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Khuhro, Rashid Ali; Adnan, Hamed Mohd; Kahn, Moshin Hassan; Asghar, Rohail

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## Diversity of News Sources in Climate Change Reporting in Pakistani Press

RASHID ALI KHUHRO<sup>1</sup>, HAMED I MOHD ADNAN<sup>2</sup>,  
MOHSIN HASSAN KHAN<sup>3</sup>, & ROHAIL ASGHAR<sup>4</sup>

<sup>1,2,3</sup>University of Malaya, Malaysia

<sup>1</sup>University of Sindh, Pakistan

<sup>4</sup>Superior University, Pakistan

This study examines the diversity of news sources in climate change reporting in the Pakistani press. A longitudinal quantitative content analysis of climate change reporting of five significant climate change-related events such as Earth Summit (1992), Rio de Janeiro, Kyoto Protocol (1997), Ratification of Kyoto Protocol Globally (2005), COP15 (2009) Copenhagen and COP21 (2015) Paris is conducted. The samples were selected through systematic random sampling technique by choosing every alternate day of newspapers' publications. A total of 1498 diverse news sources were found in 324 climate change-related stories during the five events mentioned above. The findings of this study revealed that elite sources dominated the marginalized sources collectively in coverage of the three newspapers during the five events. However, the climate change-related event/incidents represented highly in the reporting of Pakistani press. Further, a thin proportion of mentions of media-related sources such as News agencies and Journalists also found. Thus, this study recommends that similar studies should be conducted on news content of other soft and hard issues in Pakistani press to examine the diversity of sources.

**Keywords:** News, source, elite source, non-elite source, climate change, reporting, Pakistani press

News sources play a significant role in the formation and structure of news stories. News stories are unthinkable without contemporary sources (Carlson & Franklin, 2011). In that context, Turk (1985) objected with news definition of *what happens* and defined it as *what a news source says has happened*.<sup>1</sup> According to Gans (1979), news sources are actors whom journalists observe or interview, including those who are quoted and those who only supply background information or story suggestions. The reason behind the inclusion of sources in the stories is these sources' credibility and authority in the news (Reich, 2011; Schudson, 2011). The news sources are the *lifeblood* for journalists (Mencher, 2011). That is why the relationship between reporters and their sources is considered as the basis of journalism. In journalistic routines of the newsgathering process, the journalists have to meet deadlines in the pre-decided time limitations (Broersma & Graham, 2012; O'Neill & O'Connor, 2008). That is why media practitioners build strong relationships with credible sources (Berkowitz, 2009; Shoemaker & Reese, 2013).

Another reason for the use of reliable sources is the presentation of their ideas by the journalists were restricted by their superiors or owners of their organizations (Hamilton

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Correspondence to: Hamed i Mohd Adnan, Department of Media and Communication Studies, Faculty of Arts & Social Sciences, University of Malaya, Kuala Lumpur, Malaysia –50603.

& Lawrence, 2010). The principle of not including the personal version of opinions in the news, newsgathering became a process of putting a picture of an event together through the accounts of sources, documentary as well as human (Berkowitz, 2009; Hamilton & Lawrence, 2010). The expression of ideas given by the sources helps to build agenda for the specific issues (Grilli, Ramsay, & Minozzi, 2002; Nielsen & Nordestgaard, 2015; Wallington, Blake, Taylor-Clark, & Viswanath, 2010) and the perspective of the sources provide thoroughness to the story. Moreover, scholars have examined the variation of the sources in the news coverage of different issues. First of all, most of them have revealed that government/official/elite sources get priority in the news content of the media (Althaus, Edy, Entman, & Phalen, 1996; Cook, 1998; Entman & Page, 1994; Gans, 1979; Gitlin, 2003; Hallin, Manoff, & Weddle, 1993; Lacy & Coulson, 2000; Maddison & Watts, 2012; Powell & Self, 2003; Sigal, 1973; Tanner, Friedman, & Zheng, 2015; Walejko & Ksiazek, 2008; Watts & Maddison, 2014). Second, Public Relations (PR) sources, which are called *information subsidy* by (Gandy, 1982) get priority in the news content. Though, the media organizations are highly dependent on the PR practitioners, but scholars are of the opinion that journalists have negative attitude towards the public practitioners (Cameron, Sallot, & Curtin, 1997; Curtin, 1999; Kopenhaver, Martinson, & Ryan, 1984; Pincus, Rimmer, Rayfield, & Cropp, 1993; Sallot & Johnson, 2006; Turk, 1985).

In contrast, most of the previous studies have explored that media organizations and journalists use government/official/elite sources; they compromise most of the time, citizens or marginalized sources. However, Gandy (1982) has criticized the dependency of journalists on the elite sources by calling it giving undue attention over marginalized sources. Kleemans, Schaap, and Hermans (2015) elaborated that there is a big difference between elite and official/institutional sources (e.g., politicians, officials, governments) and non-elite sources.

According to Splendore (2017) many scholars (Ahva, 2012; Canter, 2013; Jönsson & Örnebring, 2011; Kleemans et al., 2015; Thorbjørnsrud & Ustad Figenschou, 2014) have examined the inclusion of non-elite sources except elite source in their daily routine (Berkowitz, 2009; Carlson, 2009; Manning, 2000). Nevertheless, the proportion of sources is low as compare to the elite sources. The current media scenario and settings of online local news highlight the role of non-elite sources in journalism practices (Ahva, 2012; Canter, 2013; Chen et al., 2017; Kleemans et al., 2015). The majority of these studies concluded that non-elite or marginalized sources are compromised by the journalists of over official/government/elite sources.

Climate change is one of the essential global news stories of the century (Wyss, 2019). During the last three decades, media has played a crucial role in giving coverage to these issues (Anderson, 2009; Boykoff, 2014; Hart & Feldman, 2014; Ungar, 2014). It has remained as a significant issue in the global media coverage as compared to other issues (Hiles & Hinnant, 2014; Ward, 2008). However, most often, the coverage of this issue remains unstable. Sometimes it goes high, and suddenly it drops down. The studies have exposed that there is a decline in the coverage of climate in both developed and developing countries (Kakonge, 2013; Shanahan, 2009; Takahashi & Meisner, 2012).

Though, there is a lack of sources of diversity in media reporting (Bennett, 1990; Coulson & Lacy, 1998; Salomone, Greenberg, Sandman, & Sachsman, 1990; Tuchman, 1978). The elite sources dominate in the media coverage generally (Powell & Self, 2003). Specifically, similar patterns prevailed in a study about climate change. Government sources dominated in climate coverage (Trumbo, 1996). In another study about environmental conflicts, only 20 percent of articles mentioned activist groups. However, remaining all articles focused on industrial sources (Taylor, Lee, & Davie, 2000). Similarly, in a study,

Kensicki (2004) found that in mainstream media coverage, environmentalists, activists, and lower strata interest groups were mentioned occasionally. Howard-Williams (2009) revealed that over the period media had prioritized government sources upon scientists for climate change coverage. The studies mentioned above found that, like all other issues, there is a lack of sources of diversity in climate change coverage. Most of the time, journalists rely on official sources for their stories.

In the literature, there is a lack of studies about the diversity of sources in the Pakistani press generally and specifically about climate coverage. That is why this study examines the diversity of news sources in climate change reporting in the Pakistani press. For this purpose, three highly circulated daily newspapers *Dawn* (English), *Jang* (Urdu), and *Kawish* (Sindhi) have been selected for the analysis. The researchers have selected the coverage of five significant climate change-related events organized by United Nations Frameworks on Convention on Climate Change. The events are Earth Summit (1992), Kyoto Protocol (1997), Ratification of Kyoto Protocol (2005), Climate Change Conference of Parties (COP15) (2009), and COP21 (2015). The specific research objectives of this study are:

- RO1: To determine the diversity of news sources in climate change coverage in Pakistani press,
- RO2: To compare dominant news sources covered by three different language Pakistani newspapers, and
- RO3: To contrast diversity of sources used in Pakistani press during the above five climate change-related global events.

This study would also respond to the following research questions are:

- RQ1: What prominent sources categories Pakistani press has used in climate change reporting?
- RQ2: How does source diversity differ in climate change reporting among different languages Pakistani newspapers?
- RQ3: Is there any diversity among sources categories used by Pakistani press during climate change-related significant global events?

## Literature Review

The sources are vital essentials for the news media (Ekman & Widholm, 2015). According to Gans (1979), sources are 'actors whom journalists observe or interview, including...those who are quoted... and those who only supply background information or story suggestions.' Though, it is the newsgathering process requirement that journalists are bound to use a variety of reliable sources to make credible stories for the public. That is why to fulfill that requirement of gathering information from diverse sources in the shape of facts and quotes (Brook, Kennedy, Moen, & Ranly, 2002), the reporters contact with witnesses of the events and experts (Lacy & Coulson, 2000). It makes news impartial (Mencher, 2011) because the inclusion of the reporter's version in the story makes it partial (Lee & Koh, 2010; Wheatley, 2018).

Many scholars call the relationship between journalists and their sources a base of journalism (Broersma & Graham, 2012; O'Neill & O'Connor, 2008). The journalists develop news stories as a result of several interactions and societal contexts (Tiffen et al., 2013). In the set time limitations, the journalists have to meet deadlines. It compels them to build strong relationships with credible sources (Berkowitz, 2009; Shoemaker & Reese, 2013). Studies have outlined accessibility, time (deadlines), space, and technology the most prominent real-world constraints for the journalists (Berkowitz, 2009; Dimitrova &

Strömbäck, 2009; Kleemans et al., 2015; Pavlik, 2000; Shoemaker & Reese, 1996).

Though the journalist and source relationship are reciprocal, the bases of this relationship are that journalists need information, and the sources need media exposure (Ciboh, 2017). Likewise, Berkowitz (2009) calls the dependence between journalists and politicians is planned sensibly in an affiliation (Davis, 2009). However, this reliance is a troubled *give and take* between both stakeholders and media practitioners. Nevertheless, this reciprocal relationship becomes problematic between both stakeholders when a single party asks for a favour (Berkowitz, 2009; Strömbäck et al., 2013). Except that there are many other internal and external factors like journalists' personal biases, ideology, and political inclination, which affect the credibility of the sources in the eyes of the journalists. In the result, the journalists' disagreement with sources, reduces their chances to be cited in the stories (Lichter, Rothman, & Lichter, 1986; Stocking & LaMarca, 1990).

According to Napoli (1999) use of diverse sources in the news is a '*marketplace of ideas*' means to give readers and audience information about happening from different perspectives. Though the practice of diverse sources increases the importance of the stories, another reason is that the selection of sources affects the perception of readers about the story (Fico & Soffin, 1994). News sources become helpful in defining the form of a news story (Gans, 2004). The sources influence the framing of social problems and impacts on public and policy agenda about the same (Iyengar, 1994). The variation in news sources about environment and health issues plays a crucial role in communicating with the public about risk. The source diversity in such issues increases the credibility of the story for the readers (Cozma, 2006). Likewise, Hansen (1991) observed that the decrease in the diversity of sources would impact the information available to both the public and policy-makers.

There is a difference in source usage between local and mainstream media. It is revealed that local media organizations use diverse sources than mainstream media (Martin, 1988). Voakes, Kapfer, Kurpius, and Chern (1996) and Watts and Maddison (2014) have also proposed similar findings that local and mainstream newspapers that less circulated newspapers had more significant source variation than mainstream newspapers. Shanahan (2009) In a study about the environmental conflict in the Yellowstone Park area, Shanahan (2009) concluded that media outlets operating locally have more tendency to choose local sources. However, mainstream newspapers chose sources other than Yellowstone Park area too (Brown, Bybee, Wearden, & Straughan, 1986).

Usually, the scholars have segregated the news sources into two categories, i.e., elite and non-elite sources. The elite sources are politicians, government officials, institutions, and experts. However, the non-elite sources, which are also called marginalized sources, are citizens or those voices according to which are given less space in the news content. Similarly, Welker (2011) categorized the sources as distance sources for official (ministries, government organizations), professionals (companies, non-governmental organizations), and non-professional (ordinary citizens) sources.

Many scholars have examined and concluded that the majority of news sources in the news content around the globe are official/government/elite sources studies (Althaus et al., 1996; Cook, 1998; Entman & Page, 1994; Gans, 1979; Gitlin, 2003; Hallin et al., 1993; Lacy & Coulson, 2000; Maddison & Watts, 2012; Powell & Self, 2003; Sigal, 1973; Tanner et al., 2015; Walejko & Ksiazek, 2008; Watts & Maddison, 2014). Similarly, several studies examine that news stories are dominated by institutional sources (Schudson, 1995, 2011). It is the result of exchanges between journalists and government officials (Schudson, 2011). Their traits like authority, trustworthiness, accessibility make it easier for elite sources to get attention from the media (Kovach & Rosenstiel, 2014).

Additionally, these sources are helpful during tight work schedules to meet deadlines with less effort. These sources require less labor as compared to other sources (Lacy & Coulson, 2000). According to Sigal (1974), the official and government agencies' sources are *routine news channels*. These sources are frequently used in all types of news stories. In another study, Berkowitz (1987) showed that at least 50 half of all sources were associated with some governmental agency. Similarly, Maddison and Watts (2012) have also exhibited that it is clear from the media agenda that official sources get priority, and most of the stories are reflect government policy.

In developed countries, politicians have the privilege to become sources (Davis, 2009; Wolfsfeld & Sheafer, 2006). The politician use official and unofficial *information subsidies* (Gandy, 1982) as a means to influence journalists (Ciboh, 2017). Formally, politicians hold media-friendly events. They distribute material such as handouts, press releases, details of press conferences, video news releases, press briefings, politicization, and special reports among journalists and media houses (Lewis, Williams, & Franklin, 2008). These techniques make it convenient for journalists to develop stories. The politicians give selective opinions about public issues; it compels journalists to give them more attention (Macias, 2012).

In a study about the European Parliamentary elections campaigns 2009, Strömbäck et al. (2013) concluded that official sources dominated the media representation. Overall, the study found that local politicians were dominant sources following by international official sources and representatives of the EU. However, this study also shows the evidence about the regular representation of ordinary people and journalists as sources too. Kang, Gearhart, and Bae (2010), in research about the coverage of Alzheimer's disease, examined 1371 TV news transcripts presented on six television stations during 25 years (1984-2008) period. The researcher concluded that primary sources were doctors, researchers, and politicians in stories about the disease (Artwick, 2014).

Moreover, public relations sources recognized as information subsidies (Gandy, 1982) are considered as significant elite sources for news stories. Though, the journalists do not have positive attitude towards PR sources (Kopenhagen et al., 1984; Sallot & Johnson, 2006) and are rated lower in comparison to other elite sources (Len-Rios et al., 2009), but journalists are compelled to use them to meet deadline pressure (Cameron et al., 1997; Cho & Cameron, 2007). After frequent use of the Internet, the journalist is compelled to use information subsidies (Len-Rios et al., 2009). According to Cameron et al. (1997), journalists do not trust public relations practitioners because of the development of stories to serve their own vested-interests for their customers. It decreases the credibility of stories for a journalist who tries to remain impartial. Many other researchers also supported a similar notion (Cameron et al., 1997; Curtin, 1999; Pincus et al., 1993; Turk, 1985). Lewis et al. (2008) explored that 60% of news stories in the United Kingdom (UK) received totally or partially from Public Relations (PRs) usually the media outlets used material as it cut-pasted material from the press releases.

Another reason the journalists and media organizations do not like to use PR sources. It tries to control journalists to use a single source that has its clear harms. These PR practitioners try to control the flow of information or give only positive information to build the image of their organization. Thus, though the news comes from a credible source lacks most of the pertinent facts (Matthews, 2013).

The non-elite sources category is the second potential type of news source. It is also called the marginalized sources by the scholars. In a study, Gandy (1982) criticized that journalists are dependent on elite sources and pay undue attention towards the non-elite sources. The scholars argued that there is significant variation between use elite and non-elite sources in the news content (Kleemans et al., 2015).

According to Splendore (2017) many scholars (Ahva, 2012; Canter, 2013; Jönsson & Örnebring, 2011; Kleemans et al., 2015; Thorbjørnsrud & Ustad Figenschou, 2014) have examined the inclusion of non-elite sources except elite source in their daily routine (Berkowitz, 2009; Carlson, 2009; Manning, 2000). The current media scenario and settings of online local news highlight the role of non-elite sources in journalism practices (Ahva, 2012; Canter, 2013; Chen et al., 2017; Kleemans et al., 2015).

News sources help to know about the kind of news story (Gans, (2004), There is a significant influence of sources on the framing of social issues. The sources affect both public and policy agendas about social problems (Iyengar, 1994). It is also revealed in a study by Cozma (2006) that the usage of various sources in stories about environmental and health issues plays a significant part in interacting with the masses about risk. The source diversity in such issues increases the credibility of the story for the readers (Cozma, 2006). Prasad and Balraj (2013) conducted a research on developing media literacy practices among Malaysian secondary school students found that despite difficulties in understanding the environment and critical media inquiry, students are quick to learn and are able to engage in video making on environment in a productive way.

However, climate change is also an environmental issue associated with global warming. This issue has got the status of an equal threat to the whole world. It has been discussed in the media around the globe. Though not many studies are found in the research about climate change, Trumbo (1996) explored that the primary sources of climate change reporting were government officials. Similarly, Howard-Williams (2009) revealed that over the period media had prioritized government sources upon scientists for climate change coverage. Likewise, Coulson and Lacy (1998) examined that identified the lack of source diversity in print media coverage about vehicle regulations and dominance of government and industrial sources over environmentalists, scientists, and conditioned citizens (Coulson & Lacy, 1998). In another study about environmental conflicts, only 20 percent of articles mentioned activist groups. However, remaining all articles focused on industrial sources (Taylor et al., 2000).

In an era of rapid economic transformations and attendant anxieties, the quest for sustainable development has been a major discursive engagement (Dash & Dash, 2019). The study uses three case studies to discuss how electronic media promotes the discourse of ecological entrepreneurship (EE)—the UN's new media engagement, YouTube as a source of EE knowledge and action, and 'Your Story' as a site for promoting green start-ups. The finding revealed that the new media has come a long way to forward the transformative discourse of EE that can stimulate the appropriate behavior leading to the green social economy (Dash & Dash, 2019).

Similarly, in a study by Kensicki (2004) found that in mainstream media coverage, environmentalists, activists, and lower strata interest groups were mentioned occasionally. However, most of the studies have exhibited that official/government/elite sources dominated the climate change stories. Nevertheless, the researchers found a lack of research regarding the Pakistani press in the latest literature. Thus, this study would contribute to the knowledge about a variety of sources used in climate change reporting Pakistani press.

## Methodology

The data for this longitudinal study has been collected through a quantitative content analysis method. Three highly circulated Pakistani daily newspapers *Dawn*, *Jang*, and *Kawish* considered for the analysis. The systematic random sampling method was used to

select samples from the five highly significant climate change-related events organized by the United Nations Framework Convention on Climate Change (UNFCC). These events are Earth Summit (1992), Rio de Janeiro, Kyoto Protocol (1997), Ratification of Kyoto Protocol (2005), Conference of Parties (COP15) (2009), and COP21 (2015). Three months data collected for each event, which include one month before and one month after the event held. Every alternate day of the publication has been selected for the analysis. A total of 229 publication days were considered systematically for the study.

Based on the past studies (Armstrong, 2004; Beckers & Aelst, 2019; Brown et al., 1986; Carlson, 2010; Dimitrova & Strömbäck, 2009; Grabe, Zhou, & Barnett, 1999; Greenberg, Sandman, Sachsman, & Salomone, 1989; Hallin et al., 1993; Kleemans et al., 2015; Lee & Koh, 2010; Leuven, Heinrich, & Deprez, 2015; Maddison & Watts, 2012; Powell & Self, 2003; Powers & Fico, 1994; Soloski, 1989; Stroobant, Dobbelaer, & Raeymaeckers, 2018; Taylor et al., 2000; Trumbo, 1996) a coding sheet was designed. The eleven sources such as Climate change-related event/incident; Federal, provincial and local government officials; Political party/politicians; NGOs, Environmental interest groups, Business interest groups; Educational/research institutions; Skeptics; Citizens; News agencies, and Journalists are considered for coding.

To check inter-coder reliability, a total of 324 climate change stories were coded and the results tested in SPSS software. In the descriptive analysis, Crosstabs were selected, and coders' data was analysed with the help of Cohen's Kappa. In Crosstabs, the Kappa test was conducted to know the inter-coder reliability. It ranged from 1.00 to 0.70, with the most variables falling into the middle or accurate to the 1.00.

## Findings

This study found 324 climate change-related stories in three daily newspapers, i.e., *Dawn* (English), *Jang* (Urdu), and *Kawish* (Sindhi). The items for the analysis were news stories, editorials, columns, articles, features, letter to the editors, and interviews published during the study period.

Table 1. Frequency of source on climate change reporting in the Pakistani press

News source	Frequency	Percent
Climate change-related event/incident	288	19.24
Federal, provincial and local government officials	270	18.04
Politicians/political party	206	13.77
Environmental interest groups	183	12.21
Citizens	133	8.87
Educational/research institution	123	8.21
NGOs	81	5.40
News agencies	78	5.20
Business interest groups	68	4.53
Journalists	39	2.60
Skeptics	29	1.93
Total	1498	100%

Table 1 presents the findings for RO1 and RQ2. The result shows that a total of 1498 different sources are found in the 324 climate change stories during five significant events. A sizeable proportion of source 288 (19.24%) are about the Climate change-related event/incident; while 270 (18.04%) Federal, provincial, and local government officials; 206



(13.77%) Politicians/political party; 183 (12.21%) Environmental interest groups; 133 (8.87%) Citizens; 123 (8.21%) Educational/research institution; 81 (5.40%) NGOs; 78 (5.20%) News agencies, 68 (4.53%) Business interest groups, 39 (2.60%) Journalists; and 29 (1.93%) Skeptics' mentions. This study considers the Federal, provincial and local government officials; Politicians/political party; Environmental interest groups, Educational/research institution; NGOs; Business interest groups; and Skeptics as *elite source*. The amount of mentions of these elite sources is 960 (64.07%). However, the second-highest proportion of sources is Climate change-related event/incidents 288 (19.24%). Thus, the findings revealed that elite sources dominate the climate change news stories in Pakistani press whereas the Citizen or marginalized source is underrepresented.

Table 2. Comparison of sources in the study newspapers

Newspaper Name	News Sources	Climate Change Related Event/ Incident	Federal, Provincial and Local Govern: Officials	Politician/ Political Party	Environ: Interest Groups	Citizens	Educational/ Research Institutions	NGOs	News agencies	Business interest groups	Journalists	Skeptics	Total
<i>Dawn</i>	(181)	156 (18.18%)	152 (17.71%)	124 (14.45%)	113 (13.17%)	72 (8.40%)	68 (7.92%)	41 (4.77%)	57 (6.65%)	38 (4.42%)	23 (2.68%)	14 (1.63%)	858 (100%)
<i>Jang</i>	(68)	61 (21.55%)	57 (20.14%)	38 (13.42%)	28 (9.90%)	26 (9.18%)	20 (7.06%)	14 (4.95%)	15 (5.30%)	13 (4.60%)	4 (1.42%)	7 (2.48%)	283 (100%)
<i>Kawish</i>	(75)	71 (19.88%)	61 (17.08%)	44 (12.32%)	42 (11.76%)	35 (9.80%)	35 (9.80%)	26 (7.29%)	6 (1.69%)	17 (4.76%)	12 (3.36%)	8 (2.24%)	357 (100%)
Total	(324)	288 (19.24%)	270 (18.04%)	206 (13.77%)	183 (12.21%)	133 (8.87%)	123 (8.21%)	81 (5.40%)	78 (5.20%)	68 (4.53%)	39 (2.60%)	29 (1.93%)	1498 (100%)

Table 2 presents the findings for RO2 and RQ2. The results reveal that out of a total of 1498 different sources, 858 (57.27%) sources are found in 181 climate change stories of *Dawn*. The newspaper reported Climate change-related event/incident 156 (18.18%); Federal, provincial and local government officials 152 (17.71%); Politician/political party 124 (14.45%); Environmental interest groups 113 (13.17%); Citizens 72 (8.8%); Educational/research institution 68 (7.92%); NGOs 41 (4.77%), News agencies 57 (6.65%), Business interest groups 38 (4.42%), Journalists 23 (2.68%); and Skeptics 14 (1.63%). The elite sources (Federal, provincial and local government officials, Politicians/political party, Educational/research institution, NGOs, Business interest groups, and Skeptics) dominated the climate change coverage of *Dawn* which is 550 (64.10%).

Similarly, out of the total number, 283 (18.82%) sources are found in 68 climate change-related stories in *Jang* (Urdu). The newspaper reported Climate change-related event/incident 61 (21.55%); Federal, provincial and local government officials 57 (17.71%), Politicians/political party 38 (13.42%); Environmental interest groups 28 (9.90%); Citizens 26 (9.18%); Educational/research institution 20 (7.06%); NGOs 14 (4.95%); News agencies 15 (5.30%); Business interest groups 13 (4.60%); Journalists 4 (1.42%); and Skeptics 7 (2.48%). The elite sources also dominated in *Jang* newspaper with a proportion of 177 (62.54%).

The Table 2 findings also revealed that out of a total of 1498 sources, 357 (23.83%) sources on climate change reported in *Kawish* (Sindhi) newspaper. Among these sources, the Climate change-related event/incident is 71 (19.88%); Federal, provincial and local government officials 61 (17.08%); Politicians/political party 44 (12.32%); Environmental interest groups 42 (11.76%); Citizens 35 (9.80%); Educational/research institutions 35 (9.80%); NGOs 26 (7.29%); News agencies 6 (1.69%); Business interest groups 17 (4.76%); Journalists 12 (3.36%); and Skeptics 8 (2.24%). In this case also the elite sources dominated in the *Kawish* newspaper with a proportion of 233 (65.26%).

Table.3: Comparison of climate change reporting during significant global events

Climate Change Related Events	News Sources	Climate Change Related Event/ Incident	Federal, Provincial and Local Govern: Officials	Politician/ Political Party	Environ: Interest Groups	Citizens	Educational/ Research Institutions	NGOs	News agencies	Business interest groups	Journalists	Skeptics	Total
Earth Summit (1992)	(79)	66 (16.5%)	76 (19%)	62 (15.5%)	52 (13%)	39 (9.75%)	34 (8.5%)	11 (2.75%)	29 (7.25%)	15 (3.75%)	14 (3.5%)	2 (0.5%)	400 (100%)
Kyoto Protocol (1997)	(26)	21 (16.53%)	23 (18.11%)	20 (15.74%)	14 (11.02%)	13 (10.23%)	10 (7.87%)	5 (3.93%)	9 (7.08%)	5 (3.93%)	2 (1.57%)	5 (3.93%)	127 (100%)
Ratification of Kyoto Protocol (2005)	(65)	53 (19.62%)	47 (17.40%)	34 (12.59%)	40 (14.82%)	26 (9.62%)	18 (6.66%)	15 (5.55%)	13 (4.82%)	12 (4.44%)	7 (2.62%)	5 (1.86%)	270 (100%)
COP15 (2009)	(43)	40 (19.80%)	36 (17.82%)	23 (11.38%)	26 (12.87%)	18 (8.92%)	17 (8.42%)	14 (6.93%)	10 (4.95%)	13 (6.44%)	2 (0.99%)	3 (1.48%)	202 (100%)
COP21 (2015)	(111)	108 (21.64%)	88 (17.63%)	67 (13.42%)	51 (10.22%)	37 (7.41%)	44 (8.81%)	36 (7.22%)	17 (3.42%)	23 (4.61%)	14 (2.81%)	14 (2.81%)	499 (100%)
Total:	(324)	288 (19.24%)	270 (18.04%)	206 (13.77%)	183 (12.21%)	133 (8.87%)	123 (8.21%)	81 (5.40%)	78 (5.20%)	68 (4.53%)	39 (2.60%)	29 (1.93%)	1498 (100%)

Table 3 presents findings for RO3 and RQ3. The result shows that out of a total of 1498 sources found in the 324 climate change stories in three study newspapers, 400 (26.70%) sources are found in 79 stories during Earth Summit (1992). Out of the total 400 sources found during Earth Summit (1992); Climate change-related event/incident was 66 (16.5%), Federal, provincial, and local government officials 76 (19%), Politician/political party 62 (15.5%), Environmental interest groups 52 (13%), Citizens 39 (9.75%), Educational/research institution 34 (8.5%), NGOs 11 (2.75%), News agencies 29 (7.25%), Business interest groups 15 (3.75%), Journalists 14 (3.5%), and Skeptics 2 (0.5%). The findings revealed that elite sources dominated during Earth Summit (1992) with the mentions of 252 (63%). The Climate change-related event/incident 66 (16.5%) stood at the second position. The findings show that elite sources dominated during Earth Summit (1992).

It was also revealed that out of the total sources reported in climate change stories in the Pakistani press, 127 (8.47%) sources are found during Kyoto Protocol (1997). Among them, Climate change-related event/incident 21 (16.53%), Federal, provincial and local government officials 23 (18.11%), Politician/political party 20 (15.74%), Environmental interest groups 13 (11.02%), Citizens 13 (10.23%), Educational/research institutions 10 (7.87%), NGOs 5 (3.93%), News agencies 9 (7.08%), Business interest groups 5 (3.93%), Journalists 2 (1.57%), and Skeptics 5 (3.93%). The findings revealed that elite sources dominated in climate change reporting in Pakistani press during the Kyoto Protocol (1997) with a proportion of 82 (64.56%). The second highest number mentions found in Climate change-related event/incident with 21 (16.53%).

The findings revealed that 270 (18.02%) out of the total sources, 65 climate change stories were found during the Ratification of Kyoto Protocol (2005) in Pakistan press. Among them, Climate change-related event/incident 53 (19.62%), Federal, provincial and local government officials 47 (17.40%), Politician/political party 34 (12.59%), Environmental interest groups 40 (14.82%), Citizens 26 (9.62%), Educational/research institution 18 (6.66%), NGOs 15 (5.55%), News agencies 12 (4.44%) 13 (4.82%), Business interest groups 12 (4.44%), Journalists 7 (2.62%), and Skeptics 5 (1.86%). The finding of the comparison of sources in climate change reporting during the Ratification Kyoto Protocol (2005) in Pakistani press found that elite sources dominated with a proportion of 177 (63.33%). Nonetheless, second number mentions found the Climate change-related event/incident 53 (19.62%) sources.

Additionally, the findings reveal that 202 (13.48%) sources out of the 1498 have been found in 43 climate change stories in Pakistani press during the Conference of Parties

COP15 (2009). Nevertheless, out of the 202 Climate change-related event/incident 40 (19.80%), Federal, provincial, and local government officials 36 (17.82%), Politician/political party 23 (11.38%), Environmental interest groups 26 (12.87%), Citizens 18 (8.92%), Educational/research institutions 17 (8.42%), NGOs 14 (6.93%), News agencies 10 (4.95%), Business interest groups 13 (6.44%), Journalists 2 (0.99%), and Skeptics 3 (1.48%). The findings of the sources on climate change reporting in the Pakistani press during COP15 (2009) revealed that elite sources dominated with a proportion of 132 (65.34%). However, Climate change-related event/incident 40 (19.80%) sources stood at the second position. Consequently, the elite sources dominated during COP15 (2009).

The findings further revealed that 499 (33.31%) out of the total sources in 111 climate change stories are found Pakistani press during COP21. Among them, the Climate change-related event/incident 108 (21.64%), Federal, provincial and local government officials 88 (17.63%), Politician/political party 67 (13.42%), Environmental interest groups 51 (10.22%), Citizens 37 (7.41%), Educational/research institutions 44 (8.81%), NGOs 36 (7.22%), News agencies 17 (3.42%), Business interest groups 23 (4.61%), Journalists 14 (2.81%), and Skeptics 14 (2.81%). The findings of sources on climate change reporting in Pakistani press during COP21 (2015) found that the elite sources dominated with a proportion of 323 (64.72%). Nevertheless, second number mentions found Climate change-related event/incident 108 (21.64%) sources. The elite sources also dominated during COP21 (2015).

## Conclusion

This study focuses on the diversity of news sources in climate change reporting in the Pakistani press during five significant global climate change events. The findings in response to RO1 and RQ1 revealed that elite sources dominated in the climate change news stories in Pakistani press with a proportion of 64.08 percent in the three study newspapers, i.e., *Dawn*, *Jang*, and *Kawish* during the five significant climate change events. This study also observed that individually, the higher proportion of sources is about the Climate change-related event/incident with 19.24 percent. However, Citizen sources or marginalized sources are found at 8.87 percent only. This number is a meager in comparison to elite sources. Thus, like previous studies (Althaus et al., 1996; Cook, 1998; Entman & Page, 1994; Gans, 1979; Gitlin, 2003; Hallin et al., 1993; Lacy & Coulson, 2000; Maddison & Watts, 2012; Powell & Self, 2003; Sigal, 1973; Tanner et al., 2015; Walejko & Ksiazek, 2008; Watts & Maddison, 2014), it is proved that elite sources dominated in climate change reporting in Pakistani press.

The findings for RO2 and RQ2 revealed that the elite sources dominated in the all three newspapers with *Dawn* (64.10%), *Jang* (62.55%) and *Kawish* (64.95%) collectively in comparison to a very low representation of Citizen or marginalized sources following *Dawn* (8.40%), *Jang* (9.18%) and *Kawish* (9.80%). However, sources representing Climate change-related event/incident also got a significant proportion with *Dawn* (18.18%), *Jang* (21.55%), and *Kawish* (19.88%). Nevertheless, the media-related sources, i.e., News agencies and Journalists, are remaining ten percent only. Moreover, the findings regarding RO3 and RQ3 also revealed that the elite sources dominated during global climate change events in Pakistani press.

Like previous studies (Althaus et al., 1996; Cook, 1998; Entman & Page, 1994; Gans, 1979; Gitlin, 2003; Hallin et al., 1993; Lacy & Coulson, 2000; Maddison & Watts, 2012; Powell & Self, 2003; Sigal, 1973; Tanner et al., 2015; Walejko & Ksiazek, 2008; Watts & Maddison, 2014), this study revealed that elite sources (Federal, provincial and local government officials, Politicians/political party, Educational/research institution, NGOs,

Business interest groups and Skeptics) dominated in climate change reporting in Pakistani Press collectively. Nevertheless, individually, Climate change-related events/incident is represented more than other sources. The trend dominance of elite sources is found in the three study newspapers during the five global events. However, like past studies (Ahva, 2012; Canter, 2013; Jönsson & Örnebring, 2011; Kleemans et al., 2015; Thorbjørnsrud & Figenschou, 2014) marginalized sources such as Citizen sources are less represented in Pakistani press. The current study suggests that to know more about the representation of diverse sources in the Pakistani press, research should be conducted on both soft and hard issues both to know the representation of diverse sources in the Pakistani press.

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**Rashid Ali Khuhro** is pursuing PhD in the Department of Media and Communication Studies, Faculty of Arts and Social Sciences, University of Malaya, Malaysia. He also serves as a Lecturer in the Centre for Rural Development Communication at the University of Sindh, Pakistan. His research interests are quantitative and qualitative content analysis of news.

**Hamed Mohd Adnan** (PhD, University of Malaya, Malaysia, 2001) is an Associate Professor in the Department of Media and Communication Studies, Faculty of Arts and Social Sciences, University of Malaya. His research focuses on new media and journalism.

**Mohsin Hassan Khan** is a doctoral candidate in the Department of Media and Communication Studies, University of Malaya. His research areas are Islamophobia, political communication, new media, and climate change.

**Rohail Asghar** is a Lecturer in the Department of Media and Communication Studies, Superior University, Lahore, Pakistan. His research interests are news media and digital media.