



# Making Sense of Social Media Proxies

*Findings of Social Media Study on Sudan*

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# FOREWORD

*from UNDP RR*

*Social Media Analysis Report*



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UNDP commissioned this report on Sudan social media to gauge the public sentiment on the transition in Sudan. The year 2019 was a historic one for Sudan and significant for development partners, including UNDP, as the country went through a tumultuous youth and women led protest movement. The study captures well the synergy between Sudanese inside and outside the country during the protest movement, with internal actors mostly using social media to organize for protests while the diaspora focused on informing and interesting the international community on demands for freedom and peaceful change in Sudan. The study continued beyond the protest movement and was extended to year end, in order to document the change in sentiment as social actors proceeded to specify what they were for as the country embarked on an agreed transition to peace, democracy and civilian rule.

This report acts as a chronicle of the peaceful revolution that has heralded an era of peace and inclusive development. It also documents the main demands of the protest movement that can act as guides for the transitional government, as it builds the foundations of the New Sudan. Social media has demonstrated its role in mobilizing popular action for peaceful change and can be used to keep citizens informed of the challenges of structural and systemic transformations at scale. An active presence of citizens on social media during the transition can help cement the new social contract of mutual accountability between the State and citizens and ensure that demands of citizen remain at the core of the transition process.

This exploratory study using new sources of data such as social media (Twitter) demonstrates the utility of social media as a means of quickly gauging perceptions and sentiments of the Sudanese public, in country and abroad, to provide insights in designing appropriate responses to address emerging public concerns.

The availability of near real time social listening of views of Sudanese citizens on the transition efforts allows relevant office bearers, coalitions of supporters, and partners of Sudan to respond to citizen expectations and maintain their confidence and support to the transition government, thus ensuring success of the historic Sudanese transition. UNDP intends to continue to listen to Sudanese citizens' concerns and play a supportive role to the Government of Sudan in addressing their aspirations for meaningful participation, inclusive development and peace.

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# Making Sense of Social Media Proxies

## Findings of Social Media Study on Sudan (January – November 2019)

### I. CONTEXT

During December 2018 – October 2019, UNDP Sudan explored social media (Twitter) as big data source to study online trends on public dialogues. The objective was to derive insights on citizen sentiments, trends in social opinions on the ongoing country situation and identify opportunities for potential interventions by UNDP. This was an experimental and low-cost attempt to capture the perceptions of the public in almost real time. We assume that over social media platforms, people express their opinions in an organic and honest way. Due to the unavailability of Facebook data<sup>1</sup>, the study used Twitter data to check the viability of such a method, understand emerging trends and Sudanese sentiments on four topmost priority issues hitting the country – food, fuel, cash and high prices. In addition, an attempt was made to compare the job and education profiles of users active on Twitter on Sudan through an aggregated and anonymized approach.

### II. METHOD

During the 10 months study, over 2.8 million unstructured Twitter data in both English and Arabic languages were extracted, processed, analysed to build an automated computing method and an interactive dashboard, to visualize the analytics on citizen sentiments, emerging issues, and changing attitudes as per the changing context<sup>2</sup>. The methodology applied included – (i) Sudan Tweets and Hashtags Segmentation (ii) Twitter Trend Analysis (iii) Data Restructuring (iv) Text Analysis

and Taxonomy Derivation<sup>3(v)</sup> Sentiment Clustering and Analyses and (vi) Data Visualization.

### III. OBSERVATIONS AND FINDINGS

#### Key Trends

- Tweets during the study period are rich in media. The media files were shared around 400,000 times containing photos, infographics, videos, and images with caricatures and cartoons depicting reality and satires on the ongoing situation.
- English hashtags used in the discussions were generic while Arabic hashtags were focused on real time events and reflected live actions, language/tone and sentiments. Arabic hashtags were dominating in volume over English hashtags throughout the course of discussions. About 78.3% of tweets on Sudan were in Arabic whilst 13.7% were in English<sup>4</sup>.

1 Facebook does not allow access to user metadata

2 Sudan Situation Dashboard - Making sense from Social Media Proxies, UNDP- Data Aurora, July 2019

3 Applying QCRI lexicon, Natural Language Processing toolkit

4 Sysomos report – Language Leaderboard for Sudan

- Main hashtags for most online activities were initiated at the beginning of protests and continued throughout. Two approaches could be differentiated in the hashtag use on the basis of timeline. Generic hashtags adopted throughout the online actions versus specific hashtags created as a response to an incident which lasted for a maximum of five (5) days. In the first one, people participated in discussions about Sudan while in the second, specific hashtags were organic and happened overnight originating from two scenarios:
  - When a major incident (violence) occurred, people started tweeting to show solidarity, selecting a descriptive hashtag to reflect on what happened.
  - While calling for a participation or action on the ground through marches or new demonstrations, using a tailored hashtag.

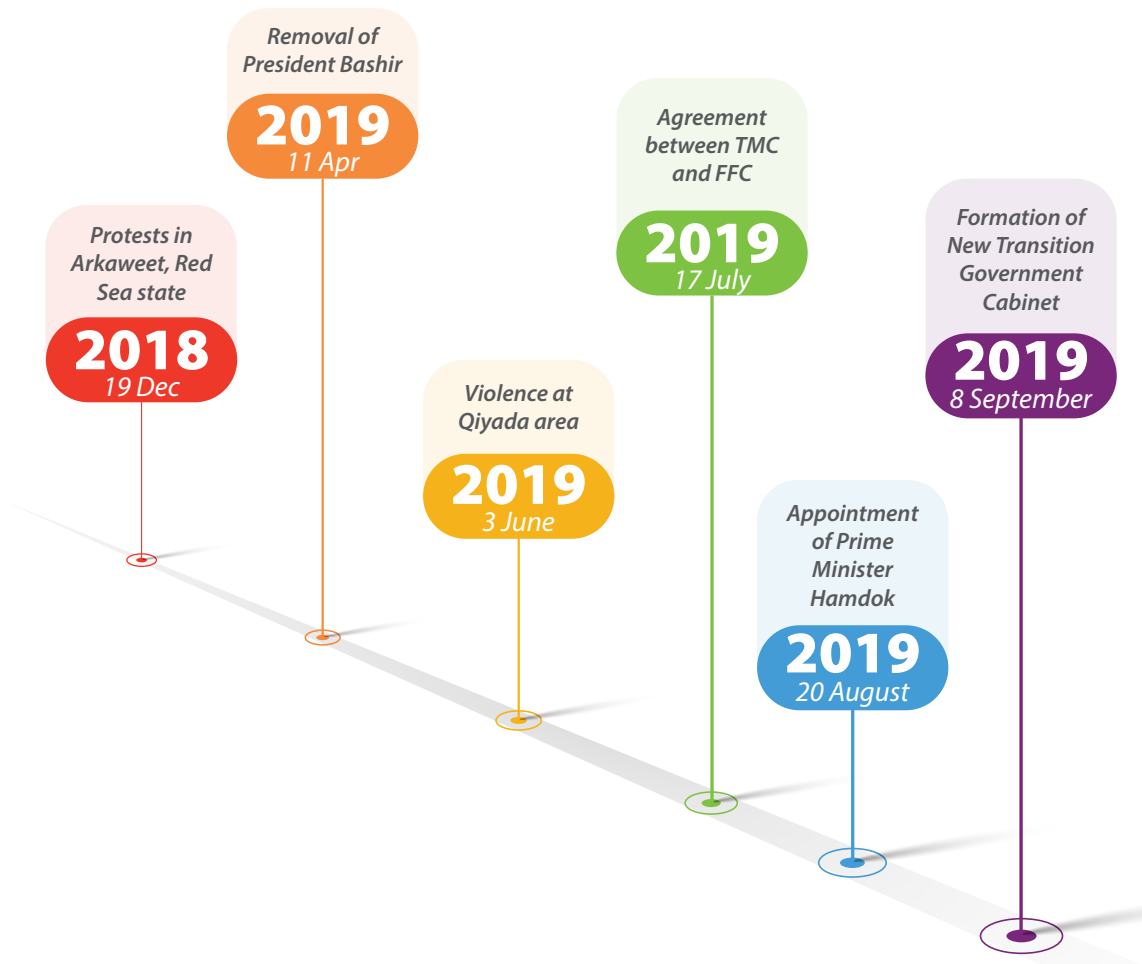
- International news outlets were first disseminators of the initial posts that later got circulated and shared more across network of followers in due course.

### Text Analysis

- Sentiments over key time periods:** For this study, 50,000 was set as the cut-off number of tweets for a hashtag to be considered for analysis between Jan – July 2019 and 25,000 post 17 July 2019. The division of time-period for studying the trending topics followed major events and developments that took place during and post the revolution (Fig 1).

Arabic hashtags topped the list in terms of mentions, unlike many other cases of activism in the Arab world. The online sentiment trend, which might reflect attitude on the ground were observed as follows:

**Figure 1. Timeline for topics and sentiments studied**



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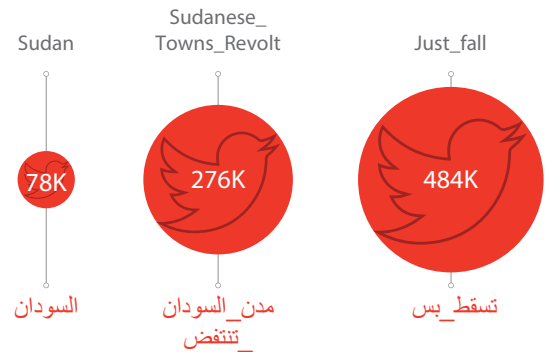
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# 1 January - 11 April

## Beginning of protests to Removal of President Bashir



From the beginning of protests until the removal of President Omar Al Bashir, the general sentiment is that of anger and protest with the popular slogan – Taskot Bas (Just Fall) widely used. Repeated calls of protests on specific dates and coming to the streets dominated this period reflecting full revolt sentiment.

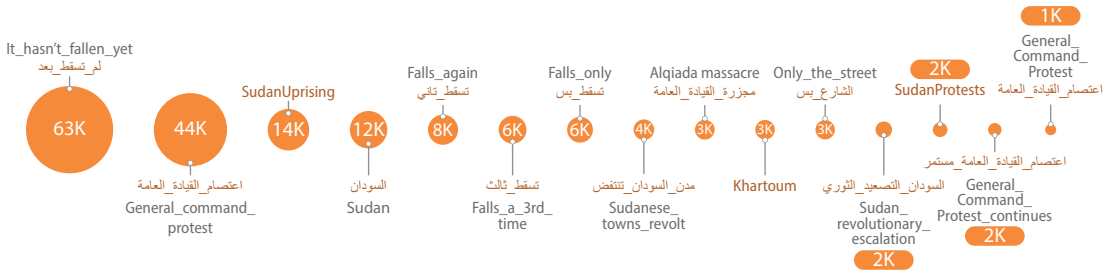


### Top Trending Hashtags

- #To\_The\_Streets
- #Just\_Fall
- #17\_January\_Protest
- #9\_January\_Protest
- #13\_January\_Protest
- #SudanRevolts

# 12 April - 2 June

## Post President Bashir removal until 3rd June Violence



### Top Trending Hashtags

- #It\_hasn't\_fallen\_yet
- #General\_command\_protest
- #Handing\_Over\_Power\_To\_People
- #Sudan\_Strike\_Solidarity
- #SPA\_Represents\_Me
- #Sudan\_Uprising
- #Civilian\_Government\_March
- #Handover\_power\_to\_people

Despite the removal of President Omar Al Bashir on 11 April, that led to the formation of the Transition Military Council (TMC), the protest sentiment continued with slogans of “It must fall again”, calling for solidarity for continued sit in at the General command area and that of warning with “It has not fallen yet”

in Arabic, trending in large number. This reflects a certain level of public scepticism with the change that took place in this period, as well as public awareness that reforms must go deeper to dismantle the legacy of President Bashir’s regime.



Photo by: Dia Eldin Khalil, www.diakhalil.com/

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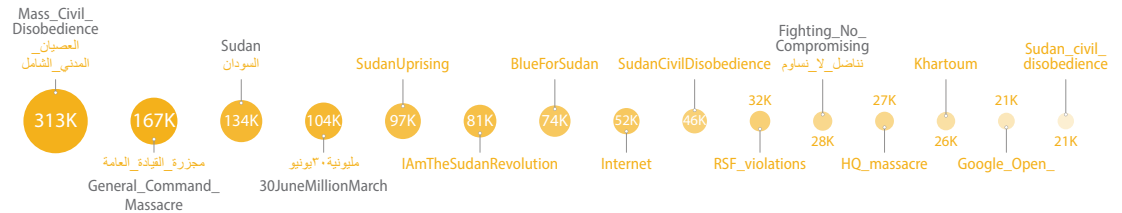
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## 3 June – 16 July

### Violence at Qiyada to the agreement between Transition Military Council (TMC) and Forces of Freedom and Change (FFC)



#### Top Trending Hashtags

- 1 🐦 #30\_June\_Million\_March
- 2 🐦 #General\_Command\_Massacre
- 3 🐦 #IAmTheSudanRevolution
- 4 🐦 #Martyrs\_Eid
- 5 🐦 #Blue\_for\_Sudan
- 6 🐦 #Civil\_Disobedience
- 7 🐦 #Internet\_Blackout\_In\_Sudan
- 8 🐦 #Stand\_with\_Sudan
- 9 🐦 #Fighting\_no\_Compromising

Post 3rd June violence, sentiment in the twitter space was that of shock, mourning followed by intensified calls for revolution and civil disobedience, marches and international support reflected by the trending hashtags - Blue for Sudan, Martyr's Eid, Alqiada massacre, IAmtheSudanRevolution. Motivation slogans

such as "Struggle and don't compromise" and that of caution "It has not fallen yet" (in Arabic) continued to dominate online discussions. Especially, the call for total civil disobedience was massive with tweets exceeding 300K reflecting civic anger post the June 3rd violence.

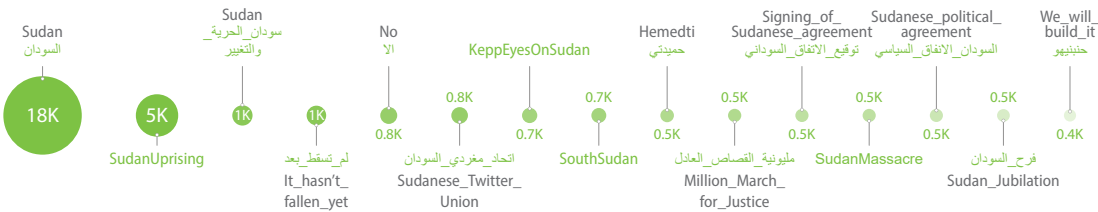


Photo by: Dia Eldin Khalil, [www.diahalil.com/](http://www.diahalil.com/)



# 17 July – 20 August

## TMC – FFC Agreement to Appointment of Prime Minister Hamdok



### Top Trending Hashtags

- |                                  |                     |
|----------------------------------|---------------------|
| 1 🐦 #Sudan                       | 5 🐦 #Sudan_Massacre |
| 2 🐦 #SudanUpriasing              | 6 🐦 #HQMassacre     |
| 3 🐦 #Sudan_Of_Freedom_and_Change | 7 🐦 #Blue_For_Sudan |
| 4 🐦 #Keep_Eyes_On_Sudan          | 8 🐦 #TMC            |



Photo by: Dia Eldin Khalil, www.diakhalil.com/

Post TMC – FFC agreement, the tone on Twitter softened to jubilation reflecting the sense of freedom and hope of change. However, it was equally augmented with repeated cautionary voices as well as alerts for international community to keep monitoring and watching the developments in Sudan. Calls on justice for the martyrs intensified further.

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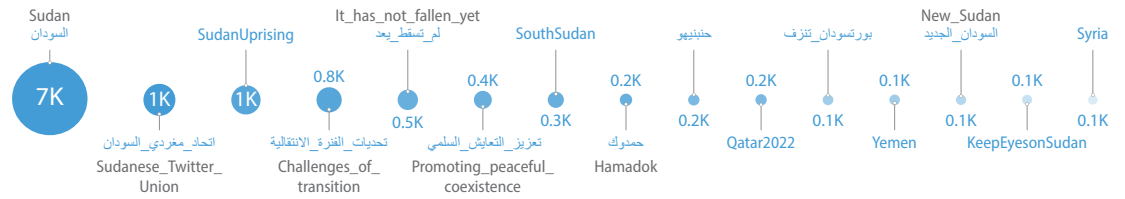
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## 21 August - 7 September

Appointment of PM Hamdok to  
Transition Government Cabinet formation

## Top Trending Hashtags

- 1 🐦 #Sudan
- 2 🐦 #SudanUprising
- 3 🐦 #It\_has\_not\_fallen\_yet
- 4 🐦 #Challenges\_of\_transition\_period
- 5 🐦 #Sudan\_of\_Freedom\_and\_Change

After the appointment of PM Hamdok until formation of the technocratic civilian cabinet, tweeting frequency drastically slowed down. Sentiments shifted to realisation of the challenging work ahead of the transition period. New hashtags depicting people's vision of Sudan after revolution that promotes peaceful coexistence, freedom and change, started appearing. The trending of hashtag on peaceful coexistence, which coincided with

the beginning of peace talks between previous rebel groups in Juba, indicated the public's realisation of the importance of peace for the new Sudan. During this period, cautionary voices through "It has not fallen yet" continued, reflecting the continued public concern on previous regime's control over the state which could jeopardise the prospects of the revolution.



Photo by: Alla Alsheikh

# 8 September - 31 October

## Post Formation of Transition Government Cabinet



Post new cabinet formation, challenges of transition continued to trend on Twitter sphere with **priority actions demanded on transitional justice and judiciary**. During this period, Arabic hashtags continued to dominate with the appearance of “Cleaning the State Apparatus” hashtag along with the cautionary call “It has not fallen yet”, reflecting the crowd’s amplified call to remove remnants of the previous government. Public emphasis

on the importance of focus on realizing the revolutionary goals was substantively depicted through the trending of “Achieving the Revolution goals” hashtag. At the same time, #SaveWaleed became popular advocating for the release of a Sudanese student detained in Egypt on false allegations of affiliation with Muslim Brotherhood, who was later released.

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Photo by: Dia Eldin Khalil, [www.diakhalil.com/](http://www.diakhalil.com/)

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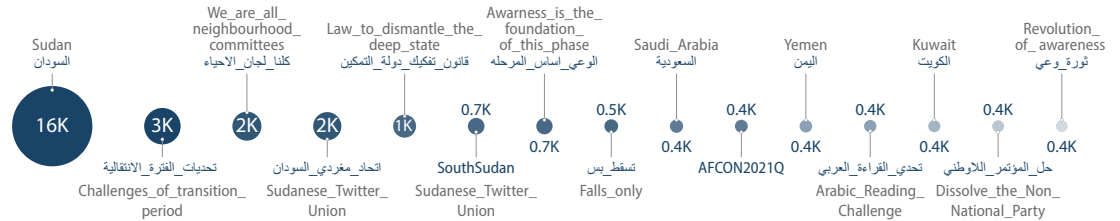
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## November 2019

## Transition Government - Month Two



## Top Trending Hashtags

- |                                           |                                |
|-------------------------------------------|--------------------------------|
| 1 🐦 #Sudan                                | 6 🐦 #HQMassacre                |
| 2 🐦 #Challenges_Of_Transition             | 7 🐦 #Prosecuting_Inqaz_Figures |
| 3 🐦 #Withdrawing_Sudanese_Army_from_Yemen | 8 🐦 #It_Has_Not_Fallen_Yet     |
| 4 🐦 #Dissolve_NCP                         | 9 🐦 #We_Will_Build_It          |
| 5 🐦 #We_Are_All_Neighbourhood_Committees  |                                |

The hashtag #We\_Are\_All\_Neighbourhoods\_Committees emerged in November following reports of an attempt by Rapid Support Forces (RSF) to meet members of the grassroots resistance committees in Khartoum's neighbourhoods together with other army commanders. The hashtag was created to express solidarity with the committees and celebrate their contributions to the revolution. #Law\_to\_Dismantle\_the\_Deep\_State became popular referring to and celebrating the two provisions adopted by the cabinet on 28 November. The first abolished the Public Order Laws (the morality laws). The second dismantled the previous regime by dissolving the ex-ruling NCP and confiscating its properties.

#Awareness\_is\_the\_foundation\_of\_the\_era was widely used alongside #Challenges\_of\_transition to galvanize support for the transitional government and spread awareness about the issues it faces. The trending hashtags indicate continued popular support on Twitter to the transitional government and the laws it passed to dismantle the legacy of previous regime. The hashtags also reflect growing public awareness of the challenges facing the

government, especially with regards to the ability of the supporters of the former regime within the state's apparatus to undermine its progress.

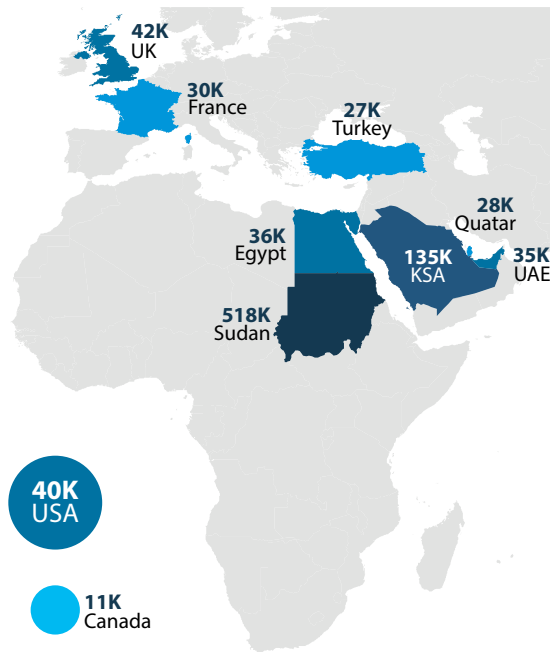
## 1. Sentiments on basic commodity crisis

Sentiments on basic commodity crisis - high prices, fuel shortage, bread and cash shortage were studied. Except for high prices, all basic commodity crisis related sentiments, in Arabic, was dominated by revolution, call for transformation, needs of Sudanese and changing the leadership. Whilst sentiments related to high prices were dominated by phrases in Arabic on the **black market, bank, Sudanese pound versus USD, as well as protests** (Table 1) which may reflect the public concern on the need to address the parallel market issue. However, the methodology applied to mine these specific sentiments related to commodity crisis needs further refining to arrive at conclusive sentiments. Hence the below table is just a demonstration of what appeared during the study without any inference.

**Table 1. Text frequency on sentiments related to high prices (Jan – Oct 2019)**

Translation	Arabic Text	Count
Black market and bank	السوق الأسود والبنك	576
Black and Central Bank	الأسود والبنك المركزي	564
Mass civil disobedience	العصيان المدني الشامل	531
Hand over power to civilians	تسليم السلطة للمدنيين	455
Sudanese Pound vs	الجنيه السوداني مقابل	452
Sudanese pound against the dollar	السوداني مقابل الدولار	441
Dollar and foreign exchange	الدولار والعملات الأجنبية	435
June they did the hashtag	يونيو فعلوا الهاشتاق	426
Against the Sudanese Pound	مقابل الجنيه السوداني	425

**Map 1. Locations of tweeting community**

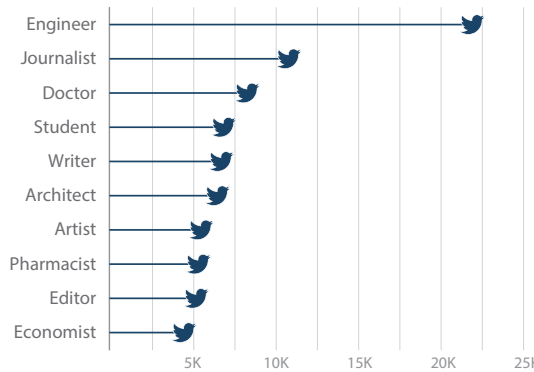


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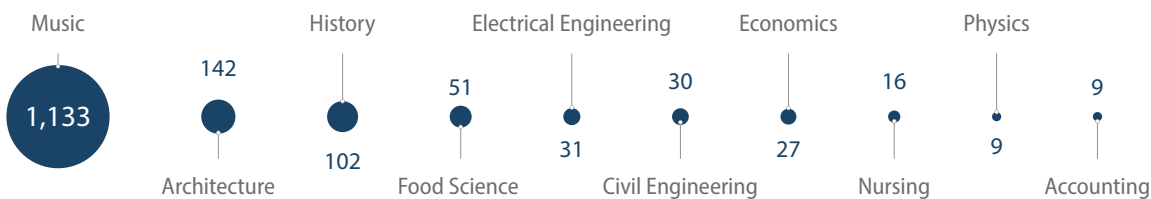
## 2. Tweeting Community

The tweeting community on Sudan during the study period came from the country as well as neighboring, regional and western countries (Table 2) representing diaspora involvement in online support and activism. However, it must be noted that users located within Sudan were using VPNs, hence the study applied a three-pronged validation approach to obtain an acceptable location accuracy<sup>5</sup>. The professional and educational backgrounds of the community revealed a mix of engineers, journalists, doctors and artists (Fig 2 and 3) representing a well-educated group who drove the social media activism through quality content, active participation and clear communications.

**Figure 2. Profession of the tweeting community**



**Figure 3. Education field of the tweeting community**



<sup>5</sup> Majority of users had also turned off their geolocations, making it harder to analyze locations and mobility patterns of people involved in the talks, except for a limited number of users. As a result, the project used a three-pronged approach to extract this information based on usage of lexicon, background info and text analysis. Page 11, Sudan Situation Dashboard - Making sense from Social Media Proxies, UNDP- Data Aurora, July 2019

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## IV. WOMEN VOICES ON TWITTER MEDIA

A gender differentiated observation of the online engagement and sentiments revealed an interesting trend. Our observation from Jan – Oct period revealed approx. 25% engagement of females on Twitter (Fig 4).

A quick comparison of job profiles between male and female tweeters on Sudan indicated that while for both genders, professionals dominated the group, there were differences in the relative importance of different backgrounds. For example, the most sizeable group of male tweeters were engineers, while journalists accounted for the most sizeable group of female tweeters (Fig 5).

Looking at the entire period of hashtags histogram disaggregated by male and female Twitter users, we can see that both groups were most preoccupied with toppling the old system, as indicated by both groups having “just fall” as the most numerous tweet.

However, when we look at the hashtags that follow the top one, we notice a difference. For example, the hashtag “IamTheSudanRevolution” (Fig 6(b) and 6(a)) ranks 7th for women as opposed to 9th for men. This might reflect more ownership of the revolution, greater sense of representation and solidarity of women in the revolution implying the sentiment that the revolution is not just a change in leadership but a change in women’s representation.

Figure 4. Engagement by gender

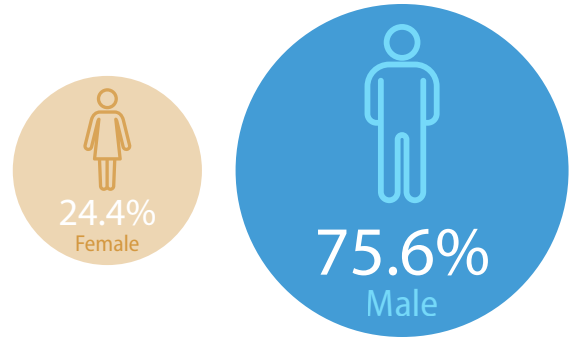


Figure 5. Professional Backgrounds of Sudanese Twitters

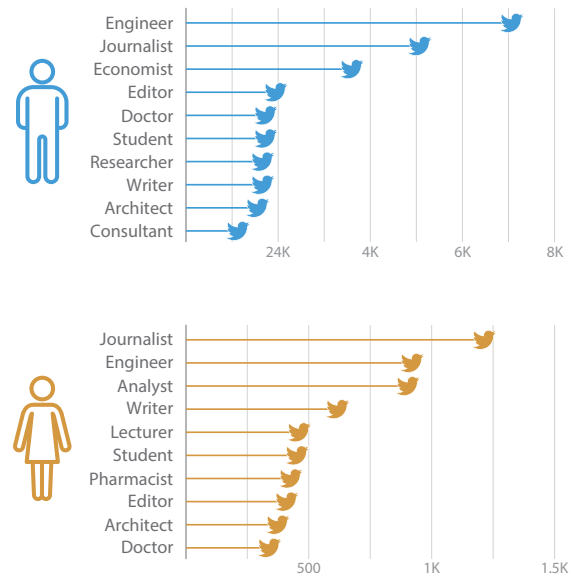
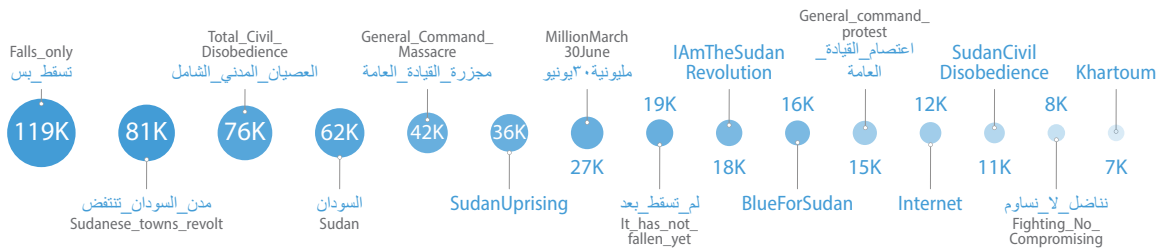
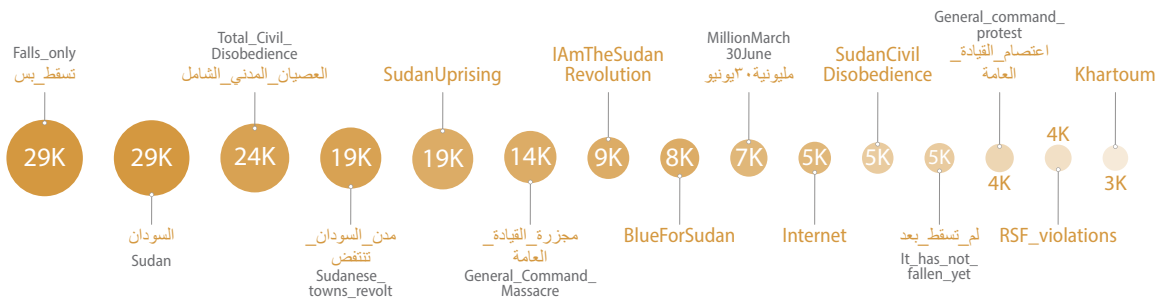


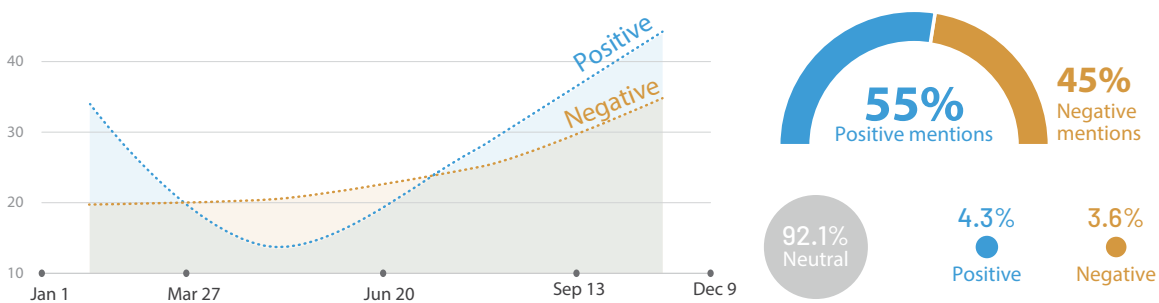
Figure 6. (a): Hashtag trends amongst Male



**Figure 6. (b): Hashtag trends amongst Female**



**Figure 7. Overall sentiment trend from the study period (Source: Sysomos)**



In addition, application of Sysomos Sentiment Analysis tool<sup>6</sup> on Sudan Twitter posts for the period Jan – Dec 2019, generated an overall sentiment trend as Fig 7. As expected, negative sentiment dominated during March – June 2019. Upon conclusion of the agreement between the

FFC and the military in July, positive sentiment markedly increased. However, negative sentiment persisted, reflective of the public awareness of the challenges facing the transitional government and the urgent issues that need to be tackled in the immediate term.

## V. WAY FORWARD

- This paper presents key trends and selected observations from an exploratory study to indicate utility of social media for the transitional government in monitoring public opinion.
- Our sentiment trend analysis demonstrates **the applicability of this method in almost real time monitoring of online public opinions cost-effectively.**
- The fact that the majority of twitter users are urban, educated elite, means that what you can gather from it does not necessarily represent the views of the Sudanese majority, who are uneducated and rural.
- In view of the above noted limitations of social media, it is critical that some cost-effective means of measuring public opinion in a representative manner be instituted at the earliest opportunity. This can underpin an agile government performance monitoring system that incorporates **adaptive and citizen centred programming** and helps the government **maintain citizen trust and confidence.**

<sup>6</sup> Sysomos sentiment engine has been benchmarked at an accuracy rate of 85% (+/- 5%).

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