

A Review of Municipal Solid Waste Management in Saudi Arabia Environmental, Economical, and Social Perspective

A. Alahmary, X. Yan



University
of Exeter

CHANIA2023

21-24 JUNE
chania2023.uest.gr



10th International Conference
on
Sustainable Solid Waste

Outlines



Review introduction



Methodology



Bibliometric analysis



Results and Discussion



Wrap up

Introduction:

MSW management is receiving increased attention **worldwide**, including in **Saudi Arabia**.

Negative impact of poor waste management practices on the environmental, economy, social and human health problems → waste management a serious issue

Poor waste management practices: Simple dumping + incineration

The National Centre for Waste Management (MWAN) → 2019

Sustainable waste management practices is needed.

Sustainable waste management requires political will + financial resources + public awareness.

Best approach of waste management depends on local context and circumstances

Context

Population growth + changing lifestyles = significant increase in MSW production

Riyadh producing the highest amount of waste in the country (8 million tons).

Waste management practices: landfill dumping and incineration → negative impact

There is a need to shift towards waste-to-energy (WtE) approaches that focus on resource recovery and creation of value-added products.

Methodology



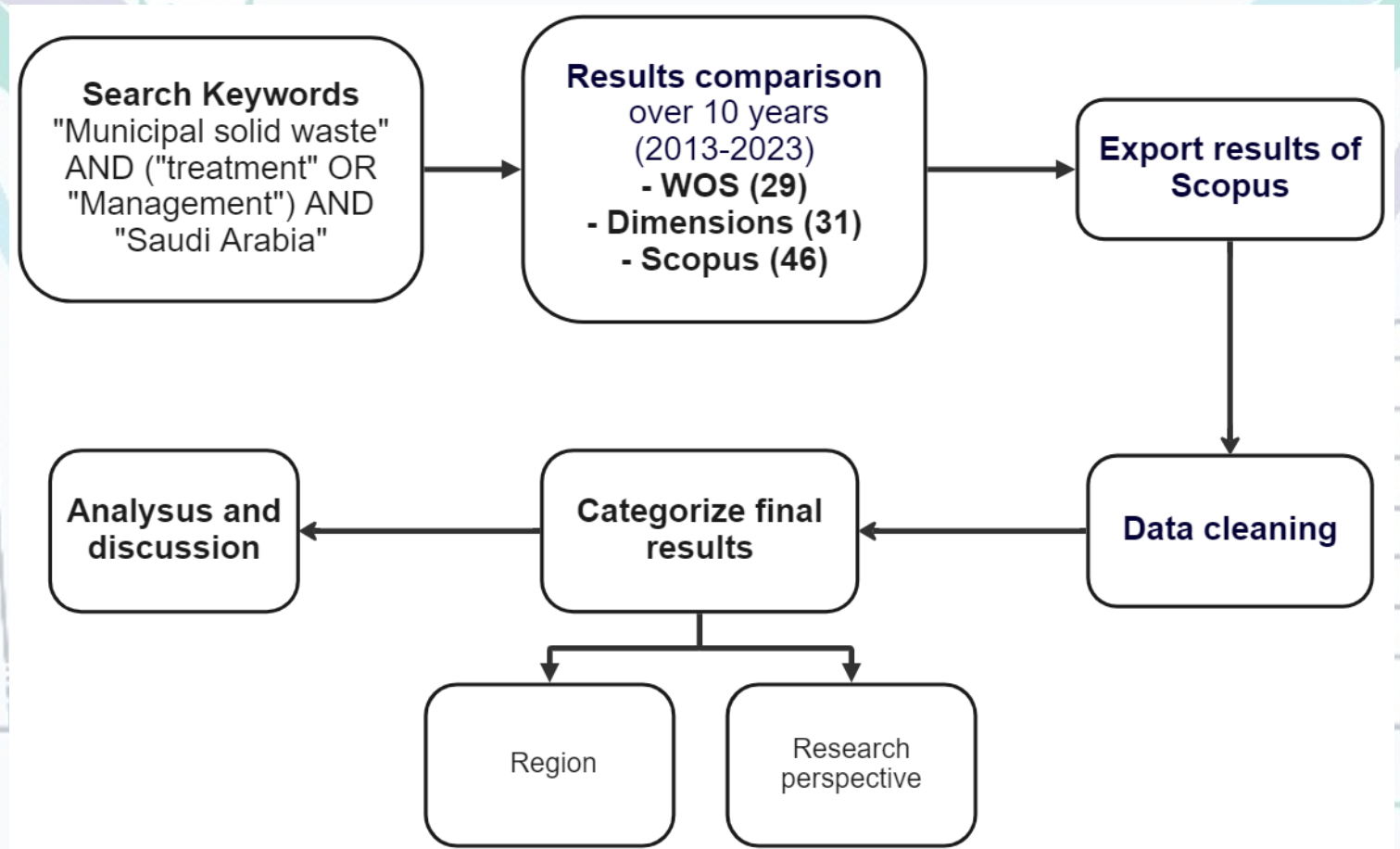
Bibliometric
analysis +
literature review.

Duration: the
past 10 years
(2013-2023)

Bibliometric analysis

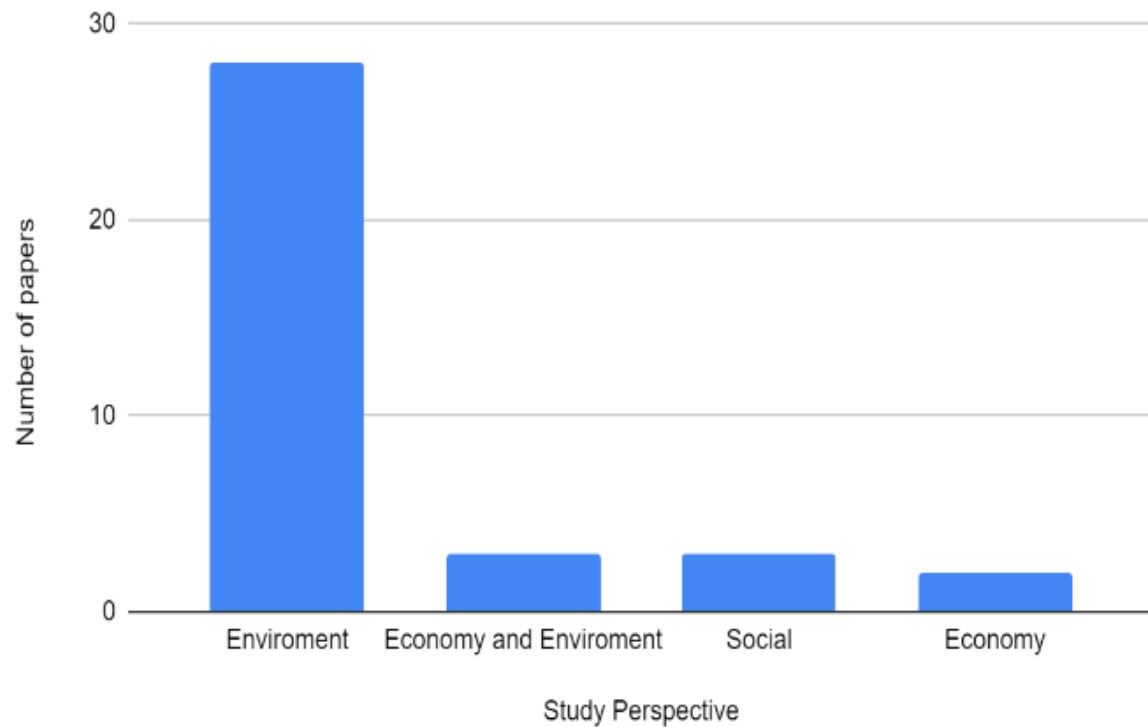
- A research methodology that analysing bibliographic data to study trends in publications, measure scholar and publication impact, and identify research trends in a particular field or subfield.
- It uses statistical and visualization tools to analyse scholarly publication datasets, providing valuable insights into a particular field or topic

Stages of bibliometric analysis of this review

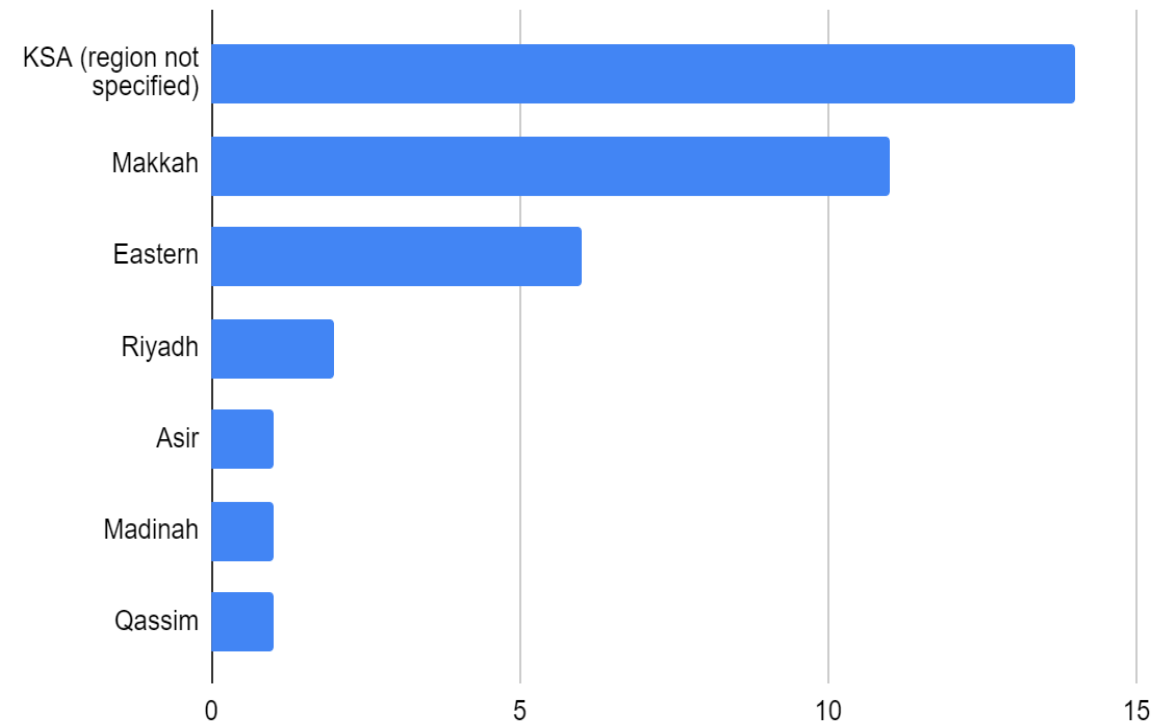


Stages of bibliometric analysis of this review

Study Perspective vs. Number of papers

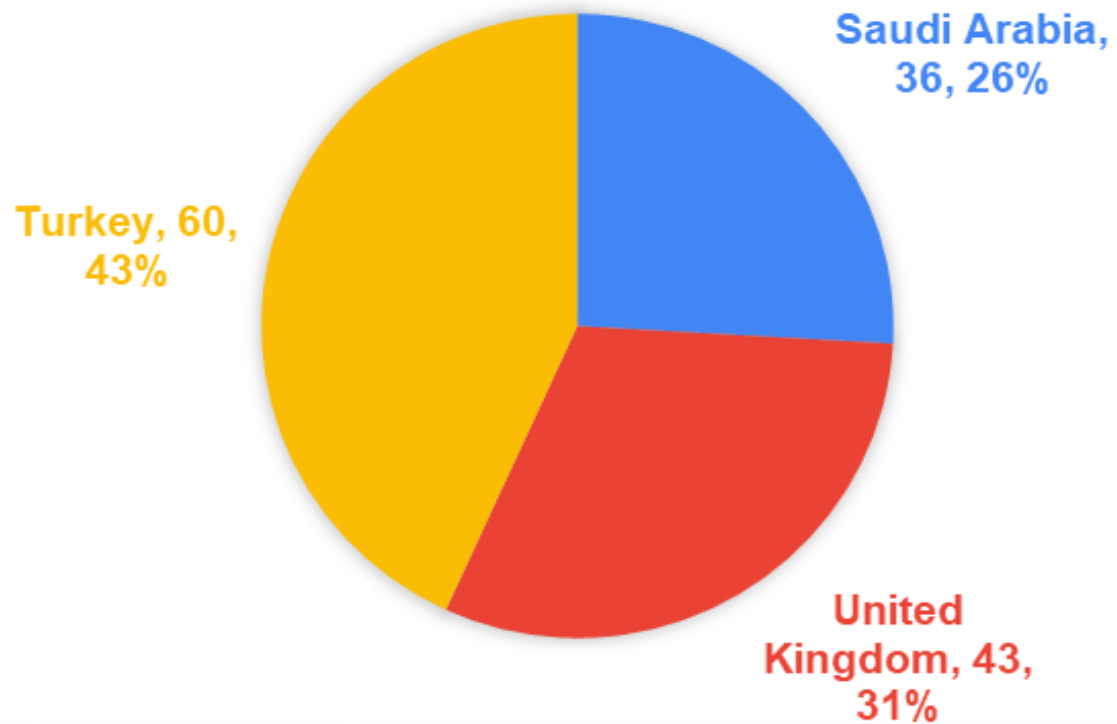


MSW published papers categorized by region

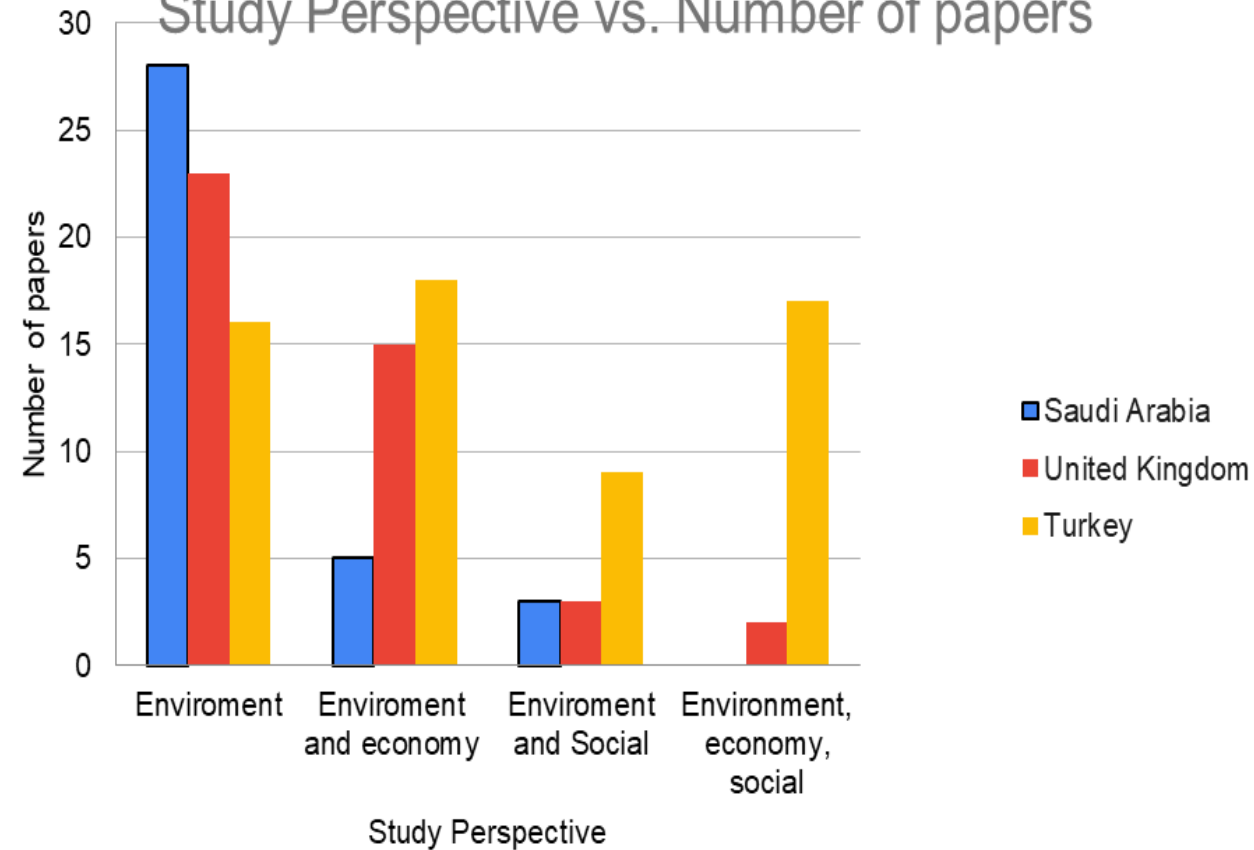


Results

NUMBER OF PAPERS PER COUNTRY



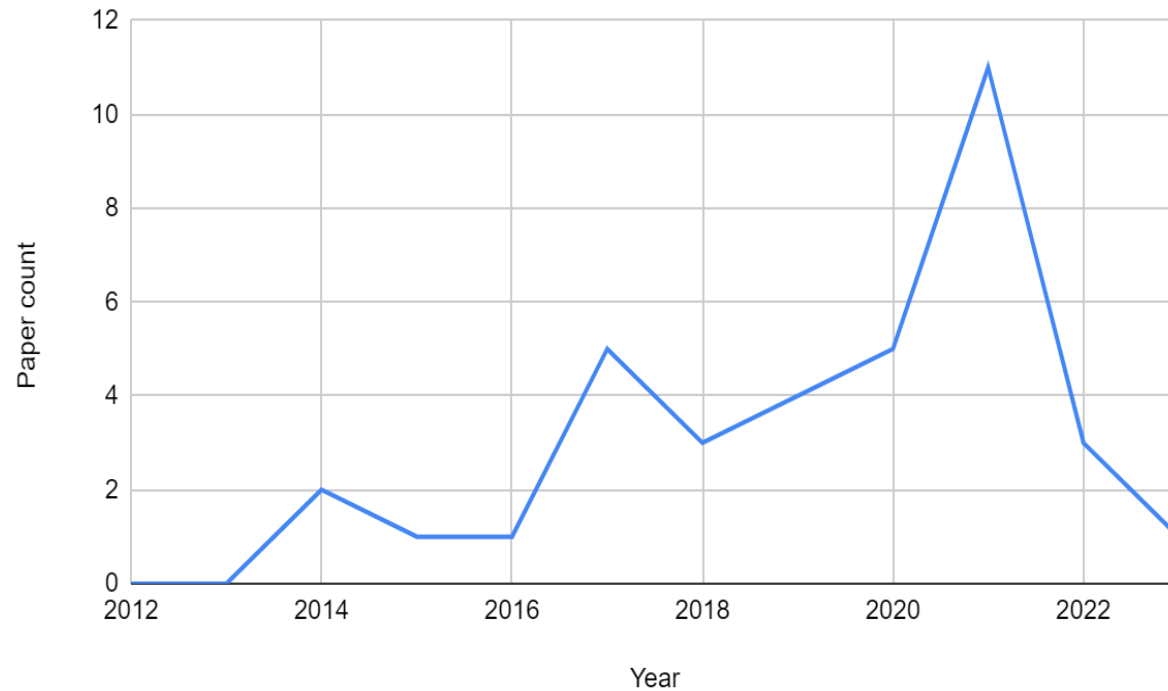
Study Perspective vs. Number of papers



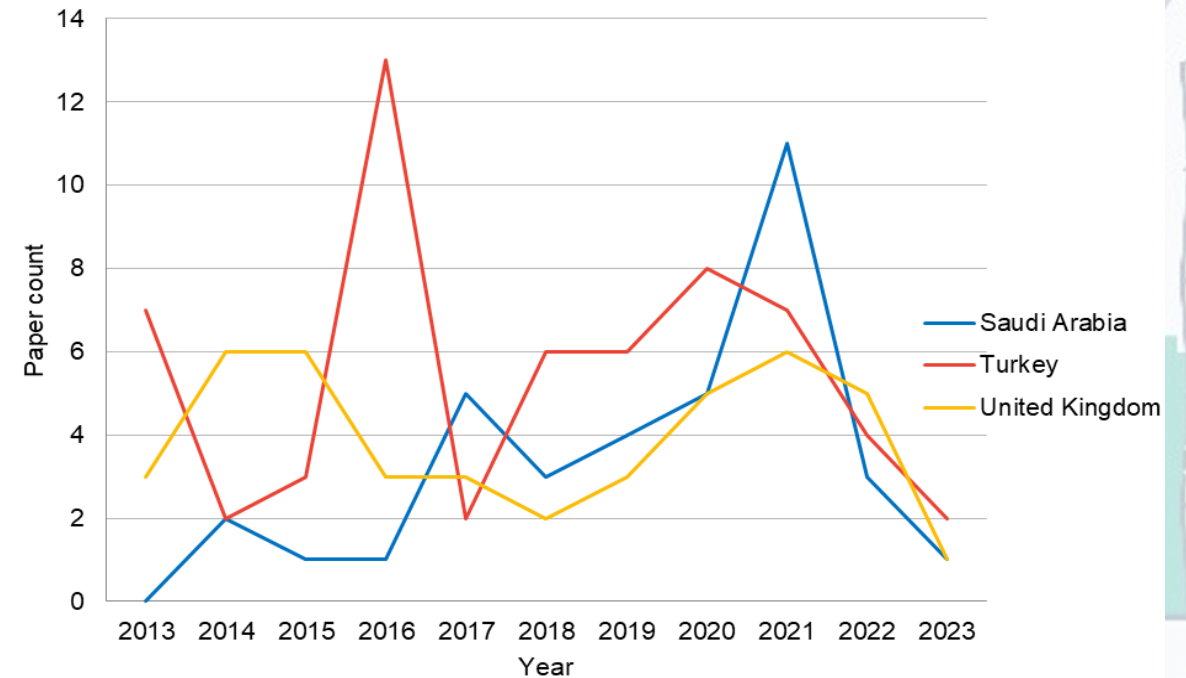
Results. Continues

The number of papers in MSW management or treatment in Saudi Arabia over 2013-2023 and the publications over the year between UK, Turkey, and KSA

Paper count vs. Year



Paper count vs. Year



Discussion

Over the last decade, the number of published papers about solid waste management or treatment in Saudi Arabia is small.

Scopus is the database with the largest results and is often used in academic research and was thus used in this study. Scopus is one of the largest and multidisciplinary databases, containing 27 million documents compared to Web of Science's 23 million, with an overlap of 18 million. The study does not mention Dimensions, a newer database gaining popularity.

The study found that most municipal solid waste studies in Saudi Arabia focus on the environmental perspective, with a gradual increase of interest over the last decade except for 2022.

Social and economic perspectives receive less attention.

Overall, there is increased interest in MSW from 2013-2023, except for 2022. The Riyadh region has the largest population and produces the most waste, yet only two papers were published on it compared to 11 for Makkah and eight for Eastern regions.

Conclusions

This review focuses on municipal solid waste in Saudi Arabia followed by a comparison of results between Saudi with United Kingdom, and Turkey.

The total number of publications related to MSW in Saudi Arabia is smaller than other countries such as the United Kingdom and Turkey, possibly due to limited public datasets

Universities and research centers should encourage academic research and publishing in this area.

Bibliometric analysis is a statical quantitative approach that is effective in providing an overview of currant state of art of specific knowledge area.



Thank you