FEASIBILITY STUDY: ANALYSING LARGE-SCALE NEWS MEDIA CONTENT FOR EARLY WARNING OF CONFLICT

PARTNER: UNDP
PROGRAMME AREA: HUMANITARIAN ACTION

SUMMARY
A feasibility study conducted by Global Pulse with UNDP explored how data mining of large-scale online news data could complement existing tools and information for conflict analysis and early warning. Taking Tunisia as a test case, analysing news media archives from the period immediately prior to and following the January 2011 government transition, the study showed how tracking changes in tone and sentiment of news articles over time could offer insights about emerging conflicts. This study evidenced the considerable possibilities for further explorations into how mining of online digital content can be leveraged for conflict prevention.

BACKGROUND
The nature of conflict is changing across the globe. Large-scale wars between two countries are now virtually non-existent, while new forms of violent conflict have emerged. Today’s conflicts are more likely to be asymmetrical, inter-communal, or linked to crime, and do not necessarily involve national armies. It is critical to understand the complex system of stakeholders and events that create and perpetrate such conflicts.

However, understanding the relationships between different actors, and between particular actors and conflict-related events can be a challenge, requiring both knowledge of the cultural and political contexts and the ability to ‘step back’ and identify trends and patterns.

The opportunity to gain insight into such trends has become possible through the analysis of large datasets, from new digital data sources such as social media, mobile phone networks and online news. However, in areas of conflict, human-generated data is often difficult to locate and access, and even harder to make sense of as events unfold. News media can provide a source of information about peoples’ opinions and moods, even if surveys and social media data aren’t available.

UNDP works with local communities and governments to manage disputes through participation and dialogue, supporting efforts to prevent violence and peacefully resolve conflicts. Understanding stakeholder relationships to other actors and events is critical to ensuring UNDP provides relevant and inclusive support during conflict.

Global Pulse worked with UNDP on a feasibility study to explore whether analysing large-scale news media data could complement existing approaches to understanding conflict.

MINING NEWS MEDIA DATA FOR CONFLICT PREVENTION
The dataset that was analysed is from The GDELT Project, a publicly available database supported by Google Ideas that monitors the world’s broadcast, print, and web news in over 100 languages. The dataset includes global news media records updated daily, comprising approximately 250 million records from 1979 to 2011.

Global Pulse focused on Tunisia as a case study country, analysing news media archives from the period immediately prior to and following the January 2011 government transition. Early warning signals of the revolution were identified and quantified. This study only covered articles that mention Tunisia, cities in Tunisia, main people or organisations from Tunisia, or similar.

INSIGHTS & OUTCOMES
The volume and tone of articles over time, as well as the type of actors and events covered, revealed a rapid increase in negative sentiment leading up to the departure of President Ben Ali. There was a similar pattern observed several months prior to the first recorded protests and the self-immolation of Mohamed Bouazizi.

Starting in mid-December, the average tone of all articles referring to either the military or police was overwhelmingly negative, reflecting the changing roles played by these actors in-country as stability decreased. (Prior to the growing unrest, the references had largely been positive.)

While such findings may not come as much of a surprise in retrospect, having a real-time awareness of these changing dynamics in 2011 could have potentially informed UNDP programming and support.

CONCLUSIONS

This study demonstrates how new digital data sources such as online news data could complement existing tools and information for conflict analysis and early warning.

- Although there were a limited number of news articles prior to late 2010, limiting the ability to examine the decades prior to the transition, the findings of this study did recognize the key events that took place in Tunisia in the years before and months after the government transition and departure of former President Ben Ali.

- Each individual event did not necessarily offer more than the existing knowledge of Country Office staff or HQ desk officers, but by measuring the magnitude (or average tone) of these events on a monthly (or even daily) basis, this data can provide immediately useful insights about the overall conflict-related trends in a particular country.

- While certain outliers may need to be accounted for, the biggest monthly decline in tone in the entire dataset (1979–2011) took place one month before the departure of the nation’s long-standing President. This finding suggests that analyzing online news data could be integrated for a more comprehensive approach to conflict analysis and early warning.

Further piloting is recommended to explore using online news data and other types of big data to strengthen UNDP’s understanding of conflict dynamics and ability to support effective conflict prevention.

Social media data and anonymised mobile phone data present two other possible avenues for using big data to inform UNDP’s work in conflict prevention. While much of this research remains nascent, there are a growing number of examples where such data has been applied to practical conflict prevention efforts. Partnering with academia, think tanks and civil society is key to leveraging the expertise required to realize the potential of big data.

In working with Global Pulse, UNDP gained an increased understanding of the opportunities and challenges associated with big data. UNDP is now working with technology company Recorded Future to pilot the use of social media analysis for early warning/early response, and continues to explore possibilities for augmenting conflict information with mobile data.

IMPLICATIONS & RECOMMENDATIONS

- This feasibility study demonstrated the potential of using large-scale news media data to monitor conflict and assess risks, complementing existing knowledge and information channels.

- It is recommended that online news and other data types be explored as additional tools for conflict prevention and analysis by UNDP.

The above graph shows average tone in news articles mentioning Tunisia from 1996 to 2010.