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Digital and Sustainable Information Processes: a look at changing information patterns and climate adaptation

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Introduction and background

Pakistan's Gilgit-Baltistan region has more glaciers than any other place on the planet after the two poles (Craig, 2016). These abundant freshwater resources have now become a threat, with indigenous Himalayan populations facing constant risk of glacial lake outburst floods as the region warms at a faster rate than the global average (Abubakar, 2020). Gilgit-Baltistan has seen a sharp improvement in internet infrastructure over the past half-decade, leading to increased use of social media (Kohari, 2020). This digitalisation has changed the way information is sought and spread in the region, potentially impacting climate change awareness. While research suggests there is a link between information flow and climate change adaptation (Van Valkengoed et al., 2022), neither information flow nor climate adaptation happen in a vacuum. Social factors strongly shape how information is sought and spread, as well as how climate change awareness and adaptation take place. This research explores how socio-cultural processes and digitalisation change information patterns among indigenous Himalayan populations and their impact on climate change awareness. Several social factors can lead to information poverty, which can make vulnerable populations feel even less inclined to inform themselves of climate adaptation. The power of digitalisation can help address this cycle, but it is vital to first understand local social processes to harness it in a constructive manner.

Why social context matters when analysing adaptation and information

Many scholars have highlighted the risk of maladaptation in climate adaptation, especially in developing countries (Vink et al., 2013; Magnan et al., 2016; Juhola et al., 2016; Eriksen et al., 2021). Maladaptation can take place through the reinforcement of existing vulnerabilities, the shifting of vulnerabilities to other parties, or the creation of new vulnerabilities altogether. Furthermore, local buy-in for adaptation processes is not possible without first understanding the social forces that shape cultures and values. Due to this, there is a slew of research calling for transformative climate change adaptation by focusing on sociocultural and political processes (Eriksen et al., 2015; Adger et al., 2012; Adger, 2000).

Similarly, social factors determine the flow of information, with Savolainen (2009) highlighting the importance of context in information seeking and sharing. This is also

backed by Sonnenwald's (1999) theory of information horizons where contexts, situations, and social networks define information behaviour. Chatman (1991; 1996) describes how those living in small worlds, defined as closed-off and tightly knit groups, experience information poverty. Hence, she states that 'understanding the workings of a community holds many benefits' (Chatman, 1999, p. 211). Additionally, Chatman (1991) applies gratification theory to argue that impoverished communities or impoverished members within a community have too many pressing concerns to seek information regarding future problems. This is relevant as it may mean that those most at risk of climate change are also those least inclined to search for information regarding adaptation.

Social context also determines what information is considered usable. Lemos et al. (2012) show that there is a 'persistent gap between knowledge production and use' (Lemos et al., 2012, p. 789) of climate information. Similarly, Kalafatis et al. (2015) state that usable knowledge and communities of practice are interlinked, with users forming specialised networks that in turn produce more usable knowledge.

How information and adaptation are linked

Several authors have discussed the importance of indigenous knowledge and how it differs from expert knowledge since it is situated and hence inseparable from the land and the people (Cote & Nightingale, 2012; Latulippe & Klenk, 2019). Additionally, there is an argument that transformative climate change can only be achieved if it is 'founded on change in knowledge systems and the opening of deliberative space for defining futures' (Nightingale et al., 2019, p. 344). This has become especially true in the age of digitalisation as new technologies drastically change the way information is spread across physical space (Khadri, 2021).

An increase in perceived empowerment can lead to an increase in information search regarding a subject (Chatman, 1991; 1996). Social media can help indigenous populations in the Himalayas care more about climate change if it allows for their voices to be heard. This can increase both the demand and supply for information, potentially leading to a self-feeding cycle where climate information becomes more sought after and more climate content is created.

Research setting and questions

Better understanding of sociocultural processes and information flow in the Himalayas, as well as their impacts on climate knowledge, is required to harness changing information patterns due to digitalisation. This can help address information poverty in the region and improve local climate adaptation capabilities with information that is considered trustworthy and usable by the indigenous populations. 30 semi-structured interviews were conducted in the Himalayas to look at the use of social media to seek, consume, and spread climate change information. The interviews are now being analysed using Chatman's work on information behaviour of small worlds and gratification seeking, Sonnenwald's concept of information horizons, and Adger's transformative adaptation theories. This can shed light on how sociocultural and digital processes are shaping information patterns in the Himalayas, as well as how these changing information patterns are in turn challenging existing social order and adaptation efforts. This can help harness the power of recent digitalisation in the region to improve awareness and adaptation capabilities by improving local buy-in and reducing risk of maladaptation. I will therefore answer the following research questions during my doctoral studies:

1. How do indigenous populations in the Himalayas search and consume information on climate change?
2. How do theories of gratification and small worlds apply to indigenous climate knowledge networks?
3. How does social context impact climate information patterns and information horizons in the Himalayas?
4. How are social media and digitalisation changing climate information flow in the Himalayas?
5. How do changing information patterns impact social context and climate adaptation in the Himalayas?
6. How can digitalisation and changing information flow patterns be used to create transformative adaptation in the Himalayas?

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