UNIVERSITY OF SASKATCHEWAN
Global Water Futures
GWF.USASK.CA

Providing Evidence of Policy Influence: GWF Experience: Part 1

University of Saskatchewan
Research Facilitators Forum
11 February 2025

Scientific Excellence and International Competitiveness

A commitment to providing useable knowledge

In 2016, with initial funding through the Canada First Research Excellence Fund, Global Water Futures set out to produce **actionable scientific knowledge** on how we can best forecast, prepare for and manage water futures in the face of dramatically increasing risks

The trend among funders to demand research that is societally relevant in increasing. Now that GWF is transitioning to Global Water Futures Observatories, supported in part by the Canada Fund for innovation, the main reporting emphasis is on tracking use and users.

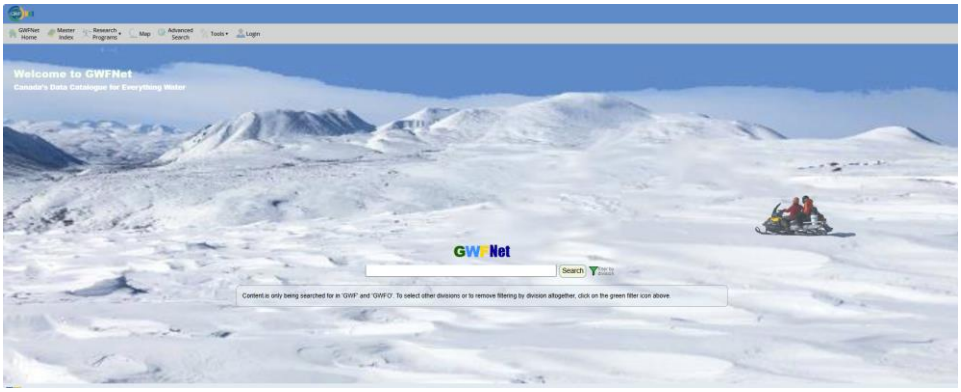
A coordination challenge

Tracking and sharing research activity

- Decentralised deposit of **publications and datasets**
- Centralised **metadata** catalogue
- Efforts to coordinate **web publication and social media**
- Centralised Secretariat **records** of PIs, HQP, partners, users
- Distributed teams for **comms, data management, and knowledge mobilization**
- The big disruptor: **COVID**

As a large scientific research network with nodes across most of Canada, GWF faced many coordination and information gathering challenges.

From tracking outputs to tracking influence



The Global Water Futures metadata catalogue tracks publications and datasets. If these have DOIs we can use lists generated by the system to search bibliometric platforms and get a sense of how much our published science is being used.

The need for alternative metrics

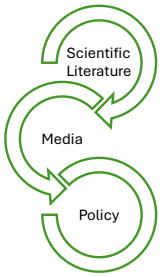
overton

Measuring *use and attention*:
how to get to *impact*

SciVal Impact

Altmetric
A Digital Science Solution

The need for alternative metrics



"a strong association between the amount of popular media attention given to a scientific research project and corresponding publication and the number of times that publication is cited in peer-reviewed scientific literature"

Anderson, P. S., Odom, A. R., Gray, H. M., Jones, J. B., Christensen, W. F., Hollingshead, T., ... Seeley, M. K. (2020). A case study exploring associations between popular media attention of scientific research and scientific citations. PLOS ONE, 15(7), e0234912. doi:10.1371/JOURNAL.PONE.0234912

Research reflected in grey literature

Policy Commons

GreyNet
Grey Literature Network Service

Challenges include:

- Web publishing practice
- Link rot

GWF research has influenced science

SciVal January 2025

But has GWF research influenced policy?

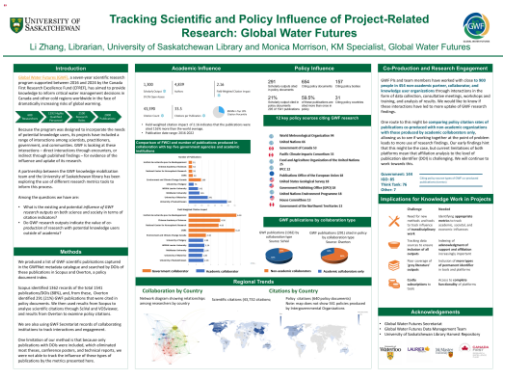
Analysis of citations from policy documents

22% of 1408 GWF scholarly articles recognized by Scopus were cited by policy documents

Government	IGO	Think Tank	Other
368	372	146	10

Ongoing analysis

https://hdl.handle.net/10388/15760



Tracking Scientific and Policy Influence of Project-Related Research: Global Water Futures

Li Zhang, Librarian, University of Saskatchewan Library and Monica Morrison, KM Specialist, Global Water Futures

Introduction

Methods

Academic Influence

Policy Influence

Co-Production and Research Engagement

Implications for Knowledge Work in Projects

Acknowledgements

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Providing Evidence of Policy Influence: GWF Experience: Part 2

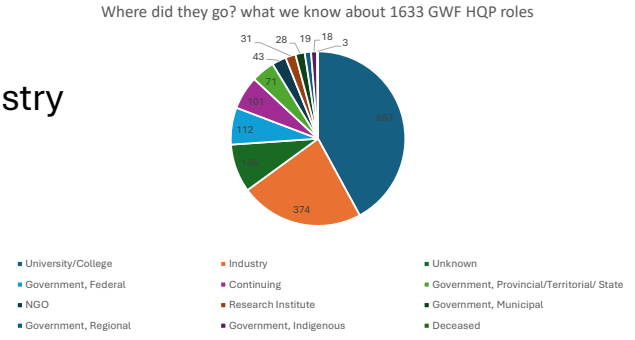
Presentation by Monica Morrison
to University of Saskatchewan
Research Facilitators Forum
8 April 2025

Scientific Excellence and International Competitiveness

Following on Part 1 of this presentation, am going to share some of our specific experience with tracking the influence of Global Water Futures program research findings through the online platform, Overton.

Beyond other scientists, who is using our research?

- Governments
- Industry and industry associations
- Civil society
- NGOs
- INGOs



Working destinations of GWF HQP upon project completion

Global Water Futures needed to find out where and how far its research findings were going, beyond academia. One approach we have taken is to track the Highly Qualified Personnel that had completed their work with the program. The organisations that hired them would reflect an interest in the research topics that were the focus of GWF. That helped, and one could argue that this type of knowledge uptake is perhaps the most significant. But we wanted to be a bit more precise in understanding the relevance and utility of our research. Was it possible to have documentary evidence of its use?

Citation of scientific studies in policy documents helps to provide evidence that the research was relevant to society.

Most policy is documented through grey literature that is not tracked on academic research platforms and is often posted temporarily on organization websites or in social media. It can be tough to find and track, and it can disappear from the place it was posted on the Web.

But a first step is becoming aware that a policy document exists: indexing platforms and library-type catalogues can help. Then to find it. Institutional repositories are an essential tool for this but their policies about what to capture and preserve vary. For example, Laurier's policy for its institutional repository did not include collection of conference posters and presentations. Since beginning work on our synthesis of Global Water Futures research, we have found such documents very useful as pointers to key issues.

So we looked at online tools that did this kind of tracking. They were all subscription-based, with only the Web of Science option available through USask's online resources.

Overton and SciVal (which uses Overton records but doesn't have its extended functionality) track the citation of scientific articles in many types of policy documents as well as citation of policy documents in other policy sources, while AltMetric also includes attention in popular media, including blogs, social media, and news sources.

The University of Saskatchewan did not have a paid subscription to any of these resources, but all these platforms offer free trials. In 2024, the OVPR ran trials on Overton and SciVal Impact, and our Global Water Futures team experimented with both. We liked the functionality of the Overton platform, and even though the university did not find enough active interest to pursue procuring an institutional subscription, we acquired a single user license for a year so we could incorporate this type of information in our final synthesis reporting work. What did we find?

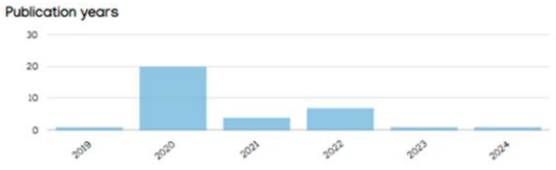
One GWF publication

Increasing wildfires threaten historic carbon sink of boreal forest soils
XJ Walker, JL Baltzer, SG Cumming, NJ Day, C Ebert, S Goetz, JF Johnstone, S Potter…
Nature, 2019 · nature.com

Scopus: 345 citations; **Google Scholar**: 475 citations;
WOS: 322; **Dimensions**: 391 citations
Plumex: 364 Citations; 538 Captures; 72 Media mentions; 15 Social media; 26 policy mentions
Altmetric: 529 (media, blogs, Wikipedia, etc.)

Overton: 26 policy citations

IGO	20
Think Tank	6
Government	5
Legislative Body	2
NGO	1



This ‘snapshot’ of citations for one Global Water Futures publication gives us an idea of the degree of attention from both scientific and extended communities of knowledge users. We can see that, according to Overton, citation in policy documents was highest in the year following the article’s publication. This graph could change as Overton adds more sources to its index retroactively.

What did we find? Numbers

22% of GWF **scientific outputs cited** in policy documents
22% of policy documents citing GWF work produced by **Canadian organisations**
45% of policy documents were from the **public sector**
IGOs, government, and think tanks – many **boundary organisations** -- were the biggest users of GWF research: IPCC, Government of Canada, UN

365 scientific articles were cited in 861 policy documents from 191 policy sources from 35 countries

Global Water Futures scientific research is having an influence on policy, in both Canada and internationally. Keeping in mind that Overton indexes many highly organized and accessible policy sources, search results point to how policymakers use scientific research.

The important role of *boundary organisations*, a key factor in the Global Water Futures' s Knowledge Management strategy, has been supported by our experience with Overton. Boundary organizations are connected to both academia and members of their specific constituencies, with staff members familiar with related science. They are well placed to transmit and translate scientific findings to the people they serve. An example would be a regional wheat producers association with an in-house scientist who both contracts out research on topics of high interest to the sector and serves as an advocate for the industry. That scientist might also collaborate on projects with academic researchers, which we think increases the likelihood of the research being put to use.

What did we find? Insights

- Are GWF publications **highly cited** in scientific literature also highly cited in policy documents?
- What patterns of thematic **popularity/relevance** were there?
- Can we see **cascading effects** of GWF research influence across organizations and geography?
- **Timing**: how long does it take for research to become known and useful to policymakers?
- Did publishing **open access** make a difference?
- Is there a positive effect of **transdisciplinary work**?

363 scientific articles were cited in 861 policy documents from 192 policy sources from 36 countries

These are questions whose answers can inform the work of future large networked scientific programmes that are looking to influence society. Comparing publications that were highly cited in scientific literature with those found in Overton, it appears that **scientific popularity is reflected in the use in policy documents**. For example, of the ten GWF articles most cited in other scientific publications according to Scopus, nine were found by Overton to have been cited across 219 policy documents.

Categorizing research by Sustainable Development Goals has become common in many platforms that track literature. After all, SDGs are meant to be indicators of what is important for the world to be working on in the face of societal and environmental challenges. Looking at the **SDGs that are reflected in GWF research outputs and in the policy documents that cite them**, there is some correspondence but there are also notable differences: for example, food security and urban water issues were the focus of several GWF project outputs but do not appear to have been picked up in policy documents.

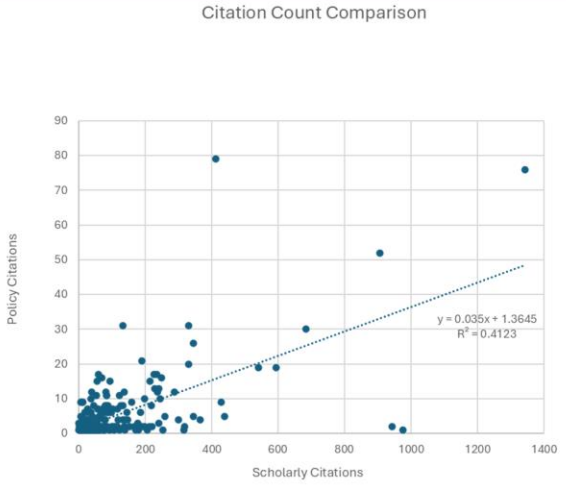
Overton not only tracks policy documents that cite scientific research but also tracks other policy documents that cite the first set of policy documents. In this way it is possible to see how the findings and ideas embedded in the science **find their way to broader influence**.

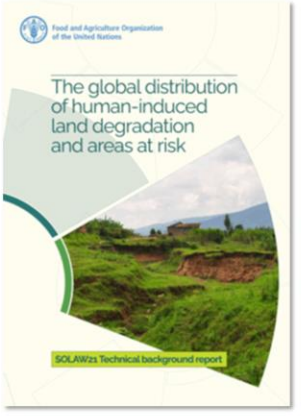
While improved connectivity has sped up the process of getting research into use through increased awareness, studies still indicate that i**t can take years** for research uptake to be evident. Our experience with Overton seems to show that citation of the scientific findings is happening more quickly, in some cases within a year or two.

Publishing science in **open access** journals is meant to increase accessibility and, by extension, use. Close to 60% (707) of GWF publications found in Scopus were published in open access. Of these, 25% (175) were found by Overton. Citations of GWF open access publications by other scientists were greater than those needing subscription access, and most GWF publications (69%) of GWF publications that were cited in policy documents were published in open access.

Transdisciplinary research that engages knowledge users beyond academia is now recognized as essential for the uptake of research in society. Close to 40% of GWF publications included co-authors from government agencies: this percentage was reflected in Overton.

Are GWF publications **highly cited in scientific literature** also highly cited in policy documents?





Looking at the scholarly citations of GWF outputs in Scopus and the policy citations of GWF outputs in Overton reveals a pattern of more policy uptake of research findings that have received substantial attention from other scientists. Are publications cited in policy documents because they have proved popular in scientific circles? Many policy documents related to water and climate change are crafted by scientific researchers , either as practitioners within their organisations, or as consultants, so it is likely that they are influenced by the science literature.

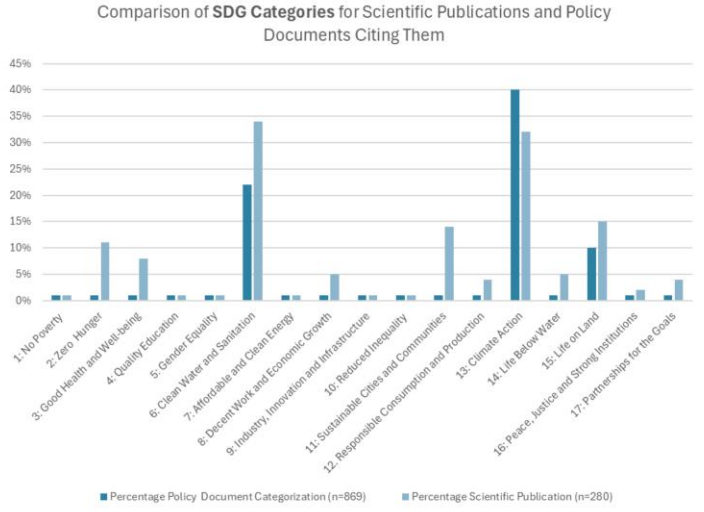
Nine of the 10 GWF publications **most cited** **in scientific literature** (Scopus) were found in Overton, cited in **220 policy documents** (Overton)

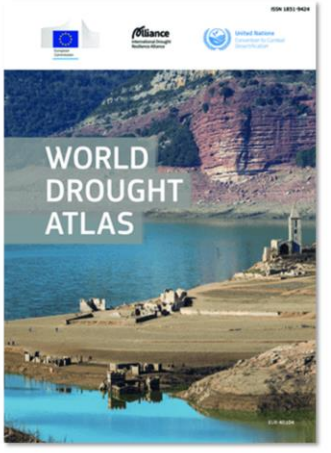
Of **10 GWF publications** *from the same time period* **least cited** **in scientific literature** (Scopus) only **one** was found in Overton, cited in **three policy documents**

Of the **10 GWF publications** **most cited** in policy documents (Overton), **nine** were found in Scopus, cited in **5,082 scholarly articles**

Of **10 GWF publications** *from the same time period* **least cited** **in policy documents** (one policy citation in Overton) **nine** were found in Scopus, cited in **538 scholarly articles**

What patterns of thematic **popularity/relevance** are there?

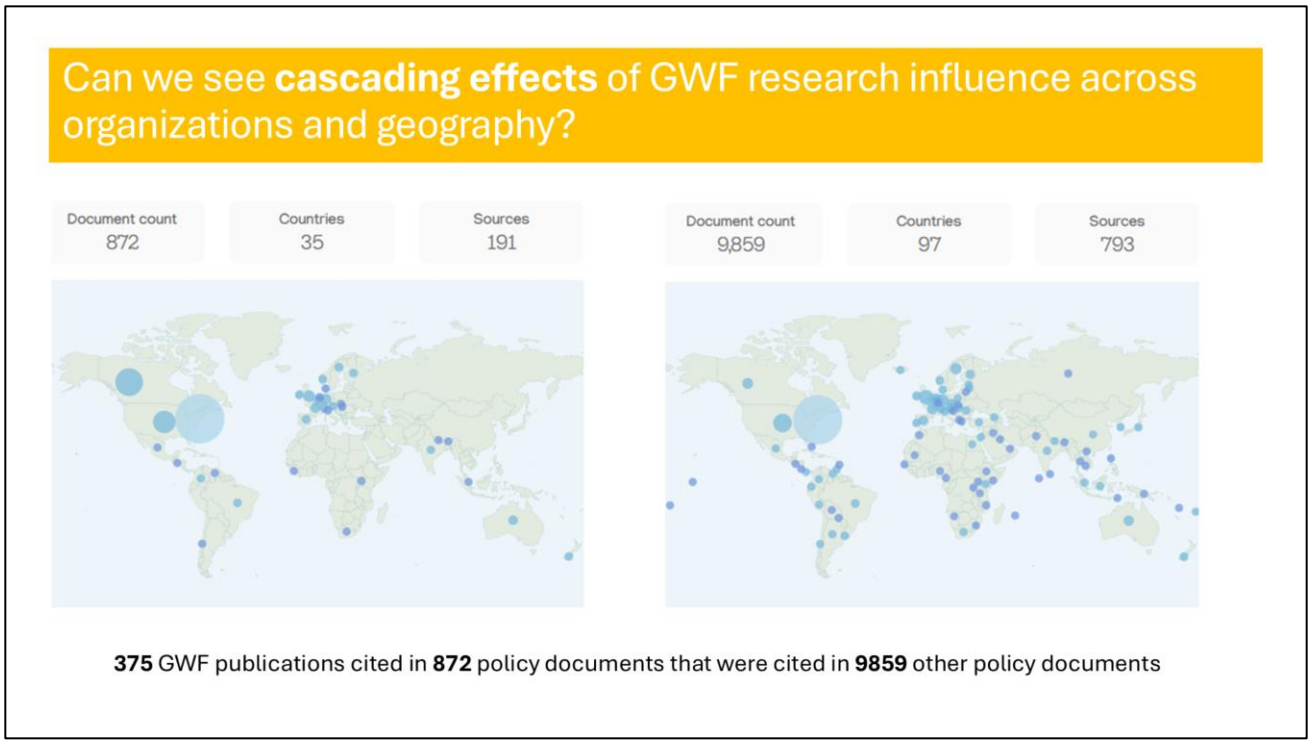




SDG 2: Zero Hunger

Categorizing research by Sustainable Development Goals has become common in many platforms that track literature. After all, SDGs are meant to be indicators of what is important for the world to be working on in the face of societal and environmental challenges. Looking at the SDGs that are reflected in GWF research outputs and in the policy documents that cite them, there is some correspondence but there are also notable differences: for example, food security, health and urban water issues were the focus of several GWF project outputs but do not appear to have been picked up in policy documents.

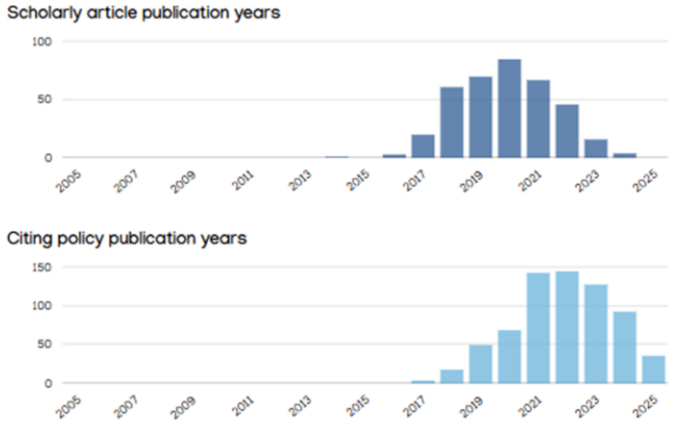
Of 376 GWF publications found in Overton, 280 were found in Scopus. The 376 were cited in 869 policy sources in Overton. SDGs for GWF publications were found through a custom search in Scopus.



Overton not only tracks policy documents that cite scientific research but also tracks other policy documents that cite the first set of policy documents. In this way it is possible to see how the findings and ideas embedded in the science find their way to broader influence.

The publication about the impact of wildfire on forest soils that we showed as an example in a previous slide was cited by 26 policy documents that were in turn cited by 3735 other policy documents from more than 700 policy sources on topics ranging from heat management to sea level rise to the life cycle of electricity lines.

Timing: how long does it take for research to become known and useful to policymakers?



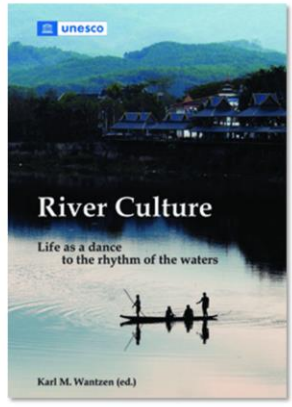
2025 policy document cited Hannah Mahoney et al. (**2023**)
Aquatic Toxicology

While improved connectivity has sped up the process of getting research into use through increased awareness and accessibility, studies still indicate that it can take years for research uptake to be evident. Our experience with Overton seems to show that citation of the scientific findings is happening more quickly, in some cases within a year or two.

Did publishing **open access** make a difference?

Yes, more **scientific citations**: GWF OA publications found in Scopus were approximately **17%** more cited in scientific literature than non-OA publications

Yes, more **policy citations: 89%** of GWF publications cited by policy in Overton were published OA



While the evidence is still not clear, there are many arguments to support the perception that scholarly articles published open access rather than behind a subscription paywall get more citations and use (https://doi.org/10.1371/journal.pone.0253129). Global Water Futures was committed to publishing its findings open access as a condition of its federal government funding. It succeeded in close to 60 per cent of its publications and worked to make up the difference by also posting many outputs in freely accessible institutional repositories. We looked at the citation performance of open access publications in both Scopus and Overton, finding, using the Field Weighted Citation Impact measure, that citations of GWF open access publications by other scientists were greater than those with subscription access, and that most GWF publications cited by policy were open access.

The Field Weighted Citation Impact measure compares the number of citations a publication receives to the average number of citations for similar publications in the same field, year, and type. This makes it easier to understand the impact of research across different fields.

870 of 1483 (59%) GWF pubs open access – Scopus (of these how many highly cited FWCI greater than 1.0 indicates above-average citation impact?: FWCI 2.32 vs 1.99 for all)
Of the 870 open access items in Scopus, 246 (28%) were found in Overton
255 of 365 GWF (70%) pubs cited by policy in Overton were published Open Access
Of 872 policy citations of GWF publications, 745 were from OA publications (89%)

Was there a positive effect of **transdisciplinary work**?

Co-authorship

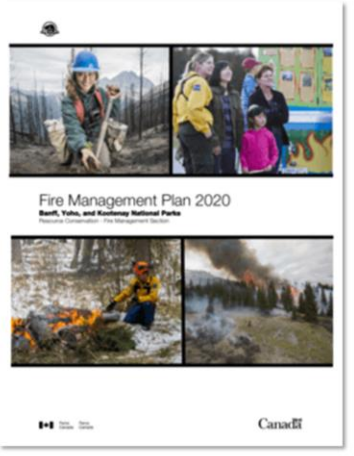
37% GWF publications with government co-authors (Scopus)

40% GWF publications had government affiliations (Overton)

Engaged (Overton):

Cited in policy source from

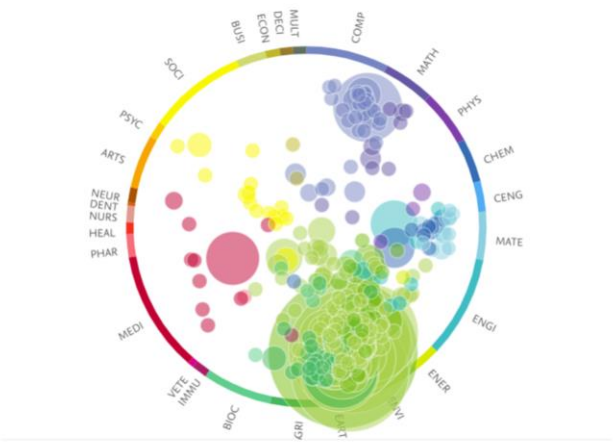
- Public Sector **827**
- Third Sector **170**
- Private Sector **1**



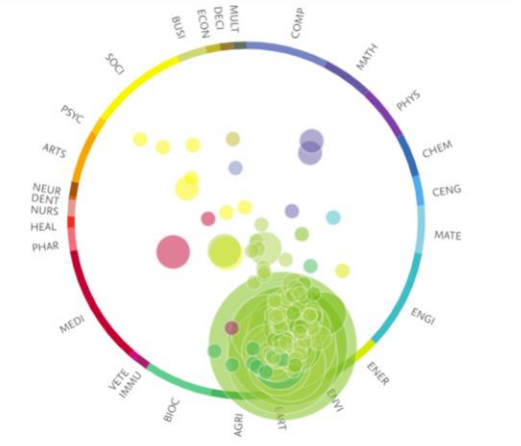
Transdisciplinary work – that includes engaging knowledge users beyond academia in the research process -- is now recognized as essential for effective uptake of scientific findings in broader society. Co-production of research with these potential knowledge users should take place from the beginning, and throughout, the research process. Co-production was built into the planning for Global Water Futures but appears to have been applied in varied amounts in implementation of the programme's 53 projects. We have looked to see if the research outputs produced contained indications of co-production processes by examining affiliations of authors of GWF research outputs. This has told us that GWF scientists worked most with government co-authors, and second with researchers from the 'third sector' -- NGOs, IGOs, and civil society organisations -- to produce at least 40 per cent of their scholarly articles. And it seems clear that co-production of the research has led to increased use of the findings in policy documents.

Ideally, records of explicitly transdisciplinary products such as community presentations, community meetings, community engaged artistic exhibits, field visits, web pages, blogs, videos, management meetings, and media hits would provide a strong indication of this type of work (https://doi.org/10.1007/s11625-020-00901-y). While annual project reports to the funder contained many mentions of these, they were for the most part not captured in a format that allowed easy analysis.

Was there a positive effect of **interdisciplinary work**?



All **GWF publications in** Scopus (n=1483)

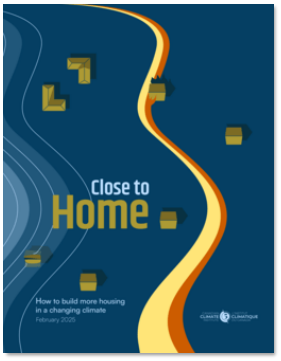


GWF publications **cited by policy** in Overton (n=365)

We also looked at how **inter-disciplinary** GWF publications were, as interactions among scientists from different areas of study can also be important in broadening awareness and relevance of the research. The two graphics show the difference between all GWF publications and those found cited by policy: there is less presence and interaction overlap of computer science, engineering and toxicology categories in the set of publications cited in policy. But plenty of interactions still among environmental sciences, agriculture, biochemistry, and earth and planetary sciences. Strong presence still of social sciences but not so much interaction with the natural sciences.

What did we like?

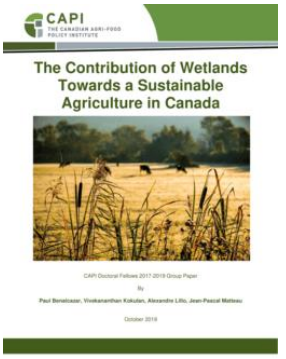
- Easy search of lists of **DOIs**
- Quick **export of results** in CSV, Powerpoint slides
- Varied and easy to use **filters**
- Ability to request **addition of policy sources**
- Ongoing **improvement of features** such as filters
- **Responsive** service and help



Mainly, we were able to see patterns of use that we couldn't find elsewhere.

Could the Overton tool also be useful in USask research facilitation?

- Find policy documents that **cite USask research**
- Find **policy to policy citations** to demonstrate the cascading reach of USask's research through the policy landscape
- Use Overton **data** for case studies, internal & external reporting, grants applications, annual reports, institutional analysis, impact dashboards
- Track **individual researchers'** policy citations and mentions
- Review policy to **identify research gaps and find collaborators**



Could the Overton tool also be useful in USask research facilitation?

- Find **16,000 policy documents** citing University of Saskatchewan scholarship
- Find **7,514 cited scholarly articles** from University of Saskatchewan
- List **people** from University of Saskatchewan mentioned or cited in policy
- Paste in a set of **DOIs, PubMed IDs, ORCIDs or ISBNs** and find their mentions in policy
- See the **universities** that Overton tracks and view their policy contributions
- See the **funders** Overton tracks and view their policy contributions

OSM Work Plan Template 2.0

2023-2024 OSM WORK PLAN APPLICATION

This form will be used to assess the merits of the proposed work plan and fit with the Oil Sands Monitoring (OSM) Program mandate and strategic priorities. Applicants must complete the form in its entirety. Applicants that fail to use this form and complete all sections in the timeframe will not be considered.

OSM Work Plan Submission Deadline: the deadline for submission of proposed work plans is October 31, 2022 at 4:30 PM MST. Late submissions will not be considered.	October 31, 2022 at 4:30 PM MST
Decision Notification:	mid to late March 2023

WORK PLAN COMPLETION

Please Enable Macros on the form when prompted.

The applicant is required to provide information in sufficient detail to allow the evaluation team to assess the work plan. Please follow the requirements/instructions carefully while at the same time being concise in substantiating the project's merits. The OSM Program is not responsible for the costs incurred by the applicant in the preparation and submission of any proposed work plan.

Privacy: The OSM Program is governed by the Freedom of Information and Protection of Privacy Act (FOIP) and may be required to disclose information received under this Application, or other information delivered to the OSM Program in relation to a Project, when an access request is made by anyone in the public. Applicants are encouraged to familiarize themselves with FOIP. All work plans are public documents.

Technical Requirements: When working on this form, please maintain Macros compatibility by always saving your draft and your final submission as a Microsoft Word Macro-Enabled Document. Failure to do so will result in loss of form functionality. The form was created using Microsoft word 2016 on a PC and may not have functionality on other versions of Microsoft on PC or MACS.

Government Lead/Coordinator: All work plans under the OSM Program require either a Government Lead or Government Coordinator (e.g., Alberta Environment and Parks, Alberta Environment and Parks & Environment and Climate Change Canada) are completed accurately for work plan consideration. However, if an Indigenous community, environmental non-governmental organization or any other external partner is completing a work plan proposal, they would only complete the proof or contract budget component of the Human Resources & Financials Section. The Government Lead/Coordinator (e.g., Alberta Environment and Parks would be responsible for completing the remaining components of the Human Resources and financial section of the Work Plan Application, as they are responsible for contract and grant fund allocation of successful submissions. All other sections outside of Human Resources & Financials Section of this work plan proposal are to be completed in full by all applicants.

Supplemental Materials: The OSM Program recognizes that majority of work planning submissions are a result of joint effort and monitoring expertise. Should the applicant wish to submit supplemental materials in addition to their application additional resources are available in the Work Planning Package accessible here: 2023-24 Work Planning Package [Ctrl+Click]

Should you have any questions about completing this work planning form or uploading your final submission documents, please send all inquiries by email to: OSM.info@gov.ab.ca

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Classification: PUBLIC

The answer is yes: with increasing demand by funders for indications of societal impact, tools like Overton and Altmetric are needed. For individual scientists in universities and research institutes, these tools can provide reminders of activity that may not have been included in the researchers' tracking of their careers. Helpful for development of narrative CVs.

Some studies

"… publications in the field of **Social Sciences and Humanities** have the highest relative presence in policy document citations, followed by Life and Earth Sciences and Biomedical and Health Sciences." 2024	https://arxiv.org/abs/2407.09854
For **SDGs** "… bibliometric measures of research quality may not adequately explain policy influence, or that these metrics might not capture the essence of research excellence from a policy perspective." 2024	https://onlinelibrary.wiley.com/doi/10.1002/sd.3214
"Collaborative teams, cross-disciplinary interactions, and disruptive paradigms can all increase the citations within policy communities, yet the relationships are not linear. **Non-academic authors** can consistently attract more policy citations, whether publishing alone or collaborating with academics." 2024	OSF Preprints | Why do some academic articles receive more citations from policy communities?
" … the **most cited articles generally have a greater scientific impact and show more international collaboration** … which may partially explain the international influence of those articles." 2025	https://doi.org/10.1162/qss_a_00345
"**Cross-disciplinary research** … increased the likelihood that publications were cited in policy documents" 2021	https://doi.org/10.1162/qss_a_00137

Overton maintains on its we site a list of scholarly publications that have explored the use of the tool, and their newsletter highlights recent studies of this kind.

Free to use resource for individual researchers, based on the Overton database.

Learn more

- Overton's "How-to" Guides
- Overton's Blog
- Case studies for examples of use cases
- Overton's Zotero Library for papers that have used Overton data

Questions

- Email inesia@overton.io

Building US food-energy-water security requires avoiding unintended consequences for ecosystems

Special thanks to

- University of Saskatchewan Library: **Li Zhang, Emily Hopkins**
- University of Saskatchewan Research Facilitator/Administrator Forum: **Phani Adapa, Olga Baron, Graham Fairhurst**
- Global Water Futures: **Lawrence Martz, Chris DeBeer**

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