Search Protocol

This scoping review protocol will follow the methodological approach designed by the Joanna Briggs Institute (JBI) for this study type (Peters et al., 2015) and the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols – Extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018).

Review title

From Biosafety to Attention: A Scoping Review and Controversy Mapping of GMO Governance in the Andean–Amazonian Region

Review type

Scoping review

Context and Rationale

The political–legal–institutional dimension of Genetically Modified Organisms (GMOs) is a central arena of debate in the Andean region and in the Member States of the Amazon Cooperation Treaty Organization (ACTO). In Peru, the moratorium established by Law N.º 29811 (2011) and extended by Law N.º 31111 prohibits the entry and production of Living Modified Organisms (LMOs) for release into the environment until 2035. This moratorium aims to protect native biodiversity and traditional knowledge while strengthening national scientific and technical capacities for risk assessment of modern biotechnology.

At the same time, recurrent political pressure to lift the moratorium has highlighted the need for rigorous, objective, and verifiable scientific information to support evidence-based decision-making. The debate is not confined to Peru; across the Andean and Amazonian countries, discussions on GMOs involve a complex interplay of public policies, biosafety regulations, legal frameworks, governance arrangements, labeling and traceability systems, and mechanisms of public participation.

This research, therefore, is situated at the intersection of regional legal frameworks, political controversies, and institutional arrangements that regulate GMOs. It seeks to map the state of the art in scientific literature, identify thematic approaches, and reveal underexplored gaps that are relevant to policymaking and governance in Andean and ACTO countries.

Delimitation

The PCC acronym (Population, Concept, and Context) was used to develop the research delimitation:

- Population: The body of scientific and technical literature addressing genetically modified organisms (GMOs).

- Concept: The political-legal-institutional dimension of GMOs, encompassing policies, policymaking, legislation, regulatory frameworks, governance mechanisms, legal instruments, biosafety regulations, risk assessment and management procedures, labeling and traceability systems, compliance and enforcement practices, as well as public consultations and participatory governance processes.
- Context: Countries of the Andean region and the Member States of the Amazon Cooperation Treaty Organization (ACTO). Studies situated in these countries or explicitly referring to these geopolitical regions will be included.

This delimitation ensures that the review remains focused on the intersection of GMOs, their political-legal dimension, and the specific geopolitical contexts of the Andean Community and the Amazon Cooperation Treaty Organization.

Research question

What are the themes, approaches, and gaps in the scientific and technical literature on the political–legal–institutional dimension of GMOs in the Andean region and ACTO countries?

Objective

To map the scientific production related to GMOs policies, legislation, regulations, and governance in these countries, identifying approaches, available evidence, and areas that remain underexplored.

Databases

Scopus and WoS

Eligibility criteria

- Document type: peer-reviewed articles and review articles.
- Publication stage: published and early access
- Language: English, Spanish, or Portuguese
- Period: no time restriction
- Geographic scope: Andean America and ACTO
- Source quality: journals in the higher/best quartile (2024 SCImago/Scopus or JCR/WoS = Q1) and not included in the Predatory Journals “The List” (https://www.predatoryjournals.org/the-list/journals).

Search terms

Table 1

Search terms

Topic	Keywords[a]
Genetically Modified Organism	("Bioengineered organism" OR "Bioengineered food" OR "Biotech Crops" OR "green Biotechnology" OR Cisgenic* OR "Gene-Edited organism" OR "Genetically Engineered organism" OR "Genetically Engineered crop" OR "Genetically Modified food" OR "Genetically Modified Microorganism" OR "Genetically Modified Organism" OR GMO* OR "Genome Edited Organisms" OR "GM corn" OR "GM cotton" OR "GM soy" OR "GM foods" OR Intragenic* OR "Living Modified Organism" OR "Recombinant DNA organism" OR Transgenic* OR "OGM Bt" OR "Bt crops" OR "Bt corn" OR "Bacillus thuringiensis (Bt) crops" OR "Bt cotton" OR "genetically modified animals" OR "genetically modified plants" OR "genetically modified insects")
Political–legal-institutional dimension	(public OR polic* OR "institutional analysis" OR Regulat* OR political OR governance OR law OR legal OR enforcement OR government OR agreement OR compliance OR "risk assessment" OR transparen* OR "precautionary principle" OR moratorium)
Geographic delimitation	(Argentin* OR Bolivia* OR Chile* OR Colombia* OR Ecuador* OR Peru* OR Venezuel* OR Andean* OR "South Amer*" OR "Southern America" OR "Latin America" OR Brazil* OR Surinam* OR Guyana* OR "Amazon Cooperation Treaty Organization" OR ACTO)

[a] The keyword set was developed iteratively by inspecting keyword lists from the initial search, adding new terms one-by-one, and monitoring effects on recall/precision.

Queries

Table 2

Queries

Source	Search string
Scopus	TITLE-ABS-KEY (("Bioengineered organism" OR "Bioengineered food" OR "Biotech Crops" OR "green Biotechnology" OR Cisgenic* OR "Gene-Edited organism" OR "Genetically Engineered organism" OR "Genetically Engineered crop" OR "Genetically Modified food" OR "Genetically Modified Microorganism" OR "Genetically Modified Organism" OR GMO* OR "Genome Edited Organisms" OR "GM corn" OR "GM cotton" OR "GM soy" OR "GM foods" OR Intragenic* OR "Living Modified Organism" OR "Recombinant DNA organism" OR Transgenic* OR "OGM Bt" OR "Bt crops" OR "Bt corn" OR "Bacillus thuringiensis (Bt) crops" OR "Bt cotton" OR "genetically modified animals" OR "genetically modified plants" OR "genetically modified insects") AND (public OR polic* OR "institutional analysis" OR Regulat* OR political OR governance OR law OR legal OR enforcement OR government OR agreement OR compliance OR "risk assessment" OR transparen* OR "precautionary principle" OR moratorium) AND (Argentin* OR Bolivia* OR Chile* OR Colombia* OR Ecuador* OR Peru* OR Venezuel* OR Andean* OR "South Amer*" OR "Southern America" OR "Latin America" OR Brazil* OR Surinam* OR Guyana* OR "Amazon Cooperation Treaty Organization" OR ACTO)) AND (LIMIT-TO (DOCTYPE , "re") OR LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "Spanish") OR LIMIT-TO (LANGUAGE , "Portuguese"))
WoS	(TS= (("Bioengineered organism" OR "Bioengineered food" OR "Biotech Crops" OR "green Biotechnology" OR Cisgenic* OR "Gene-Edited organism" OR "Genetically Engineered organism" OR "Genetically Engineered crop" OR "Genetically Modified food" OR "Genetically Modified Microorganism" OR "Genetically Modified Organism" OR GMO* OR "Genome Edited Organisms" OR "GM corn" OR "GM cotton" OR "GM

	soy" OR "GM foods" OR Intragenic* OR "Living Modified Organism" OR "Recombinant DNA organism" OR Transgenic* OR "OGM Bt" OR "Bt crops" OR "Bt corn" OR "Bacillus thuringiensis (Bt) crops" OR "Bt cotton" OR "genetically modified animals" OR "genetically modified plants" OR "genetically modified insects") AND (public OR polic* OR "institutional analysis" OR Regulat* OR political OR governance OR law OR legal OR enforcement OR government OR agreement OR compliance OR "risk assessment" OR transparen* OR "precautionary principle" OR moratorium) AND (Argentin* OR Bolivia* OR Chile* OR Colombia* OR Ecuador* OR Peru* OR Venezuel* OR Andean* OR "South Amer*" OR "Southern America" OR "Latin America" OR Brazil* OR Surinam* OR Guyana* OR "Amazon Cooperation Treaty Organization" OR ACTO))) AND (DT==("ARTICLE" OR "REVIEW" OR "EARLY ACCESS") AND LA==("ENGLISH" OR "SPANISH" OR “PORTUGUESE”))

Data extraction

The documents will be imported to the Covidence software for reviewers to blindly screen them by title and abstract and classify them as either included or excluded. Before import, Scopus/WoS duplicates will be verified Power BI; the same tool will be used cross-checked journals in SCImago/Scopus to retain first-quartile (Q1) outlets, and predatory journals. JCR/WoS Q1 articles will then manually filtered. Only after this process will the records uploaded to Covidence for screening. The number of duplicates identified and excluded will be reported in the PRISMA 2020 flow diagram.

After screening, all included articles will be analyzed by full-text reading to decide whether they are eligible for this review. In the case of access difficulties or questions, the authors of the articles may be consulted during the selection process. Data will be analyzed according to the study content, and research results will be presented in a PRISMA 2020 flow diagram.

Two independent reviewers will synthesize extracted data after reading the full text of included articles. Information will be detailed with an auxiliary tool developed by the reviewers.

In addition, SciSpace will be employed as a complementary tool to support data extraction and synthesis, providing AI-assisted reading, summarization, and conceptual mapping functionalities. All outputs generated through SciSpace will be reviewed, verified, and validated by human reviewers to ensure accuracy, transparency, and methodological rigor.

Two reviewers will independently conduct these stages. Discrepancies between reviewers during both title/abstract and full-text screening were recorded within Covidence, which keeps a detailed log of inclusion/exclusion decisions. Any unresolved disagreements were discussed and, if necessary, adjudicated by a third reviewer. To assess inter-rater reliability, Cohen’s Kappa coefficient will be calculated for both screening stages. The level of agreement will be reported in the results section of the review.

Table 3

Data extraction variables

Variable	Variable
Covidence ID	Region/Country
Source	Dimension of analysis
Objective	Mains theme
Year of publication	Secondary themes
Key findings	

Data analysis

The analysis will include a thematic categorization of the literature, following recognized techniques for theme identification (Ryan & Bernard, 2003). This approach ensures that emergent themes, approaches, and gaps are systematically identified across studies, strengthening the link between the research question and the extracted evidence.

In addition to manual thematic categorization, Atlas.ti software was employed to support qualitative data management and analysis. The software facilitated systematic coding of full-text articles and grey literature, organization of categories, and visualization of relationships among themes through network mapping. This approach ensured transparency and traceability between primary sources, coded data, and the narrative synthesis.

Review team members

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Role of the funding source

Asociación Mater Iniciativa provided financial support but was not involved in study design, data collection, analysis, interpretation, or manuscript preparation. EvoMimetics was responsible for project management and coordination of the research team.

Review´s conflict of interest

The authors declare no conflict of interest. Jorge Bentin is General Manager of EvoMimetics, the entity that administered the project with funds from Asociación Mater Iniciativa.

Country

Peru.

Publication of review results

The intention is to publish the review once completed. The review will be published in English.

Depositing

The research protocol will be deposited in the Harvard Dataverse.

Data of protocol (version history)

Version	Elaborated
1.0	2025/09/04
1.1	2025/10/06

References

Peters, M. D. J., Godfrey, C. M., Khalil, H., McInerney, P., Parker. D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *Int J Evid Based Healthc*. 13(3), 141–6.

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Tricco, A. C., Lillie, E. Zarin, W. O'Brien, K. K. Colquhoun, H., Levac, D., Moher, D., Peters, M. D., Horsley, T., Weeks, L., Hempel, S. … Strauss, S. E. (2018). PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 169(7), 467–473. https://doi.org/10.7326/M18-0850