POLLUTING HEARTS AND MINDS:

# The lessons learned from mapping information pollution across 8 country contexts

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The Oslo Governance Centre (OGC) is UNDP's Global Policy Centre for policy development and applied research with an overarching focus on democratic and inclusive governance. The OGC engages with practitioners, policymakers and researchers to create insight and knowledge for improved governance programming and global policy engagement for UNDP and beyond.

OGC functions at times as a hub for incubation and exploration of new and acute governance related issues. Since April 2020, the OGC has been actively engaged in improving understanding of information pollution in development contexts, serving as a UNDP focal point for analysis and advice on the issue. OGC invites you to provide feedback on this product to oslo.governance.centre@undp.org

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# The lessons learned from mapping information pollution across 8 country contexts

2020 Information Pollution Mapping Grants Programme
UNDP Oslo Governance Centre

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# I. Introduction

The erosion of public trust in democratic institutions and mainstream media, unregulated internet platforms, the weaponisation of information for political, ideological, and economic interests, and low public digital and media literacy are enabling an information ecosystem in which disinformation thrives. By mobilising existing polarisation and inequalities, information pollution has undermined social cohesion and democratic processes, and contributes to negative public health outcomes, human rights abuses, and conflict.[1] This has been perhaps especially true during the COVID-19 pandemic.[2] The exponential increase in the volume of information of varying quality have left many overwhelmed by what the WHO has labelled an "infodemic," or the "overabundance of information, some accurate and some not, that makes it hard for people to find trustworthy sources and reliable guidance when they need it."[3]

As the magnitude of the information crisis has grown, UN agencies and other stakeholders have redoubled efforts to respond effectively to disinformation, misinformation, and mal-information, or what UNDP refers to collectively as *information pollution*.

## BACKGROUND


In July 2020, the UNDP Oslo Governance Centre (OGC) launched an internal call for proposals to study information pollution trends and patterns in diverse country contexts. Eight UNDP country offices were selected through a competitive process, namely Cambodia, Chile, Lebanon, Panama, Samoa, Sierra Leone, Ukraine, and Venezuela. The information pollution mapping programme provided grants of up to 40,000 USD, as well as technical support and joint learning opportunities.

Each of the eight country initiatives aimed to:

- Contribute to improved understanding of the local information landscape as outlined in the Information Pollution guidance note;
- Serve as a catalyst for continued information pollution programming;
- Encourage collective learning and best practice in the field of mapping information landscapes.

## PURPOSE OF THIS REPORT

OGC collected data throughout the process to monitor learning, challenges, and best practice. This was done through online questionnaires, regular joint reflection meetings, and one-on-one interviews with country focal points. The objective of this report is to collate the information gathered by this monitoring and offer guidance for programmes that want to conduct similar mapping exercises to monitor information pollution. This report provides recommendations on logistical issues, as well as methodology and research approaches. It is intended to be used by programme managers, communication specialists and other UNDP practitioners who do not have specific expertise in this field and wish to plan or support similar exercises.

1 https://www.europarl.europa.eu/RegData/etudes/STUD/2021/653635/EXPO_STU(2021)653635_EN.pdf

2 Effects of misinformation on COVID-19 individual responses and recommendations for resilience of disastrous consequences of misinformation, Progress in Disaster Science, Volume 8, 2020 (https://www.sciencedirect.com/science/article/pii/S2590061720300569)

3 https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation

# II. Practical Considerations

Participating country offices faced a number of logistical challenges when planning and executing their monitoring work. The below practical considerations can help strengthen the process for future mapping exercises.

1. **Sufficient budget for online data collection and analysis, as well as dissemination and visibility of the research**

   Budgets need to include the cost of purchasing or accessing tools for data gathering and processing (or engaging a partner with the necessary experience and access), sufficient data samples to ensure coverage of key populations or topics, and necessary human resources. Several teams experienced challenges gathering representative survey samples because budgets did not allow for sufficiently rigorous data collection. In Lebanon, pronounced regional and urban/rural variation required larger samples, while in both Lebanon and Chile, the use of online survey data collection, a lower-cost option, reduced representativity and fell short of desired sample size. Budgeting for validation workshops, data visualisation, translation, publication, and dissemination costs is also important.

2. **6 to 9-month timeline for sufficient data collection and analysis, as well as validation and communication of findings**

   The changing nature of the information pollution narratives and keywords can require mid-project changes in methodology and focus. Allowing a degree of flexibility into timeline and budget will allow for better quality data and more nuanced analysis. Additionally, as some teams noted, procuring consultants, services, partners, and extra staff can take considerable time. Time constraints also impacted data collection. In Cambodia, this meant that the data was skewed toward urban participants as there was insufficient time for a general population survey. Chile reported a smaller survey sample size than planned due to time constraints. Teams felt additional time to explore various data collection and analysis tools prior to designing their methodology would have improved their approach and helped teams better prepare resources in advance and avoid duplication of work. Procurement should begin as early as possible in the project cycle, and sufficient time allocated for data collection.

3. **Take stock of internal capacities and engage external expertise as needed.**

   Understanding the skills and capacities of research team members is important to the success of any mapping exercise. In particular, the ability to use advanced web-scraping techniques and/or machine learning is invaluable. Moreover, it is time-consuming work, particularly when working with large data sets, and not always feasible to expect existing staff to complete on top of other priorities.

   While knowledge of the local information context is important for analysis, in some countries, there is a shortage of technical capacity and thematic

***In Ukraine, online data collected more than 30 million publicly accessible social media posts mentioned COVID, with 42% of those appearing on Facebook. Of this content, nearly 1% (or just over 250,000) contained mis- or disinformation, with 82% of those undebunked. Trending among these posts were narratives that encourage irresponsible social behaviour and challenging the authority of medical experts and political leaders. See here for further details.***

knowledge on monitoring of online information pollution. Several offices faced challenges identifying qualified partners in the local market.

Partnerships with research consultancies, think tanks, civil society organisations, and academic institutions proved useful in Cambodia, Chile, Samoa, and Sierra Leone. Procuring an entity offering online monitoring, sentiment analysis or similar services can provide access to a range of disciplines and skills that would otherwise prove challenging to find in an individual consultant. It also allows the CO team more time to focus on strategic communication and dissemination of the research findings.

4. **Strategic consultations with other stakeholders throughout the process can build valuable buy in, strengthen research design, and improve analysis.**

Strategic consultation with other stakeholders, including UN agencies, civil society and government partners, in advance and throughout the process, can build valuable buy in for the study. This can strengthen the purpose and design of the research, and the data analysis and conclusions. Validation workshops are an effective way of testing assumptions and correcting misinterpretations in the analysis, as well as bringing missing perspectives to the process.

5. **Be aware of the risks that a mapping exercise may create**

It is critical to understand the different types of risks that may emerge when conducting a mapping exercise, including, but not limited to, operational risks, human rights risks, reputational risks, or privacy risks. A thorough risk assessment is advisable to identify and mitigate potential risks in the mapping context. For example, anonymity of respondents may be particularly important in countries with restrictions on freedom of expression and opinion.

***In Chile, with a weakened media sector and ongoing social unrest, the 2019 constitutional referendum campaign was expected to generate divisive disinformation online. Twitter had a marked bias in favour of the "no" vote, despite general political trends in the country leaning strongly towards a "yes" vote. Importantly, this Twitter bias influenced media reporting of the process. See website developed here.***

***Data from Samoa suggests that when social media users referred to vaccines the sentiment was 71% negative and 29% positive. Among those posts containing mis- or disinformation, quasi-medical advice and rumours where often combined with anti-vaccine, anti-government, and divine intervention beliefs.***

# III. Methodological Considerations

Designing a methodology for mapping information pollution requires careful consideration of research goals and the methods best suited to achieve them. The methodologies employed by the UNDP teams, as well as web scraping tools used, can be found in the Methodological Annex. This section briefly explores learning related to the methodologies used during the mapping exercises.

### Conduct a desk review to focus the research and avoid duplication

Given the need to develop not only clear lines of enquiry but also associated keywords to guide analysis of text data, it is recommended to first undertaking a brief literature, data, and technology review. A review of context-specific disinformation research highlights questions explored in the past and those that remain unexamined. An initial review of commonly used internet platforms in each context helps to identify the most appropriate data collection tools. The choice of data collection tools has implications for both the budget and the timeframe of the project. It is preferable to identify these tools in the planning and budgeting phase to avoid having to compromise on data collection due to insufficient funding or staffing.

### Sequencing of data collection allows findings from one stage to inform the next.

Chronology of data collection stages is important, as findings from one stage can help inform how to structure the next.[4] This allows researchers to adapt and refine the lines of enquiry in surveys, focus group discussions, and interviews based on the findings from the online data.[5] Panama found holding stakeholder interviews after web scraping offered the research team additional analysis of the information pollution landscape.

***In Sierra Leone, 90% of respondents reported that disinformation on COVID-19 was being disseminated in their communities. Politicians, and other political actors were seen as key influencers and amplifiers of disinformation. Health workers, media practitioners and traditional/religious leaders were cited as the most trusted sources of information on COVID-19.***

***In Venezuela, political polarisation around migrant flows has encouraged contagion narratives. On Twitter and throughout the media more generally, contagion narratives have gained traction in the form of conspiracy theories that claim to identify an external origin for the virus, migrants being the main vector of virus transmission in this case. The most extreme cases of disinformation classify migrants as "biological weapons" or "bioterrorists". See report here.***

4 See research stages used by country offices in the methological annex at the end of this report.

5 Country teams suggest collecting and analysing online data—i.e., Twitter posts, Facebook data, or media articles—prior to collecting in-person data, including that from surveys, focus group discussions, and interviews.

**Data collection and analysis for studies of information pollution is best conducted as an iterative process.**

Reflection time, strategically built into the methodological process, allows researchers to periodically review the research topic, research question, data, and analytical tools. Pausing for reflection mid-research enables real-time pivot and adaptation in response to early findings, which is valuable given that disinformation narratives can shift over short periods of time.

Data collection and analysis is most effective if done iteratively, involving stages of gathering data, analysing that data, pausing to consider the implications of initial findings, gathering more data and so on. Through ongoing reflection and iteration, the Lebanon team noted the need for a regionally stratified sampling strategy to better investigate regional differences.

***In Cambodia, the findings suggest that young people are well placed to address and counter disinformation because of their online presence and proficiency. Fact-checking initiatives and content moderation or curation have been the two most commonly mentioned antidotes to disinformation. Government sources of information on COVID-19 in Cambodia remain highly trusted across all age groups.***

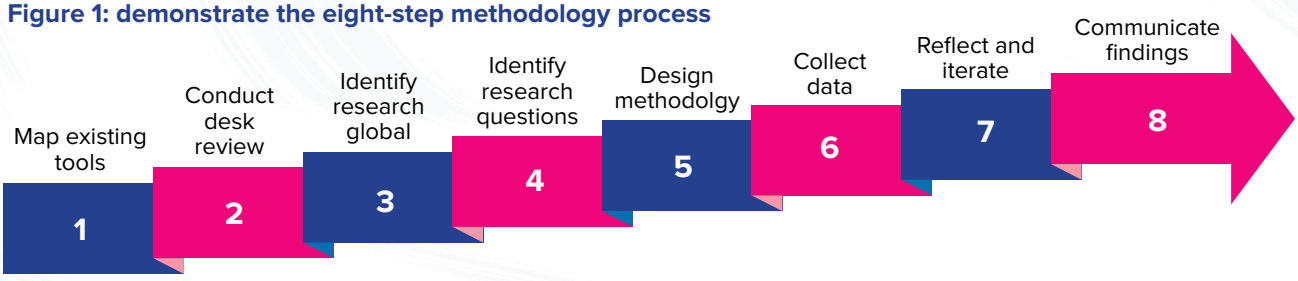
**Online data collection has limitations which can be mitigated through other research methods.**

Online monitoring does not necessarily provide a fully representative sample of conversations on the internet, let alone more broadly. Access to social media data is limited by privacy settings on each platform. Private groups or encrypted messages not accessible through web scraping. These data gaps should be considered during data review.

Other limitations of online data collection emerged. For example, some countries encountered analytical and platform language restrictions, especially for non-Latin script languages. In Lebanon, an online survey was intended to increase reach but resulted in a less representative sample as many respondents lacked access to the internet or did not complete the online survey because of its length.

The most successful methodologies employed multiple data collection methods and sources (e.g., social media listening on relevant platforms, online monitoring, general population survey, online lab experiments, interviews, and focus groups), and collected primary quantitative and qualitative data. In Ukraine, conducting a survey allowed the researchers a deeper understanding of attitudes and how the public might respond to or use information.

**Figure 1: demonstrate the eight-step methodology process**




1. As online monitoring and data scraping technology evolves constantly, **map out existing tools** to understand what is available and the capabilities.
2. **Conduct desk review** of previous related research and take note of gaps and findings which can inform your lines of enquiry.
3. Identify a clear and concise **research goal** informed by the first two steps.
4. Develop specific **research questions** which can help achieve the research goal.
5. **Design methodology,** including qualitative methods, when possible, to provide depth to online quantitative data.
6. **Collect data:** leverage both primary quantitative and qualitative data.
7. Take time to **reflect and iterate,** adapting methodology, data collection tools or lines of enquiry if needed.
8. Develop a comprehensive plan to **communicate findings** with all stakeholders so that the research is applied to strengthen programming and policy.

# IV. Context Matters

Context-specific factors influence the tone, scope, and outcomes of information pollution. Contextual factors represent important avenues of investigation that should be built into information pollution research design. In each instance, understanding contemporary online discussions and historical, social, political, and economic points of contention can and should shape key features of the research process, including research questions, sample selection for both quantitative and qualitative data, key word searches, and so forth. In Ukraine, historic misuse of public funds and a healthcare crisis have influenced the focus of information pollution. In Lebanon, longstanding mistrust of the government and the compounding effect of multiple crises have left many feeling disempowered at a time when individual behaviour is critical to community health. In Venezuela, political polarisation around migrant flows has encouraged contagion narratives and conspiracy theories targeting returned migrants — in the most extreme cases classifying migrants as "biological weapons" or "bioterrorists". Finally, in Panama, disinformation reflects pre-existing political anxieties and polarisation between progressive values and traditional values and norms.

Patterns of online platform use is a defining factor of disinformation creation and spread. However, platform use and the way in which disinformation operates on each platform is contextually driven, including at the subnational level (i.e., among urban vs. rural users). As such, the platform or platforms selected for data collection will vary from context to context. The business model of Facebook—i.e., offering mobile connectivity to the "internet" while restricting access to only Facebook or Facebook-owned applications—in many countries has increased reliance on Facebook as a main source of information. This is true in Sierra Leone, Cambodia, Samoa, and Ukraine to some degree. 87% of users in Ukraine report using Facebook as their main social media platform. Facebook pages and groups for religious organisations and diaspora influencers are primary sources and spreaders of disinformation in Samoa.

***In Lebanon, the mixed methodological approach yielded interesting insight into the relationship between people's knowledge and behaviour associated with COVID-19. Almost 75% of the population believe that there is an excessive level of misconceptions around the pandemic, due to inconsistency of information, lack of scientific information, and lack of fact-checking. See full report here.***

Twitter use is especially widespread in Latin America. Interestingly, highly polarised trending topics and conversations on Twitter were later echoed by more traditional media sources in Chile. In Venezuela, the lack of disincentives for introducing and sharing disinformation on Twitter allow for greater online information pollution than seen in traditional media outlets. Finally, traditional sources of information—namely radio and word-of-mouth—are more common in rural communities, those with low internet access, and those with low TV ownership. This is the case in Cambodia and Sierra Leone.

## ENABLERS OF INFORMATION POLLUTION

Three enablers of information pollution emerged across the eight country contexts, though the relevance of each varied. Each enabler represents an existing set of conditions which information pollution agents can exploit to increase the spread and uptake of misleading or false content. Focusing research on the most important of these or other identified enablers in each context represents an important part of the research planning process.

1. *Political polarisation:* Political polarisation provides both an enabling environment for information pollution to spread and is the desired outcome of political actors looking to consolidate or gain power. Across Panama, Venezuela, and Chile, data suggests that higher polarisation is correlated with greater information pollution. Polarised communities exhibited greater quantities and spread of information pollution.
2. *Influential diaspora:* Large active diaspora communities with significant in country spheres of influence can

drive information pollution narratives. This is especially true in contexts with strong oral traditions of information sharing. For example, the "coconut wireless"[6] in Samoa amplified the impact of disinformation from a large diaspora population in close and frequent contact with local communities. The diaspora population includes prominent anti-vaccination influencers and international campaigners.

3. *Information supply gaps:* Little was known about the origin, transmission, and treatment for COVID-19 at the start of the pandemic. Understandably, many went online searching for answers. The gap between this high demand for information and low supply of credible information left a fruitful void easily exploited by propagators of disinformation. In Venezuela, comparing Google Trends with analysis of Twitter data reveals users received information on Twitter and then took to Google to gather additional information, and presumably fact-check to some degree. Where fact-checking is not possible given a dearth of information, disinformation flourishes.

***In Panama disinformation exploits pre-existing political divides and polarisation. This emerged clearly in online discourse between progressive and conservative views on gender issues. Disinformation focusing on "feminism", "abuse", "gender violence", "domestic violence", and "gender" has increased significantly in 2020. See full report here.***

# V. Conclusion

These 8 case studies in Cambodia, Chile, Lebanon, Panama, Samoa, Sierra Leone, Ukraine, and Venezuela affirm the concern that that information pollution is a threat to social cohesion and human rights, and targets already vulnerable populations. In the words of the UN Secretary General, Antonio Guterres: "The ability to cause large-scale disinformation and undermine scientifically established facts is an existential risk to humanity."

To counter this existential risk, it is of outmost importance to map and monitor information pollution and so contribute to a greater understanding of its potential impact on issues of public concern.

This report gives concrete advise and recommendations to programme managers, communication specialists and other practitioners on methodology and research approaches.

The report offers operational recommendations that can help strengthen information pollution mapping exercises. Equally important, it lays out the steps for designing and conducting a research project of this kind. Finally, it underlines how crucial it is to understand the contextual factors that influence the information landscape. Historical, social, political, and economic realities will influence the focus of the research, including research questions, sample selection, key word searches, and so forth.

Monitoring and mapping information pollution is an important element of understanding the information ecosystem in order to build more effective responses. But information landscapes are complex and constantly evolving, as are the information pollution narratives and tactics within them. Any such study can only provide a partial and timebound snapshot of those landscapes. Strong analysis and testing of findings with different stakeholders can go a long way to providing a more complete picture of the situation.

As this complex area of work evolves, there will undoubtedly be new approaches, datasets and tools developed which will change the nature of these exercises. However, fundamentals will remain important. This work requires sufficient budget and time, as well as a specific skillset, in order to be effective and useful. Oslo Governance Centre will continue to monitor this field and update its advice as it evolves.

6 Local term for word-of-mouth information sharing.

# Annex 1: Methodologies

## COUNTRY CASE STUDIES

### CAMBODIA

Cambodia began with desk research (Stage 1) and key informant interviews with five media experts and sociologists (Stage 2). This initial work provided foundational knowledge of the information landscape which informed social listening of data from Facebook using Netbase technology (Stage 3). Findings from the social listening exercise were used to develop the facilitation of six virtual focus group discussions (Stage 4). Focus group participants then kept a mobile diary over the course of three days (Stage 5). Each day participants submitted links, pictures, and videos of various types of information they engaged with throughout the day, often in response to tasks given by the research team. Each participant was asked a series of follow-up questions to explore the sources and types of information submitted. Data from each stage was analyzed and presented during a final workshop.

### CHILE

Chile began with a desk review, followed by social listening. Findings were robust but perhaps most importantly the Chile team emphasized that this initial mapping exercise represents a baseline which will inform future research. Moreover, the team found analyzing information pollution across multiple thematic topics or political processes would help to eliminate data biases which can emerge from looking at a single issue or event.

### LEBANON

The Lebanon team undertook a complex and technically driven methodology. Following the desk review (Stage 1), a household survey (Stage 2) and key informant interviews (Stage 3) were conducted. Real-time analysis was undertaken throughout data collection, which was used to inform experimentation with an online survey (Stage 4) and chat bot (Stage 5). The Lebanon methodology paired online data, behavioral experiments, and two types of survey data (household and online). Lebanon focused the mapping exercise on knowledge of and behavior around COVID-19, with a focus on the relationship between the two.

### SAMOA

Samoa began with a desk review, then interviews while testing capacity for web scraping. The methodology pivoted throughout the study to adapt to time, budget, and capacity constraints. Though there was a desire to use web scraping, the mostly oral tradition of information sharing necessitated a more manual review of data and the use of data from messenger applications and Facebook.

### SIERRA LEONE

Television ownership and internet access are especially low in rural Sierra Leone. Information is most often shared through radio and word-of-mouth. While there were a number of local newspapers, many ceased operations prior to the start of the study period. Because of this, the Sierra Leone team, with their partners, the Media Reform Coordinating Group, undertook an almost entirely manual media monitoring exercise. A team of media monitors was given a list of codes, distilled from the research questions, and tasked with content analysis which would result in a tabulation of code frequency and categorised qualitative data. Initial the team intended to use technical tools, like NVivo or Atlas.ti for example, but lack of capacity prevented use of the software. Focus group discussions and data from a household survey were paired with content analysis.

### UKRAINE

The Ukraine team and their partners, SemanticForce, developed a highly quantitative methodology, utilising advanced digital tools, and pairing online data with survey data. The research team reviewed reports from 2017 through 2020 produced by 175 global fact-checking organisations across more than 40 countries (Stage 1). These reports formed a database from which a short-list of the 46 disinformation narratives with the largest audiences and most negative impacts were identified and grouped into seven clusters. From these narrative clusters, topics were identified (Stage 2). The team then analysed social media profiles producing content related to these topics and organised profiles into one of three categories: an actual human, a person operating a malicious group of accounts, or a fully or partially automated account. The team also used the machine learning-based semantic analysis tool and a manual audit of 10,000 messages to detect hate speech in social media posts (Stage 3). Next, the team used Facebook data and the Audience Insights tool to construct and understand average user profiles of common disinformation amplifiers and debunkers (Stage 4). To understand the profiles and behaviors of influencers, the team scored and ranked 5,000 potential influencers according to audience type and responsiveness, account activity and relevance, and so forth (Stage 5). They used social listening on the top 250 influencers, to generate real-time narrative, audience, and engagement analytics. Finally, a nationwide general population survey was conducted online (Stage 6). The survey respondents answered demographic, attitudinal, and knowledge questions which enabled social profiling and provided deeper contextualisation of data.

### VENEZUELA & PANAMA

The Venezuela and Panama study teams worked in partnership. Twitter data was scrapped and then analysed using a combination of statistical analysis and manual review. Advanced statistical analysis was used to identify and analyse the features of communities, information nodes, narratives, and trending topics. Traditional media was analysed using Meltwater tools. Findings from both twitter data and traditional media content were compared and used to triangulate findings. While Venezuela relied solely on this analysis of web scrapped data, Panama built on findings from this initial phase to further triangulate findings using stakeholder interviews.

## TABLE 1: METHODOLOGIES USED

| Country Office | Desk Review | Inter-views | Survey (house-hold) | Manual Data Analysis | Web Scraping | Survey (online) | Chatbot | Median User Profiling | FGDs | Media Diaries |
|---|---|---|---|---|---|---|---|---|---|---|
| Cambodia | Stage 1 | Stage 2 | | | Stage 3 | | | | Stage 4 | Stage 5 |
| Chile | 1 | | | | 2 | | | | | |
| Lebanon | 1 | 3 | 2 | | | 4 | 5 | | | |
| Samoa | 1 | 2 | | | 3 | | | | | |
| Sierra Leone | 1 | 2 | 4 | 3 | | | | | 2 | |
| Ukraine | 1 | | 5 | 3 | 2 | | | 4 | | |
| Venezuela | | | | | 1 | | | | | |
| Panama | | 2 | | | 1 | | | | | |

## TABLE 2: WEB SCRAPING TOOLS USED

| Web Scraping/Social Listening Details | |
|---|---|
| **Country Office** | **Tool(s)** |
| Cambodia | Netbase (Facebook) |
| Chile | API (Twitter); CrowdTangle (Facebook) |
| Samoa | CrowdTangle (Facebook); MediaToolKit (Facebook) |
| Ukraine | SemanticForce (SF); SF Platform; SF Audience Insights; PostTruthAPI; DomainGuard; SemanticForce.bi; COVID-19 Intelligence Framework |
| Venezuela | Meltwater; Firehose database (Twitter text mining and community detection); Google Trends |
| Panama | Meltwater; Firehose database (Twitter text mining and community detection); Google Trends |

# Annex 2: Research briefs

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# CAMBODIA

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Cambodia**, the pandemic increased the vulnerability of the population to disinformation and the circulation of false and misleading information on appropriate remedies, cures, and preventive measures. This has exacerbated the challenges of identifying trusted information sources.

There has been little research conducted on the issue of disinformation in Cambodia. The UNDP report "*Combatting Disinformation: A preliminary assessment of the information landscape in Cambodia*" sought to illuminate the country's information landscape by seeking to meet the following objectives:

- Understand what types of information sources Cambodians prefer
- Harness insights on themes of disinformation during COVID-19
- Identify key stakeholders in mitigating disinformation
- Understand how Cambodians discern between credible and non-credible information

The data collection for the report was carried out from October to December 2020.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The Cambodian study utilised several qualitative techniques that were employed in phases as follows:

- **Desk Review:** To understand contextual information relevant to the Cambodian landscape, guide subsequent phases of the study and identify gaps in knowledge to be further studied.
- **Key informant interviews:** Five media and sociology professionals were interviewed for their perspectives on Cambodian information pollution.
- **Social listening:** A social listening tool called Netbase was used to monitor online content.
- **Focus Group Discussions:** To give a holistic overview of the topic area. The sample groups, consisting of Cambodian citizens from age 19-40, were segmented by socio-economic class, age, and region.
- **Mobile Media Diaries:** Kept over three days by focus group participants. The participants were given tasks related to information sources accessed and received follow-up questions based on interaction.

For more information: **http://www.undp.org/oslocentre**
**United Nations Development Programme**
UNDP Oslo Governance Centre, Kongens Gate 12, 0153 Oslo, Norway

**AUGUST 2021**

## FINDINGS

The Cambodian study used a small sample size, and the findings cannot be generalised to the wider population, yet they provide useful insights into the information landscape of the country.

### Factors contributing to disinformation vulnerability

Facebook is cited by key informants as the most popular source of information amongst urban Cambodians, and Cambodians themselves refer to it as their most used platform for information consumption. Given their activity online and greater exposure to online information sources, young people are deemed by key informants to be particularly vulnerable to disinformation – not necessarily because they are more likely to believe in disinformation narratives, but because they are more likely to further disseminate them within their networks. Young respondents of the survey believe on the other hand that older people are more vulnerable to disinformation due to being more "emotional" and "gullible". The research also indicates that those with less access to information, or who are less proficient online, are likely to be highly influenced by disinformation. Additionally, individuals with higher socio-economic status are better able to verify the information they view online, possibly due to higher educational levels.

The key informants raised the concern that Cambodians do not take the necessary steps to verify accessed information. Respondents supported this assumption by admitting they seldom go out of their way to verify information. However, many respondents do report specific pages to Facebook when encountering something that seems to be "fake".

### information sources in Cambodia

The results from the social media analysis revealed that the most popular COVID-19 related posts come from the Government and other institutions, with the Ministry of Health and World Health Organization being the most visited sources for this information. Instant messaging applications, such as Facebook's Messenger and Telegram, were also popular amongst survey participants for receiving news and links to access information. When it comes to trusted information sources, the source of the information often matters more than the content itself. Public figures, e.g., commune chiefs or religious leaders, are seen as more trustworthy due to their status as leaders, and key informants believe they therefore also have the capacity to act as super-spreaders of disinformation.

### Are people responding to disinformation?

Survey respondents indicate that they would not comment or share any items associated with what the Government defines as disinformation as it is a criminal offence. However, many respondents explain the tendency to spread of disinformation as opportunism or attention seeking. Additionally, many perceive junk news to be "exaggerated news" rather than disinformation – meaning the news contains truth but is sensationalised to attract attention.

## RECOMMENDATIONS

The report identifies several areas for further research and investigation including the following:

- Research on disaggregated consumption habits and behaviours on disinformation (rural vs urban; young vs old; educated vs uneducated; male vs female) to identify effective strategies and interventions to encourage different audiences to critically evaluate information better.
- Foster greater media and information literacy amongst vulnerable populations by identifying trusted arbiters of information and targeting them with digital/civic literacy that will allow them to better assess the information they receive before sharing.
- Understand the role of young people and social media influencers as "force multipliers" in addressing and spreading disinformation.
- Monitor the information landscape with regards to COVID-19 disinformation by improving understanding of how citizens living in rural areas receive and interact with information from various sources.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# CHILE

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading, or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Chile**, several determining factors provide fertile ground for information pollution following the social unrest in October 2019 and the COVID-19 outbreak in 2020. High uncertainty, low levels of trust in political institutions, crisis in the journalism sector, and widespread use of online platforms such as Facebook, Twitter, and WhatsApp. Following the social unrest in 2019, a plebiscite was organised to determine the drafting of a new constitution. The constitutional plebiscite took place on October 25, 2020, with 78% of voters approving the drafting of a new constitution in a landslide victory.

To better understand the influence of information pollution on Chilean democratic processes, UNDP carried out a study in partnership with the research centre, Millennium Institute Foundational Research on Data, and produced the report "Technical Report: Information Pollution in the Chilean Constitutional Plebiscite". The research studied information pollution during the campaigning period leading up to the plebiscite, and sought to meet the following objectives:

- To assess the Chilean information landscape regarding the constitutional process through communication channels, information consumption, and relevant sources of information.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The methodology, utilizing a predominantly quantitative approach with statistical analysis, was employed in stages as follows:

- **Desk Review:** To understand contextual information on how disinformation can affect democracy and political processes with the emergence of social networks. The findings of the comprehensive desk review guided the subsequent methodology.
- **Social listening (1):** Conducted to understand the consumption of media sources in Chile in the aftermath of the social unrest in October 2019, social media data was collected and analysed with Facebook's CrowdTangle tool.
- **Social listening (2):** Main data collection of the report, carried out between September 15 and October 26, 2020. Twitter and Facebook data was collected and analysed through the API and CrowdTangle tools respectively to examine the scale and distribution of disinformation leading up to the plebiscite.
- **Experimental survey:** Sent out to respondents two days prior to the plebiscite to collect data on the impact of disinformation on voter preferences. While not a statistically representative sample, the survey gave valuable descriptive insights and an approximation of results.

For more information: **http://www.undp.org/oslocentre**
For more information on the research project: **https://www.notecreastodo.cl/**
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- To identify different types of information pollution in Chile.

## FINDINGS

The methodological approach of the Chilean study yielded robust statistical results and interesting insight into the impact of information pollution on Chilean democratic processes. Additionally, the research provided a solid baseline on which to conduct further research on the topic. The findings are summarised below:

### Information pollution on Twitter and Facebook

Through social listening, the researchers collected data on narratives connected to the hashtags "Approve" and "Reject" for the plebiscite on drafting a new constitution. 1,250,000 Twitter interactions, 11,000 Facebook posts and 142 Facebook pages were analysed. Additionally, the fact-checking platform Contexto Factual was used to collect data on the proliferation of false news stories. The findings show that the conversations on Twitter had a marked bias towards rejection of the plebiscite, despite the significant leaning towards "accept" amongst voters. Importantly, the Twitter trends were not representative of actual political trends in the country. Additionally, the collected and analysed data showed that 2.3% of interactions contained or referred to information pollution.

In contrast, Facebook (and Instagram) showed a more balanced reflection of societal trends illustrated by the election result. By collecting data on memes and graphics related to the plebiscite from Facebook and Instagram, the study found in total 2652 memes, of which 1167 were associated with "Approve", 301 associated with "Reject", and 1171 were unclassified. They respectively reached interactions of 510,000, 178,000, and 386,000.

### Impact of disinformation on voter behaviour

The experimental survey designed to collect data on the impact of disinformation on voter behaviour does not have statistical significance due to low sample size, yet it provided an indication of areas for further study. The survey introduced stimuli through information pollution material that respondents would either approve or reject. Additionally, a control group was established which was only exposed to official sources of information. The findings indicate that disinformation has a low impact on people's voting decisions and is not associated with changes in electoral behaviour. However, this research needs to be replicated with larger samples to fully understand the persuasive potential of disinformation.

### Conclusions

The study concludes that despite the constitutional plebiscite being a divisive issue with potential to generate information pollution on both sides of the debate, the spread of misinformation and disinformation was in fact less than expected and did not have any significant impact on the process or outcome. It was concentrated in highly politicised groups, was low in quantity and with limited duration. Interestingly, and in line with previous findings from the literature, the study found that fact-checked or verified content from the platform Contexto Factual circulated less than disinformation narratives.

## RECOMMENDATIONS

### Methodological recommendations:

- The study provides a baseline for future studies. The impact of information pollution on democratic processes may differ depending on the choices that voters are faced with. Given this assumption, the upcoming electoral schedule for Chile in 2021 and 2022 provides an opportunity to systematically monitor information pollution trends and impacts within a relatively limited timeframe – and thus in a controlled context.
- The initial methodology chosen for this study limited the scope of observations by only focusing on the circulation of disinformation detected by the fact-checking platform Contexto Factual. This was later broadened to incorporate content analysis and the dynamics of viral memes, as well as the interaction patterns between users and campaigns of both sides. Future studies should ensure this more diverse methodological approach to help deepen the analysis.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# LEBANON

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Lebanon**, the pandemic arrived at a time of political unrest, and economic and financial crisis. Strict measures imposed by the government kept the rate of infections low at the first stage of the pandemic, yet the numbers sharply increased in the fall of 2020. The combination of these factors has created fertile ground for information pollution.

To better understand the country's COVID-19 information landscape and the dissemination of disinformation, UNDP conducted research on "Information Pollution around COVID-19 in Lebanon".

The research sought to meet the following objectives:

- To collect quantitative and qualitative information and insights on the COVID-19 information landscape in Lebanon.
- To understand the perceptions and behaviour of Lebanese citizens towards COVID-19.
- To test the usability of specific data collection tools.

The data collection for the report was carried out between September and December 2020.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The Lebanese study utilised a methodological approach combining qualitative and quantitative techniques with digital tools, which were employed in phases as follows:

- **Desk Review:** To understand and identify the main indicators for behavioural change in the Lebanese context related to COVID-19 and to guide the subsequent survey design.
- **National Survey (Survey 1):** Conducted a phone survey targeted to account for Lebanon's geographic, age, and sex distribution, with 385 individual respondents, to collect quantitative data on information sources and behaviour.
- **Key informant interviews:** Conducted phone interviews of 20 key informants, representing different stakeholders, to validate findings from Survey 1 and generate additional data.
- **Open Self-administered Survey (Survey 2):** Sampled online with 4231 respondents – not nationally representative – reached through Facebook Ads to build on the previous phases for updated data and a wider sample.
- **WhatsApp Chatbot:** Using gamification, the chatbot collected data from 1622 unique users to examine COVID-19 related behaviour and to test the chatbot as a data collection tool.

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## FINDINGS

The mixed methodological approach of the Lebanese study yielded interesting insight into the relationship between people's knowledge and behaviour associated with COVID-19:

### COVID-19 Information Landscape and Impact on Perceptions and Behaviours

Findings from the research illustrate that the most popular sources for COVID-19 information and news are COVID-19 specific websites and the Ministry of Public Health website. Additionally, those with higher educational background (doctorate) are more likely to use COVID-19 specific websites as a primary source of information (80%), while those with no or lower education are more likely to use Facebook (46%). The findings also indicate that most of the respondents are satisfied with the quality of information on COVID-19.

Yet almost ¾ believe that there is an excessive level of misconceptions around the pandemic, due to three factors: Inconsistency of information, lack of scientific information, and lack of fact-checking. Interestingly, respondents cite lack of interest, knowledge, and capacity as reasons for not fact-checking. If they do fact-check, the sources utilised are often social media (e.g., Facebook) and not the previously reported trustworthy sources.

There is generally a high level of knowledge about Covid-19 amongst the population: 92% believe the disease can spread easily and should be taken seriously and 93% find COVID-19 prevention instructions to be easy to understand. Nevertheless, only 71% thought they could get used to wearing a mask and only 57% felt that they could stay at home and not socialise. Furthermore, the results indicate relatively low trust in medical staff (44%) and very low levels of trust in municipal police and the municipality's ability to manage and enforce measures (7% and 8% respectively).

Lastly, the fragility of Lebanon's economic situation has significantly shaped perceptions and behaviour towards COVID-19: only a small percentage of respondents considers the pandemic to be their main priority with more than 53% of respondents stating that they cannot afford to stay at home despite the imposed measures, and 30% stating they are unable to afford masks.

### Surveys, Key Informant Interviews, and Whatsapp Chatbot

The study resulted in valuable insight gained on the usability of data collection tools. Despite respondents mentioning the length of the phone survey (Survey 1), very few respondents stopped the interview. COVID-19 not being a main priority was the most common reason for not participating in the survey.

In the online survey (Survey 2), people often stopped after the questions on COVID-19 knowledge. The researchers addressed this by introducing a behaviourally-informed component by adding a positive affirmation at this point, increasing the respondents who went to the next step by 6.7%. On the survey's social media campaign, ads in Arabic were found to perform better than those in English, and ads with real images, visuals and quotations performed better than those with illustrations and percentage data – this also proved to be true for the WhatsApp chatbot campaign.

## RECOMMENDATIONS

### General recommendations and learnings

- To further understand how information influences specific practices across different groups, multi-layered and multi-disciplinary interventions are recommended. Additionally, a follow-up survey would be prudent to capture the changes in perceptions and behaviours following the development of vaccines.
- Increased investment in raising awareness and information dissemination, through prominent public figures, is not expected to have a significant impact.
- By applying behavioural science approaches to the methodology, the researchers found that the amount of survey respondents and engaged chatbot users increased significantly.

### Recommendations on data collection tools

- Conducting surveys and interviews by phone functions as an adequate data collection tool when facing time constraints and restricted direct contact with respondents.
- Surveys should be carefully crafted with length, question placement, transitions, and language utilised in mind for increased survey completion rate.
- Visuals and real imagery capture people's attention better than illustrations and text. Disseminating vital information on COVID-19 should be done with real stories and facts for better reach.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# PANAMA

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading, or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Panama**, the COVID-19 pandemic has led to an increase in reports of domestic violence, while formal complaints decreased – often due to the closure of formal reporting channels. COVID-19 also led to an increase in complaints concerning discrimination against transgender people due to government-imposed measures. These were hotly debated topics on social media, and often subject to hate messages and disinformation.

While the relationship between crises and vulnerable populations has been extensively studied, little is known about this in relation to information flows and information pollution. The joint research report by UNDP Panama and UNDP Venezuela, "Narratives and Information Pollution On Vulnerable Groups during the COVID-19 pandemic: Panama and Venezuela cases" sought to shed light on this relationship by seeking to meet the following objective in relation to Panama:

- Identify the narratives and information pollution concerning women and the LGBTIQ+ community in Panama during the COVID-19 pandemic.

The data collection for the report was carried out between March and November 2020.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The Panama study identified three sources for the data collection: Media with a digital presence (digital versions of print media, exclusively digital media, and digital radio), Google Trends, and Twitter – with the latter being analysed in most detail. The methodology to collect and analyse Twitter and media data was employed as indicated by the following steps:

- **Building the Database**
- **Community Detection (Twitter only)**
- **Pollution Identification**
- **Narratives Identification**
- **Analysis and Metrics**

With Google Trends, only the most relevant search terminology and their associated metrics were identified. In addition to social network analysis, Panama conducted stakeholder interviews to build on these findings to contextualise and verify the online data.

For more information: **http://www.undp.org/oslocentre**
The full report can be accessed at UNDP Panama's webpage **here**
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## FINDINGS

Panama's research used mostly quantitative methods and yielded interesting insight into information pollution focussed on women and LGBTIQ+ communities in Panama and can be briefly summarised below:

### Information pollution narratives about women and the LGBTIQ+ community in Panama

In Panama, the discussion on gender issues and LGBTIQ+ increased during the COVID-19 pandemic. The keywords "Feminism", "Abuse", "Gender violence", "Domestic violence", and "Gender" all saw increased usage through tweets, Google searches, and news articles. During the data collection period, 294,330 tweets were collected from 27,649 users in total. In these tweets, the predominant form of information pollution identified was disinformation.

However, the narratives found were not directly related to COVID-19 and its impact. Instead, they were connected to an existing clash between conservative and progressive communities on issues such as recognition of gender diversity, abortion rights, values promoted by feminist organisations and spokespersons, and recognition of gender diversity and respect for the LGBITQ+ community.

The narratives found on Twitter were divided by the researchers into four categories: (1) "Do not represent me": This narrative expressed criticism of feminist values and included sub-narratives that promoted alternative definitions of feminism, anti-abortion messaging and anti-gender diversity views; (2) "Feminazi": the narrative is anti-feminist and rooted in conservative movements from the U.S.; (3) "Gender is equal to sex": A common narrative throughout Latin America that denies gender diversity and the right to choose alternative sexual identities; and (4) "Marriage is between man and woman": the most recently formed narrative that rejects same-sex marriage, with conservative groups driving the discourse.

The "Do not represent me" and "Marriage is between man and woman" narratives contained the most cases of information pollution. The most frequent type of disinformation message being spread were unfounded accusations of murder against opponents. While this was primarily aimed at feminists or members of the LGBTIQ+ community, conservative and religious groups were also targeted.

## RECOMMENDATIONS

The report recommends a targeted **communication strategy** to mitigate information pollution:

### General objective:

- The general objective is to address information pollution through a communication strategy that creates awareness and visibility around the factors that enable the lack of protection of vulnerable groups.

### Specific objectives:

- Improve and strengthen the messages of prevention and defence of the rights of the LGBTIQ+ population and women in Panama.
- Develop a counter-propaganda plan to address information pollution.
- Identify the key actors and target audiences that will participate in the process to establish a separate communication strategy for each group within the plan.
- Build and reinforce key messages from each community on vulnerability and discrimination, and develop a common educational campaign that focuses on human rights and sexual diversity.

### Target audience:

- The strategy will use a tiered approach where women's groups, unions, and associations will be the first target audience. This will be followed by social communicators, then strategic allies, and then finally the general public.

### Activities:

- Activities to implement the strategy would include workshops for the identification and elaboration of key messages and training of spokespersons, as well as traditional and digital media workshops for social communicators.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# SAMOA

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Samoa**, information pollution, mostly via social media, poses a considerable challenge. With a population of just 197,000 and limited crisis management capacity, Samoa is highly vulnerable to shocks such as epidemics and natural disasters – which can amplify the harm caused by information pollution. Distrust of media sources and suspicion of official government communication, especially health-related, has been fuelled by a recent measles epidemic which resulted in 83 deaths in 2019. Disinformation campaigns promoting alternative remedies and anti-vaccination messages flourished during the epidemic and thus provided fertile ground in Samoa for COVID-19 information pollution the following year.

Given this situation, the UNDP report on information pollution in Samoa sought to better understand the country's information landscape through the following objective:

- To analyse the information landscape in Samoa, both online and offline, and map the key influencers and key messages that constitute information pollution in the country.

The data collection for the report was carried out between September 10 and December 11, 2020.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The Samoan study utilised a mixed methodological approach for their research. Web scraping capacity was explored, but a more manual collection of data was necessary given the mostly oral tradition of information sharing in Samoa. Due to time constraints, only information in English was collected.

- **Desk Review:** To understand background information relevant to the Samoan context.
- **Stakeholder interviews:** To build upon the desk review for deeper insight into the Samoan information landscape and to identify key indicators.
- **Digital monitoring:** Researched key influencers and influential groups by using the tools Crowdtangle and Media-Toolkit, in addition to manually collecting data where these tools faced obstacles (due to Facebook privacy options).

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## FINDINGS

The Samoan study gave important insight into the information landscape in the country:

### Information sources in Samoa

Samoans access information through social media, traditional media, and an oral culture of information-sharing. Facebook is the primary source of online information for 66% of the population. Traditional media enjoys high audience levels, despite the small number of outlets and with only the newpaper Samoa Observer considered to take a consistently independent editorial stance. Additionally, Australian and New Zealand media are widely consumed by Samoans. Recently China's state TV news channel, CGTN, has become available in the country free of charge. With Christianity being a cornerstone of Samoan life, religious organisations operate their own TV outlets that enjoy high levels of popularity.

Content on Facebook in Samoa is often very visual in nature, containing videos, memes, and infographics, without any text attached. Likes, comments, and hashtags are also rarely used. This makes web scraping of data a considerable challenge, exacerbated by key influencers deliberately manipulating spelling and word usage to avoid detection.

### Digital monitoring of key influencers

By utilising the tools Crowdtangle and MediaToolkit, insight was gained on key Samoan influencers and their interactions. Mainstream media outlets maintain high levels of interaction and engagement on their Facebook pages, offering the public the opportunity to engage with their COVID-19 information. Religious organisations maintain similar levels of interaction and opportunities to engage. However, generally sentiment on social media regarding vaccines is overwhelmingly negative (71%). This sentiment is likely fueled by the anti-vaccination campaigns of key social media influencers in the country. Certain social influencers on Facebook have high levels of engagement with the Samoan diaspora, as well as the population in the country.

### Key trends in information pollution in Samoa

The study identified the following key disinformation narratives in Samoa's information landscape: Quasi-medical advice and health-related rumours; news stories denying COVID-19; rumours about pharmaceutical companies exploiting indigenous people; conspiracy theories regarding U.S. politics and Bill Gates; rejection of medical intervention in lieu of faith healing; anti-vaccination propaganda; anti-government messaging (targeting New Zealand); and lastly, anti-Chinese sentiments as the perceived "origins" of the virus.

## RECOMMENDATIONS

### Digital monitoring and fact-checking

- Continuation of monitoring key public Facebook pages with the Crowdtangle tool.

### Government-citizen trust building and enhanced government communications

- Support the development and dissemination of media content and media campaigns that produce accurate and inclusive content for all communities and raise awareness of the risks of disinformation, the importance of information verification and the promotion of accurate information.
- Counter the spread of health-related disinformation by increasing the communication from authorised medical professionals.
- Training and capacity building for government entities in strategic communications and media relations.

### Press and media standards

- Support media capacity building for fact-checking and countering disinformation techniques.

### Public education and engagement

- Engage with community actors that have high level of public trust – such as religious organisations or sports teams – to create awareness and educate the public on disinformation.
- Improve media and digital literacy skills and encourage positive citizen engagement.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# SIERRA LEONE


*Source: Modified based on United Nations map.*

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Sierra Leone**, disinformation concerning COVID-19 had spread extensively even before the first confirmed case of the disease in the country. It has since become a major problem with disinformation reducing compliance with COVID-19 safety guidelines, leading to increased infection rates.

Despite information pollution being a considerable challenge in Sierra Leone, there has been little research conducted on the issue. To better understand the impact of information pollution on the country, UNDP carried out a study in partnership with the Media Reform Coordinating Group (MRCG) and produced the report "Information Pollution Mapping in Sierra Leone". The report sought to better understand the country's information landscape by seeking to achieve the following objective:

- Identify trusted sources of information, as well as the major sources, messages, channels, influencers and amplifiers of disinformation and COVID-19 misconceptions in Sierra Leone.

The data collection for the report was carried out between October and December 2020.

## METHODOLOGY

The Sierra Leone study utilised both qualitative and quantitative methods to collect data on information pollution and the information landscape in the country:

- **Desk Review:** To understand the extent of media penetration and of trusted public information, channels, and sources.
- **Focus group discussions:** Thirty-six focus groups were organised with stakeholders to identify the nature and impact of information pollution, as well as major sources and key influencers disseminating disinformation related to COVID-19. FGDs were held in each major region in Sierra Leone.
- **Key Informant Interviews:** To gain contextual information to complement the focus group discussions, the interviews were conducted both on- and off-line with 56 respondents representing influential groups, including health officials, religious leaders, local authorities, women leaders, celebrities, and media workers, from all regions of Sierra Leone.
- **Online and offline media monitoring:** Traditional media sources and online social media platforms were monitored to detect disinformation narratives through content analysis over an extended period.
- **Survey:** To assess the spread of information pollution, a structured questionnaire was administered through a combination of an online self-administered survey (200 respondents) and face-to-face interviews in sampled households (400 total). While the online survey had a mostly urban target audience, the household survey balanced this with a more even geographical distribution.

For more information: **http://www.undp.org/oslocentre**
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## FINDINGS

The mixed methodological approach of the Sierra Leone study yielded interesting insights about information pollution in the country that are briefly summarised below:

### Media penetration and trusted information sources

The desk review illustrated that amongst traditional information sources, the radio is the most popular and accessible information source with 81% of the population having access and 47% daily listeners. Key informant interviewees also identified radio (82,3%) as the most popular source of information and 55,4% of respondents stated it to be the most trusted information source on COVID-19. While access to social media in the country is growing, it is still minuscule compared to the radio – 83% have access to mobile phones, but only 13% of those use it for social messaging services such as Facebook messenger and WhatsApp. Further social media penetration in the country is currently hampered by internet connectivity, literacy rates, and availability of electricity. Even so, social media, alongside television, was the most popular source of information in the urbanised western region. Interestingly, even though it is popular, it doesn't mean it is a trusted source. More respondents trusted television as an information source on COVID-19 than social media.

### Disinformation narratives

All participants in the focus group discussions agreed on the prevalence of COVID-19 disinformation in their communities, giving examples of narratives such as "Coronavirus does not exist", "Coronavirus cannot survive heat", and "Face masks from China have chemicals that can kill Africans". The results from the media monitoring showed that the majority of newspaper publications in the investigated time period did not contain disinformation. However, there was a lot of disinformation on radio stations pertaining the proper use of face masks, and disinformation in online social media. 91% of key informant interviewees stated that disinformation spread through messaging apps such as WhatsApp and social media such as Facebook are a 'grave concern'. Lastly, 79.6% of respondents believed that people living in rural villages were most vulnerable to disinformation and susceptible to further spread disinformation.

### Key information pollution channels and influencers

The study's survey revealed that 75,4% and 71% of respondents viewed word of mouth, social media platforms (Facebook) and messaging services (WhatsApp) respectively as the main sources of information pollution. Interestingly, most respondents believe that political leaders/activists (85.9%) were the key disseminators of disinformation, followed by conspiracy theorists (49%) and youth leaders (37.3%). Given this, it is not surprising that 87.5% of respondents believe political party supporters are the main amplifiers of disinformation. All these findings lead the report to conclude that Sierra Leone has a considerable issue with COVID-19 related disinformation.

## RECOMMENDATIONS

The report provides the following recommendations:

### General recommendations

- There should be a national discussion on misinformation and disinformation given that these issues may potentially affect the peace, security, and development of Sierra Leone. The issue should be addressed by initiatives at the national, regional, and local level.
- The dynamic nature of the information environment warrants ongoing study of the amplifiers of misinformation and disinformation.

### Policy and legislation recommendations

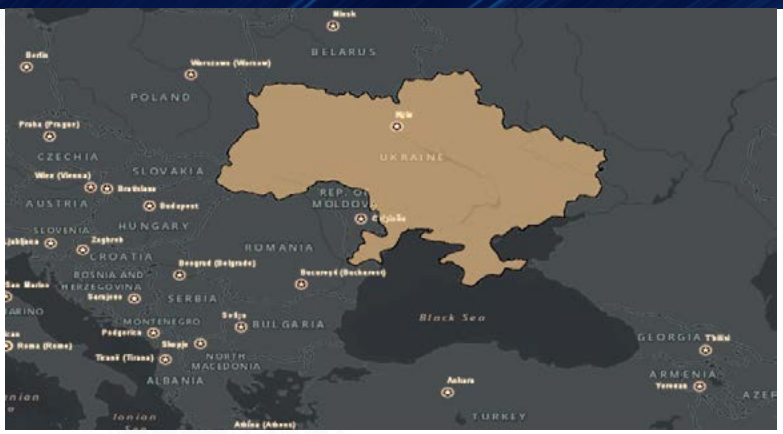
- There is a need to define parameters for social media regulation that still has not been determined.
- Design policy to inform and protect citizens about the danger of misinformation and disinformation. Additionally, harmonize the mandate of media regulators, such as the Independent Media Commission and the National Telecommunications Commission, for improved regulation.

### Media recommendations

- There is a need for media and internet literacy campaigns.
- Support radio stations and television networks to give them the capacity for further reach so that rural populations may get information from trusted sources.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# UKRAINE




*Source: Modified based on United Nations map.*

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic In **Ukraine**, the UNDP and UNICEF report "Research and Analysis of misinformation and disinformation on COVID-19 in Ukraine in online media" explored the extent and nature of the problem in the country.

By utilising the media intelligence platform developed by online media-monitoring firm SemanticForce, the research team monitored and analysed COVID-19 narratives in Ukraine, identifying over 250,000 messages with COVID-19 disinformation narratives. The researchers also carried out a public opinion survey to collect data on Ukraine's media ecosystem, levels of trust in sources of information, information needs, and key patterns in COVID-19 related narratives.

The research report sought to meet the following objectives:

- Evaluate and analyse the discussion about COVID-19 in Ukraine across multiple channels – with a focus on misinformation and disinformation narratives.
- To highlight the impact of these narratives on society and the epidemiological situation in Ukraine.

The data monitoring and analysis for the report was carried out between March and December 2020.

## METHODOLOGY

The Ukrainian study utilised a quantitative approach with multiple data collection methods and tools:

- **Stage 1 – Disinformation Narratives Classification:** Using reports from global fact-checking organisations (175 in total) from 2017 to 2020 across 40+ countries, categorised 46 predominant disinformation narratives grouped into seven types.
- **Stage 2 – Tracking Narratives and Automated Analysis:** Used Artificial Intelligence tools to organise online content into the above categories; organised social media sources into three types (authentic human, malicious human "troll", or automated account "bot"); and detected online hate speech through a combination of machine learning-based semantic analysis technology and partial human audit.
- **Stage 3 – Manual Analysis:** Analysed a representative sample of Facebook data (10,000 messages) for further insight.
- **Stage 4 – Online Dashboard:** Created a real-time online dashboard for visualising research results and conducting additional analysis.
- **Stage 5 – Social profiling of believers and non-believers:** Analysed Facebook profiles using an Audience Insights tool to identify any significant demographic characteristics of disinformation believers vs non-believers.
- **Stage 6 – Influencer Detection:** From an initial list of 5,000 influencers, created a short-list of 250 priority profiles and monitored conversation topics, narratives, audience, and engagement real time.
- **Stage 7 – Public Opinion Survey:** Conducted an online survey with a nation-wide target audience, quota based, of 1000 respondents.

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## FINDINGS

The Ukrainian study yielded extensive findings and insights of which the main points are briefly summarised below:

### Mis-/disinformation Narrative Insights

The total number of messages about COVID-19 posted from March to November in 2020 exceeded 30 million – with approximately one percent of these containing fake narratives. The research team identified five hundred distinct disinformation narratives, of which the key narratives were grouped into 7 High-level narratives (e.g., "conspiracy theories", "threat underestimation" and "fake narratives about vaccination") and 46 low-level narratives (e.g., "vaccines change DNA", "tests are not effective", and "COVID-19 is no more dangerous than the flu"). The disinformation narratives concerning medical masks and threat underestimation were by far the most common – accounting for two thirds of disinformation narratives. Thematic communities within social networks are one of the main entry points for spreading disinformation narratives. Worryingly, hate speech was detected in 5% of the disinformation narratives.

### Public Opinion Survey Insights

According to the opinion survey results, 67% of respondents perceive a moderate or high risk of being infected by COVID-19. It also revealed that the healthcare system has issues of credibility with 41%, including those infected, seeking other sources for information without consulting doctors. Facebook is by far the most popular social network (87%) and Viber is the most popular messaging service (89%). Respondents prefer to receive information from social networks (42%), TV (26%), and then doctors and medical staff (24%). Interestingly, only 18% trusts COVID-19 related news on TV, and only 28% of respondents trust the Ministry of Health, in the context of COVID-19. Additionally, there is little public awareness of official sources and fact-checking services. Results also suggest that respondents from the southern regions of Ukraine and people with lower financial and educational levels are more susceptible to misinformation.

### Influencers Insights

Politicians are the key influencers in Ukraine in terms of audience and reach for COVID-19 information. Additionally, the majority of influencers urge people to be responsible for their health and others, and to beware of false narratives. Nonetheless, content that debunks false narratives gain less traction and engagement than content that promotes disinformation.

## RECOMMENDATIONS

### Recommendations for Government Institutions

- Development of a legislative and operational framework, and a state strategy to respond to and monitor disinformation.
- Creation of a responsible governmental agency, as well as the establishment of a centralised COVID-19 Command Centre to coordinate key actors. The efforts of these actors, governmental and non-governmental, should be consolidated and supported at multiple levels.
- Countering of fake narratives on health issues and responses by proactively addressing potential false information and providing accurate information through media campaigns.

### Recommendations for NGOs

- NGOs should focus their efforts on working with media sources to encourage the consumption of reliable and healthy information.

### Recommendations for Media & Social Platforms

- Social platforms should optimise fake detection, moderating algorithms, and mark certain news sources/groups as "suspicious" if they repeatedly disseminate disinformation narratives. They should also proactively display official statements on COVID-19 in the top of social news feeds.
- The largest media publishers should actively cooperate with fact checkers, think tanks, and international and state specialised organisations.
- Humour and patient testimonies should be used to humanise outreach of reliable information.

### Recommendations for Mobilising Influencers

- Utilise influencers to convey critical information to a wider audience – especially young people. Initiate dialogues on social responsibility with political and social media influencers given the impact of their online activities.

### Recommendations for Fact-checking Organisations

- Fact-checking organisations should not only disseminate refutations, but also confirmations of scientific research. Expand the target audience by popularising content via innovative means and cooperation with other actors.
- Improve the methods of working with social networks to mark disinformation posts more quickly.

# INFORMATION POLLUTION MAPPING RESEARCH BRIEF:

# VENEZUELA

In 2020, UNDP launched the Information Pollution Mapping Programme, managed by the Oslo Governance Centre, to better understand what is motivating disinformation and how it is being produced and disseminated across different socio-political contexts. This brief is part of a series summarising the research reports from countries participating in the programme, focusing on country background, methodology, findings, and recommendations.

## BACKGROUND

Information pollution (false, misleading, or manipulated content) is not a new phenomenon but recently the issue has come into sharp focus, particularly since the COVID-19 pandemic. In **Venezuela**, the COVID-19 pandemic has contributed to many Venezuelan migrants suffering deteriorated living conditions in their host countries and prompted a largescale movement of returnees back to Venezuela as a result. This reverse migration has become a topic of intense discussion on social networks and in the media.

While the relationship between crises and vulnerable populations has been extensively studied, little is known about this in relation to information flows and information pollution. The joint research report by UNDP Panama and UNDP Venezuela, "Narratives and Information Pollution On Vulnerable Groups during the COVID-19 pandemic: Panama and Venezuela cases" sought to shed light on this relationship.

The Venezuelan component of the report aimed to meet the following objective:

- Identify the narratives and information pollution related to migrant returnees to Venezuela during the COVID-19 pandemic.

The data collection for the report was carried out between March and November 2020.


*Source: Modified based on United Nations map.*

## METHODOLOGY

The Venezuela study utilized three sources for data collection: Media with a digital presence (digital versions of print media, exclusively digital media, and digital radio), Google Trends, and Twitter – with the latter being analysed in most detail. The methodology to collect and analyse Twitter and media data was employed as indicated by the following steps:

- **Building the Database**
- **Community Detection (Twitter only)**
- **Pollution Identification**
- **Narratives Identification**
- **Analysis and Metrics**

With Google Trends, only the most relevant search terminology and their associated metrics were identified. In addition to social network analysis, Venezuela built on these findings to contextualise and validate the data through stakeholder interviews.

For more information: **http://www.undp.org/oslocentre**
The full report can be accessed at UNDP Venezuela's webpage **here**
**United Nations Development Programme**
UNDP Oslo Governance Centre, Kongens Gate 12, 0153 Oslo, Norway

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## FINDINGS

Venezuela's research used mainly quantitative methods to gain insight into information pollution focussed on returning Venezuelan migrants. Findings are briefly summarised below:

### Information pollution narratives on returning Venezuelan migrants

In Venezuela, discussion concerning returning migrants increased significantly during the COVID-19 pandemic. Migrants returning by illegal means was particularly hotly debated, especially on Twitter – which proved to contain significantly more disinformation compared to traditional media. The lack of liability for content on published on social media platforms compared to traditional media is likely the cause of this difference. Through the data collection period, 796,017 tweets were collected from 87,961 users in total. In these tweets, the predominant form of information pollution found was disinformation.

The most prominent information pollution narratives identified on Twitter can be categorized into three main groups: (1) stigmatisation of returning migrants through unofficial crossings as being the main vector of the virus by avoiding sanitary controls (83% of information pollution narratives); (2) Conspiracy theories about the external origin of the virus (7% of information pollution narratives). This category is made up of two sub-narratives claiming that the virus was deliberately spread by China or the U.S; and (3) claims that the Colombian government is sending Venezuelan migrants back to deliberately spread the virus – which in turn is seen as the main cause of the epidemic in the country (7% of information pollution narratives).

In all categories, conspiracy theories serve as the primary strategy for spreading disinformation. Through these narratives, returning migrants are stigmatized and given labels such as "biological weapons" or "bioterrorists".

The source of information pollution in Venezuela is closely connected to the highly polarised political landscape in the country, which serves as the main driver of information pollution about returning migrants. On Twitter, political polarisation correlates with the amount of information pollution being spread. Highly politically polarised communities – those with hyper-partisan views in the government-opposition confrontation – spread information pollution. Communities which are not organised around hyper-partisan political views do not generate significant information pollution.

## RECOMMENDATIONS

The report provides the following recommendations and a communication strategy to mitigate information pollution:

### General recommendations

- Strategies to address information pollution must take political polarization into account. Decreasing polarization is a condition for reducing information pollution.
- While there was a high volume of disinformation circulating on Twitter, there was not an equivalent search for accurate information on Google. This gap between information demand and supply should be studied in more detail, and reducing the gap should be considered as a policy objective.

### Communication strategy to mitigate information pollution

The communication strategy has three specific objectives:

- To raise public awareness to reduce the effects of stigmatisation towards returning Venezuelan migrants.
- To report the effects of information pollution on social and community life in Venezuela, and how to combat it.
- To contribute to capacity building for communication professionals for improved identification and containment of disinformation narratives.

These objectives will be met through specific campaigns with a target audience of community leaders and volunteers in social organisations and NGOs, social communicators, and governmental institutions.