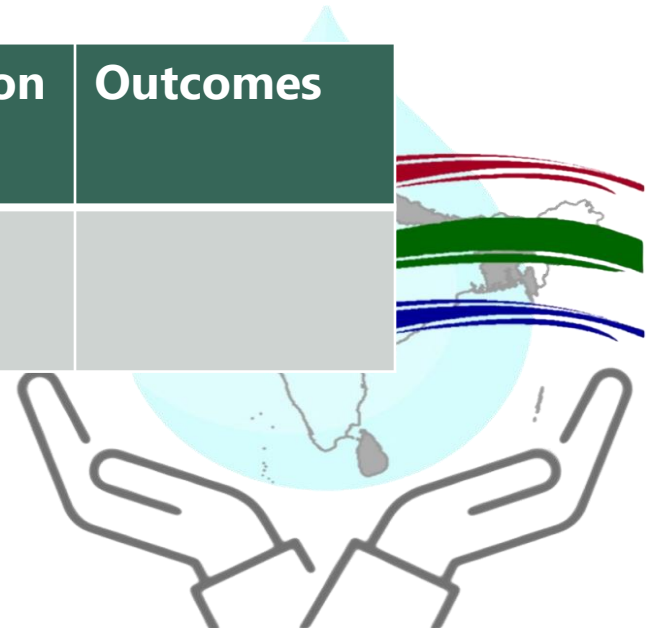
EXERCISE 01

■ Break down Qs to define key elements

QS 1: What can women contribute in the fight against climate change?

QS 2: How vulnerable populations have been impacted by climate change in the Global South?

Population	Intervention / Exposure	Comparison	Outcomes



EXERCISE 02

■ Formulate a research Question

Population	Intervention/ Exposure	Comparison	Outcomes
Rural population	Rural Transformation	Traditional rural setup/ No transformation	Women empowerment, Gender Inclusiveness



CHECKING FOR AN EXISTING SYSTEMATIC REVIEW

- Before you start your review, make sure that a review doesn't already exist on your topic, or that a protocol hasn't already been registered.
- VetSRev - free online database of systematic reviews in veterinary medicine and science (University of Nottingham)
- Campbell Collaboration - includes a database of systematic reviews related to education, criminal justice and social welfare
- EPPI Centre systematic reviews - on subjects such as education, health promotion, public health, social welfare, and international development.
- PsycINFO on psychology



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STEP 02: PROTOCOL

THE PROTOCOL IS THE DETAILED PLAN FOR YOUR SYSTEMATIC REVIEW.

■ systematic review protocol should include:

- **Background** to the study and the importance of the topic
- **Objectives and scope**
- **Selection criteria** for the studies
- Planned **search strategy**
- Planned **data extraction**
- **Proposed method for synthesizing** the findings.



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STEP 03: SYSTEMATIC SEARCHING

•Develop a search strategy



•Decide where to search, and run searches



•Document search strategy



•Review and update search.

search strategy needs to be:

- Comprehensive** and **unbiased**.
- Clear** and **reproducible**.



3A. SEARCH STRATEGY - SEARCH TECHNIQUES

■ Search Strategy

- The research question and search framework should direct the search.
- For each concept you will need to consider all the **different terms that could be used** to describe it.
- Use a mixture of **title/abstract terms and subject heading terms**
- Use the **Boolean operators AND and OR, and brackets**, to combine the terms
- Some searches may use a search filter (also called a hedge) to refine the search

■ Other **Common criteria** include:

- Time period (date of publication)
- Language
- Publication type
- Geography or setting
- Age groups
- Study design.



REVIEW YOUR SEARCH STRATEGY

- you might need to ask if you have:
 - searched the **most appropriate databases** for your topic?
 - checked for **spelling mistakes or typos**?
 - used **a comprehensive list of search terms** appropriate to your search framework (eg. PICO)?
 - used **thesaurus terms/subject headings** specific to each database?
 - used **combing operators (AND, OR)** appropriately?
 - Add **any new terms** discovered while searching to **all your database searches**?



3B. SEARCHING IN DATABASES

- The choice of databases will **depend on the subject field and the specific research question.**
- **Search only in the most relevant and comprehensive databases** in your field, and use individual databases
- need to search in **more than one database**
 - Bibliographic databases
 - Grey literature and internet
 - Scanning reference lists from relevant studies
 - Searching key journals and conference proceedings (called **hand searching**)
 - Snowballing and citation checking
 - Contacting study authors, experts, manufacturers, and other organisations



DATABASES

- **Bibliographic databases**
 - e.g. Scopus, Pubmed, Web of Science
- **Meta-databases**
 - e.g., Lens.org
- **Web-based search engines**
 - e.g. DuckDuckGo, Google Scholar
- **Grey literature sources**
 - Organisational websites
 - Thesis repositories



BASIC SEARCH

■ Built around review Q key elements

How does rural transformation impact women and gender inclusiveness?

Population: Rural population

Intervention: Rural transformation

Impacts: gender inclusiveness, gender equality





Welcome to a more intuitive and efficient search experience. [See what is new](#)

Advanced query

Search within
Article title, Abstract, Keywords

Search documents *
rural

AND

Search within
Article title, Abstract, Keywords

Search documents
transformation

AND

Search within
Article title, Abstract, Keywords

Search documents
gender AND inclusive

🔖 Save search

🔔 Set search alert

+ Add search field

Reset

Search 🔍

Beta

Documents

Preprints

Patents

Secondary documents

Research data ↗

17 documents found

📈 Analyze re

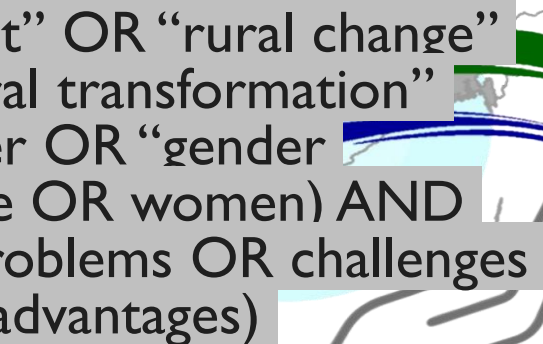


ADVANCED SEARCH

■ Boolean operators

- **OR** terms (synonyms)
 - rural transformation **OR** rural development
- **AND** terms (restrictors)
 - Rural transformation **AND** gender
- Quotation marks (phrases)
 - “Rural transformation”
- **Wildcards** (word variations)
 - inclusiv* [inclusiveness, inclusivity]

“rural transformation” OR “rural development” OR “rural change” OR “agricultural transformation” OR “structural transformation” OR “rural off-farm employment”) AND (gender OR “gender equality” OR “gender inclusiveness” OR female OR women) AND (impacts OR barriers OR disadvantages OR problems OR challenges OR constraints OR benefits OR strength OR advantages)





Welcome to a more intuitive and efficient search experience. [See what is new](#)

Advanced query

Search within
Article title, Abstract, Keywords

Search documents *
"rural transformation" OR "rural development" OR "rural change" OR "

AND

Search within
Article title, Abstract, Keywords

Search documents
gender OR "gender equality" OR "gender inclusiveness" OR female OR

AND

Search within
Article title, Abstract, Keywords

Search documents
impacts OR barriers OR disadvantages OR problems OR challenges OR

🔖 Save search

🔔 Set search alert

+ Add search field

Reset

Search

Beta

Documents Preprints Patents Secondary documents

936 documents found

📊 Analyze



Any time

- Since 2023
- Since 2022
- Since 2019
- Custom range...

Sort by relevance

Sort by date

Any type

Review articles

- include patents
- include citations

Create alert

[PDF] Gender issues in agriculture and rural development in Nigeria: The role of women

[PDF] academia.edu

YI Ogunlela, AA Mukhtar - Humanity & social sciences Journal, 2009 - academia.edu

... In the absence of a willingness to begin to set up precise measures around gender split in benefits within a gender mainstreaming paradigm and in the absence of a willingness to ...

☆ Save Cite Cited by 434 Related articles All 4 versions

[BOOK] Structural transformation and rural change revisited: challenges for late developing countries in a globalizing world

[HTML] google.com

B Losch, S Fréguin-Gresh, ET White - 2012 - books.google.com

... and structural transformation, and it could not be more timely. ... problems) and to embrace broader approaches that reconnect agriculture to rural development and rural development to a ...

☆ Save Cite Cited by 273 Related articles All 16 versions

[BOOK] The feminization of agriculture? Economic restructuring in rural Latin America

[PDF] econstor.eu

CD Deere - 2005 - econstor.eu

... rural women as both own-account and wage workers in the agricultural as well as non-agricultural sectors. While methodological problems persist in analysing changes in rural women'...

☆ Save Cite Cited by 324 Related articles All 5 versions

On the structural transformation of rural Africa

[PDF] worldbank.org

CB Barrett, L Christiaensen, M Sheahan... - Journal of African ..., 2017 - academic.oup.com

From 2000 to 2014, per capita GDP in sub-Saharan Africa increased by almost 35% in real terms, doubling in some countries. Such progress has happened while agricultural ...

☆ Save Cite Cited by 244 Related articles All 19 versions



EXERCISE 03

- Prepare a search string for the following research question:

How vulnerable populations have been impacted by climate change in the Global South?



3C. DOCUMENTATION OF SEARCH STRATEGY

- **carefully record your search strategy** to ensure it is reproducible and verifiable, especially for publication.

- **How?**

For each search record:

- the name of the database,
- the years covered,
- the date you searched,
- your exact search strategy, including all the terms you have used and
- Number and kinds of studies selected (quantitative/qualitative).



3D. UPDATING YOUR REVIEW AND KEEPING UP TO DATE

- If you have saved your searches as suggested in Document your search strategy, you will be able to re-run them when you need to update your review.



SYSTEMATIC LITERATURE REVIEW - STEPS

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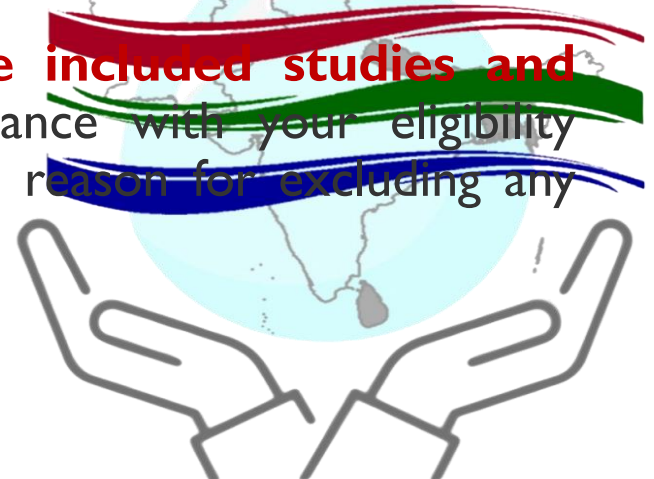
Writing and Publishing



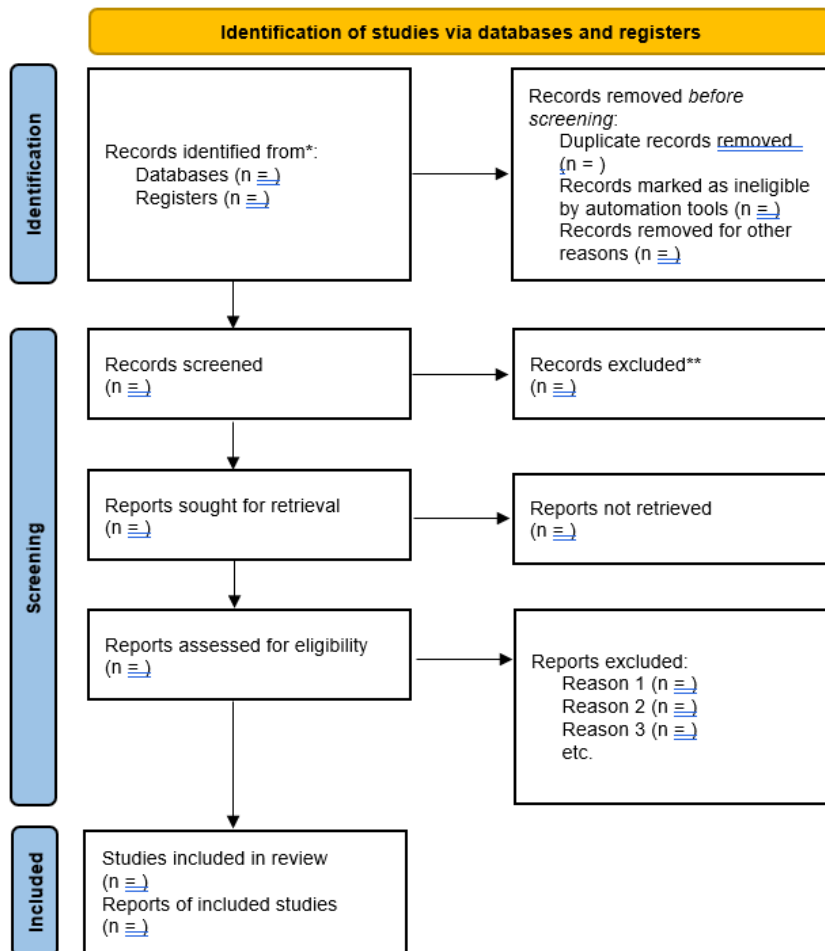
STEP 04: SCREENING:

SCREENING IS THE PROCESS OF IDENTIFYING WHICH STUDIES FROM YOUR LITERATURE SEARCH(ES) WILL BE INCLUDED IN YOUR REVIEW.

- After you have run your searches, you will need to **remove duplicates** from your complete list of results.
- To reduce the risk of selection errors or bias, you should have **at least two reviewers (including yourself) to screen your search results.**
- need to **scan the titles and abstracts to remove the obviously irrelevant studies.** At this stage you might not need to provide a justification for your exclusions.
- You need to **locate the full text of the included studies and carefully examine each one** for compliance with your eligibility criteria. The reviewers should document the reason for excluding any articles.



SCREENING TOOLS



A PRISMA flow diagram will be useful for organising a workflow for your review, including recording the number of results you have after each stage of the screening process.

Rayyan, SYSREV are free online tools that can be used for screening and coding studies in a systematic review. It supports collaboration between reviewers, and includes a mobile app for screening.

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STEP 05: CRITICAL APPRAISAL

- Critical appraisal has been described as "the process of carefully and systematically examining research to judge its trustworthiness, and its value and relevance in a particular context" (Burls, 2009).
- Has the research been conducted in a way that **minimises bias?** (Is it trustworthy?)
- What is the **impact and importance of the findings?** (What is the research's value?)
- Are the **results applicable to your patient/population/problem?** (Is it relevant to your research question?)



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STEP 06: DATA EXTRACTION

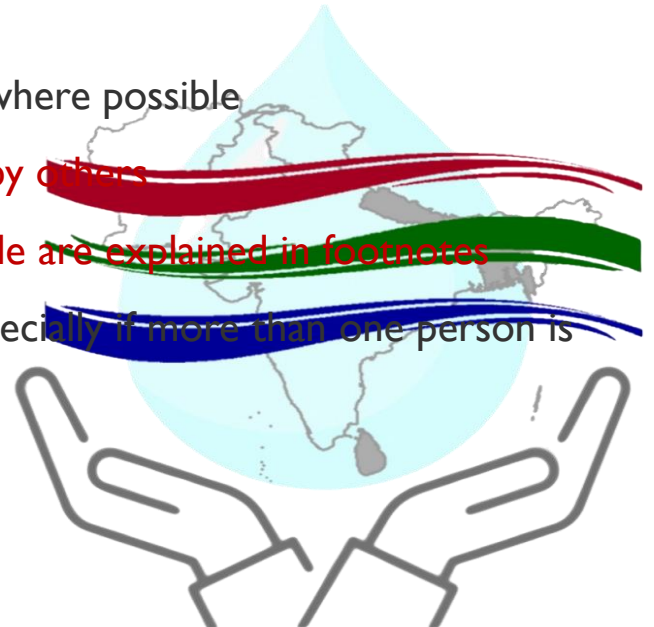
- Once you have decided which articles to include in your review, you need to extract relevant data from those studies. This should be done in a structured and systematic way and is usually presented in tables in the final review report.

■ Tips:

- Extract only the data that is **relevant to your research question**
- **Create a table or data collection form** so that you can summarise the data *consistently* for each study
- **Convert all the data to the same units of measurement**, where possible
- Make sure your **table headings can be easily interpreted by others**
- Make sure **any abbreviations or acronyms used in the table are explained in footnotes**
- **Pilot your data extraction method before you start** – especially if more than one person is extracting the data.

■ Softwares

- NVIVO
- PSPP



DATA SYNTHESIS

- You will need to develop a **synthesis, or critical overview**, which integrates the key findings from all your included studies, while considering the **methodological quality and other pertinent features of each of those studies** (such as the sample size, population, or the context in which each one was conducted).

■ Methods

- Narrative, or descriptive
- Qualitative synthesis methods: Meta-synthesis, Meta-study or Meta-aggregation.
- Meta Analysis



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STEP 07: WRITING AND PUBLISHING

- The discussion section is written to help readers interpret the results of a review.
- The discussion section should include:
 - A statement of the principal findings
 - Highlight the strengths and weaknesses of the review
 - The meaning of the results
 - Implications for practice, policy, and research
 - Any recommendations

