

Research Question Examples: Environmental Science

About this document

This PDF contains 64 **environmental science research question examples**, each quoted word for word from one of 32 completed dissertations and theses (2011–2026), grouped into 5 sections. Each question links to the thesis that asked it, so you can read how it was answered. Use them to see what a well-formed environmental science research question looks like, then adapt the shape to your own study.

By [Derek Jansen](#) (MBA) · Reviewed by [Eunice Rautenbach](#) (DTech) · Grad Coach · October 2026

Online version: gradcoach.com/research-question-examples/environmental-science/

© 2026 Grad Coach. Free to share and adapt under [CC BY 4.0](#) with credit to Grad Coach and a link to gradcoach.com/research-question-examples/environmental-science/. Research questions and thesis titles quoted here remain their authors'; each dissertation keeps its own license.

Contents

Descriptive questions · 28 questions	2
Exploratory questions · 15 questions	5
Causal questions · 9 questions	6
Comparative questions · 6 questions	7
Relational questions · 6 questions	8
How to adapt a question to your own study	9

Descriptive questions

These questions ask what is happening: how much, how often, or what kinds. They describe a situation rather than explain it.

1. What are the practices of Ng'ombe residents regarding waste management?

Asked in: [An assessment of knowledge, attitudes and practices towards waste management among Ng'ombe residents](#) · Sichaaza, Hannah Muzyamba · University of Zambia · 2011

2. What is the availability of indicator-based frameworks for assessing and monitoring [Circular Economy] progress at the urban level, and what are their strengths and limitations?

Asked in: [Assessing circular economy progress in urban areas : An Industrial Ecology perspective](#) · Asterios Papageorgiou · KTH Royal Institute of Technology · 2025

3. What is the applicability and utility of MEFA and UM-LCA in supporting the design and monitoring of urban-level circular strategies?

Asked in: [Assessing circular economy progress in urban areas : An Industrial Ecology perspective](#) · Asterios Papageorgiou · KTH Royal Institute of Technology · 2025

4. How has vegetation, fire and herbivory changed over time in West-Coast Renosterveld vegetation, at Elandsberg PNR?

Asked in: [Benchmarks for the future: long-term vegetation change derived from palaeoecological techniques in West-Coast Renosterveld, South Africa](#) · Cherie Janine Forbes · University of Cape Town · 2014

5. What is the climate impact of biomethane when a [carbon capture and utilization] solution is implemented?

Asked in: [Biomethane production with carbon capture and utilization : Climate impact assessment and willingness to pay for reduced CO2 emissions](#) · Gabriella Olsson · Linköping University · 2024

6. What is the carbon footprint of converting 1 kg (dry cell weight) (FU) of microalgae into multi-product, in gCO₂eq/FU?

Asked in: [Carbon Footprint Assessment of Microalgal Biomass to Bio-jet Fuel in Mainland Portugal](#) · Pires, Renata Mestrinho Ribeiro · University of Lisbon · 2024

7. What is the carbon footprint of obtaining and burning 1 MJ of bio-jet fuel (FU) from microalgae, in gCO₂eq/FU, and how can it achieve SAF (Sustainable Aviation Fuel) compliance?

Asked in: [Carbon Footprint Assessment of Microalgal Biomass to Bio-jet Fuel in Mainland Portugal](#) · Pires, Renata Mestrinho Ribeiro · University of Lisbon · 2024

8. What are the most important criteria to take into consideration regarding the sustainability impact of innovation projects?

Asked in: [Case study: How sustainable is your project? - A sustainability impact assessment tool for innovation projects](#) · Yoshizumi, Sachie · Aalto University · 2021

9. Within a food and retail company, what could be suitable product categories to transform into circular economic based solutions?

Asked in: [Circular Economy in the Food and Retail Industry : A Case Study of the Swedish Company ICA](#) · Mirza, Avesta · Uppsala University · 2016

10. Which potential actors are influenced and need to be involved if a food and retail company wants to implement circular economic based solutions?

Asked in: [Circular Economy in the Food and Retail Industry : A Case Study of the Swedish Company ICA](#) · Mirza, Avesta · Uppsala University · 2016

11. If implementing circular economic based solutions, what potential challenges might a food and retail company experience?

Asked in: [Circular Economy in the Food and Retail Industry : A Case Study of the Swedish Company ICA](#) · Mirza, Avesta · Uppsala University · 2016

12. If implementing circular economic based solutions, what potential benefits might a food and retail company experience?

Asked in: [Circular Economy in the Food and Retail Industry : A Case Study of the Swedish Company ICA](#) · Mirza, Avesta · Uppsala University · 2016

13. What major sources of emissions do the railways generate today that make the climate neutrality work more difficult?

Asked in: [Climate neutral railway tracks : A study regarding the Swedish Transport Administration's aim to achieve climate neutral infrastructure in 2040 and risks that can arise when working to reach climate neutrality](#) · Kandelan, Daniella · KTH Royal Institute of Technology · 2025

14. What are the major sustainability issues that exist in Saudi Arabia?

Asked in: [Developing a framework for neighborhood-level urban sustainability assessment in Saudi Arabia](#) · Karban, Abdullah Saeed · University of Texas at San Antonio · 2014

15. What are the most prevalent challenges with [Environmental Impact Assessment] follow-up?

Asked in: [Environmental impact assessment follow-up in selected Cape Town case studies as an indicator of effectiveness](#) · Georgeades, Demitrios · University of Cape Town · 2012

16. What kind of new insights about [Black Carbon] size distributions can be gained from simultaneous long-term measurements of absorption and aerosol number size distributions?

Asked in: [Lifecycle of Black Carbon in the Arctic](#) · Cremer, Roxana S. · Stockholm University · 2023

17. How have [greenhouse gas] emissions from [municipal solid waste] management changed and how will they change in the future due to development in operating environment over time?

Asked in: [Long-term evolution of greenhouse gas emissions from municipal solid waste management](#) · Hupponen, Mari · Lappeenranta-Lahti University of Technology LUT · 2023

18. What are the driving forces behind the climate impact mitigation measures implemented in the project?

Asked in: [Synergies and trade-offs in climate mitigation strategies for infrastructure projects : An interview study on the new metro in Stockholm](#) · Frida Linnerborg · KTH Royal Institute of Technology · 2020

19. What can be learned from the work with the climate impact mitigation process and in what type of projects can the learnings be used?

Asked in: [Synergies and trade-offs in climate mitigation strategies for infrastructure projects : An interview study on the new metro in Stockholm](#) · Frida Linnerborg · KTH Royal Institute of Technology · 2020

- 20. What is the outcome of the project in Flat Iron Building in relation to the intentions with using the rating system and the purpose of WELL Building Standard?**

Asked in: [The first Swedish office achieving WELL certification](#) · Melinda Winninge · Luleå University of Technology · 2018

- 21. What does the history of management in designated segments suggest about emerging trends and patterns in river conservation?**

Asked in: [The Uneven Geography of River Conservation In The U.S.: Insights From The Application Of The Wild And Scenic Rivers Act](#) · Perry, Denielle · University of Oregon · 2017

- 22. What are Grade 8 learners' experiences/understanding of air pollution with regard to the oil refinery incident of November 2007?**

Asked in: [The use of photo-voice in exploring Merebank's Grade 8 learners' and community environmental alliance's experiences oil refinery pollution \(2007-2015\)](#) · Deborah Phindile Magubane · University of KwaZulu-Natal · 2016

- 23. What are Grade 8 learners' and the [South Durban Community Environmental Alliance]'s experiences in terms of the effect of pollution on their lives?**

Asked in: [The use of photo-voice in exploring Merebank's Grade 8 learners' and community environmental alliance's experiences oil refinery pollution \(2007-2015\)](#) · Deborah Phindile Magubane · University of KwaZulu-Natal · 2016

- 24. What measures do the respective municipalities plan to implement to shield themselves from the risks of sea level rise?**

Asked in: [Kommunal planering för framtida havsnivåhöjningar i Göteborg och Malmö : En kvalitativ studie om sårbarhet, anpassning och riskhantering](#) · Faassen, Sem · Linnaeus University · 2022

- 25. Are the coastal municipalities planning for high-water events in conjunction with the general sea level rise?**

Asked in: [Kommunal planering för framtida havsnivåhöjningar i Göteborg och Malmö : En kvalitativ studie om sårbarhet, anpassning och riskhantering](#) · Faassen, Sem · Linnaeus University · 2022

- 26. Which methodological approaches are best suited for the consideration of carbon sequestration and storage in [life cycle assessments] of perennial cultivation systems?**

Asked in: [Life Cycle Assessment mehrjähriger Anbausysteme : Weiterentwicklung von Anwendbarkeit und Vollständigkeit](#) · Lask, Jan · University of Hohenheim · 2021

- 27. What are projects' key challenges for creating socially sustainable neighbourhoods?**

Asked in: [Social hållbarhet i svensk stadsutveckling - vad innebär det? : En fallstudie över tre Citylab Action-pilotprojekt](#) · Pontus Liljefors · KTH Royal Institute of Technology · 2016

- 28. What are the projects' experiences with Citylab Action in relation to their work with social sustainability?**

Asked in: [Social hållbarhet i svensk stadsutveckling - vad innebär det? : En fallstudie över tre Citylab Action-pilotprojekt](#) · Pontus Liljefors · KTH Royal Institute of Technology · 2016

Exploratory questions

These questions ask how or why something happens, usually where little research exists yet. They are common in qualitative studies built on interviews or observation.

- 29. How can the indicator-based and UM-LCA approaches be integrated to provide a comprehensive assessment of UM and circularity in urban areas, supporting decision-making within the context of the [Circular Economy]?**

Asked in: [Assessing circular economy progress in urban areas : An Industrial Ecology perspective](#) · Asterios Papageorgiou · KTH Royal Institute of Technology · 2025

- 30. How useful are numerical models in investigating how low flow periods impact upon the ecosystem indicators?**

Asked in: [Assessing how flow regime changes affect biotic indicators of ecosystem health in UK chalk streams](#) · Garbe, Jennifer Anne · Heriot-Watt University · 2016

- 31. How can connected services contribute to a more sustainable mobility?**

Asked in: [Digitalization and sustainability in the automotive industry : the role of connected services : a qualitative case study at the example of the German original equipment manufacturer BMW](#) · Florian Fey · Catholic University of Portugal · 2023

- 32. [H]ow will connected services appear in the future and how may they contribute to the future sustainability?**

Asked in: [Digitalization and sustainability in the automotive industry : the role of connected services : a qualitative case study at the example of the German original equipment manufacturer BMW](#) · Florian Fey · Catholic University of Portugal · 2023

- 33. How could the use of seasonal rounds to describe food practices, Traditional Ecological Knowledge (TEK), and biocultural diversity in a bounded system contribute to existing frameworks for assessing [Ecological Identity]?**

Asked in: [Reframing Ecological Identity: Ecological Management Practices and Social-Ecological Systems Resilience in the Mid-Hills of Nepal](#) · Jessie Hughes · Cornell University · 2024

- 34. What drives the prioritization of a single economic value on nature's contributions to people in rural Paraguay?**

Asked in: [Situating ascriptions of value on Nature's Contributions to People : The case of traditional farmers in San Pedro, Paraguay](#) · Barranco Blasco, Martín · Stockholm University · 2018

- 35. How can integrated extended resource accounting be set up and leveraged to provide comprehensive decision support for sustainability governance?**

Asked in: [Sustainability-Navigating Beyond Business as Usual : Elaborating methods and tools to inform sustainability analysis and systemic, forward-looking productivity measures](#) · Skånberg, Kristian · KTH Royal Institute of Technology · 2026

- 36. How can backcasting scenarios be used to qualitatively and quantitatively illustrate and analyse policy options for sustainable futures?**

Asked in: [Sustainability-Navigating Beyond Business as Usual : Elaborating methods and tools to inform sustainability analysis and systemic, forward-looking productivity measures](#) · Skånberg, Kristian · KTH Royal Institute of Technology · 2026

37. How are competing environmental values and ideologies understood and reconciled in the context of river conservation?

Asked in: [The Uneven Geography of River Conservation In The U.S.: Insights From The Application Of The Wild And Scenic Rivers Act](#) · Perry, Denielle · University of Oregon · 2017

38. How can photo-voice be used by Grade 8 learners to respond to the community's concern about air pollution?

Asked in: [The use of photo-voice in exploring Merebank's Grade 8 learners' and community environmental alliance's experiences oil refinery pollution \(2007-2015\)](#) · Deborah Phindile Magubane · University of KwaZulu-Natal · 2016

39. How can the conducting and application of [life cycle assessments] of perennial cultivations systems be simplified?

Asked in: [Life Cycle Assessment mehrjähriger Anbausysteme : Weiterentwicklung von Anwendbarkeit und Vollständigkeit](#) · Lask, Jan · University of Hohenheim · 2021

40. How can land use impacts of perennial cultivation systems on biodiversity best be incorporated into the [life cycle assessment] framework?

Asked in: [Life Cycle Assessment mehrjähriger Anbausysteme : Weiterentwicklung von Anwendbarkeit und Vollständigkeit](#) · Lask, Jan · University of Hohenheim · 2021

41. How does incorporation of monetary valuation of environmental impacts and related environmental aspects affect the [life cycle assessment]-result and communication of results?

Asked in: [Nyckeltal för kommunikation av livscykelanalysresultat](#) · Nydahl, Helena · Umeå University · 2022

42. What is a relevant understanding of social sustainability for contemporary urban development drawing on the academic literature?

Asked in: [Social hållbarhet i svensk stadsutveckling - vad innebär det? : En fallstudie över tre Citylab Action-pilotprojekt](#) · Pontus Liljefors · KTH Royal Institute of Technology · 2016

43. How do the selected Citylab Action projects understand and work with social sustainability?

Asked in: [Social hållbarhet i svensk stadsutveckling - vad innebär det? : En fallstudie över tre Citylab Action-pilotprojekt](#) · Pontus Liljefors · KTH Royal Institute of Technology · 2016

Causal questions

These questions ask whether one thing causes a change in another. Answering them usually takes an experiment or a careful design that rules out other explanations.

44. What are the effects of price, income and household size on charcoal consumption in the three Tanzanian urban areas Dodoma, Morogoro and Mtwara?

Asked in: [Analyzing aspects of land-use sustainability in Tanzania: Current forest degradation, urban charcoal demand, and impacts of future firewood and charcoal consumption](#) · Greyson Zabron Nyamoga · Norwegian University of Life Sciences · 2019

45. How does water trading at a catchment scale impact upon the ecosystem indicators?

Asked in: [Assessing how flow regime changes affect biotic indicators of ecosystem health in UK chalk streams](#) · Garbe, Jennifer Anne · Heriot-Watt University · 2016

46. How is the willingness to pay for biomethane influenced when [carbon capture and utilization] is implemented?

Asked in: [Biomethane production with carbon capture and utilization : Climate impact assessment and willingness to pay for reduced CO2 emissions](#) · Gabriella Olsson · Linköping University · 2024

47. How do emissions, as well as, wet and dry removal pathways drive the diversity of the [Black Carbon] life cycle in General Circulation Models (GCMs)?

Asked in: [Lifecycle of Black Carbon in the Arctic](#) · Cremer, Roxana S. · Stockholm University · 2023

48. In what way would the consideration of [greenhouse gas] emissions affect the [mixed residual waste] management procurement decision in South Karelia, Finland?

Asked in: [Long-term evolution of greenhouse gas emissions from municipal solid waste management](#) · Hupponen, Mari · Lappeenranta-Lahti University of Technology LUT · 2023

49. What factors influence the temporal and spatial distribution of river segments protected under the Wild & Scenic Rivers Act?

Asked in: [The Uneven Geography of River Conservation In The U.S.: Insights From The Application Of The Wild And Scenic Rivers Act](#) · Perry, Denielle · University of Oregon · 2017

50. How do logistics parameters such as transport distance, transshipments, load factor, and fuel choice affect GWP for reused brick, and how does this compare with new production?

Asked in: [Från rivning till återbruk : En klimat- och logistikstudie av tegel i cirkulära byggprojekt](#) · Filip Brink · Luleå University of Technology · 2026

51. Does the use of forests within safe operating space enhance habitat availability of researched species and if so, how much?

Asked in: [Parantaako metsien käyttö ekologisissa turvarajoissa uhanalaisten lajien tilaa ja elinympäristön saatavuutta?](#) · Kuumola, Tuuli · University of Jyväskylä · 2025

52. How does safe operating space affect the extinction risk and threat categories of species?

Asked in: [Parantaako metsien käyttö ekologisissa turvarajoissa uhanalaisten lajien tilaa ja elinympäristön saatavuutta?](#) · Kuumola, Tuuli · University of Jyväskylä · 2025

Comparative questions

These questions compare two or more groups or settings, such as two schools or two teaching methods, to see whether they differ.

53. How do different LCA methodologies (climate report, the sustainability criteria and ISO-method) differ when assessing the climate impact of biomethane?

Asked in: [Biomethane production with carbon capture and utilization : Climate impact assessment and willingness to pay for reduced CO2 emissions](#) · Gabriella Olsson · Linköping University · 2024

54. What are the major differences between the views of different stakeholder groups regarding neighborhood sustainability in Saudi Arabia?

Asked in: [Developing a framework for neighborhood-level urban sustainability assessment in Saudi Arabia](#) · Karban, Abdullah Saeed · University of Texas at San Antonio · 2014

55. What are the differences in performance across similar [primary food packaging]'s?

Asked in: [Eco-Friendliness Assessment Of Primary Food Packaging : A case study to assess relevant criteria and evaluate packaging options for sustainable development](#) · Wahab, Abdul · Jönköping University · 2021

56. Do [Sustainable Urban Drainage System] ponds have more potential than non SUDS ponds for plant diversity to support flowering plants suitable for pollinators?

Asked in: [Evaluation of the Ecosystem Services and multiple benefits provided by SUDS and non SUDS ponds](#) · Joy Ann Kean · Heriot-Watt University · 2019

57. How do [greenhouse gas] emissions from commercial waste management differ from [greenhouse gas] emissions from household waste management based on case studies in Finland, and how can both emissions be effectively decreased?

Asked in: [Long-term evolution of greenhouse gas emissions from municipal solid waste management](#) · Hupponen, Mari · Lappeenranta-Lahti University of Technology LUT · 2023

58. What are the environmental impacts of reusing glass compared to producing new glass?

Asked in: [The reuse of glass: tackling the technical, environmental and logistical challenges](#) · ROTA, ANGELICA · Politecnico di Bari · 2026

Relational questions

These questions ask whether two things tend to go together, such as study time and exam results, without claiming that one causes the other.

59. How do the changes in vegetation at Elandsberg PNR relate to climate and land-use disturbance and therefore what are the main drivers of change?

Asked in: [Benchmarks for the future: long-term vegetation change derived from palaeoecological techniques in West-Coast Renosterveld, South Africa](#) · Cherie Janine Forbes · University of Cape Town · 2014

60. How do emotions and values associated with waterscapes relate to behavior and patterns of use?

Asked in: [Blue Index San Marcos: Emotional Experiences, Values, and Use Patterns of Waterscapes in San Marcos, Texas](#) · Wade, Madeline · Texas State University · 2022

61. How are experiences of waterscapes spatially distributed and how do waterscape characteristics influence this distribution?

Asked in: [Blue Index San Marcos: Emotional Experiences, Values, and Use Patterns of Waterscapes in San Marcos, Texas](#) · Wade, Madeline · Texas State University · 2022

62. How has the COVID-19 pandemic influenced people's experiences of waterscapes in San Marcos?

Asked in: [Blue Index San Marcos: Emotional Experiences, Values, and Use Patterns of Waterscapes in San Marcos, Texas](#) · Wade, Madeline · Texas State University · 2022

63. How are observations of biomass burning tracers at Zeppelin connected to transport from source regions with active fires?

Asked in: [Lifecycle of Black Carbon in the Arctic](#) · Cremer, Roxana S. · Stockholm University · 2023

64. Does [Ecological Identity] operate as a social mechanism of social-ecological systems resilience (SESR)?

Asked in: [Reframing Ecological Identity: Ecological Management Practices and Social-Ecological Systems Resilience in the Mid-Hills of Nepal](#) · Jessie Hughes · Cornell University · 2024

How to adapt a question to your own study

Every question here was asked by someone else, about their own setting. These four steps turn one into a question that is yours.

- 1. Pick the shape, not the wording.** Notice whether the question compares, explores, explains or measures. That shape is what transfers to your study.
Recommended reading: [How to write a research question](#)
- 2. Swap in your own population and setting.** Change who, where and when, and check the question still makes sense.
Recommended reading: [How to find a research gap](#)
- 3. Check it fits your method.** A "how" or "why" question usually points to qualitative work; "how much" or "is there a relationship" to quantitative.
Recommended reading: [Qualitative vs quantitative research](#)
- 4. Line up your aims, objectives and questions.** Your committee will check that they agree.
Recommended reading: [Research aims, objectives and questions](#)

Do this with two or three questions and compare them: the one you can actually answer with the time and access you have is usually the right one.