The Power of Images in Deliberative Processes

GEO 511 Master's Thesis

Author
Svetlana Puricel
20-751-079

Supervised by
Prof. Dr. Norman Backhaus

Faculty representative
Prof. Dr. Norman Backhaus

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Department of Geography, University of Zurich

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Abstract

Deliberation, involving the participation of individuals in decision-making to find policy solutions, is vital for addressing environmental issues. The latter requires transformative change, necessitating interdisciplinary approaches. This master's thesis explores the contribution of images to deliberative processes. The study reveals that photographic images can contribute to deliberation by enhancing individuals' awareness of environmental problems, contributing to public discourse, and influencing policy- and decision-making. The study focuses on developing a tool useful for analysing the role of images in deliberative processes, and applicable to any photographic image. Furthermore, it evaluates the potential of images to facilitate participatory processes leading to deliberation.

The research included content analysis, discourse analysis, frame analysis, expert interviews, and application of the Five-dimensional approach. 83 images and their textual contexts created at Akespe, the Kazakh village located at the Northern Aral Sea, were analysed. Two expert interviews were conducted to supplement and validate the data. The content analysis allowed the identification of themes and patterns in the images. Discourse analysis of the interconnection between the segments of the images and their textual contexts, associated with power, environment, and social aspects, facilitated understanding of the institutional context and power dynamics within the Northern Aral Sea crisis. Unexpectedly, the analysis of the images revealed insights into the outcomes of power relations within the Akespe area. While the reasons behind the power dynamics are not directly portrayed in the images, they are evident within the textual contexts. However, the consequences of these power relations are depicted and evident in the images. Based on the content and discourse analysis of the images and their textual contexts, frame analysis provided insights into frames, or conditions that form public discourses concerning the Northern Aral Sea crisis. Four frames are identified: environmental, political, economic, and social.

The Five-dimensional approach was developed by me while writing this master's thesis. It involves analysing the content of images and their textual contexts, images' aesthetics, audience, institutional context, and power relations within the case study area. This study analysed the content of the images and texts, along with the institutional context and power relations. The images' audience and aesthetics were not explored in detail due to insufficient data.

The study provides insights for policy-makers, citizens, researchers, photographers, journalists, and cultural institutions. Suggestions for further research include understanding audience dimensions, exploring the effectiveness of discourse using images, prognosticating deliberation outcomes, and adopting interdisciplinary approaches to address environmental issues.

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Abbreviations

ASBP - Aral Sea Basin Assistance Program

IFAS - International Fund to Saving the Aral Sea

IGBP - International Geosphere-Biosphere Programme

ILEC - International Lake Environment Committee

IPCC - Intergovernmental Panel on Climate Change

IRGC - International Risk Governance Center

NZZ - Neue Zürcher Zeitung (New Zurich Newspaper)

UN - United Nations

UNEP - United Nations Environmental Programme

UNFCCC – Uited Nations Framework Convention on Climate Change

US - United States

USAID - United States Agency for International Development

USSR - Union of Soviet Socialist Republics

WPP - World Press Photo

1. Introduction

Nowadays, individuals are bombarded with a barrage of visual information, which certainly affects their perception of the space around them. People are inclined to base their opinions on images they see, which are produced by different actors and are presented through various channels. In media-dominated societies, visual representations of certain facts hold a unique power to shape individuals' perceptions (Müller & Backhaus, 2007: 12). As a result, analysing images in the field of geographical research grants access to often unconscious mental images that significantly influence individuals' motivations and subsequent actions (Müller & Backhaus, 2007: 12).

Historically, photographic images have been significantly important within the realm of geographical studies, because they serve as a tool in addressing the fundamental geographical question: "What does the place look like?" (Rose, 2008: 151). Photographic images, in contrast to words, can convey information about the visual aspects and characteristics of a place. Moreover, rather than perceiving photographs solely as descriptive illustrations of a place at a specific moment in time, an increasing number of geographers has started to recognise the active role that photographs can play in research, and more precisely, how photographic images actively contribute not only to the understanding but also to the creation of various aspects of geographical knowledge (Rose, 2008: 151).

In this master's thesis, I focus on the features of images and their textual contexts which can shape the vector of a deliberative process by influencing individuals' perception of space and environmental issues happening there, and subsequent interaction of individuals with this space. The methodology which I use for analysing the role of images in deliberative processes is based on content analysis, discourse analysis, frame analysis, expert interviews, and the Five-dimensional approach, which was developed by me in the process of writing this master's thesis. I analysed photographic images and their contexts of Akespe, the Kazakh village, and its surroundings. By applying these methods and the approach, I analysed how photographic images are used to convey messages, construct narratives, and influence public opinion in deliberative processes.

1.1. Research question and objectives

Deliberation refers to processes of involving individuals in decision-making in order to find a policy solution for a social or environmental issue (Bessette, 2001; Clement, 2018; Dryzek et al., 2019; Ercan et al., 2022; Mendonça et al., 2020; Mendonça & Simões, 2022; Wironen et al., 2019). Deliberation requires time, effort, and specific spaces such as "political executives, legislatures, citizen forums, old and new media, and informal citizen gatherings" (Dryzek et al., 2019: 1145-1146). Deliberation has demonstrated its effectiveness in democratic societies. However, its applicability varies in countries governed by authoritarian regimes. In such

contexts, the political landscape is often deeply entrenched with a neoliberal paradigm, where profits and economic growth are prioritised, and where the general population may have a lack of education, a capacity for criticism/critical analysis, and space for action. As a result, in the event of environmental issues, interests of a non-human nature are frequently not considered, and the voices of the less powerful often remain unheard.

How can photographic images contribute to deliberative processes?

To answer the research question, firstly, I implemented the content, discourse, and frame analyses of photographic images and their textual contexts. The context of an image plays a crucial role in an image's interpretation and impact, therefore its role in deliberative processes. According to Müller and Backhaus (2007), the context defines the perception of an image, shapes its possible meanings, and directs the viewer's attention to what is significant. Müller and Backhaus (2007) argue that analysing an image without considering its context is insufficient if the aim is to determine its effect on people's actions. However, comprehensively considering an image's context is a challenging task (Müller and Backhaus, 2007). After the content, discourse, and frame analyses, expert interviews were conducted. Afterwards, the Five-dimensional approach was applied to summarise the results of the conducted analysis and to evaluate the usefulness of an image for deliberation.

Image analysis is particularly relevant when exploring the perspectives of those who may struggle to fully explain or convey their visual experiences (Müller & Backhaus, 2007: 11). Visuals have become an efficient instrument that can foster the involvement of individuals in political conversations (Hendriks, 2017: 3). By delving into the visual elements and interpretations of images, researchers can gain insights into the nuanced aspects of practical knowledge that may not be accessible through traditional verbalised forms of expression (Müller Backhaus, 2007: 11). In this master's thesis, I argue that geographic knowledge can be created by the means of photography and explain how this knowledge can influence deliberative processes. I also argue that perspectives of less powerful individuals and non-human beings can be demonstrated and explained to the wider public by the work of photojournalists.

The research objectives of this master's thesis are the following:

(1) to develop a tool that can be used to analyse the role of an image in deliberative processes and can apply to any photographic image;

(2) to assess an image's potential to facilitate participatory processes that may lead to deliberation.

By fulfilling these objectives, this thesis aims to validate the hypothesis that images can influence deliberative processes as they both represent knowledge and transmit it, thus influencing public discourses.

1.2. Photography in geographical research: a brief history

Visuals such as "maps, diagrams, and photographs have been popular research tools in geography since it was established as an academic discipline" (Pyyry et al., 2021: 76). For a long time, visuals have played an important role in political life (Hendriks, 2017: 5) and

associated studies in the fields of geography, cultural studies, and sociology. The significance of visuals in policy-making and addressing environmental issues increases with the development of technology and communication channels.

Photographein is a Greek word for 'writing with light' and means the recording or inscribing of light conditions on a particular medium following the laws of chemistry and physics (Bachhaus et al., 2006: 23). Before the 20th century, images, and particularly photography, were an integrative part of discursive analysis in social studies and cultural practices, however, with the time, visual methodologies were replaced with discursive methods based on analysing texts (Oldrup & Carstensen, 2012: 225). Nowadays, an increasing number of researchers are becoming interested in using visual research methods based on qualitative methodological approaches (Oldrup & Carstensen, 2012: 223). At the end of the 19th century, due to technological development, a sudden increase in the production and circulation of photographic images (Oldrup & Carstensen, 2012: 225) led to a steadily increasing importance of photography in both the cultural and academic domains. This was particularly observed after the cultural turn in the 1980-1990s when human geographers started to perceive images as a driver of change in the realm of culture (Pyyry et al., 2021: 76) and environmental studies.

Being at the intersection of environmental and social studies, human geography explores "society in relation to space and place" (Kitchin & Tate, 2000: 4), and the attention of researchers in this field to visual means of communication has increased considerably in the 1990s and 2000s (Hawkins, 2012: 52). Starting from the 2010s, with the expansion of social media networks, visuals became an important part of individuals' everyday lives, which fostered geographers to study engagement with images and their significant impact on peoples' lives (Pyyry et al., 2021: 76). The realm of art expanded, and nowadays geographers create a new dimension of geographical research, employing a variety of artistic mediums (Hawkins, 2012: 54) such as photography. These new, previously unexplored facets of geographical knowledge, allow science to be taken beyond the academic milieu, enlightening the public and providing the tools to achieve successful deliberation.

1.3. State of research

Non-verbal forms of expression have always been part of discursive processes taking place in arenas where citizens form public opinion (Mendonça et al., 2020: 154). However, such forms of public opinion expression have received only minor attention from scholars of deliberative democracy (ibid.). While studies indicate that there has been a growing scholarly focus on the discursive power of visuals to evoke fear and moral panic (Hendriks et al., 2017: 3), the role of images within the context of public deliberation remains underexplored (Mansbridge, 2022: 492; Hendriks et al., 2017: 3).

According to Rose (2008: 151), scholars are beginning to perceive photographs as prisms that reveal or even distort specific aspects of what is observed, and some geographers emphasise the significance of how photographs are perceived and utilised by viewers within

specific contexts. Rose (2008) emphasises that instead of considering photographic images solely as descriptive illustrations capturing the appearance of a place at a specific moment, researchers are exploring the active role that photographs can play in constructing various forms of geographical knowledge.

Steenbergen et al. (2003) argue that political researchers have progressed considerably in exploring the role of discourse in deliberative processes. By contrast, empirical research has been slow to advance with the consideration of deliberation and discourse as research topics (Steenbergen et al., 2003: 21-22). According to Hendriks et al. (2017: 3), empirical research keeps pace with the increasingly visual form of contemporary politics: recent studies demonstrate the impact of images on "framing political issues (and policy solutions)." Studies on activism and social movements have revealed the capacity of visuals to mobilise and foster solidarity: visuals can be the primary medium through which individuals engage in political conversations (Hendriks et al., 2017: 3). Furthermore, the classical concepts of deliberation, which are centred on rational verbal argumentation, have already been long criticised by various scholars, including democrats and feminists (Mendonça et al., 2020: 156). Hence, scholars suggested broadening the realm of communication in public deliberation, incorporating visual means that comprise an aesthetic component (Mendonça et al., 2020: 156).

Over the past decade, in order to proceed, present, and communicate research, geographers have been using creative geographic methods, embracing various manifestations of visual arts (Hawkins, 2015: 248). Moreover, many researchers use images and their potential as a core element in creating methodologies for conducting various geographical and policy research (Backhaus et al., 2008; Müller & Backhaus, 2007; Rose, 2001; Rose, 2016). Likewise, there is an increasing interest in using visuals as an important part of methodologies based on other frameworks (Oldrup & Carstensen, 2012: 223).

Non-verbal modes of expression have become increasingly important in the contemporary public spheres (Mendonça et al., 2020: 154). Nevertheless, to date, the genuine theoretical connection between artistic practice and politics is not yet established, and art is rather a separate field of expertise, confined to the art community and shown in galleries and art institutions; however, empirically art is a source for geographical knowledge, and this requires further understanding (Luger, 2017: 235). This is certainly a basis for theoretical research in the direction of understanding and analysing images as drivers of change towards sustainable development.

According to Bessette (2001), even though political deliberation has an ancient history, its concept was ignored by scientists for a major part of the 20th century. However, in the past 3-4 decades, various actors of deliberative processes such as scholars and political institutions, have drawn increased attention to deliberative democracy and its decision-making processes (Bessette, 2001: 3377). Deliberative political theory has significantly contributed to solving issues related to decision-making and creating concepts for the development of humanity, thereby enabling the evaluation of the pace of transitions towards sustainability (Wironen et al., 2019: 7). However, the application of public deliberation to environmental policies is understudied, despite the solid research literature body on the topic of deliberative processes

focused on environmental issues across the globe (Pellizzoni, 2010: 171) in the past decades. Despite the dynamism of scientific progress in this field, which has gained momentum in the meantime, there is still much to be done, particularly regarding the expansion of knowledge sources and exploring new facets of research agendas (Ercan et al., 2022: 5).

It is evident that within the realm of geographic studies, the popularity of creative means is gaining momentum (Hawkins, 2015: 248). Scholars are seeking solutions for further research and improvement of deliberative democracy, showcasing examples of deliberation, which takes place not merely within structured forums, but also in the wide public sphere that embraces spaces where encounters with various visual sources of communication occur (Ercan et al., 2022: 4). Thus, visuals should be employed to encourage the people concerned to communicate (Backhaus et al., 2006: 34) and take the steps towards successful deliberation.

In conclusion, there are many ways in which an image, its compositional elements, and its context can be analysed. Similarly, there are numerous facets of deliberative processes that scholars have comprehensively analysed over the past few decades. However, in geographical research, studying the role of images in deliberation is an emerging state (Hendriks et al., 2017: 3), along with exploring visual discursive processes (Rose, 2008: 151).

1.4. Thesis structure

This master's thesis is divided into 10 sections. Section 1 provides an introduction and state of research on the role of photographic images in deliberative processes. Section 2 focuses on the history of photography in geographical research, provides the concept of knowledge in the latter, and the meaning of photography in producing geographical knowledge. Based on the literature review, it is revealed how geographic knowledge can be created through the medium of photography. Section 3 represents an overview of environmental issues from the perspective of political ecology. In Section 4, definitions and features of deliberative processes are provided. Section 5 reflects the connection between geographical knowledge, created through the medium of photography, and deliberative processes. Section 6 provides an overview of the case study area and the environmental and social issues taking place there. Section 7 discusses methodologies and methods related to this master's thesis research objectives. An overview of methods of analysing visuals in geographical research, as well as methods used for analysing deliberative processes, is provided. In Section 8, the results of the conducted research are represented. The discussion of the results is provided in Section 9. In this section, I answer the research question, discuss fulfilling the research objectives, and provide the advantages and disadvantages of the Five-dimensional approach. Concluding this master's thesis, Section 10 discusses the study's practical implications and reviews space for further research in the area of using visuals in geographical research.

2. Photographic images in geographical knowledge

One of the most prominent and widespread definitions of the notion of knowledge is the tripartite conception which posits it as "justified true belief" (Oeberst et al., 2016: 2). How, where, by whom, and for whom is knowledge produced, and what processes knowledge is subject to? According to Oeberst et al. (2016: 13), knowledge is not universally defined but rather determined by specific knowledge-related systems, such as social communities in mass-collaboration scenarios, where acceptance relies on social groups' criteria for truth and justification. In the context of searching for a solution for environmental and social problems, these epistemic challenges of getting access to "unique or scarce knowledge which is crucial to a given social problem" (Benson, 2018: 83) come to the forefront. Knowledge about an environmental issue is essential for its communication across scales and among various actors. Communication aims to attract as many people as possible to a problem and to empower them to act (Backhaus et al., 2006: 34).

Nowadays, knowledge is a driver of regional and national research, economy, strategic management, technology, and policies (Ibert, 2010: 104). In the context of deliberative processes, knowledge is what nurtures communication between various parties and helps to resolve the conflict of values. Moreover, the lack of knowledge among the public was a major factor contributing to scepticism toward science and new technology (Christiano & Neimand, 2017: 36-37).

Providing the general public with knowledge is essential for deliberative processes (Dryzek et al., 2019). Knowledge about environmental issues, their causes and protagonists, value conflicts, as well as knowledge about what can be undertaken to solve an environmental problem, determines the vector of discourse in deliberative processes. This master's thesis offers an analysis of how geographic knowledge can be constructed using photography as a medium and explores the subsequent influence of this knowledge on deliberative processes.

There is local knowledge and scientific knowledge, and their significance in decision-making processes is nowadays widely accepted (Failing et al., 2007: 48). However, Failing at al. (2007: 49) argue that it is not necessary to draw a boundary between local and scientific knowledge, but, in parallel, the distinction between knowledge which is built on facts and the knowledge based on value, should be recognised as useful. Knowledge can be scientific; at the same time, it can come from other sources, and this knowledge has "many names—local, lay, practical, extended, community, cultural, traditional, and so on" (Failing et al., 2007: 48). These types of knowledge can be expressed both verbally and visually, with visuals serving as an empirical source for geographical knowledge (Luger, 2017: 235). Consequently, images contribute significantly to knowledge production, forming the basis for decision- and policy-making processes.

Schneck (1987) argues that knowledge is not to a large degree a discovery, recognition, or interpretation: being a product of human activity, it is an outcome of discursive processes. It is not simply a result of the expression of an individual's position (Schneck, 1987: 18). Knowledge is the result of complex processes taking place within structures that represent

larger patterns of discourse, and these patterns are characterised by greater historical duration and greater comprehensiveness (Schneck, 1987: 18). This means that the production of knowledge is not random and can be projected (Schneck, 1987: 18). Thus, discourse processes and processes of knowledge emergence are intertwined and mutually fostering.

As a form of art, visuals are used to convey knowledge that exists in the form of a message or experience (Boyd, 2023: 8). Moreover, through art-science practices and knowledge translation, which is based on art, new perspectives on creating knowledge about various issues emerge (Boyd, 2023: 8). In the following, the concept of geographical knowledge and the meaning of images in the latter will be discussed.

2.1. Knowledge: object or action?

There are two perspectives of explanation of the notion of knowledge, which represent different, though not mutually exclusive, approaches to knowledge (Ibert, 2010: 105). The approaches of 'knowledge' and 'knowing' encompass perspectives of understanding how individuals know (Ibert, 2010: 105).

The rationalistic approach to understanding the concept of knowledge is to perceive it as a noun, in other words, as an object, which has a status and consists of different entities (Ibert, 2010: 111). Objectivisation of knowledge refers to its properties, and possessing knowledge as an object, individuals can dispose of it at their own discretion (Ibert, 2010: 105). This rationalistic approach is reflected in phrases often used in discourse, e.g. "knowledge 'circulates' between actors, it is 'exchanged', 'shared', 'stolen' or 'sold', it can be 'stored' and 'accumulated', but may also 'get lost', and this view inheres a quantitative conception of knowledge" (Ibert, 2010: 105). Being knowledgeable entails possessing "a large number of knowledge entities" (Ibert, 2010: 105).

In contrast to the previous statement which claims that knowledge is an object, the other concept offers a perception of knowledge as an action, in other words, as a verb 'knowing' means the performance of knowledge, its dynamical exercise, and its practising (Ibert, 2010: 111). This concept offers an understanding of knowledge as a continuous pursuit, rather than an accomplished matter (Ibert, 2010: 111). According to Polanyi (1966: 7), knowing as action embraces both theoretical and practical knowledge because one can use tools of knowledge as objects, in other words, use the codified information as a stimulus to action. Knowledge as action always means communication with other knowledge holders, because action affects other people (Ibert, 2010: 105).

Photography allows individuals to embrace both forms of knowledge. When individuals view a photographic image, they perceive the depicted objects and actions, events, and their surrounding circumstances, thus utilising the photograph as a form of knowledge. As a visual technology, it disciplines knowledge as an object, along with knowledge as a process of information acquisition, hence, visuals can provide information about why and how things or processes become seeable, which is beyond what individuals just observe (Crang, 2009). Photography is a tool using which one can 'convert' knowledge as action into knowledge as

an object by means of technology. 'Knowing', or knowledge as an action, has a limited capacity to spread between different actors due to its performative nature (Ibert, 2010: 106). Therefore, in order to transform the process into an object, it is necessary to capture it. Visual means of information exchange solve this problem and enhance the ability of actors interested in communicating this information by making visual images better perceived than text. Thus, knowledge can be stored and transmitted to the audience, regardless of their backgrounds and linguistic differences.

2.2. Tacit knowledge in images

> "We can know more than we can tell"
> (Polanyi, 1966: 4).

Benson (2018: 78) explains the distinction between the theoretical and tacit forms of knowledge, arguing that tacit knowledge "cannot be communicated linguistically or statistically". However, it can be obtained empirically, by participating in an action or through practice (Benson, 2018: 78). "Theoretical knowledge is an explicit, abstract or statistical knowledge which can be expressed in propositional form, whereas tacit knowledge is non-explicit and includes practical skills and know-how" (Benson, 2018: 78). According to Ibert (2010: 106-107), tacit knowledge is exclusive and is linked to a place: distance affects the social prerequisites on which the successful exchange of tacit knowledge depends. Such an exchange involves the frequent joint presence of participants in the same place and their direct interaction to convey complex and ambiguous content (Ibert, 2010: 106-107).

Although verbal expression plays a significant role, certain aspects of a place and processes there cannot be expressed through words alone. Visuals allow for conveying tacit knowledge, the kind of information for which words are ineffective. By capturing a landscape features through photography, it is possible to express tacit knowledge without using words. In turn, one can perceive this knowledge equally well without the use of verbal means. Consequently, the circulation of photographic images facilitates the exchange of tacit knowledge. It is particularly advantageous to apply the concept of tacit knowledge to image study: the way individuals see objects is determined by processes in their bodies (Polanyi, 1966: 13). As an outcome of individuals' perception, tacit knowledge bridges the physical processes appearing in their bodies with their intellectual power (Polanyi, 1966: 7), therefore exchanging information using visual forms of communication can contribute to the distribution of knowledge more than sharing information in a verbalised form. However, the distance between viewers of an image and the place where an issue takes place can be an obstacle. Sharing tacit knowledge requires trust and social support: actors tend to trust each other more if they are not separated by long distances and they are amongst co-located entities (Ibert, 2010: 106-107).

Furthermore, while some scholars suggest that "tacit knowledge can only be learnt fully through participation in a practice or skill" (Benson 2018: 85), others argue that image analysis

can offer a pathway to accessing mental images that constitute practical knowledge (Müller and Backhaus, 2007: 11). Such knowledge can be a part of the realm of the unconscious or challenging to articulate verbally (Müller and Backhaus, 2007: 11). This is particularly relevant when exploring the perspectives of image producers who may struggle to fully explain or convey their visual experiences (Müller and Backhaus, 2007: 11). Based on these findings from the literature review, it is plausible to propose that acquiring geographical knowledge via visual perception can be comparably effective to learning through practical experience. In this context, Benson (2018: 77) argues that tacit knowledge is a form of knowledge that is embedded in experience and cannot be expressed verbally, which implies that this knowledge is eliminated from deliberative processes. Therefore, using images is useful for representing tacit knowledge during deliberation. Moreover, in the context of social systems complexity, tacit knowledge is not merely essential for decision-making in everyday life, but also for political decision- and policy-making (Benson, 2018: 78).

2.3. Knowledge and place

Looking at a photographic image, one can get an answer to the fundamental geographic question: "How does the place look?" (Rose, 2008: 151). By addressing this question, it is possible to obtain knowledge about various features of a particular place and the aspects which cannot be verbally expressed.

"Art and space are inseparable. […]. Art is not just in space, it is also of space", where the place is the site where the idea of creating an image originates (Hawkins, 2017: xvii). Through the means of photography, a place can be described without using verbal means of communication, because an image conveys tacit knowledge of the location and circumstances in which the photographic image was taken. In this context, place reflects the way an image is produced, consumed, and circulated (Hawkins, 2017: xvii). By perceiving components of a photographic image, one can obtain knowledge about the features of the place, and, potentially, about the processes taking place in this particular place not only during the shooting but also over a longer period.

According to Ibert (2010), when investigating knowledge formation in a certain place, geography studies the way it forms empirically. However, the way how knowledge is formed in a certain place needs more attention in terms of practical research, because there is a lack of empirical evidence that can contribute to the spatial dimension of knowledge practices (Ibert, 2010: 111). Pyyry et al. (2021: 77) argue that knowledge is always bound to the place where it originated, and knowledge is always linked to the spatial features that are embedded into the place. "This means that knowledge is always tied to where and when it is formed" (Pyyry et al., 2021: 77). Knowledge cannot simply be transposed in space because of its embeddedness in social practice (Ibert, 2010: 106), which implies its adherence to the legal and power relations applicable to a particular territory. Moreover, crucial experiences are woven into the geography of the place where they happened or are happening (Ibert, 2010: 108-109). When listening to local people's stories told from generation to generation, or stories of local people's

practical difficulties, one can realise how deeply knowledge is rooted in the territory (Ibert, 2010: 108-109).

Photographic images can embrace these various spatial features: using art practices, including photography, a place can be described in a way that is beyond an "inventory form" (Hawkins, 2015: 250). For example, tacit knowledge about a place or the unique emotional connection of local people with a place can be depicted and subsequently transmitted.

The collective experience develops with the place through knowledge management practices (Ibert, 2010: 108-109), such as knowledge transmission and distribution. Relations within a territory, associated with the interaction of its political, economic, and social elements, are not given, but always dynamic, however, they are strongly bounded in a geographical space (Massey, 2005). "For the future to be open, space must be open too" (Massey, 2005: 12). In this context, space means room for constantly emerging processes of territory modification and development, for these processes' versatility, and, consequently, for territory's evolution. Critical art, including photography, can transform these processes of place-making because it can transform hierarchical relations and relations across and within institutions (Luger, 2017: 231).

2.4. Actors in knowledge production

Actors engaged in a specific event at a particular location play a vital role in the production and dissemination of knowledge. When studying relations of actors and processes of knowledge circulation the concept of knowledge as an object can be applicable: actors can exchange, share, accumulate knowledge, or even sell, steal, or lose it (Ibert, 2010: 105). This approach also implies a quantitative understanding of knowledge: there are knowledge entities, and actors can possess them (Ibert, 2010: 105), as they may own objects.

For such actors as less powerful and marginalised groups of individuals, photographic images are particularly important in this context. However, misunderstandings or uncertainties among various groups of individuals can hinder the processes of knowledge production and transmission. Ibert (2010) argues that there is a necessity of reducing uncertainty between actors who participate in such processes of receiving, sharing, exchanging, and rejecting knowledge.

Photography can significantly contribute to knowledge production and transmission. By using visuals, it is possible to explain facts and processes that are difficult to express verbally (Mendonça et al., 2020: 159). In such cases, images are particularly efficient as they are accessible and comprehensible to individuals regardless of their language skills or education. Therefore, individuals can participate in knowledge creation despite their background and position in power relations. Hence, visual expression can counterbalance forces and blur boundaries between different groups of individuals. In other words, they can contribute to levelling out class differences, which entail power distinctions.

2.5. Knowledge and power

The word *power* is derived from the Latin words 'potentia' and 'potestas' (Shi et al., 2021: 2-3), which respectively mean strength, or might, and force, or capability. In the essay "Michel Foucault on power/discourse, theory and practice," Schneck (1987: 16) reveals Foucault's conception of the structure of knowledge and the role of power in knowledge constitution. According to Foucault, in contrast to the Western framework and the Enlightenment conception of knowledge, knowledge is not just "a springboard for informing responsible human practice and for liberating human subjectivity" (Schneck, 1987: 19). In other words, Foucault claims that knowledge cannot liberate individuals from the context (Schneck, 1987: 19) of political, social, and environmental reality. Therefore, individuals' perception of reality is embedded in the multi-dimensional environment they exist in, which plays a crucial role in knowledge production.

The foundation of power is knowledge, and the exercise of power is the application of knowledge (Shi et al., 2021: 2). On the one hand, knowledge itself gives rise to power (Shi et al., 2021: 2). On the other hand, knowledge emerges in the context of power relations, which define individuals' existence, thus being an outcome of power. Power is an external force that can be possessed and used. Within the discourse, power influences knowledge, interfering with its constitution (Schneck, 1987: 20). Thus, power relations can limit the processes of knowing (Schneck, 1987: 20). This is particularly relevant when knowledge is transmitted using visuals. For example, powerful elites can control mass media and manipulate public opinion.

2.6. Concluding the concept of images in geographical knowledge

Within geography as a discipline, knowledge can be visible, or expressed in a visual rather than a verbal form (Crang, 2009). Visual forms of expression are not secondary to those of verbal forms: they are not a tool to reinforce the power of words, because the use of images is rather substantial itself (Mendonça et al., 2020: 155), contributing to knowledge creation, along with verbal forms. Hawkins argues that art is not just a visual representation of facts, however, it is a way of producing knowledge (Hawkins, 2014, cited in Boyd, 2023: 3). Within geography as a discipline, visuals serve as formative agents for the practices undertaken within it (Crang, 2009). In other words, visuals not only form geographical knowledge but also enable processes of communications across scales.

In the context of communication, knowledge can be defined as a static object which has its properties and features, or an entity, which can be utilised by individuals (Ibert, 2010: 105). However, knowledge can be also defined as the capacity to act (Ibert, 2010: 105). These two approaches reveal the fundamental difference between 'knowledge' as an object and 'knowing' as an action (Ibert, 2010: 105). Images can represent knowledge in both conceptual ways of understanding: visuals can call for action, and, at the same time, they are entities of knowledge that are subject to creation and exchange. While the rationalist understanding of knowledge as an object is linked to agglomeration, the performative view of knowledge as

action is linked to distance (Ibert, 2010: 111). In agglomeration, individuals can exchange critical knowledge and process the information (Ibert, 2010: 106). Place becomes an important part of interactive learning because of the difficulty of transferring knowledge across distances (Ibert, 2010: 111). This idea is highlighted in studies that distinguish between two types of knowledge: tacit and codified knowledge (Ibert, 2010: 106). Codified knowledge can be easily and quickly transmitted using communication technologies over long distances and can therefore be accessed by almost anyone, and it can be utilised almost anywhere (Ibert, 2010: 106).

According to Boyd (2023: 2), the translation of geographical knowledge as an object through art is a complex juncture, as in the process of creating art to convey information, new knowledge is also generated. This is explained by the concept of knowledge as action, or 'knowing' (Section 2.1). As an action, knowledge is dynamic due to individuals' activities of knowledge exchange and sharing. Knowledge as action is a process, and various factors can influence this dynamic. Furthermore, the knowledge that images convey can be implicit and cannot be expressed in words (Gibson, 2015: 261). Many of the subtle nuances within an image cannot be articulated through language: a photographer may capture them, but they cannot be described verbally (Gibson, 2015: 261). Knowledge expressed in words can be more susceptible to dynamics, when describing facts that are hard to express verbally, such as tacit knowledge. Dynamics of knowledge can influence discursive processes, and, consequently, outcomes of deliberation. In this context, it is more difficult to interpret a photographic image another way than it was intended, which allows it to be used as a more powerful argument in discourse processes. Opposite to words, which can transmit complex information in sequential order, images provide individuals with a holistic picture that includes emotive aspects, meanwhile reaching out to the wider public, thus shortening the process of knowledge acquisition and informational exchange (Mendonça et al., 2020: 158). As photographic images convey information that is both tacit and codified knowledge, in deliberative processes, they can be more powerful than words.

However, a contemporary challenge facing knowledge is its tendency to become "an unproblematic theoretical passe-partout that does not deserve one's full awareness anymore" (Ibert, 2010: 104). In this context, images, as sources of both tacit and practical knowledge, open up new avenues for people to engage with knowledge.

3. Environmental issues in the context of political ecology

Despite advances in the academic field, science does not provide the answer to all environmental problems (Pellizzoni, 2010: 160). The concern of political ecology is the various environmental issues and strategies for their resolution. According to Liverman (2015), political ecology has focused on climate change mitigation and adaptation since the UN Framework Convention on Climate Change (UNFCCC) was signed at the Rio conference in 1992. This intergovernmental treaty aimed to prevent anthropogenic influence on the climate

system, focusing on supporting vulnerable countries and an open economic system (United Nations, 1992). Political ecologists examine what is happening with the climate and what should be done to mitigate the climate crisis and its consequences, both for the environment and society (Liverman, 2015: 303). Political ecologists are focusing their efforts on mitigating climate change and other environmental issues, as well as on achieving sustainable development.

The term 'sustainable development' was first voiced in 1987 and reflected in the Brundtland report, which provides its most common definition: development shall be sustainable if "it meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987: 24). The concept of sustainable development indicates limitations of environmental resources necessitated by the limited ability of the biosphere to absorb products of human activity (WCED, 1987: 24) and to provide resources to humanity. Sustainable development aims to mitigate negative anthropogenic influences, including climate change.

Anthropogenic influence on climate started around 1850 and is associated with fossil-fuel extraction, agricultural activities, and deforestation (Liverman, 2015: 304). Such over-exploitation of environmental assets resulted in changes in various Earth systems. Figure 1 represents environmental trends from 1750 to 2010 from the Earth System Science perspective. The figure is divided into 12 graphs, which demonstrate a change of indicators for the structure and functioning of the Earth System.
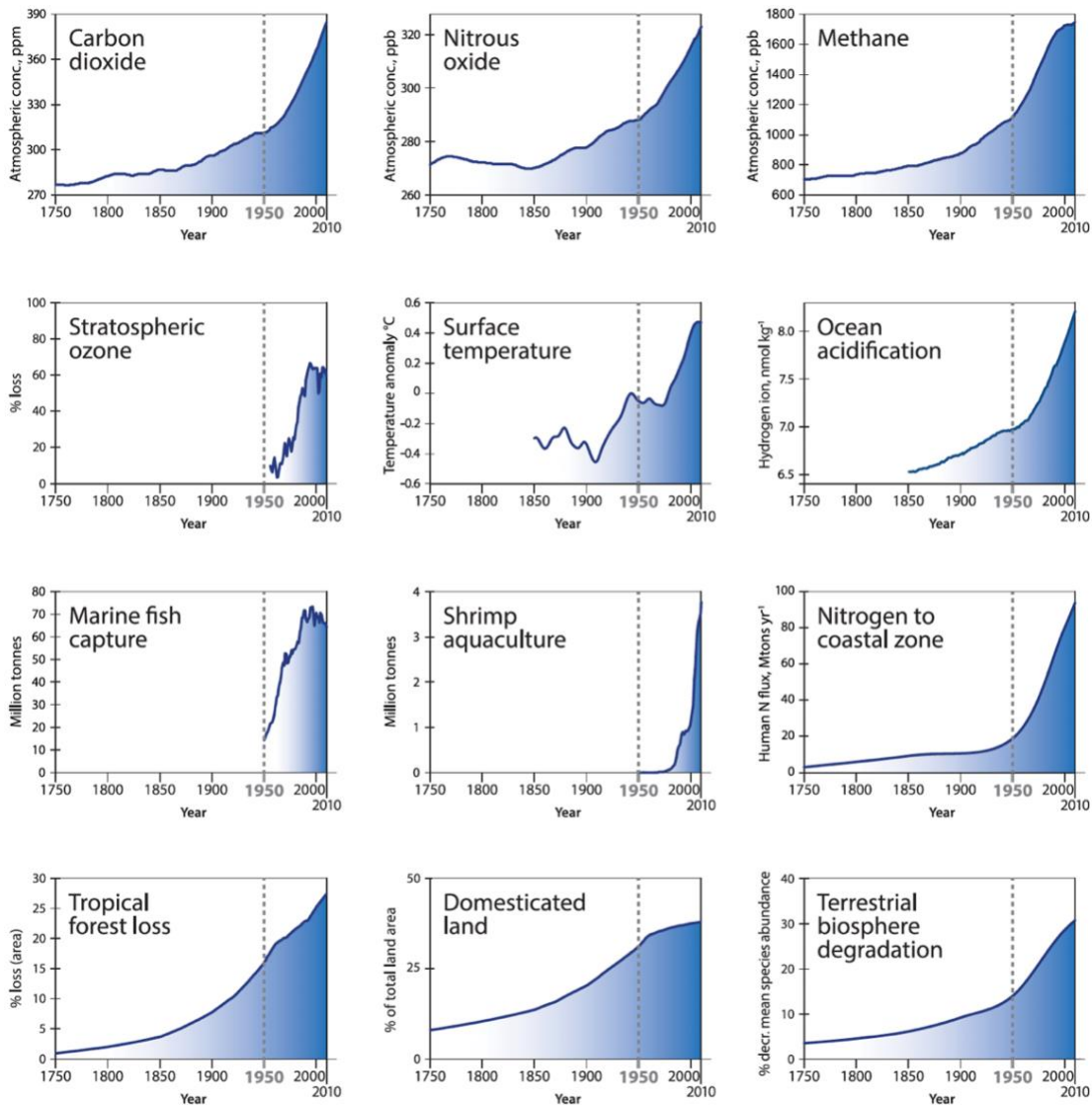
Fig. 1. Trends from 1750 to 2010 in indicators for the structure and functioning of the Earth System (Steffen et al., 2015: 87).

Figure 1 shows that there has been an upward trend in change of all indicators. Earth's surface temperature and ocean acidification have sharply risen since 1850. Indicators for carbon dioxide, nitrous oxide, and methane emissions, as well as the flux of nitrogen into coastal marine zones, have strongly increased since 1750. The figure demonstrates that indicators of forest loss, domesticated land, and terrestrial biosphere degradation have also significantly increased. Furthermore, indicators of stratospheric ozone, marine fish capture, and shrimp aquaculture have strongly risen since 1950.

This visualisation provides a "better understanding of the structure and functioning of the Earth System as a whole," compared to the proposal of the International Geosphere-Biosphere Programme (IGBP) (Steffen et al., 2015: 82). In 2000, researchers from the IGBT suggested that the Earth has entered a new geological epoch – Anthropocene, which is driven by human activities and their influence on the Earth System (Steffen et al., 2015). Drawing on these

findings, Steffen et al. (2015) provide a more systematic overview of the changes to the Earth System caused by human activities.

These data prove that the growth of the human population and the global increase in human activities strongly influence the Earth System. It is evident that drastically increasing demand for natural resources causes environmental damage and resource depletion. Moreover, according to Liverman (2015), although multiple non-nation actors like NGOs, researchers, individuals, and private companies were making commitments to reduce GHG emissions and convincing others to do so, the transition to sustainable development is still in its emerging state.

Current human-environment relations are reflected in Figure 2, which schematically represents interconnections between the geosphere and the anthroposphere.
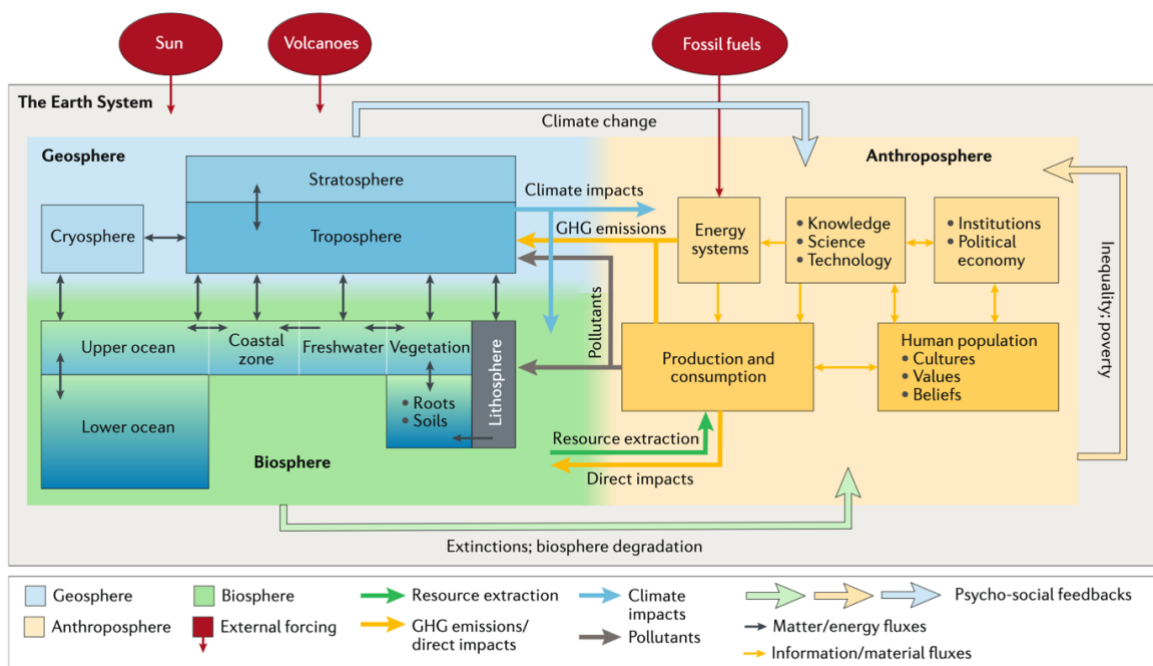
Fig. 2. Conceptual model of the Earth System (Steffen et al., 2020: 61).

These interconnections are characterised with a high degree of complexity. Such uncertainty and intricacy make policy-making complicated, due to incomplete information on environmental issues (Carter, 2007: 178). However, with a better understanding of a problem's reasons and background, "it is obviously easier to design effective solutions" (Carter, 2007: 178).

3.1. Power relations

> "Power is everywhere, since discourse too is everywhere" (Rose, 2001: 137).

To achieve the goals of sustainable development, all concerned parties must participate in processes of transitions towards it (Backhaus et al., 2008: 34). However, the power imbalances

among actors can hinder the fulfilment of sustainable development objectives. To comprehend power relations, examining discourses surrounding environmental issues is useful. Power relations are reflected in contemporary discourse (Schneck, 1987: 20). This is how Foucault explains this: since the classical age of the French Enlightenment, the configuration of discourse and its role in shaping knowledge reflect a collective inclination of modernity to establish dominance and control by systematically objectifying experiences (Schneck, 1987: 20). This objectification results in the experiences of less powerful individuals, rooted in landscapes and related to their living conditions, being ignored by the more powerful. In this context, discourses reflected in photographs, can inform powerful elites about issues faced by citizens or reflect their political position. When it comes to voting, for example, the emotional visual campaign, which includes images with disruptive effects, could draw most of the population to one side or the other (Backhaus et al., 2006: 31). In this way, interested parties can use the photographs to promote their interests.

3.2. Value conflicts

Where power conflicts arise, so too do conflicts of values. Trainor et al. (2006: 4) define values as "the result of a human valuing process that occurs in cultural, social, and historical contexts." A conflict appears when multiple values and multiple interests are engaged, thus a contradiction between economic and ecological, moral, and cultural valuation emerges (Trainor, 2006). Conflicts also arise when contradictory visions of the future development of a place emerge, because different social groups have different spatial appropriation (Bachhaus et al., 2008: 35). Values vary among various interest groups and across cultural, societal, and lifestyle differences, and depend on current circumstances (Backhaus et al., 2006: 26). Therefore, values can conflict in different ways: they may not be in line with particular decisions and they can conflict across different loci, e.g., on collective and institutional levels (Trainor, 2006). For example, values often function as unconscious routines, guiding individuals' actions and shaping their perceptions of what is good and desirable (Backhaus et al., 2006: 26). While there may be widespread agreement on the importance of environmental preservation, practical considerations such as work, education, and transportation are often more important than more abstract values like nature and the environment (Backhaus et al., 2006: 26). To address an environmental issue, a policy can be implemented from the perspective of reciprocity. Policy intervention can enhance the formation of environmental values and encourage individuals to act in favour of the environment. However, in the case of every environmental issue various stakeholders are attempting to influence the formation and implementation of policy by using resources such as expertise, funding, membership, or public opinion (Carter, 2007: 182). Moreover, environmental issues themselves are often "a by-product of otherwise legitimate activities" which requires governmental interventions in the economy and society to solve these issues (Carter, 2007: 180).

Trainor (2006: 4) argues that when solving value conflicts, deliberative processes can account for decision-making. However, there are several obstacles to this: lack of expertise,

self-interest instead of 'common good' interest, and oversight of the substantive content of the decision outcome (Trainor, 2006: 18). Finally, not all interested parties can participate in decision-making processes (Trainor, 2006: 18).

Although there are theoretical and practical challenges, the following can contribute to solving value conflicts: collaborative and discursive processes, acceptance of values plurality, absence of common metric in decision and policy-making, power balance, mutual trust, and respect between parties (Trainor, 2006: 19-20). However, during decision-making processes, it is hard to avoid sacrificing one for the other, particularly considering the power imbalance between parties. For example, often the voices of indigenous communities or marginalised groups are not heard. Therefore, while deliberating, it is essential to place emphasis on the equality of voices of all interested parties and consider various perspectives.

3.3. Vulnerability

IPCC defines vulnerability as "the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes" (Liverman, 2015: 308). In other words, it is a degree to which the environment and humans can cope with certain issues. According to Liverman (2015), geographical distribution of vulnerability is caused by interactions of climate change outcomes, multiplied by social and political issues. Some researchers suggest that the climate crisis "will trigger mass migration and violent conflicts" across the globe, whereas other scholars argue that "migration is a temporary and logical adaptation to extremes or is driven mostly by economic factors, and that tensions over water are more likely to drive cooperation than conflict" (Liverman, 2015: 309). Vulnerability is also a perspective, from which transformative societal changes and approaches to sustainability transitions, can be observed. Liverman (2015) argues that vulnerability should be studied from the perspective of less resilient groups of individuals: although it is challenging to compare case studies on vulnerability because of different contexts, research shows that there is a correlation between case studies of less resilient groups, such as indigenous communities.

From the perspectives of indigenous people, "addressing existential threats to lifeforms means remaking protocols and repairing relations through direct engagements with more-than-human communities in the specific places where these bonds are made and broken" (Theriault et al., 2020: 899). Theriault et al. (2020) argue that there is a call for resistance, based on more-than-human reciprocity and capacities, which is called 'living protocols', where living means being embedded in humans' lives, and 'more-that-research' tool which aims to support living protocols and indigenous socio-legal orders in the decolonising world. Nowadays, there is a call for an order that reflects the interdependencies between material, social, and spiritual worlds, as denying these interconnections "enables the violent displacement and destruction of earthly life in its many forms." (Theriault et al., 2020: 898). This entails that knowledge that 'more-than-human' indigenous communities hold can significantly contribute to achieving the goals of sustainable development. Members of

indigenous communities are examples of individuals, who possess unique knowledge that is transmitted over generations, which can "greatly inform and benefit environmental management" (Benson, 2018: 79).

3.4. Neoliberalism

In the case of environmental issues, vulnerability can be exacerbated by prioritising deregulation, privatisation, and profit over sustainability. The global political economy depends on natural resources (Liverman, 2015: 304), which can lead to overexploitation, environmental degradation, and negative impacts on vulnerable communities.

In the book "A Brief History of Neoliberalism" (2005), David Harvey provides two distinct, however equally valid perspectives, that offer explanations for the concept of neoliberalism (cited in Larner, 2015: 449). One perspective sees neoliberalism as a theoretical plan to reorganise global capitalism, while the other views it as a political project aimed at restoring favourable conditions for elites to accumulate capital and regain power (Larner, 2015). In other words, the concept of neoliberalism can be explained as a set of means for wealthy and powerful economic and political elites to advance their interests, consolidating their economic dominance and influencing decision and policy-making processes. Neoliberal politics can be described as a strategic effort to roll back social and environmental programs, reduce labour rights, reduce the activities of NGOs, and prioritise the interests of financial institutions and corporations over sustainable development. "Indeed the three policy pillars of the neoliberal age — privatisation of the public sphere, deregulation of the corporate sector, and the lowering of income and corporate taxes paid for with cuts to public spending — are each incompatible with many of the actions we must take to bring our emissions to safe levels" (Klein, 2014: 63).

Overall, neoliberalism's focus on deregulation, privatisation, and market-driven approaches to environmental issues can exacerbate vulnerability to environmental hazards, deepen environmental inequalities, and undermine efforts toward sustainable development and environmental justice. An outcome of capitalism, colonialism, poverty, and environmental degradation is climate change (Liverman, 2015), along with other environmental issues. Climate change fosters debates about regulations of commodities consumption on the international level (Liverman, 2015). Globalisation, another feature of neoliberalism, on the one hand, contributes to climate change mitigation using international cooperation and joint efforts to transition to sustainable development. On the other hand, globalisation leads to increasing greenhouse gas emissions. For example, the latter happens as a result of 'pollution heavens' emergence, which means shifting production to countries that would like to attract foreign investment and have a wicker regulatory system along with lower environmental standards (Neumayer, 2001: 148). Corporations acquire the right to increase production volumes, which entails an increase in greenhouse gas emissions and global warming, as well as air, soil, and water pollution. Another outcome of the global trade market and exploitation of extractive industries is extinction, which is "a form of large-scale

world-breaking," and (post)industrialism and (neo)colonialism are what led to this 'sixth mass extinction' event (Theriault et al. 2020: 899). This includes the large-scale extinction of entire species, along with declining populations.

Various scholars confront the orthodox position which ignores the fact that humans are a species that, along with other species inhabiting the planet, are fundamentally rooted in nature and are interconnected with it (Wironen et al., 2019: 2). Therefore, to solve environmental problems, an "alternative social arrangement" is required (Wironen et al., 2019: 2), which considers a connection between humans and nature.

Furthermore, according to Jürgen Habermas, capitalism is closely tied to economic expansion, prompting the question: "How would a scenario unfold if the majority of the population were willing to accept a regressive economic system to attain decent human lifestyles?" (cited in Horster et al., 1979: 43). In other words, do the conditions for achieving prosperity on our planet align with the economic growth? Beneficiaries of liberal capitalism position themselves as crucial actors in sustainability transitions while fostering the growth of the neoliberal economy (Hammond, 2020: 221). Therefore, counteracting them is not only a technical concern but a highly political issue (Hammond, 2020: 221). This requires a collective effort of various actors and a call for creating strong communities that can confront powerful elites and other agents of neoliberal regimes.

3.5. Environmental justice

Examining climate change through the lens of environmental justice is vital, not only for shaping the global development policy framework but also for reevaluating the pressing needs of a world characterised by significant social, environmental, and economic disparities, as noted by Jasrotia (2016). According to Svarstad & Benjaminsen (2020: 1), the key elements of environmental justice include distribution (revealing how benefits and burdens arising from environmental interventions are distributed), recognition (referring to which actors' values, interests, and views are considered), procedure (addressing who has power and how decision-making processes involve stakeholders), and capabilities (considering "the extent to which people can live the lives they consider valuable" and encompassing the three environmental justice elements mentioned above). Jasrotia (2016: 56) highlights that climate change poses numerous justice-related dilemmas, serving as crucial unifying principles that enable collective action among various stakeholders. Justice issues arise when marginalised groups often receive insufficient attention from environmental stakeholders, who "speak for them instead of listening to them" (Svarstad & Benjaminsen, 2020: 6) without considering their perspectives. This is particularly important in deliberative processes. Therefore, to address justice issues during deliberation, it is essential to consider the positions of less powerful individuals.

4. Deliberative processes

There are several definitions of deliberation, provided by scholars in political, social, and environmental sciences. The earliest comprehensive examination of political deliberation dates back to Aristotle's ethical and political works in the fourth century BC (Bessette, 2001: 3377). In the Nicomachean Ethics, Aristotle defined deliberation as a thoughtful and time-consuming consideration of matters within our control and achievable through action (Bessette, 2001: 3377). Bessette (2001: 3377) defines deliberation as "a process of reasoning about political choices. Such choices may include, among others, the selection of political leaders; the development of the laws, public policies, or regulations that govern a state; or the formation of alliances or agreements with other nations." According to Simon & Xenos (2000: 367), deliberation is a social process where meaning is created and altered over time through political discourse. Through such discourse, both governing institutions and the general citizenry can engage in political deliberation (Bessette, 2001: 3377). According to Clement (2018: 202), in deliberation, participants analyse a problem and reach a thoughtfully reasoned solution after a period of inclusive and respectful consideration of diverse perspectives. Deliberation involves participants being open to new facts and perspectives that may change their preferences on an issue (Wironen et al., 2019: 7). Opposite to passive exposure, deliberation includes active discussions with the community, sharing perspectives, making normative claims, and ideally representing the broader community affected by a decision or issue (Wironen et al., 2019: 7). Moreover, deliberative processes involve being critical of 'green' political intentions, which cover 'business as usual' (Dryzek et al., 2019: 1145-1146). Deliberative processes involve slow and thoughtful reasoning, creating space for the expression of diverse perspectives (Wironen et al., 2019: 13). Mendonça et al. (2020: 155) argue that deliberation is a "communicative process which is reasoned, inclusive and reflective." Being 'reasoned' refers to the acceptance of the involved actors' viewpoints, while being 'inclusive' means providing all actors with the same rights and assuring that all voices are heard (Mendonça et al., 2020: 155). Finally, being 'reflective' refers to cognitive processes, which involve analysing various arguments, and these processes can occur using non-verbal forms of expression (Mendonça et al., 2020: 155), such as photographic images.

What all these definitions have in common is that deliberation has been recognized for a considerable time as an essential instrument for shaping effective environmental policy and, consequently, fostering sustainability (Hammond, 2020: 221). Furthermore, deliberation, deeply rooted in experience, focuses on determining what is beneficial to human well-being, in contrast to the swift execution of laws and policies (Bessette, 2001: 3377).

4.1. Deliberative democracy

When it comes to the implementation of deliberation, scholars commonly refer to the concept of deliberative democracy. According to Ercan et al. (2022: 2), deliberative democracy is an ideal political situation, which implies that individuals unite under the auspices of respect,

reciprocity, and equal position to find a solution to issues they face, and subsequently, "decide on the policies that will then affect their lives." The term 'deliberative democracy' is commonly used to describe the public deliberation of citizens, although some scholars prefer alternative terms like 'communicative democracy,' 'discursive democracy,' and 'unitary democracy' (Bessetti, 2001: 3379). Mendonça et al. (2020: 155) argue that "deliberative democracy defines the core activity of democracy as inclusive, reasoned discussion inducing reflection among equals." According to Dryzek et al. (2019), democratic deliberation is a process of involving citizens in decision-making and counteracting political manipulations. Within modern democratic theory and practice, deliberative democracy stands out as one of the most important paradigms for democratic legitimacy (Esau et al., 2021).

Although more attention from scholars has been directed towards deliberation within a democratic society, there is a growing interest in how government institutions participate in deliberation (Bessetti, 2001: 3379). Herre and Roser (2023) classify political systems into four distinct types of regimes: closed autocracies, electoral autocracies, electoral democracies, and liberal democracies. In a closed autocracy, citizens lack the right to choose both the chief executive and the legislature through multi-party elections, while in an electoral autocracy, although citizens can participate in multi-party elections to select the chief executive and legislature, certain freedoms like association or expression are restricted (Herre & Roser, 2023). Electoral democracies grant citizens the right to participate in meaningful, free, and fair multi-party elections to choose the chief executive and legislature (Herre & Roser, 2023). Liberal democracies not only encompass electoral democracy but also ensure that citizens enjoy individual and minority rights, equality before the law, and a system where the actions of the executive are constrained by the legislative and judicial branches (Herre & Roser, 2023). The distribution of political regimes worldwide is illustrated in Figure 3.
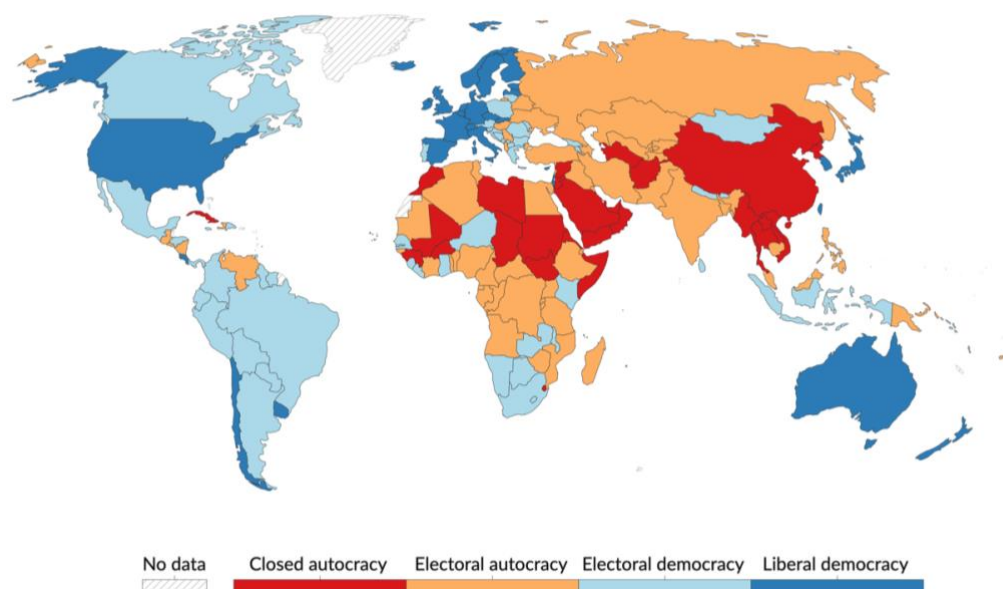
Fig. 3. Political regimes worldwide in the year 2022 (Herre & Roser, 2023).

According to Dryzek et al. (2019), deliberation has demonstrated its effectiveness in democratic societies, but its applicability varies in countries governed by authoritarian regimes. In such contexts, the political landscape is often deeply embedded in the neoliberal paradigm, where profits and economic growth are prioritised, and where the general population may have a lack of education and critical knowledge. As a result, in the events of environmental issues, the voices of marginalised groups and less powerful individuals often remain unheard (Dryzek et al., 2019).

In Figure 4, various indicators, such as voting rights, election fairness, freedoms of association and expression, and the extent of discussions among citizens and leaders aiming for the public good, are integrated and reflected on a scale from 0 to 1, where 1 indicates the highest level of democracy (Our world in Data[1], 2023). It is outlined that the highest levels of deliberative democracy are in some European states, Japan, Australia, New Zealand, Chile, Canada, and the USA, among others.
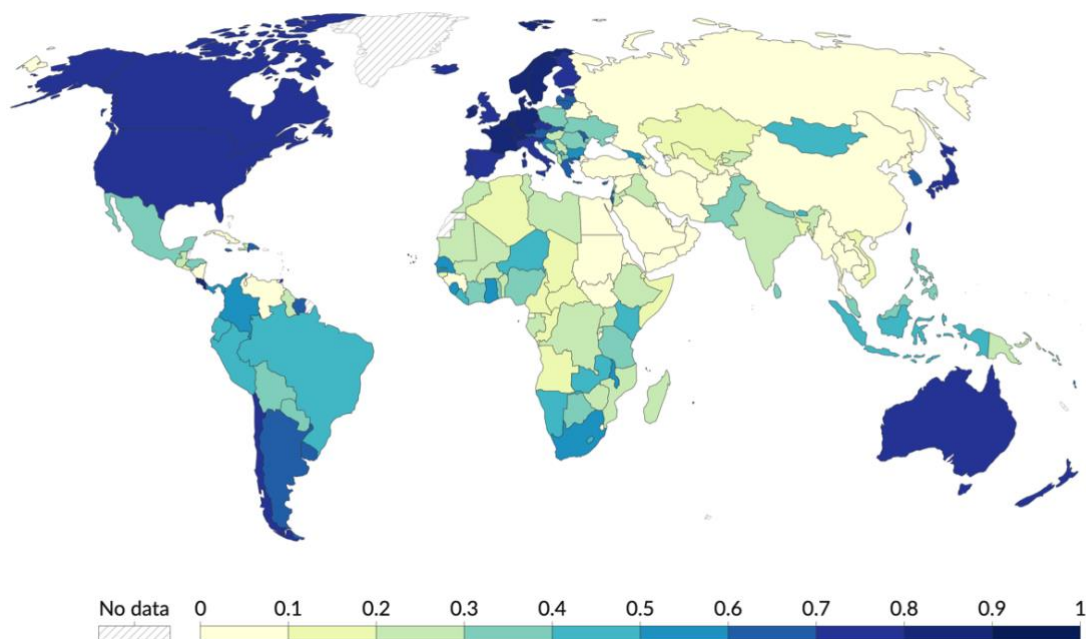
Fig. 4. Deliberative democracy worldwide in the year 2022 (Our World in Data[1], n.d.).

Remarkably, although there are some periods of decline, the average global level of deliberative democracy grows, as illustrated in Figure 5.
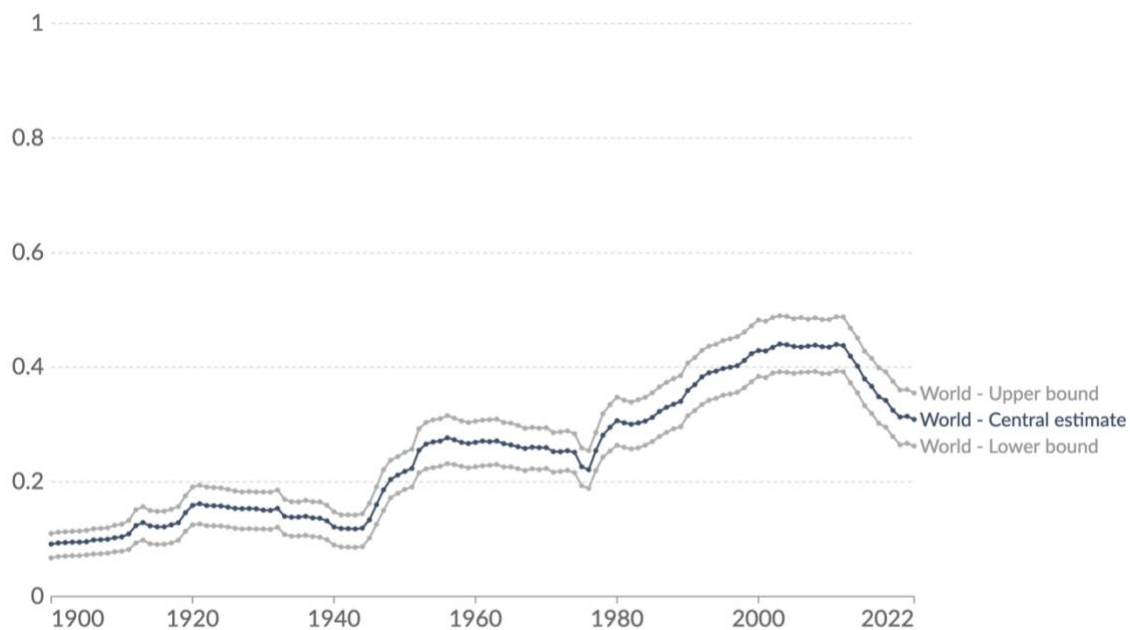
Fig. 5. Averaged level of deliberative democracy in the world (Our World in Data², n.d.).

The level of deliberative democracy reflects the dynamics of various factors affecting deliberation: discursive democracy benefits from public sphere forums focusing on specific needs, issue-specific networks, centripetal electoral systems, a limited power-sharing state, conditional sovereignty, and the transnationalisation of political influence, and from deliberative institutions, distanced from sovereign authority (Dryzek, 2005: 239).

As it is widely acknowledged, political deliberation is one of the merits of public policy (Bessetti, 2001: 3378). Although the level of deliberative democracy is constantly rising (Figure 5), many states do not benefit from democracy (Figure 4). This implies that if the goals of certain groups advocating for solving environmental issues can be at odds with the goals of the government, it is highly probable that deliberation will not take place.

4.2. Deliberation and discourse

As deliberation also involves a relational process, necessitating the exchange of reasons inclusively and reflectively (Mendonça et al., 2020: 167), it entails discourse exchanges (Mendonça & Simões, 2022: 345). Discourse refers to statements that structure the way individuals think and subsequently act based on these thoughts (Rose, 2016: 187). It is a particular knowledge, which shapes the understanding of the world and the way things are done in it (Rose, 2016: 187). The term 'discourse' literally refers to "connected utterances," encompassing how communication establishes certain meanings within specific subjects (Evans, 2012: 40). It inherently possesses political dimensions (Evans, 2012: 40). Discourse has a potential to explain environmental issues, which involve uncertainty and are subject to multiple interpretations, (Evans, 2012: 40). Evans (2012: 40) emphasises discourse as "a key concept that is used to understand how environmental issues can be framed in different ways, and what the implications of doing so are." According to Hammond (2020), the public

discourse has moved from niche environmental concerns to concrete fears, widely distributed and discussed. This shift has prompted scholarly discussions on the urgency of a sustainability transformation (Hammond, 2020: 220). Hammond (2020: 220) argues that since there is a call for "a radical, systemic shift toward new sustainable trajectories," the discourse on sustainable development requires such transformations.

Discourse is an ideal situation of communication when the main focus is on checking the validity of statements, recommendations, or warnings, when there are no restrictions on participants, topics, or contributions, as long as they relate to testing the validity of the claims being discussed, and only force at play is the strength of the better argument, thus any motives other than the cooperative search for truth are not considered (Habermas, 1988: 108). "Discursive processes allow for values in each realm to be expressed in their own terms" (Trainor, 2006: 18). In other words, collaborative discursive processes have the potential to address value conflicts that involve multiple dimensions of value in policy and decision-making, without the need for a universal metric (Trainor, 2006: 18). However, it is crucial to consider discursive exchanges within their specific contexts: creating meaning depends on who's receiving the messages, the instrumentalities used for these messages' transmission and reception, and the broader societal milieu within which specific interactions are situated (Mendonça & Simões, 2022: 347). Different deliberative arenas are stages for different types of conversations creating conditions that either facilitate or impede specific forms of expression (Mendonça & Simões, 2022: 347). In this context, photographic images can contribute to rethinking discourse, providing it with facets that convey to a new level its power and potential to solve environmental issues.

4.3. The role of institutions in deliberation

The definition of the word 'institution' is vague and ranges from organisations to regulations, from patterns of practices to beliefs, or may combine all these notions (Glückler et al., 2018: 3). Patterson and Beunen (2019) define institutions as a set of rules, rights, and decision-making procedures, from which social practices emerge and which assign roles to actors and define their interactions. Institutions are "a central aspect of governance systems, and interact with other aspects, such as belief systems, culture, and a sense of community" (Patterson & Beunen, 2019: 1). In contrast to tangible assets such as real capital (including infrastructure), financial capital (including venture capital and credits), and codified knowledge (like technologies, patents, and designs), institutions cannot be purchased or licensed, and they are extremely challenging to replicate (Glückler et al., 2018: 3). Institutions produce decisions that are deemed more legitimate and stable than that of individual actors, because they result from the collaboration of multiple participants adhering to established rules, ensuring relative stability of generated decisions (Evans, 2012: 47). Moreover, "instituting a decision-making process makes it more transparent and accountable than simply making decisions either individually or behind closed doors" (Evans, 2012: 47).

Public spaces are institutionalised (Deutsche, 1996), which means that various institutions have, to a greater or lesser degree, an influence on deliberative arenas and discursive processes there. Public spaces are outcomes of democracy (Deutsche, 1996: 274), which implies that they function within a democratic society. In a public space, individuals can negotiate about meaning and unity of the social, as well as what is legitimate and what is not (Deutsche, 1996: 273). Thus, to assess deliberation success possibilities, there is a need to analyse how institutions influence public spaces, and individuals' opinions that are formed there. These processes of public opinion formation are linked to the level of democracy because the state of the latter plays a crucial role in deliberation (Deutsche, 1997). The "core activity" of democracy is an inclusive, reflective, and reasoned discussion (Mendonça et al., 2020: 155). Therefore, in a democratic society, individuals can be involved in deliberative processes based on principles of equality. Moreover, along with policy integration and planning, democracy, as an institution, is one of the three core principles of sustainable development (Carter, 2007: 292).

Deliberative democracy institutions vary widely: they include formal deliberations in legislative parliaments, structured citizen deliberations in mini-publics and assemblies, and the integration of deliberation into participatory economies where democratic control extends to firms and economic planning (Benson, 2018: 78). Recent research has led to the conceptualization of deliberative systems, which involve interconnected deliberative processes across various institutions within government and civil society (Benson, 2018: 78).

Nevertheless, institutions can present barriers to effective deliberation. On one hand, social institutions are shaped and influenced by discourse (Cope & Kurtz, 2016: 659). On the other hand, institutions shape discourses themselves. According to Evans (2012: 46), institutions bridge the broader social context with individual decisions and actions of individuals, thus shaping new possibilities for development. However, while offering new opportunities, institutions constrain the form of action (Evans, 2012: 46) by their established frameworks. Interplaying with individual behaviour, such frameworks influence the process of making and implementing political decisions (Evans, 2012: 47). This implies that although individual influence is significant, decisions are largely formed by pre-existing rules and procedures that guide how institutions address real-world challenges (Evans, 2012: 47).

4.4. Deliberative arenas

Deliberative arenas are physical or digital spaces where discourse takes place and where citizens are involved in conversations that influence policy-making (Bessetti, 2001; Dryzek, 2019; Esau et al., 2021; Pelizzoni, 2010). Deliberation requires space "such as political executives, legislatures, citizen forums, old and new media, and informal citizen gatherings" (Dryzek et al., 2019: 1145-6). Within a deliberation arena, the interests of various affected parties such as non-human entities, less powerful individuals, or actors with communication challenges, can be discursively framed and overcome parochialism of other actors participating in discursive processes (Wironen et al., 2019: 8).

In today's digital age, the internet serves as a deliberative arena, given its widespread use as a digital communication platform. The internet has introduced new possibilities for informing and educating the citizenry, as well as assessing public reaction and opinion (Bessetti, 2001: 3379). As the Internet has become pervasive in various aspects of life and supplements traditional forms of political engagement, an increasing number of participatory activities occur in the online realm (Esau et al., 2021). This "systemic turn" introduces fresh perspectives on characterising and evaluating deliberation, shifting attention from structured forums to other deliberative arenas (Ercan et al., 2022: 5).

The conditions for successful deliberation based on whether they are implemented in formal institutions or the public sphere (Ercan et al., 2022: 5). Public sphere deliberation, in contrast to structured forums, embraces a broader range of communicative approaches, incorporating diverse non-verbal expressions like symbols or images (Mendonça et al., 2020: 154), among others.

A common challenge for deliberative arenas is that gathered there individuals have varying perspectives on uncertainty (Pellizzoni, 2010: 177). This implies that they may have a lack of knowledge about certain issues. In this context, images can provide information about an issue, which, in conditions of uncertainty, can define a vector of deliberation due to indisputability of facts which, being expressed verbally, can have more than one interpretation. Furthermore, deliberation implies that political decision-making, as well as policy-making should be 'talk-centric' rather than 'vote-centric' (Steenbergen et al., 2003: 21). Involving individuals in this process in its different stages, from initiation of a deliberative process till a policy validation and approval, allows less powerful individuals to be heard. In the following, it will be discussed how it can be achieved through discursive processes.

4.5. Actors in deliberative processes and participation

In an environmental deliberative arena, typical participants, besides organisers and facilitators, fall into three categories: 'stakeholders' with personal interests (e.g., entrepreneurs and property owners), 'citizens', representing the community, and 'experts' with professional competence (Pellizzoni, 2010: 172). According to Evans (2012: 192), the following actors may participate in decision-making processes: rights holders, encompassing any citizen or member of the public; spatial holders, representing those affected by spatial proximity, such as residents; shareholders, who own material elements influenced by decisions; stakeholders, individuals or groups capable of influencing or being influenced by decisions; interest holders, or actors seeking for participation on behalf of other groups; status holders, obligated actors due to formal responsibilities; and knowledge holders, specialists and experts whose expertise is essential for decision-making authority. This diverse spectrum reflects the multifaceted nature of participants in the decision-making arena emphasising that the democratic nature of deliberation is essential for effective decision-making.

During deliberation, actors provide their arguments and proposals (Bessette, 2001: 3378). At the same time, they need to remain receptive to the facts, viewpoints, and suggestions

presented to them, demonstrating a willingness to learn from others (Bessette, 2001: 3378). Thus, deliberation can be seen as an inclusive process, where all actors need to communicate collaboratively.

Democratic deliberation involves the inclusive participation of affected parties and knowledge holders, involving citizens contributing their diverse perspectives and expertise to decision-making processes. However, inequalities among actors can pose significant challenges. Due to wealth and power inequalities, the exchange of knowledge can be distorted. Positions of individuals with substantial financial power may be prioritised over those with fewer resources, such as indigenous communities and vulnerable groups (Bensos, 2018: 82-83). This also applies to tacit knowledge that they hold (Bensos, 2018: 82-83).

Individuals are increasingly concerned about the inequitable distribution of wealth and access to natural resources, about problems emerging because of innovations adoption, and about the blurring of boundaries between the realms of science, politics, and business (Pellizzoni, 2010: 160). To overcome these inequalities, deliberation should expand beyond structured forums, and thus be brought to the "broader public sphere," where various actors such as activists, institutions, and media are included in deliberative processes (Mendonça et al., 2020: 154). Participation facilitates the reconciliation and redefinition of interests for both individuals and groups, enabling active contributions to the shaping of future trajectories and adaptation to changes (Meadowcroft, 2004). Participation of all concerned actors is crucial for addressing environmental issues (Backhaus et el., 2008), and the attention should be directed towards the participation of less powerful and marginalised groups of individuals whose voices often remain unheard.

Many deliberative theorists aim to promote the emancipation of both individuals and communities from domination (Mansbridge, 2022: 483). To achieve this goal, deliberation must go beyond impersonal reasoning about abstract propositions and include reasoning about trust and credibility (Benson, 2018: 89). Moreover, participation entails the engagement of institutions "that can involve all interested parties in decision-making" and subsequent policy-making (Evans, 2012: 132).

According to Evans (2012: 192), there are ethical, practical, and instrumental dimensions of participation. Ethically, participation is seen as an extension of democracy, providing citizens with the opportunity to contribute to decisions impacting them (Evans, 2012: 192). From a practical standpoint, involving citizens in decision-making is seen as most effective for fostering acceptance, securing legitimacy, and minimising conflicts between various interests (Evans, 2012: 192). Instrumentally, engaging communities and the public in governance enhances decision quality by incorporating lay knowledge and experiences (Evans, 2012: 192).

The primary categories of participatory processes, according to Meadowcroft (2004), include citizenship and citizen participation, stakeholder and group involvement, and participation by and within local communities. The citizen participation includes mechanisms such as public consultation and inquiry offering avenues for public involvement in decision-making (Meadowcroft, 2004). Participation by and within local communities is manifested

through representation in processes where decisions of a 'higher' jurisdiction are undertaken (Meadowcroft, 2004). Finally, stakeholder participation involves diverse approaches like environmental mediation, or, in other words, how groups with common interests should work together, involving everyone in figuring out the best solutions to environmental problems they face (ibid.).

However, there are several challenges, which participation involves (Evans, 2012: 197-199). Firstly, there's the issue of asymmetry, where the goal is to engage all stakeholders equally, yet their stakes in the decision may not be equivalent or comparable (Evans, 2012: 197). Secondly, public knowledge is essential for participatory processes, although it should not be considered "equally as valid as expert knowledge" (Evans, 2012: 197). Public knowledge is important for participation as it offers avenues for new perspectives and creative approaches to solving a problem, and it addresses the aspects overlooked when exclusively relying on technical solutions (Evans, 2012: 197). Expert bias presents a challenge, as expert knowledge is often prioritised in addressing policy questions, potentially marginalising lay knowledge in environmental conflicts (Evans, 2012: 199). Lastly, lack of resources can be an issue as effective participation demands both time and financial investments (Evans, 2012: 199). Overcoming these challenges is crucial for fostering inclusive and impactful engagement in decision-making processes.

4.6. Deliberation success factors

The pressing environmental issues that drive many normative trans disciplines are seen as urgent, requiring quick and substantial action (Wironen et al., 2019: 13). To achieve the goal of addressing environmental issues through deliberation, several factors need to be considered. Effective deliberations are challenging, as there is uncertainty regarding how it is handled, and there is the conventional divide between experts and citizens within deliberative arenas (Pellizzoni, 2010: 159). Nevertheless, there are wide opportunities for citizens to participate in deliberation actively and successfully, but the latter needs to be well arranged and facilitated (Dryzek et al., 2019: 1145-6). According to Dryzek et al. (2019: 1145-6), such facilitation requires time, effort, and space, or deliberative arenas. It also requires being critical of 'green' political intentions, which cover 'business as usual' (Dryzek et al., 2019: 1145-6). To counteract elites and their manipulations, communication needs to be reasonably unaffected by factors like inequalities in "material power and discursive competence" (Simon & Xenos, 2000: 364). Additionally, good reason-giving and respectful listening are needed (Dryzek et al., 2019: 1145).

Combined with a commitment to percept knowledge and learning, discursive representation contributes to the expression and consideration of environmental issues by various parties, thus providing the fertile ground for successful deliberation (Wironen et al., 2019: 8). In deliberative democracy, which entails participation of less powerful in discursive processes, communication should go beyond verbal forms of expression, which makes deliberative processes more reasonable, inclusive, and reflective, and provides better

understanding of issues (Mendonça et al., 2020: 157) by other actors. Benson (2018: 79) has highlighted the importance of tacit knowledge in deliberative processes. According to Benson (2018: 79), tacit knowledge can be vital for successful deliberation as verbal communication limits the forms of knowledge that can be transmitted. According to Mendonça et al. (2020), the use of images is crucial in deliberative processes. Incorporating images into discourse empowers marginalised groups to present their arguments more perceptibly, enabling them to reach a broader audience (Mendonça et al., 2020: 159).

5. How can an image foster successful deliberation?

In a deliberative process, participants engage in dialogue, articulating and exchanging reasons for their positions, while also actively listening to the perspectives of others (Mendonça et al., 2020: 154-155). Thus, the exchange of knowledge is essential for deliberation. Non-verbal modes of expression can contribute to deliberation by providing "something beyond words" (Mendonça et al., 2020: 154-155), such as tacit knowledge.

According to Bessetti (2001: 3378), deliberative decision-making includes three crucial components: information, arguments, and persuasion. 'Information' means the substantive facts relevant to a given policy issue; 'arguments' establish connections between facts and goals of deliberation; and 'persuasion' refers to the changes in the minds of deliberators resulting "from the reasoned consideration of facts and arguments" (Bessetti, 2001: 3378). The role of images can be deeply intertwined with these elements. Images can allow for information acquisition, which can occur in a non-verbal form, and for the presentation of arguments visually. Images also play a role in shifting the paradigms and mindsets of actors, thereby contributing to the process of persuasion. However, "the political impact of photography depends on how images and those who take them interact with the political process" (Hodson, 2021). Hodson (2021) and Mendonça (2020: 160) provide an example of such interaction.

In September 2015, Nilüfer Demir's photograph of the drowned Syrian boy, Alan Kurdi, went viral on Twitter, urging politicians to address the refugee crisis (Hodson, 2021). French President François Hollande and the United Kingdom Prime Minister David Cameron responded with concrete plans, implying that this image may have influenced the political landscape (Hodson, 2021). This underscores the political impact of photography, leaving questions about why this particular image resonated so profoundly (Hodson, 2021). This example illustrates that people did not fully grasp the refugee crisis solely through words until they saw the heartbreaking image of the little boy who drowned on his way to Europe (Mendonça, 2020: 160). This example also shows that photographs in mass media demonstrate the potential of visuals to contribute to public discourse (Mendonça et al., 2020: 161). In the following, a literature review on the political dimension of the role of photography in discourse will be provided.

5.1. Political aspects of photography as art

> "All good art is political! There is none that isn't." (Toni Morrison, 2008, from Luger, 2017: 236).

This section provides a literature review on the political dimension of the role of photographic images in discourse. Historically, there has been debate surrounding whether photography should be considered art (Wells, 2021). While photography is widely used as a form of visual communication, the focus of discussions on its artistic status has often revolved around its aesthetic qualities and its relationship with traditional art forms (Wells, 2021). Nevertheless, photography is commonly seen as a branch within the realm of art. In this master's thesis, I assume that photography is art as it has aesthetic components such as composition and colour palette. I also consider that photojournalists adhere to conventional photographic principles to enhance the aesthetic appeal of their images to broader audiences (Deng et al., 2016: 1).

Art contributes to politics through the message expressed in various visual forms (Maeder et al., 2017: 151). It also plays a role in shaping politics through subjective power of such messages, as well as through interaction between an image and individuals, which influences identities and subjectivities (Maeder et al., 2017: 151). A photographic image has such power to deliver a message: as a form of art and a non-verbal form of expression, it can contribute more than words to deliberation (Mendonça et al., 2020: 155). Benson (2018: 76) argues that deliberative democracy places a primary emphasis on verbal communication, leading to the exclusion of tacit forms of knowledge. This exclusion presents challenges for both proceduralist and epistemic interpretations of deliberative democracy and may even favor markets over democratic institutions while deliberating (Benson 2018: 76). The goal of deliberative democracy is to be more included in democratic politics (Mendonça et al., 2020: 153). Some researchers argue that it is possible to achieve this goal only if deliberation "goes beyond verbal forms of communication and acknowledges the crucial role of non-verbal communication in expressing and exchanging arguments" (Mendonça et al., 2020: 153). While words are considered central in politics because they allow the creation of knowledge and communicate truth (Mendonça et al., 2020: 154), nowadays, more and more scholars recognise that visuals play a pivotal role in deliberation (Mendonça et al., 2020: 158). Individuals observe photographic images with the same ease as they walk through the world with their eyes, whereas understanding text requires a greater or lesser mental effort (Backhaus et al., 2006: 23). Thus, because a "photograph offers a more unmediated access to reality" (Oldrup & Carstensen, 2012: 225), visuals play a role in presenting arguments within political controversies and public discourse (Hendriks, 2017: 6). Furthermore, observing photographic images has an immediate effect as beheld reality (Backhaus et al., 2006: 23). By demonstrating reality in a way that words cannot describe it, photography touches individuals' hearts and minds, prompts reflection and reaction, and hence influences deliberative processes. Therefore, various actors such as politicians, activists, and citizens use visuals when engaging

in public deliberation, as the communicative power of images lies in their capacity to go beyond words (Mendonça et al., 2020: 158).

To understand the interconnection between visuals and policy-making, it is necessary to consider the context of a place, because artistic practices are intertwined with the local characteristics of where they originate (Luger, 2017: 235). By examining the features of a place, it is possible to analyse discourses on environmental issues and leverage them in subsequent deliberations. The conditions which apply to verbal communication are equally applicable to non-verbal forms of expression (Mendonça et al., 2020: 155). Just as words do, non-verbal expressions become integral to deliberation only when the following conditions are met (Mendonça et al., 2020: 155). Non-verbal forms of communication need to be integrated into reasoning processes, when they facilitate the involvement of marginalised individuals in public discussions, and finally, when they foster reflection, encouraging novel perspectives on the public controversies at hand (Mendonça et al., 2020: 153). Furthermore, visuals act as deliberative tools exclusively when they foster the creation of discourses that shape how societies collectively perceive themselves (Mendonça et al., 2020: 154-155).

Perceiving images solely as evidence of facts or occurrences, or as a product of activities in a cultural realm limits their influence. Recently, in the area of geography, photographs have begun to serve not just as depictions but also as communicative instruments or catalysts for fresh perspectives (Pyyry et al., 2021: 77). Photographs can act as visual representations or documentation of various environmental issues. They act as agents of addressing environmental issues, providing individuals with 'knowledge as action', which was discussed in Section 2.1 of this master's thesis. "By focusing only on what is represented and not on what is done, researchers neglect important processes" (Oldrup & Carstensen, 2012: 224).

The ease with which we perceive photographs and their perceived objectivity are the pillars on which the emotional impact of photographs, and thus their power, is based (Backhaus et al., 2006: 24). According to Hademyr (2017), the potential of images is in their aesthetic integrity, by means of which an image can unfold the features of a place and the complexity of a situation there. Moreover, an image can foster encounters and critical dialogues in the society (Hademyr, 2017). By creating an image, an artist responds to urgent situations providing an instrument for understanding, which has transformative power, both social and political (Hademyr, 2017: 175).

Furthermore, according to Maeder et al. (2017: 150), art has an impact on the world due to its potential to shift boundaries of a given political order or reinforcing it. According to Luger (2017: 233), an artist does not need to be an environmental activist to deliver a message about a problem to the wider public and inspire action. By creating an image without the intention of applying it to solving an environmental problem, its author can provoke such processes; hence there is no need to establish distinct theoretical boundaries between art and politics (Luger, 2017: 233). Thus, art, including photographic images, can be an instrument for communicating environmental issues.

However, despite the solid body of research on the effectiveness of images in politics, there is criticism regarding the effectiveness of employing non-verbal communication tools. For

example, Habermas acknowledges the presence of non-verbal elements in communication (Mendonça et al., 2020: 156). Nevertheless, in his framework for deliberative democracy, he deliberately excludes these components to maintain 'transparency and coherence' in the deliberative process (Mendonça et al., 2020: 156).

According to other viewpoints, in frames of our present culture, it is not so much *seen*, but rather evaluated, used, reviewed, proved, dismissed, or, in the best case, appreciated (Wenders, 2004: 285). In this context, using photography provides actors with alternative perspectives. Hodson (2021: 28) argues that photography possesses a demonstrable capacity to influence politics. However, the impact of photographs depends on the following factors: photographers' capacity to leverage the influence of bureaucracies, advocacy networks, and epistemic communities to which they may be affiliated and the "extent to which photographers can manage the contradictions inherent in the political process", such as "the unintended consequences of bureaucratic activities or concerns over the legitimacy of activists and the credibility of experts" (Hodson, 2021: 28).

5.2. Image production

The way an image was produced addresses the question: "Who, why and with what purpose created the image?". Rose (2016) emphasises the aspect of photography which is attributed to the technological aspect of an image production and refers to its truthfulness. Rose also mentions two contrasting positions that critics have in relation to the accuracy of delivering the message about the events which took place at the moment of the photo shooting. While some suggest that a photograph is not an accurate reflection of reality, others believe in its apparent truthfulness (Rose, 2016: 27). In the following, the production of a photograph will be discussed from the position of truthfulness, and conditions which are necessary for the credibility of a photograph will be examined.

Reality is inscribed in photographs: in the early days of photography, it was not the photographer who was seen as the author of their work, but the sun or nature itself (Backhaus et al., 2006: 24). However, it is important to consider who produced the image and how the photographic image was produced: was it staged, arranged, or made up? Was it dramatised, and if yes, how? And finally, how can we trust the photographer? (Rose, 2016: 30).

The concept of morality in photojournalism, tracing back to the late 19th century, has evolved from an informal notion to a structured and legally enforceable framework, with the codes of conduct emphasising honesty, responsibility, accuracy, and truthfulness, serving as legal instruments aimed at upholding the profession's integrity (Lavoie, 2010). Therefore, photographers take responsibility for images they produce, and they should provide reliable information about any alteration (Rehman, 2018: 55). Particularly it concerns images created by photojournalists: it is not the camera that captures a moment in time, but the hands that guide it (Malizu, 2010: 133). Just as the camera can be manipulated, so can public trust, too (Malizu, 2010: 133). However, even in today's age of widespread manipulation with images, photographs have the status of evidence (Backhaus et al., 2006: 24), because "in our global

village of the new millennium, no visual dishonesty goes undetected for long" (Rehman, 2018: 56). Moreover, through visuals, photojournalists speak in an international language, which leaves no space for naivety and for ignorance of cultural norms (Rehman, 2018: 56). This implies that photojournalists are responsible for delivering clear, unquestionable message to the audience. To deliver such a message and to provide a photographic image as a credible source of knowledge, a photographer should address the following: to follow the policies of a newspaper or a news organisation, provide information about any alteration of the image, do not alter the image if this can affect viewers' response to this image (Rehman, 2018: 55). According to the findings of these literary analyses, it can be asserted that photojournalists not merely intend, but also can accurately capture reality, producing photographic images to deliver messages about what is happening to a wider audience.

5.3. Image aesthetics

Aesthetic components of photographs, expressed in their composition, colour palette, contrast, influence individuals' perception of an image. Beauty captures people's attention, enabling individuals to reflect on what is happening around them and what can be done about it. Beauty contributes to better perception of messages, embedded in photographic images, by the audience (Mendonça et al., 2020: 159). According to Petrovici and Szabo (2018: 143), "aesthetic composition can guide the visual focus of the audience to the centre of interest". Additionally, by tapping into emotions, images have the capacity to deepen empathy and provoke contemplation in ways that overcome the limitations of verbal communication alone (Mendonça et al., 2020: 160). Thus, aesthetic encounters are useful for educating citizens (Hendriks, 2017: 6).

On the one hand, this can be done by evoking positive emotions: people tend to be drawn to encounters associated with good feelings (Christiano & Neimand, 2018). Beauty can evoke multiple positive emotions, including inspiration, excitement, and awe. Similarly, awe is the sense of amazement evoked by, for example, breathtaking landscapes, which can foster connections between individuals by making them feel more interconnected with fellow humans (Christiano & Neimand, 2018) and the natural environment, expanding their horizons of bonding with nature. Experiencing awe can enhance receptivity to learning and a willingness to engage in volunteering (Christiano & Neimand, 2018). On the other hand, photographs portraying sombre, unattractive, or frightening events can still possess aesthetic qualities like composition, colours, and contrast, among others. These aesthetic components contribute to the image's potency in conveying information, evoking emotions, and raising awareness of an issue. An illustrative example is the photograph of a Syrian boy, which influenced political decision-making to address the refugee crisis, as discussed in Section 5.

When analysing aesthetics in a journalistic photograph, like in any photographic image, one can consider two main components: content, which relates to the message conveyed, and shape, referring to an image's visual appearance (Petrovici & Szabo, 2018). These components define how well a message is precepted by a viewer. Artists intentionally integrate them to

evoke certain emotional reactions in viewers, aiming to evoke desired responses in perceivers' nervous systems (Deng et al., 2016: 1). The assessment of an image's artistry can be based on the assessment of its aesthetic features. Evaluation of an image's aesthetics follows established photographic rules (Deng et al., 2016: 1). Such evaluation can be influenced by various elements such as lighting, contrast, composition, and human judgment, reflecting the human aesthetic experience through emotional valuation, sensory-motor engagement, and cognitive interpretation (Deng et al., 2016: 1). Contemporary photographers rely on the conventional photographic rules to enhance the appeal of their images to wider audiences (Deng et al., 2016: 1). Hence, aesthetic expressiveness of a photograph not only captures and sustains audience attention but also enhances emotional impact and message credibility (Petrovici & Szabo, 2018).

Overall, aesthetics can evoke an emotional response which can influence individuals' perception of the environment and their subsequent interaction with it. This creates space where the occurrence of new discursive processes is possible. A photograph with greater aesthetic appeal holds more potential to influence deliberative processes than one lacking aesthetic features. If the combination of elements such as composition, colour palette, and contrast are not perceived as beautiful, the photograph is less effective for use in deliberation.

5.4. Distribution of images

> "A photograph, despite its genre, remains a personal matter as long it is seen only by the person who has taken it. As soon as a second person sees it, it becomes public" (Rehman, 2018: 55).

Distribution and circulation of images grant access to geographical knowledge for a wider audience. The audience's values and attitudes are of high importance when communicating environmental issues and raising public attention. The actual impact of an image varies with individuals' changing values and attitudes: depending on the viewer's position or role, images can acquire different meanings (Müller and Backhaus, 2007: 25-26). Studies indicate that, on the one hand, individuals with conservative worldviews typically adopt an individualistic perspective, emphasising respect for authority, the preservation of sacred values, and the protection of their own groups (Christiano & Neimand, 2018). On the other hand, those with liberal inclinations tend to prioritise principles of justice, fairness, and equality (Christiano & Neimand, 2018). This results in the fact that the meaning of an image can be not only delivered by the author; it can be created by the audiences, who bring their own theoretical and empirical knowledge when perceiving an image (Rose, 2016: 32). Thereby, the perception of an image by an individual and their subsequent action or inaction are influenced by the extent to which an individual's worldview leans towards principles of democracy.

When an image is represented in a public space in a democratic context, there are several questions which need to be addressed: are the images shown "for people", do they encourage

"participation", are they "accessible" for everybody, avoiding "elitism"? (Deutsche, 1996: 269-270). For example, exhibitions are the means through which geographical knowledge can be transmitted to a wider audience, bringing it beyond academic realms (Hawkins, 2015: 248). Therefore, presenting geographical knowledge in the form of visual communication provides wider opportunities for this knowledge to be distributed across various actors and audiences.

Various researchers argue that when visuals are circulated, new opportunities for dialogue are opened (Hendriks, 2017: 6). Thus, more opportunities for discursive deliberation appear. However, in the context of knowledge circulation, it is not clear to what extent knowledge is tied to a particular place can be valuable in another geographical context (Ibert, 2010: 108-109). If elements of practices from different geographical locations are connected by the actors involved, a change is most likely to occur (Ibert, 2010: 108-109). Hence, deliberation is more likely to be successful when images are widely distributed. Furthermore, sustainable development includes social aspects (Backhaus et al., 2006: 11). Thus, the presence of networks for effective information exchange through social interactions is essential.

6. Case study area

In this master's thesis, I have analysed photographic images of Akespe and its surroundings. Akespe is a fishing village in Kazakhstan located on the former coast of the Northern Aral Sea. In the following section, an overview of the environmental, social, and political landscape of Akespe will be provided, incorporating a summary of the literature review on the Northern Aral Sea crisis.

6.1. The problem background

Once the world's fourth-largest lake in 1960, the Aral Sea, situated in Central Asia between Kazakhstan and Uzbekistan, has undergone a drastic reduction in water volume (Kumar, 2002). Over the past six decades, due to mismanagement of water resources, the Aral Sea has shrunk by a factor of fourteen (Wæhler & Dietrichs, 2017) and has become a "small and dirty waterhole" (Kumar, 2002: 3797). The satellite photographic image in Figure 6 illustrates the severe decrease in water content in the Aral Sea.
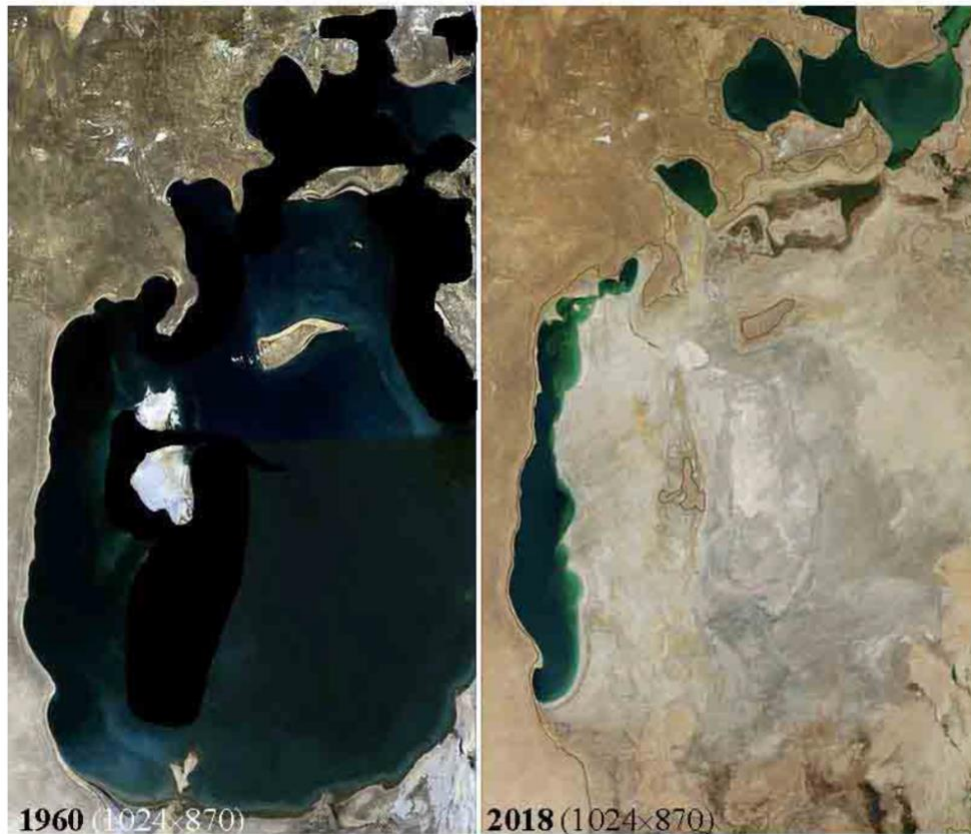
Fig. 6. A comparison of the Aral Sea in 1960 (left) and 2018 (right) (Source: USGS/NASA visualisation by UNEP/GRID-Sioux Falls, in Krapivin et al., 2019).

The major challenges associated with the Aral Sea crisis are water scarcity, salinisation, pollution, reduced crop production due to degraded soils, health risks stemming from water and soil contamination, and economic decline (Loodin, 2020: 2495). Loodin (2020) argues that this disaster significantly exacerbated environmental, social, and economic conditions, as well as the health conditions of the local communities. The Aral Sea basin once supported a local economy primarily reliant on the lake, which sustained a fishing industry and directly affected the lives of four million people living in its vicinity (USAID, 2023). While international collaboration has achieved success in stabilising the water level of the Northern Aral Sea (Dumetz & Aladin, 2021), the decline in water levels along its coastline remains a prominent global environmental, social, economic, and policy issue. Therefore, international effort is needed to restore the Northern Aral Sea area (Dumetz & Aladin, 2021; White & Micklin, 2021).

The Aral Sea is nourished by the Syr Darya River from the North and the Amu Darya River from the South, both originating from the glaciated Tian Shan and Pamir Mountains before converging into the Aral Sea (Loodin, 2020: 2495), which is demonstrated in Figure 7.
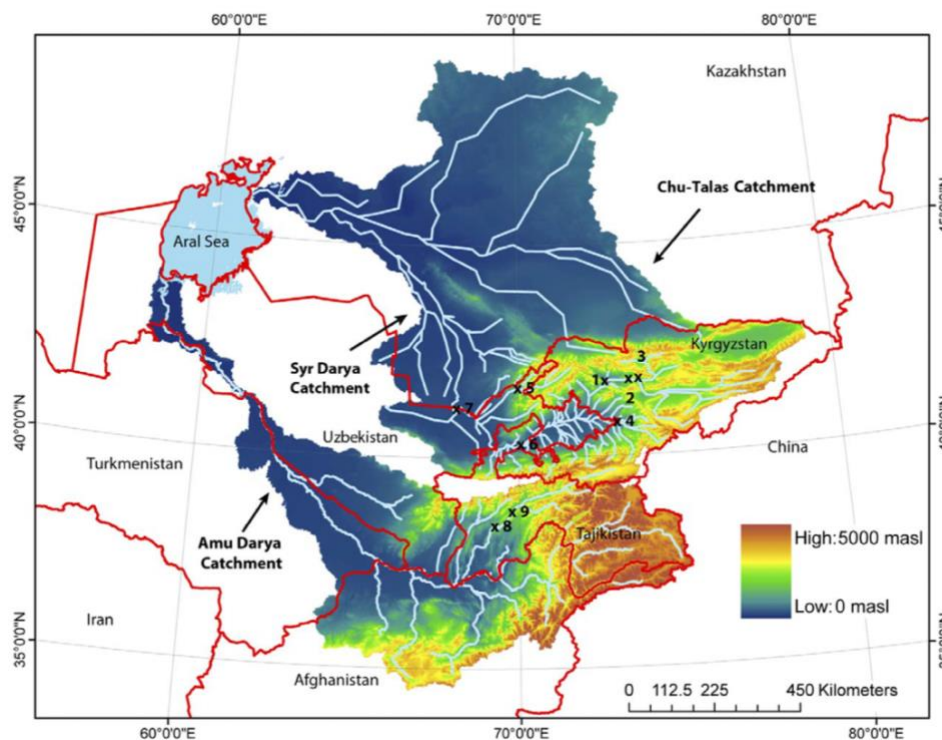
Fig. 7. The map of Central Asia with Syr Darya and Amu Darya rivers catchments and the major dams (indicated with the crosses) (Bernauer & Siegfried, 2012: 229).

The primary waterways of Central Asia, the Amu Darya and Syr Darya, were considered internal rivers within the USSR until 1991. After the collapse of the Soviet Union, these two rivers transitioned from being domestic to becoming international water systems almost overnight (Bernauer & Siegfried, 2012: 228). About 90% of the mean annual flow of the Syr Darya river is regulated by water reservoirs (Bernauer & Siegfried, 2012: 228), which is advantageous for the upstream territories in Kyrgyzstan and Tajikistan, and adversely for coastal areas of Kazakhstan and Uzbekistan. After the Soviet Union collapse, Kazakhstan implemented a relatively radical land reform, facilitating the privatisation of agricultural land (Liu et al., 2022: 17) and industry reform, since Kazakhstan is transitioning from state-owned enterprises toward a fully market-based economy (OECD, 2017). Moreover, in contrast to the case of Kazakhstan, Uzbekistan has yet to fully embrace privatisation and faces significant inefficiencies in water productivity due to deficient irrigation systems and infrastructure (Liu et al., 2022). Due to climate change and the irrational utilisation of water for cotton cultivation in Uzbekistan, there has been a notable decline in the flow of the Amu Darya river basin into the Aral Sea (Loodin, 2020: 2495), contributing to the overall water level decline in the lake.

The overall decline of the Aral Sea water level and its devastating consequences have drawn significant scholarly attention (White & Micklin, 2021), as well as attention of national and international institutions and organisations. In the early 1990s, the World Bank collaborated with the governments of the Aral Sea Basin to develop an Aral Sea Basin Assistance Program (ASBP) (White & Micklin, 2021). The completion of the 13 km Kok-Aral

dam and dike complex southwest of the Syr Darya river delta, founded by the World Bank in 2005, has resulted in improvements in the ecological and economic conditions of the Northern Aral Sea in Kazakhstan, which has resulted in "in improvements in the region's ecological and economic conditions" (White & Micklin, 2021).

6.2. Defining the problem from the environmental policy perspective

Central Asia stands out as a region where the likelihood of water-related conflicts is notably high (Zhupankhan et al., 2018), not only due to its climatic and environmental features, but also because of challenges in international coordination efforts aimed at addressing water scarcity in the Northern Aral Sea. This entails the complexities of applying policy solutions aimed at implementing the Northern Aral Sea restoration projects. The issue of water mismanagement is a significant policy problem which acts as an obstacle to the restoration efforts of the Northern Aral Sea area. This can be analysed through the five perspectives proposed by Carter (2007).

The Northern Aral Sea water mismanagement outcomes, such as water level decline and fishing industry decline, can be characterised as *Public resources problems*. Water and fish stocks are common sink resources (Carter, 2007: 175). However, industries, including water supply sector in downstream Kazakhstan and the electrical industrial sector in upstream Kyrgyzstan, have undergone or are undergoing privatisation (OECD, 2017; Pankow & Jermakowicz, 1994: 11). This has resulted in water overexploitation and water scarcity for the population of downstream countries. Moreover, the volume, quality and salinity of water have a direct impact on fish stocks of the Northern Aral Sea. As a failure to protect common sink resources such as water and fish sinks, the case of the Northern Aral Sea illustrates Garret Hardin's 'the tragedy of the commons' (Carter, 2007: 175; Hardin, 1968).

According to Carter (2007: 176), "problems of the global commons are frequently transboundary". As four countries are involved in the issue, the Northern Aral Sea issue is a *Transboundary problem* as there is a 'mismatch' between ecological and political-administrative scales. Several cultural and political issues posed a threat to the process involving numerous diverse participants, and one significant problem was the lack of cooperation between Uzbek and Kazakh authorities regarding the causes behind the Aral Sea catastrophe (Dumetz & Aladin, 2021).

Complexity and uncertainty also occur due to the involvement of four countries with their own interests, as well as international organisations such as the World Bank, United States Agency for International Development (USAID), and International Fund to Saving the Aral Sea (IFAS). For example, in the case of the IFAS projects, the underlying regional geopolitical dynamics could have caused the abrupt pause in the project, yet they might also have been pivotal in its sudden resumption (Dumetz & Aladin, 2021).

Administrative fragmentation poses a significant challenge too. The Northern Aral Sea problem is cross-sectoral and requires coordinated responses that transcend the boundaries of the water industry sector. The water, electricity, agricultural industries, and health sectors

operate actively across the borders of the involved countries. This involvement positions these sectors as key actors within the sphere of regional geopolitical dynamics.

Finally, the decline of the Northern Aral Sea water content can be defined as a policy problem from the perspective of *Irreversibility*. However, defining the problem from this perspective remains debatable: while some researchers argue that the Northern Aral Sea is considered secure (Dumetz & Aladin, 2021) and it is possible to restore the Aral Sea in the next 90-240 years (Krapivin et al., 2019), others are certain that there are no solutions to fully restore the lake and its ecosystems that existed before engineering interventions in the 1960s (Erlon-Baurjan, 2019).

As mentioned above, the problem of the declined water level in the Northern Aral Sea is an environmental, economic, and social issue which requires political interventions and international cooperation, since collective action of various actors is needed. Well-arranged deliberation, which involves knowledge of the local population, is essential for overcoming challenges associated with the need for ecological restoration in the region.

6.3. Deliberation at the Northern Aral Sea area

Resolution of the Aral Sea crisis in its Northern area takes its history back to 1980s, when international efforts to save the Aral Sea emerged. The process began outside academia and can be traced back to the activism of Chinghiz Aitmatov, the renowned Kirghiz writer who later became an advisor to Mikhail Gorbachev during the late '80s Perestroika era (Dumetz & Aladin, 2021). This sparked a chain reaction (Dumetz & Aladin, 2021).

Philip Micklin, nowadays Professor Emeritus of Geography at Western Michigan University, was a geography professor at Western Michigan University before retiring in 1999. He was a member of the United Nations (UN) working group aiming to rehabilitate the Aral Sea and had extensive experience in the former USSR and Central Asia (Micklin, 1991; The University of Chicago, n.d.). Over the past decades, Micklin conducted research, attended conferences, and worked with the UN and US Government. Since 1989, he has collaborated on the Aral Sea research with Nikolay Aladin, professor at the Zoological Institute of the Russian Academy of Science in St. Petersburg, a key figure in Northern Aral Sea saving and restoration (Dumetz & Aladin, 2021; White & Micklin, 2021). Philip Micklin describes Akespe back in the 1990 as following.

"[Akespe] has a population of several hundred at best - all Kazakhs. Homes are built of adobe made from local soils with reeds imbedded in it, and roofs are also made of reeds. Corrals for animals are located directly adjacent to the dwellings. Akespe was situated on the Aral shoreline before the sea receded, but is now several kilometers from the water's edge. Fishing was the primary occupation, but since the fish have disappeared the village has survived on camel and cattle raising. Sand blowing from the dried sea bottom has formed dunes which are gradually burying the village. Efforts are being made to dig the dunes away and erect barriers to their encroachment, but with little effect. Drinking water is brought to the village by tanker truck from a well some distance away. We saw villagers bringing containers

(they looked like large milk cans of the type used on American dairies) to be filled from the truck. Several kilometers from the village a crew was drilling a well to provide a nearer source of water. However, they were already down 950 meters, and although they were getting good flow (36 l/s), the water at 5 g/1 was too salty for drinking. We probably were the first "foreigners" to visit the village in modem times and the kids, but not the adults, flocked around us. An indication of the volume of local retail trade, reflecting the availability of goods in demand, came from the purchase of several bags of pechen'ye (biscuits) from the local store. They seemingly had been left from Tsarist times, as they had fossilized and become literally hard as rock" (Micklin, 1991: 94).

In September and October 1991, the working group on Aral of the United Nations Environmental Programme (UNEP) organised meetings and discussions, including a symposium, with representatives of international organisations (UNEP and International Lake Environment Committee (ILEC)), USSR Academy of Sciences in Moscow, local officials and scientists, and representatives of local environmental groups (Micklin, 1991: 96). These discussions raised high interest of journalists and were widely distributed by television (Micklin, 1991: 103-104). These international multi-actors' efforts resulted in concrete actions: the World Bank in the early 1990s and the governments of Aral Sea Basin agreed on the Aral Sea Basin Assistance Program (ASBP), which cost 470 million USD and was planned to be implemented in 15-20 years (White & Micklin, 2021). With the purpose of raising funds for improvement initiatives and coordinating various programs, the International Fund to Save the Aral Sea (IFAS) was created by the World Bank and the countries of the Aral Sea Basin (White & Micklin, 2021). In 2005, a construction of the Kok-Aral dam and a connecting 13 km dike was concluded, costing nearly $86 million, with $64.5 million financed by the World Bank, which has been widely praised for "saving" the Northern Aral Sea (White & Micklin, 2021).

Nowadays, the Northern Aral Sea is in excellent ecological condition (Micklin et al., 2014). Its water level raised by 2 metres, and the fishery recovery is notably robust, which is evidenced by the return of the majority of indigenous species (Micklin et al., 2014). The latter has led to a drastic increase in fishing and subsequent improvement in employment, income, the regional fish supply, the international fish trade, and overall economic conditions (Micklin et al., 2014). However, additional measures are needed to continue improving the region's ecological and socio-economic conditions. According to Micklin et al. (2014), the government of Kazakhstan supports the second phase of the Northern Aral Sea restoration project. Moreover, USAID supports several afforestation projects in the region (USAID, 2023).

This history suggests there was no facilitated deliberation as such in its formal sense. Still, various groups of individuals representing the interests of the citizens along with local communities took an active part in the expedition, meetings with various actors, and in the symposium in 1991. This might have fostered decision-making processes at a higher level, aiming to protect the natural environment and inhabitants of the Northern Aral Sea area.

7. **Methodology**

> "Theory, methodology, and practice are intimately and tightly bond" (Kitchin & Tate, 2000: 1).

Environmental problems are complex issues, where anthropogenic influence plays a crucial role, as discussed in section 5. Addressing environmental problems necessitates researchers to generate, validate, and interlink knowledge using mixed methodologies (Hoalst-Pullen et al., 2021: 2), embracing approaches across disciplines. Some of these approaches are based on analysing the features of an image itself, such as its composition, structure, colour palette – all that constitutes aesthetic value of an image and, thus to a great extent influence its perception by individuals. Other methodologies explore messages embedded in the image and the delivery of this message to the wider public as a result of the circulation of the images. Furthermore, the intentions of images' creators are analysed, such as reasons why and with what motive an image was produced.

In the following, an overview of methodologies and methods employed in analysing deliberative processes, along with approaches, methodologies, and methods, based on using visuals in geographical research, will be provided.

7.1. Overview of methodologies for analysing deliberation

Ercan et al. (2022: 8) provide a comprehensive and multidimensional overview of methodologies of studying deliberative democracy, which aim to bridge normative theoretical base and empirical research. There are 31 methods, proposed by various scholars in the field of deliberation (Table 2). These methods are grouped into four corresponding research approaches: theorising, measuring, exploring, and enacting, as represented in Table 1.

Table 1
Questions and approaches in research on deliberative democracy (Ercan et al., 2022: 8).

Questions	Approaches
(1) What are the normative underpinnings and implications of deliberative democracy?	Theorizing deliberation
(2) What counts as good deliberation and what are its facets?	Measuring deliberation
(3) How is deliberation experienced in 'real life'?	Exploring deliberation
(4) How can deliberative democracy be brought to action through research?	Enacting deliberation

Table 2

Deliberative democracy research methods (Ercan et al., 2022: 11).

Theorizing	Measuring	Exploring	Enacting
Methods of Theorizing	Discourse Quality Index	Ethnography	Deliberative Policy Analysis
Formal Models	Deliberative Reason Index	Rhetorical Criticism	Action Research
Grounded Normative Theory	Listening Quality Index	Process Tracing	Community of Inquiry
Democratic Theorizing	Macro-level Assessment of Deliberative Quality	Q Methodology	Deliberative Camp
	Online Deliberation Matrix	Dramaturgical Analysis	
	Experimental Methods	Narrative Analysis	
	Deliberative Field Experiments	Frame Analysis	
	Scenario Experiments	Talk-based Analysis	
	Survey Methods	Media Analysis	
	Social Network Analysis	Mixed Methods	
	Big Data Analysis	Case Study Research	
	Qualitative Comparative Analysis		

In this master's thesis, I utilise the Exploring deliberation approach, which enables a qualitative examination of how deliberation is experienced in real life (Ercan et al., 2022). I focus on the method of frame analysis since it is based on the engagement of research instruments such as visual forms of expression (Ercan et al., 2022: 15) and thus applies to analysing photographic images.

7.2. Frame analysis

'Frames' refer to the way how individuals interact within a system of specific social settings (Mendonça & Simões, 2022). In other words, frames can be defined as conditions that shape how an issue is perceived, form public opinion, and provide a direction for individuals' subsequent actions. In the process of 'framing', "the essential problem underlying a particular social or political issue" is defined and "a set of considerations purportedly relevant to that issue" is outlined (Nelson et al., 1997: 222, cited in Simon & Xenos, 2000: 367). Thus, framing addresses the question: How do individuals perceive the reality, and how are public discourses formed? It allows one to comprehend and forecast individuals' behaviour (Schäfer & O'Neill, 2017) in specific social, environmental, political, and economic conditions. Framing is widely used by scholars to analyse public perceptions of an issue (Schäfer & O'Neill, 2017). It involves highlighting specific elements of a particular issue to emphasise and 'frame' the communication surrounding it (Schäfer & O'Neill, 2017). In the field of communication, for example, framing is a pivotal concept (Schäfer & O'Neill, 2017).

Research on framing involves utilising methods based on content analysis and discourse analysis methods, among others (Schäfer & O'Neill, 2017). The process of frame analysis, used to examine framing, is focused on the contextual dimension of deliberation and allows investigation of discursive conflicts, or frames, that emerge in the context of events which take place in a particular space and time (Ercan et al., 2022: 17). It also allows to investigate power relations (Ercan et al., 2022: 17). Furthermore, frame analysis allows to address the following

questions: How do discourses emerge, interact, and undergo transformations? How do various actors perceive and employ these discourses? (Mendonça & Simões, 2022: 345).

Frame analysis is based on the core elements of democratic democracy. It allows us to comprehend how frames emerge and transform (Mendonça & Simões, 2022: 345) by placing "context at the heart of meaning-making, thus shedding light on the importance of situating discourses in the context in which they were expressed" (Mendonça & Simões, 2022: 345). Being context-sensitive, this method considers the dynamical interaction between the actions of individuals and contexts where these actions are rooted (Mendonça & Simões, 2022: 352). These contexts can be environmental, cultural, political, and economic. Frame analysis provides comprehension of 'framing', which is, according to Barisione (2012), "the communication processes of structuring the context of meaning, or the interpretive framework, in which a deliberation is held". In other words, framing processes involve defining and shaping the political or social issue being deliberated, as well as the manner of its formal presentation (Barisione, 2012).

Frame analysis can also involve reconstructing interaction sequences to understand how individuals use interpretive frameworks to interpret situations (Mendonça & Simões, 2022: 346). Erwin Goffman provides a definition of such framework as a set of rules and postulates that attribute meaning and organise the involvement of individuals (Goffman, 1986: 21, 345) in addressing a problem. However, it is considerably challenging for individuals to alter their "framework of frameworks" (Goffman, 1986: 28-29). 'Deliberative elites' establish the discussion's framework by defining viewpoints and options, emphasising certain elements, and proposing interpretive links among ideas (Barisione, 2012). Elites are likely to impact how participants form opinions and, consequently potentially affecting the outcome of deliberation (Barisione, 2012).

The goal of frame analysis is to uncover how individuals utilise and shift specific interpretive frameworks to comprehend their surroundings. This approach examines how various contexts influence the formation of relationships and the actions of actors within specific contexts (Mendonça & Simões, 2022: 346). As visuals represent such contexts, the method of frame analysis is applicable for analysing frames through photographic images.

7.3. Overview of visual methodologies in geographical research

While various books and articles propose visual media as a means of knowledge production that requires a specific methodological approach, other studies suggest using visual materials as part of integrated methodological approaches (Oldrup & Carstensen, 2012: 224). This emphasises the importance of visual media, particularly photography, in geographical research and its application as an integral part of the various research methods. In recent decades, an increasing number of scholars have used creative geographical methods, embracing various manifestations of visual arts, in order to proceed, present, and communicate geographical research (Hawkins, 2015: 248), because geographical knowledge is inextricably linked to what can be seen and observed (Oldrup & Carstensen, 2012: 224).

Therefore, geographical knowledge is deeply interconnected with visuals, including photographic images.

According to Rose (2016: 24-25), individuals' interpretation of visual images depends on four sites at which the meanings of an image are made: Site of production, Site of image itself, Site of circulation, and Site of audiencing. Each of these sites has three different aspects, or modalities, which contribute to the interpretation of images: Technological, Compositional, and Social (Rose, 2016: 25). This approach is schematically represented in Figure 8.
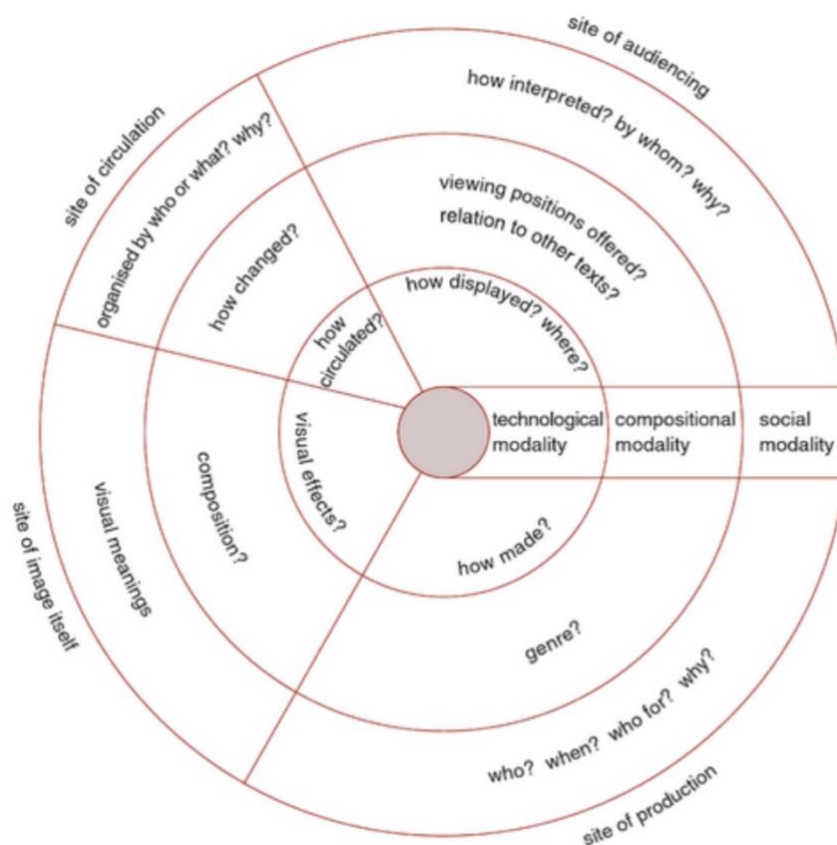
Fig. 8. The sites and modalities for interpreting visual materials (Rose, 2016: 25).

According to (Rose, 2016: 46), "theoretical debates about how to interpret images can be understood as debates over which of these sites and modalities is most important for understanding an image, and why". Another approach to analysing images is introduced by Müller and Backhaus (2007). The way photographic images can be examined, is represented in Figure 9, where the processes of an image analysis are schematically depicted. Such analysis includes, apart from the analysis of a material image itself, examining the processes of production and reception of an image.
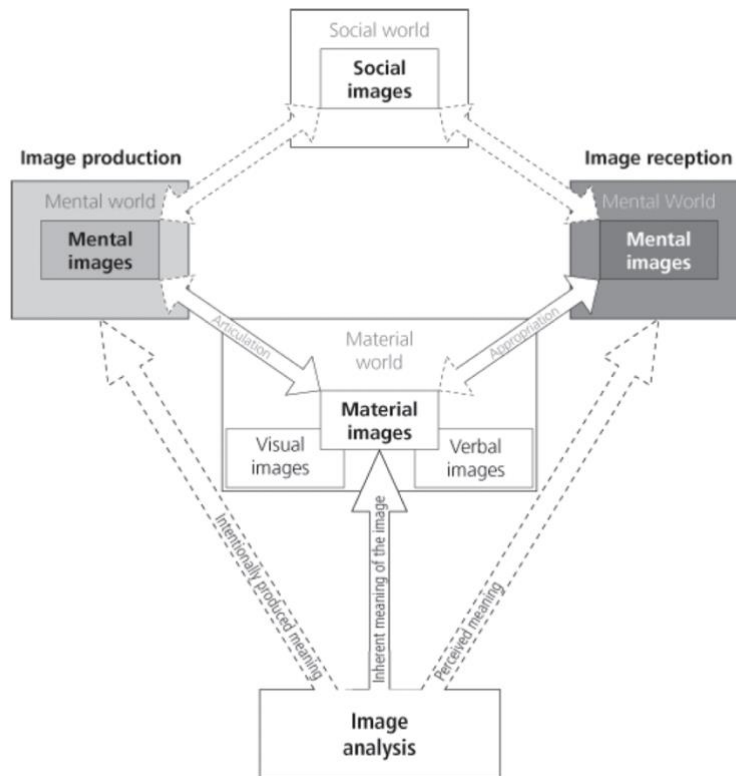
Fig. 9. Model of the theoretical background and the analytical approach to image analysis (Urs Müller, from Müller & Backhaus, 2007: 15).

Figure 9 demonstrates that there are two meanings which an image can convey: an inherited meaning, which reflects an image creator's intentions, and a meaning that occurs in a result of an image perception by an audience (Müller & Backhaus, 2007: 15).

Based on the concept of sites and modalities, Rose (2016) defines 10 methods of visual analysis. These methods, supplemented with methods of analysing photographs, described by Langmann & Pick (2018) and the method of categories of spatial appropriation, introduced by Müller and Backhaus (2006), are summarised in Table 3.

Table 3

A summary of methods of visual materials analysis (adapted from Rose, 2016: 51).

№	Method	Visual materials
1	Compositional interpretation	Fine art paintings, video games, and films
2	Cultural analytics	Any sort of images but in large numbers: newspapers, magazines, selfies
3	Semiology and social semiotics	Advertising, fine art, photography, and films
4	Psychoanalysis	Films and the mass media

5	Discourse analysis I	A wide range of still images, including book illustrations, maps, photographs, paintings, and cartoons
6	Discourse analysis II	Institutions that display visual images and objects, for example museums and art galleries
7	Ethnographic methods	Television audiences
8	Digital methods	Digital objects like tweets and Instagram photos
9	Visual research methods	Photography, video, collage, maps, and drawing
10	Content analysis	Photographic images in small numbers (qualitative analysis) or in large numbers (quantitative analysis)
11	Categories of spatial appropriation	Photographic images in small numbers (qualitative analysis) or in large numbers (quantitative analysis)
12	Thematic analysis	Large numbers of photographic images
13	Iconography/Iconology	Photographic images in small numbers (qualitative analysis)
14	Photo elicitation	Photographic images and interviews

In the field of human geography research, there has been an increasing interest in geographical knowledge in the context of how photography can guide participants in connecting with the non-human-world (Boyd, 2023: 33). Social researchers utilise participatory photography techniques, including photo-elicitation, to investigate participants' perspectives on various topics (Boyd, 2023: 33). However, such participatory methods cannot be implemented in some cases, particularly in case of sudden events, or in case when research planning is not possible. Therefore, methods that involve analysing existing images can help examine individuals' perceptions of environmental issues and their interaction with the spaces where these issues occur.

The advantage of visuals is that they play "an important role in developing a methodology that captures phenomenal and sensual experiences" (Oldrup & Carstensen, 2012: 226). Hence, a multitude of experiences, including the tacit knowledge held by individuals who interact with the space, contributing to the formation of geographical knowledge, can be analysed. Visual methods suggest that relying on sight, especially in photography, is seen as more important and trustworthy than grappling with complicated matters concerning knowledge and epistemology (Crang, 2009). This idea suggests that seeing comes before articulating (Crang, 2009). Hence, examining the content of images, or their literal depiction, is crucial for understanding their immediate impact on viewers and their perception of a portrayed landscape or events.

7.4. Content Analysis

The method of content analysis involves counting the occurrence of visual elements within a set of images and subsequently analysing these frequencies (Rose, 2001: 56). The aim of content analysis is to identify patterns within material "objectively and quantifiably" (Kitchin & Tate, 2000: 225). Researchers employing content analysis often rely heavily on numerical data to support their arguments, as content analysis provides various techniques for managing large volumes of images consistently in pursuit of replicability and validity (Rose, 2001: 55). Content analysis is methodologically explicit and relies on a set of rules and procedures that must be implemented to for the reliability of the analysis of images (Rose, 2001: 54). An important characteristic of content analysis is its focus only on "the compositional modality of the site of the image itself" offering no information about the production or audience engagement with the images (Rose, 2001: 56).

Content analysis is a technique results of which require interpretation through an understanding of how the actual content of an image relate to the broader context in which the image was created (Rose, 2001: 65). To address this issue, Urs Müller and Norman Backhaus (2006) developed the method of categories of spatial appropriation, which is based on the method content analysis and involves categorisation of image elements. This method was reflected in the authors' subsequent publications (Müller & Backhaus, 2007; Backhaus et al., 2008). The method is based on analysis of multiple elements of an image such as colours, stylistic elements, composition, focus, performative features, which can be organised into several analytical categories (Müller & Bachhaus, 2006: 36). These categories can be analysed quantitatively or qualitatively, where quantitative analysis is rather superficial, it does not focus on in-depth analysis of various elements of the image (Müller & Bachhaus, 2006: 36). However, occurrence and amount of the images is counted (Müller & Bachhaus, 2006: 36). Therefore, quantitative approach does not exhibit significant potential for analysing circulation of images and does not focus on the social site of an image, but it is useful for analysing occurring themes and patterns in the material. Here, categories provide a condensed overview of the possible ways of perception of space in question, where 'space' refers to certain politically-normatively defined regions (Müller & Backhaus, 2006: 37). The space can be represented through images, and their subsequent analysis allows to address the questions: "How can the actors deal with the region? How can they behave in it? Which appropriation/use of space do the images suggest? What use is the space good for according to the images?" (Müller & Backhaus, 2006: 37). According to Müller & Backhaus (2006), the development of the spatial appropriation categories follows an interplay of theoretical considerations and practical application of the categories to the available image material (deductive and inductive procedure). Müller & Backhaus (2006) argue, that starting point is the theoretically known forms of spatial appropriation, so the list of categories is complete and applicable to the image material when all images have been inductively included and categorised on a test basis. The result is a set of abstract categories that can be applied in principle to the analysis of images from any region (Müller & Backhaus, 2006: 37). In contrast

to the quantitative, the qualitative approach is based on detailed analysis of the image features, it is applicable to individual cases, and focuses on the way a single image is produced (Müller & Backhaus, 2006: 36).

In this master's thesis, to identify patterns and themes within the material, I adopt a quantitative approach when analysing both images through content analysis. Subsequently, to interpret the findings within the context of deliberative processes, I employ discourse analysis, which necessitates the identification of analytical categories to examine these patterns and themes.

7.5. Discourse Analysis

Gillian Rose (2001: 136) refers to a discourse as "groups of statements which structure the way a thing is thought, and the way we act on the basis of that thinking". Rose also explains discourse as the string that connects all the stages of an image's existence, from its creation to circulation. Discourse is embedded in the image production and social practices which define an image reception (Rose, 2016: 194). Thus, discourse analysis of visuals is a research approach that focuses on the analysis of visual materials in order to understand their meaning and their influence in shaping the discourse. It involves examining the visual elements, context, and processes involved in the production and reception of images.

Discourse analysis is the most appropriate in research where the importance of discourse is unquestionable (Cope & Kurtz, 2016: 659). It is particularly useful when analysing public debates, public responses to policy change, and social change (Cope & Kurtz, 2016: 659). Discourse is about power and knowledge production (Aitken & Craine, 2013: 264), therefore, in discourse analysis, the arguments about discourse, power and knowledge must be materials to analyse (Rose, 2016: 215-216).

Photography can be considered as a thinking process, and its final product is a photograph itself (Pyyry et al., 2021: 77). Thus, a photograph reflects public discourse. Rose (2001) defines two methods of visual discourse analysis: discourse analysis I and discourse analysis II.

Discourse analysis I focuses on the review and interpretation of visual materials in order to understand their meaning and influence in shaping a discourse (Rose, 2016: 217). This involves examining the visual elements, context, and processes involved in producing and receiving visual images (Rose, 2016: 217). "It pays careful attention to images themselves, to the web of intertextuality in which any individual image is embedded, and thus to how images circulate" (Rose, 2016: 217). Since discourse is a process and a result of social production, discourse analysis I is particularly concerned with the social modality, which can be analysed through visual effects, composition, and visual meaning (Rose, 2016: 193), which form individuals' perception of an image. The method of discourse analysis I shows its effectiveness when applied to the interpretation of images' effects and "constructions of social differences" (Rose, 2016: 219). Moreover, discourse analysis I addresses the questions raised when exploring power relations and knowledge creation, because it pays attention to image production and its social effects (Rose, 2016: 193).

The method of discourse analysis II frequently deals with similar types of materials but places greater emphasis on how specific institutions and their practices generate them, and how they contribute to influensing individuals (Rose, 2001: 164). Such institutions as government, mass media, and others utilise photography as a crucial technology to establish a specific regime of truth (Rose, 2001: 167). This institutional use of photography may lead to the perception of photographs as truthful representations without considering the underlying photographic techniques (Rose, 2001: 167).

The discourse analysis I method is not suitable for analysing institutions and practices through which social differences emerge and are distributed (Rose, 2016: 219). In this master's thesis, I analyse photographic materials using the perspectives of discourse, power, and knowledge. Therefore, to fulfil this master's thesis objectives, the method of discourse analysis I should be used in combination with the method of discourse analysis II. I employ both approaches, combining them under the term 'discourse analysis'.

7.6. The Five-dimensional approach

In this master's thesis, I propose the Five-dimensional approach to analysing visuals. This approach facilitates the analysis of the role of images in deliberative processes by considering diverse features of deliberation and the factors that influence it. I developed the Five-dimensional approach while writing this master's thesis. It involves the preliminary implementation of methods of analysing visuals in geographical research: the methods of content and discourse analyses, research methods for analysing images, along with the method of frame analysis, a research method for analysing deliberation.

The Five-dimensional approach is based on the literature analysis provided in sections 2 to 5. It combines evaluating both the image's characteristics and the environmental issue's socio-political context. This approach considers not only factors influencing the perception of an image by individuals, but also political, economic, and social context, which constitutes a ground for deliberation. The extent to which this ground is 'fertile' can be determined by analysing the Five dimensions.

The Five dimensions, or factors which need to be considered when assessing the usefulness of images for deliberation, are following. First, the content of an image, including its textual context, which plays a crucial role in image's interpretation (Müller and Backhaus, 2007), needs to be considered. The content of an image itself can influence its impact on decision-making by offering complex information at a glance, prompting decision-makers to reflect on the issue. Second, the aesthetics of an image is important. Aesthetics, pronounced in the emotional impact of an image, facilitates capturing people's attention, prompting individuals to reflect on their surroundings and consider solutions to issues. Third, it is important to consider where a photograph is displayed and, thus, which audiences are addressed. Deliberation is more likely to succeed when images are widely distributed across various audiences. Therefore, the availability of networks for effective information exchange through social interactions is essential. Fourth, to assess the potential for successful

deliberation, it is necessary to analyse how institutions influence public opinions which are formed within these institutions. As an institution, democracy plays a crucial role in deliberation: in a democratic society, individuals can participate in deliberative processes based on the principles of equality. Finally, it is important to consider power relations and value conflicts. Interested parties can use photographs to promote their interests, allowing all stakeholders to express their positions and leading to a better understanding of a conflict. By considering these factors, it is possible to assess the role of photographic images in deliberative processes.

Moreover, the Five-dimensional approach explains the sequence of events, from an image production to policy-making and solving an environmental issue. The scheme of a deliberative process and the Five dimensions of utilising images in such a process are schematically represented in Figure 10.
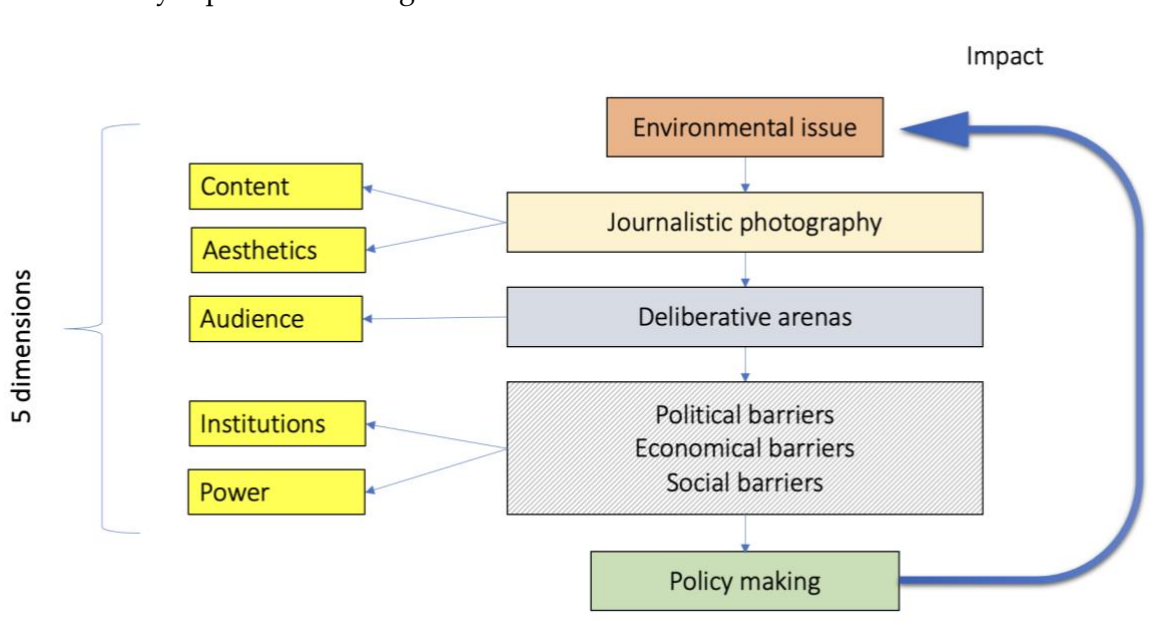
Fig. 10. The connection between an environmental issue and policy-making when using images in deliberative processes (own graphics).

After the production, the distribution of an image through audiences at discursive/deliberative arenas takes place. Such a factor as the aesthetical component of an image contributes to a better perception of an image by individuals and influences subsequent discursive processes. Distribution of an image and its reaching of audiences to deliver a message depend on various factors. It is affected by social, economic, and political aspects that influence the audience (Rose, 2016: 37). These aspects can be barriers that hinder deliberative processes. If barriers are overcome, deliberation is more likely to be successful.

Along with the Five dimensions, the way an image is produced, or how and why the image and its context are created, needs to be considered. Analysing an image image production allows for the answer to the questions: Who created the photograph and for what purpose? Does it accurately convey a message about an issue? However, production was not identified as a dimension because it is a starting point for the analysis. Analysing the

production of an image allows for the identification of its usefulness for subsequent content, discourse, frame analyses, and the application of the Five-dimensional approach. In Table 4, the key aspects of an image production are indicated.

Table 4

Analysis of production of an image and its context.

Production	Key aspects	Guiding questions
Image	The image creator(s) Reasons and purposes of creating the image. Technological aspects. Truthfulness.	Is it a credible source of knowledge? Was the image produced to shed light on the issue? Was the image staged or altered?
Context	The context creator(s) Truthfulness. Accuracy of delivering the message about the issue.	Is it a credible source of knowledge? Is the message delivered accurately?

In Table 5, the key aspects of the Five dimensions are provided. These key aspects can be revealed by answering the guiding questions.

Table 5

Key aspects of the Five dimensions and guiding questions.

Dimension	Key aspects	Guiding questions
Content	Depicted elements. Composition. Textual explanations. 'Knowledge as object'.	What is observed? What is explained? Do the content of the image and its textual context reflect the issue?
Aesthetics	Emotional impact. Focal point(s). Enchances emphaty. Enables reflection on depicted issues.	Does the image capture attention? What visual effects contribute to better perception of the issue?
Audience	Image reception. Likelihood of subsequent recipients' actions and participatory processes. 'Knowledge as action'.	Through which channels is the image distributed? Which audiences are reached? Does everybody have access to the image?
Institutions	A set of rules, rights, beliefs, and decision-making procedures. Central aspect of governance systems. Assign roles to the actors and define their interactions.	Which institutions are involved in solving the issue? How strong is the institutional support? How are the institutions involved in decision- and policy-making? What is the current state of democracy? Are voices of all groups of citizens heard?

	Influence public spaces, and individuals' opinions. State of democracy plays a crucial role for deliberation.	Are citizens involved in decision- and policy-making?
Power	Positions of the involved actors and stakeholders. Value conflicts. Mutual understanding and facilitating of deliberation.	Which value conflicts, hindering the issue solving, take place? What are the power relations between involved actors? Was each side's position comprehended?

7.7. Concluding the methodological approach

The methodological approach which I employ in this master's thesis aims to align with the research objectives, which are: (1) to develop a tool which can be used to analyse the role of an image in deliberative processes and can be applied to any photographic image and (2) to assess an image's potential to facilitate participatory processes that may lead to deliberation. I have conducted empirical-analytical research, which, in contrast to action-oriented research, aims to seek solutions to technical problems, according to Habermas, and does not provide a call for changing social relations or political landscape (Kitchin & Tate, 2000: 23).

This study was conducted in order to validate a hypothesis that images can influence deliberative processes as they both represent the knowledge and transmit it, thus creating public discourses or influencing the existing ones. The research is based on both theoretical considerations, or deduction, and empirical analysis, or induction. Deductive reasoning implies that theory comes before the research (Kitchin & Tate, 2000: 19). Therefore, I provide theoretical background and test my hypothesis afterwards. The abductive procedure has been utilised, combining theoretical considerations (deduction) with the empirical analysis of the material (induction) (Müller & Backhaus, 2008: 37).

The analysed material consists of both primary and secondary sources. Primary sources include data I obtained through expert interviews. Secondary sources encompass photographic images along with their contextual information. The images and their textual contexts are created by photojournalists and sourced from open-access websites on the internet.

The analysis is conducted in five stages. First, I quantitively analyse the content of the visual material to obtain information about patterns in it and the landscape representation. Quantitative research methods are widely used for geographical research. They explore generally structured data which can "be 'quantified' and analysed using numeric (statistical) techniques" (Kitchin & Tate, 2000: 40). After, I qualitatively analyse images and their contexts to interpret this representation from the position of power and knowledge. Qualitative methods have been employed in geographical studies for a long time (Oldrup & Carstensen, 2012: 223). Qualitative research aims to provide an insider's perspective, focusing on participants' viewpoints to enhance comprehension of social realities, while highlighting

processes, meaning patterns, and structural aspects (Flick et al., 2004: 3). Overall, qualitative data is unstructured (Kitchin & Tate, 2000: 40), in contrast to quantitative data. However, it allows the study of a particular issue in depth from various perspectives (Kitchin & Tate, 2000: 225). The third stage of analysis involves analysing frames that form public discourses about the Northern Aral Sea crisis. I then employed triangulation by conducting expert interviews in order to explore the role of visuals in solving the Northern Aral Sea crisis from an empirical perspective. The last step involves the analysis of the data acquired during previous research stages through the lens of Five dimensions: Content, Aesthetics, Audience, Institutions, and Power, provided in the Discussion section of this master's thesis. The sequence of the five stages of the analysis is represented in Table 6.

Table 6

The methodological approach.

Stage	Description
1	**Content analysis** (Backhaus et al., 2008; Langmann & Pick, 2018; Müller & Backhaus, 2006; Müller & Backhaus, 2007; Rose, 2001; Rose, 2016).
	Quantitative approach, which allows to identify themes and patterns in the images. This research method is based on categorisation of the image segments. Themes and patterns provide a condensed overview of possible ways of the investigated space perception.
2	**Discourse analysis** (Aitken & Craine, 2013: 264; Cope & Kurtz, 2016: 659; Mendonça, 2020; Pyyry et al., 2021; Rose, 2001; Rose, 2016).
	Qualitative approach, which allows to analyse themes and patterns in the images from the perspectives of power and knowledge. This method focuses on analysis of visual materials in order to understand their meaning and their influence on shaping the discourse, along with qualitative analysis of textual contexts. Discourse analysis is applicable for analysing discurive processes involved in the production and reception of images.
3	**Frame analysis** (Barisione, 2012; Ercan et al., 2020; Goffman, 1986; Mendonça & Simões, 2022; Schäfer & O'Neill, 2017; Simon & Xenos, 2000).
	Frame analysis allows to identify how the issue is framed in the public discourse. Frames are conditions that form public opinion regarding an environmental issue and provide a direction for individuals' subsequent actions. The method involves analysing the results of the content and discourse analyses.
4	**Triangulation** (Bogner et al., 2009; Denzin, 2007; Kitchin and Tate, 2000): expert interviews.

5	**Analysis of the results through the lens of Five dimensions**: Content, Aesthetics, Audience, Institutions, and Power.

7.8. Analysing images and their contexts

The analysis of visual and textual materials involved understanding of the meaning of the coded and categorised data in relation to the research question: "How can photographic images contribute to deliberative processes"? I have implemented an interpretative approach emphasising "the role of patterns, categories, and basic descriptive units" (Kitchin & Tate, 2000: 229). The material of the analysis is constituted by photographic images of Akespe village, its surroundings and its inhabitants, as well as by textual contexts of these images.

I provide the analysis of 83 photographic images and their contexts for the further assessment of factors which influence the success of using images for deliberation. The process of analysis consisted of the following stages. Firstly, the images and their textual contexts, created by photojournalists, were coded using the MAXQDA software. Secondly, the coded images were analysed quantitatively using the method of content analysis. Content analysis facilitated the identification of recurring patterns and themes within the materials (Rose, 2001). After, both images and their textual contexts were analysed qualitatively using the method of discourse analysis. This allowed for the exploration of arguments concerning discourse, knowledge, and power (Rose, 2016: 215-216). Discourse analysis refers to the social modality of an image (Rose, 2016) and allows the exploration of the discursive significance of the analysed images and their contexts for deliberation.

Some researchers argue that analysing qualitative data is "art" rather than exact adherence to the prescription (Kitchin & Tate, 2000: 229). However, Kitchin and Tate (2000) argue that a prescriptive approach should be applied to qualitative data analysis. In other words, the formal guidelines should be followed to minimise lack of "formal rigor of standardised procedures" (Kitchin & Tate, 2000: 229-230). Therefore, the guidelines proposed by Kitchin and Tate (2000) were useful for the research purposes of this master's thesis. According to these guidelines, qualitative data analysis consists of three steps: description of the data, their classification, and finding interconnections within the data (Kitchin & Tate, 2000: 230). The latter means defining associations and relationships between different classes identified during the previous step – data classification, implemented during the data coding.

7.8.1. Data sampling

Secondary sources are the materials produced by those who witnessed the event at particular place and represent "knowledge by acquaintance" (Kitchin & Tate, 2000: 226). The secondary data used for the analysis are 83 photographic images accompanied by textual contexts. The sources of the images and their textual contexts are provided in Section 12. The data were obtained from 11 public sources, which are web pages accessible to the public on the internet:

New York Times, Reuters, World Press Photo, Getty Images, Hindustan Times, Tagesschau, Deutschland Funk Kultur, Tengri Life, Kyzylordinskiye Vesti (Кызылординские Вести), Mysl Kazgazeta (Мысль Казгазета), and Novyi Vestnik (Новый Вестник). The information about the sources is provided in the Sources of the images section. Using the Google search engine, I searched for all sources related to Akespe village that contain images and are publicly available on the internet. At the same time, it was important to identify and put away what was not important or not relevant (Kitchin and Tate, 2000: 227). Therefore, I have searched for all internet sources on Akespe village containing photographic images produced by photojournalists, focusing on those relevant to the socio-environmental context of my study. Consequently, I excluded news sources covering crimes or other factors unrelated to the socio-environmental aspects from this research.

There are 5 sources in English language, 2 in German language, and 4 in Russian language. Along with Kazakh, the Russian language is an official language in Kazakhstan due to the linguistic heritage of the Soviet times, and it is widely used within the country: 94,4% of the Kazakh population understand at least spoken Russian (Central Intelligence Agency, 2024). I have translated texts from Russian and German languages to English. As a native Russian speaker and fluent German speaker, I have ensured that the translated text versions are compliant with the original versions.

The contexts that accompany these photographic images were also created by photojournalists or journalists. However, the length and amount of information in these texts vary from source to source (Table 7). Depending on the source, there were cases where contexts repeated from one image to another. Additionally, there were situations where a long text was accompanied by several images that illustrated it.

Table 7

An overview of the sources of the images and contexts.

#	Source name and author(s)	Source type	Number of images	Number of words in the context	Language
1	New York Times (MacFarquhar & Ponomarev, 2018)	Newspaper (USA)	2	54	English
2	Reuters (Zhumatov & REUTERS, 2017a)	International news agency	22	679	English
3	World Press Photo (Babayan, 2019a)	Independent organization, press photography contest	2	499	English
4	Getty Images (The Asahi Shimbun via Getty Images, 2018)	International stock photo images agency	30	5148	English

5	Hindustan Times (Zhumatov and REUTERS, 2017b)	Newspaper (India)	2	95	English
6	Tagesschau (Babayan and Tagesschau.de, 2023)	TV channel (Germany)	1	40	German
7	Deutschland Funk Kultur (Schlager, 2020)	Radio, online news portal (Germany)	1	31	German
8	Tengri Life (Tengrinews.kz & Massaget.kz, 2018)	News portal (Kazakhstan)	16	493	Russian
9	Kyzylordinskiye Vesti (Кызылординские Вести) (Kyzylordinskiye Vesti, 2020)	Newspaper (Kazakhstan)	1	79	Russian
10	Mysl Kazgazeta (Мысль Казгазета) (Iminov, 2016)	Republican socio-political magazine (Kazakhstan)	5	1529	Russian
11	Novyi Vestnik (Новый Вестник) (Shuptar & Kim, 2017)	Newspaper (Kazakhstan)	1	37	Russian

According to Kitchin and Tate (2000: 227), in order to be useful for research, sampled data must fulfil the following requirements, which I addressed during data sampling.

Authenticity. Data must be authentic, in other words, correctly attributed. This requirement is fulfilled because the authors of the images and the contexts are acknowledged, and the information about the sources is provided (Kitchin and Tate, 2000: 227).

Credibility. Data must be credible, which means accurately and sincerely recorded (Kitchin and Tate, 2000: 227). For a photographic image to be considered a credible source of knowledge, photographers should adhere to newspaper or news organisation policies, disclose any image alterations, and refrain from modifying images if it could influence the preception of an image by a viewer (Rehman, 2018: 55). In a democratic society, a photojournalist "should be above suspicion" (Rehman, 2018: 56), thus, credibility is an obligatory condition when recording data. The concept of credibility in photojournalism is explained in more detail in Section 5.2 Image production.

David Campbell (2014) conducted research where a de facto global consensus was identified, indicating that the alteration of images through the addition or removal of content, known as manipulation, is widely considered unacceptable in the context of news and documentary photography. Therefore, in this master's thesis I suggest that the images I analysed were neither staged nor altered.

Moreover, the World Press Photo (WPP) pays particular attention to the credibility of images it represents. The WPP is an independent non-profit organisation, connecting the world "to the stories that matter" since 1955 by organising exhibitions worldwide, as well as conducting research and hosting international photo contests and educational programs (About us | World Press Photo, n.d.). When submitting images for a WPP contest, a photojournalist must adhere to the WPP Code of Ethics, which stipulates that photographs should not be staged or altered, and any alterations must be disclosed (Code of Ethics | World Press Photo, n.d.). Following the WPP Code of Ethics (Code of Ethics | World Press Photo, n.d.) implies that a photographer:

- "must be aware of the influence the photographer's presence can have on a scene they photograph"; "the content and edit of photographs and stories present an accurate and comprehensive representation of individuals and/or groups";
- "consider whether graphic and violent photographs are appropriate for the story presented, especially when they involve vulnerable people";
- "must not intend to mislead by recreating or staging events. In certain cases, deliberate reenactments can be acceptable if they serve a clear purpose for the story and/or issue being documented, and the photographer must be transparent about their motivation and process. Any direct influence over the scene, such as reenactments or posed portraits, must be included in the captions";
- "must be open and transparent about the entire process through which their photographs are made, and are accountable to the WPP Foundation for their practice".

Considering these requirements of the WPP, it is possible to assume that the case study images by WPP were neither altered nor staged, and the presented stories were not influenced by the presence of photographers. Furthermore, from 2018 onward, an independent analyst examines the context in which each remaining image or story was created, disseminated, or published as part of the judging process. WPP states that no issues were identified through these examinations (World Press Photo, 2021). According to the Technical Report (World Press Photo, 2021), after the jury has chosen the nominees, a research team of the WPP collects comprehensive background information for each image and story. Although a photographer's initial captions are used as a foundation, WPP minimally edits them to ensure precision and clarity (World Press Photo, 2021). However, supplementary information is required in many cases, enabling WPP to offer a complete narrative context for each image and story at the exhibition or on the website (World Press Photo, 2021).

Based on this overview of data credibility, while analysing the images produced by photojournalists, I take the position that they accurately reflect reality and effectively convey messages about the Akespe landscape and the events unfolded within it.

Representativeness. Kitchin and Tate (2000: 227) argue that data must be representative, or, in other words, represent opinion in a certain time and place, and there should be other sources to check this representation. There are no strict rules for choosing the size of a sample: it "depends on the amount of variation among all the relevant images" (Rose, 2001: 59).

Therefore, I searched for all journalistic sources on Akespe village, which suggests that those which I have found are likely a major part of all relevant sources on Akespe and its surroundings.

Meaning. Finally, the meaning must be considered: it is essential to determine whether a source can be interpreted literally or if further explanation is needed (Kitchin and Tate, 2000: 227). In several cases, further examination of the images' contexts was necessary to understand the content fully. Moreover, the textual contexts provided additional information about the political context of the study area. This information facilitated an understanding of the power dynamics, institutional characteristics, and discourses embedded in the images.

7.8.2. Coding

Coding involves the straightforward process of recognising meaningful segments within the data and assigning them a code (Linneberg & Korsgaard, 2019: 260). A code, usually in the form of a word or a short phrase, serves as a symbolic representation of notable, essence-capturing, and/or evocative characteristics for a segment of language-based or visual data (Linneberg & Korsgaard, 2019: 260). I have coded the images and their contexts abductively, combining inductive and deductive methods. In other words, I have combined empirical analysis of the material (induction) with the theoretical considerations (deduction) (Müller & Backhaus, 2008: 37). The Inductive approach to coding was used for the Content analysis of the material, and identified codes which reflect what is actually depicted on the photographic images, for example: sand, water spring, sky, a house, a camel, a boy, a senior female. The Deductive approach was used in the literature review of the case study to analyse aspects beyond the literal image. Using this approach, codes were determined deductively based on the literature review and previously gained knowledge about the Aral Sea crisis. The codes which were defined by implementing the deductive approach were used for Discourse analysis. This coding approach allowed the reflection of the aspects beyond the literal images, such as the information about power relations, institutional features, and discursive processes.

Various operative methods can be used to code: coding can be done manually, for example, using pen and paper, Word or Excel software, and alternatives. Coding can also be done using one of the qualitative data analysis software tools or by combining both options. For a limited amount of data and small projects, manual methods are suitable (Linneberg & Korsgaard, 2019: 260-261). For more extensive datasets or research teams, specialised software programs can be beneficial (Linneberg & Korsgaard, 2019: 261). The chosen coding medium does not affect neither rigour nor analysis success (Cope & Kurtz, 2016: 650). Based on this, along with implementing manual analysis, I used the MAXQDA software to code and analyse the material. MAXQDA allows for the analysis of data using mixed methods, and it is suitable for content and discourse analyses.

According to Rose (2001: 59-60), coding should be exhaustive, ensuring that every aspect of the images under study are comprehensively covered within a single category. It should

also be exclusive, preventing any overlap between categories. Additionally, Rose (2001:60) also argues that the coding process should be enlightening, meaning that the categories should result in an analytical breakdown of imagery that is both "interesting and coherent". Testing the categories on the images is the only possible method to be sure that they meet the criteria of being exhaustive and exclusive (Rose, 2001:62). Therefore, I applied defined categories to images and found out that they are both exhaustive, meaning that all elements and topics are covered, and exclusive. The latter implies that there is no overlap between the meanings of the coded elements.

Linneberg & Korsgaard (2019) propose coding in two cycles as helpful. They argue that in an inductive approach, the first cycle employs informant-centric terms, while the second cycle shifts to a more researcher-centric perspective and allows identification of patterns in the data. In the first cycle, descriptive code types are used for creating a data overview, whereas in the second cycle, concepts, themes, and dimensions from existing theories are introduced to deepen the analysis (Linneberg & Korsgaard, 2019: 264).

During the first cycle of coding the visual material, I coded what is exactly depicted on images without interpreting the image content. Figure 11 illustrates an example of this first-cycle coding.

Fig. 11. The first-cycle coding of the image sourced from the Getty Images website (The Asahi Shimbun via Getty Images, 2018).

Subsequently, in the second cycle, I consolidated and organised the codes according to their abstraction level, based on the previously acquired knowledge about the Aral Sea crisis. Figures 12 and 13 depict examples of images coded during this second cycle.
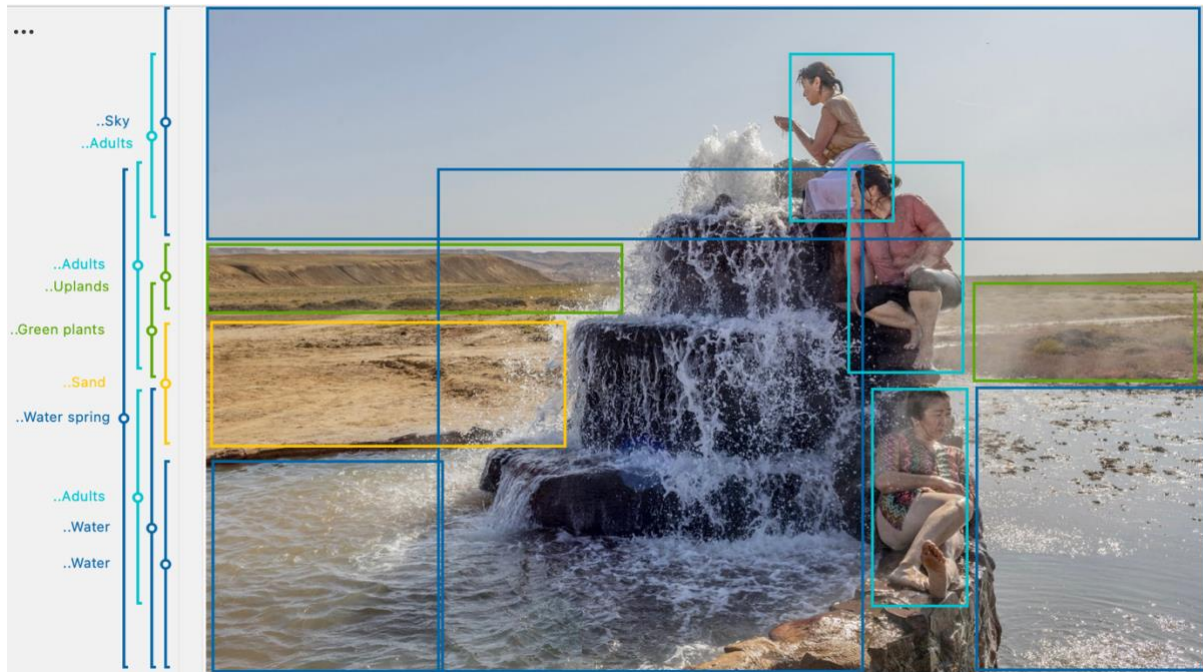
Fig. 12. The second-cycle coding of the image sourced from the World Press Photo website (Babayan, 2019b).
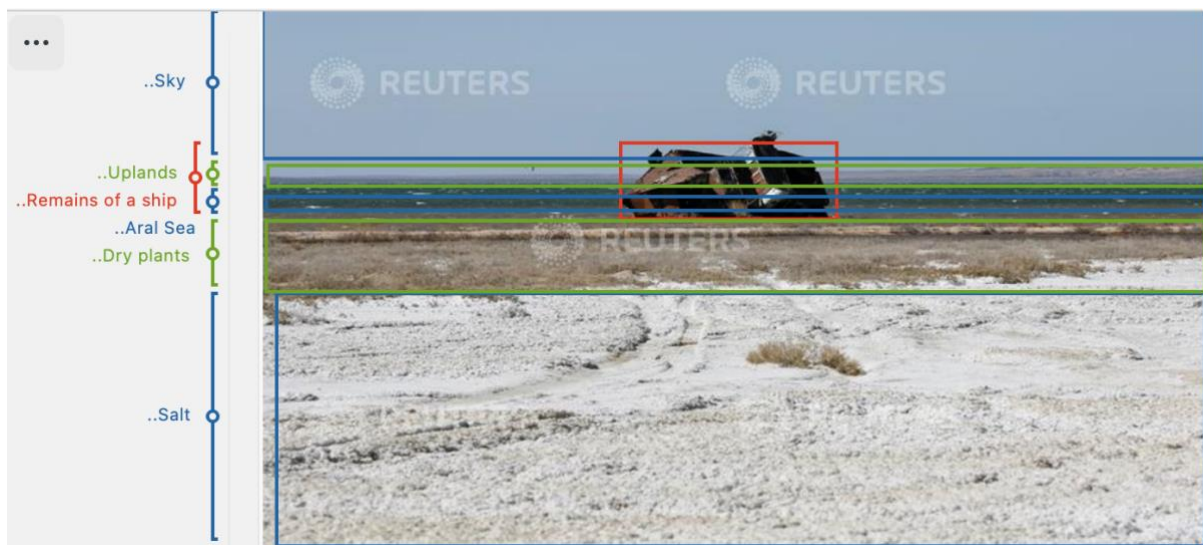
Fig. 13. The second-cycle coding of the image sourced from the Reuters website (Zhumatov & REUTERS, 2017a).

Employing the codes developed during the second coding cycle enabled the identification of themes and patterns in the material within the context of the Aral Sea crisis. Meanwhile, utilising codes developed in the first cycle provided more detailed information about these themes and patterns, offering a broader data overview. Thus, the first cycle of coding allowed for delving deeper into the nuances of the visual information. Implementing both cycles allowed tracking of the repetitive use of visual elements and verbal expressions representing the landscape of Akespe and its surroundings.

While coding the textual contexts, I also adopted the two-cycle coding approach. During the first cycle of coding, I summarised the content of a sentence or sentences in form of a noun or a collocation. During the second cycle, I elaborated on identified codes based on the knowledge about the Aral Sea crisis. This process facilitated the organisation and categorisation of the textual data, enabling a streamlined analysis of the themes and patterns emerging within the material.

In most cases, contexts correspond to images. Therefore, the codes for the images and the contexts are mostly the same. After the second coding cycle, I summarised the codes according to the themes that prevail in the material. This step marks the conclusion of the content analysis. After implementing the content analysis, by employing discourse analysis, I identified analytical categories based on the literature review and previously gained knowledge about political, social, and economic processes within the Aral Sea crisis.

7.9. Conducting expert interviews

After completing the initial stages of analysis, I proceeded with triangulation by conducting interviews with experts who have expertise in addressing and communicating the Aral Sea crisis. This approach served to complement and validate the analysis, facilitating a more comprehensive understanding of deliberation in the Northern Aral Sea area, and shedding light on the role of visual means of communication in deliberation.

7.9.1. Triangulation

Triangulation involves utilising and merging multiple research methodologies to investigate a single phenomenon (Denzin, 2007). Employing triangulation, the results obtained by implementing the content, discourse, and frame analyses of images and their textual contexts were investigated, validated, and supplemented by the results obtained while conducting the expert interviews. I used the Methodological triangulation approach, which involves using more than one research method and allows "to overcome the weaknesses or biases of a single method" (Denzin, 2007). Moreover, critical or interpretive triangulation offers an alternative perspective to validation (Denzin, 2007). This approach involves analysing data from multiple sources and methods, allowing for a deeper understanding of the phenomenon under study. By adopting this approach, I have conducted interviews with the experts that have contributed to addressing and communicating the Aral Sea crisis.

7.9.2. Expert interviews

In human geography research, an interview is probably the most commonly used technique for obtaining qualitative data, as it provides information about individuals' opinions, experiences, and feelings (Kitchin and Tate, 2000: 213). The utilisation of expert interviews has been widely favoured in social research: it is evident that such interviews provide researchers with an efficient method for quickly acquiring meaningful results (Bogner et al.,

2009: 1-2). Bogner et al. (2009: 46) distinguish a Systematising expert interview as an approach that seeks to gather comprehensive information systematically and aims to tap into the unique expertise held by the interviewee. This type of interview focuses on practical knowledge derived from experience, readily accessible and easily communicated (Bogner et al., 2009: 47). In this context, the expert serves as a guide, offering valuable insights into objective matters and specialised knowledge that are not accessible to the researcher (Bogner et al., 2009: 47). An important feature of a systematising expert interview is its role as a tool for data collection within the framework of multi-method approaches, known as triangulation (Bogner et al., 2009: 47).

7.9.3. Data collection

Primary data, or data generated by a researcher, has various advantages. In contrast to secondary data, primary data is "more context-dependent" to the study (Kitchin & Tate, 2000: 39). Additionally, a researcher understands precisely how the data was produced (ibid.). To obtain the data, I conducted interviews using an *interview guide approach*, which entails predefining topics while allowing flexibility in the wording and sequence of questions (Kitchin & Tate, 2000: 214). This approach facilitates a conversational flow while ensuring comprehensive coverage of all topics (Kitchin & Tate, 2000: 214).

I have conducted two expert interviews. The first interview was conducted with Nikolai Aladin, a professor at the Zoological Institute of the Russian Academy of Sciences in St. Petersburg, Russia. Aladin played a crucial role in saving the Northern Aral Sea (Dumetz & Aladin, 2021; White & Micklin, 2021). Prof. Dr. Aladin is renowned for his extensive expertise in the field of the Aral Sea, demonstrated through numerous publications, as well as his active involvement in organising and participating in expeditions, conferences, and symposiums addressing the Aral Sea crisis. In the past decades, he skillfully used his academic expertise and empathetic communication to unite leaders from diverse backgrounds to work together to save the Aral Sea (Dumetz & Aladin, 2021). The audio interview with Nikolai Aladin was conducted remotely using the WatsApp communication platform. It was conducted in Russian language and lasted 41 minutes. The interview was recorded and transcribed. The transcribed interview was translated into the English language.

The second interview was conducted with Peter Durtschi, a Swiss journalist who participated in the expedition at the Northern Aral Sea along with Nikolai Aladin and his scientific team in 2011. Durtschi's article about the returning fishing industry at the Northern Aral Sea, accompanied by a photographic image, was published at the Swiss newspaper NZZ am Sonntag (Durtschi, 2012). A 29-minutes video interview with Peter Durtschi was conducted remotely using the Skype communication platform. The interview was conducted in English and transcribed afterwards.

8. Results

This section presents the results of the conducted content, discourse, frame analyses, and insights obtained through interviews with experts. The content analysis of the images facilitated the identification of themes and patterns within the visual material. The discourse analysis of both images and their textual contexts enabled an examination of these findings through the lens of power and knowledge. As a result of the discourse analysis, the analytical categories, pivotal to this master's thesis study, were identified. Following this, the frame analysis, built upon the analytical categories, allowed for identifying frames - or conditions of public opinion - that shape discourses surrounding the issues of the Northern Aral Sea. Subsequently, this section analyses the insights garnered from the expert interviews

8.1. Themes and patterns in the images

Content analysis allows for exploration of the themes and patterns that emerged during the coding process of a large number of images and texts. For content analysis, coding is a "crucial stage" (Rose, 2001: 59), as it allows identification of the content of an image and visual elements. To identify such elements, I coded what is depicted in the images. During the first coding cycle, 118 codes and 640 coded segments were identified, which were reduced to 52 codes and 622 coded segments during the second coding cycle. To do so, I regrouped and merged the codes based on the same level of abstraction. An example of such merging and codes reorganisation is represented in Figure 14. The codes representing various objects in the kitchen were merged in the code Interior objects, the code 'Girl eating' was attributed to the code 'Children', and the code 'Senior woman in the kitchen' was attributed to the code 'Adults'. Similarly, the code 'Smile' was eliminated as a result of merging related to human codes at the same level of abstraction.

Fig. 14. The first-cycle coding (above) and the second-cycle coding (below) of the image sourced from the Getty Images website (The Asahi Shimbun via Getty Images, 2018).

While coding, two main themes were identified: (1) natural environment and (2) humans, anthropogenic objects, and domesticated animals. Based on the prevalence of identified codes, I have defined occurring patterns and themes. The natural environment appears in 347 codes out of a total number of 622, which constitutes 55.8%. Humans, anthropogenic objects, and domesticated animals were coded 275 times, which amounts to 44.2%. Out of 83 images, the natural environment is depicted in 78 images, which is 94.0%. Humans, anthropogenic objects, and domesticated animals are depicted in 72 images, which is 86.7%. This means that the natural environment is reflected by photographers as strongly embedded in the village life and interweaved with human activities.

To identify patterns evident in the material, I implemented a quantitative approach and calculated the code frequencies using the MAXQDA software. Code frequencies allow one to view the number of coded segments in the images. I have also calculated the percentage of

occurrence for each of the codes in the material. The quantitative representation of codes related to the natural environment is provided in Table 8.

Table 8

Frequency of the codes appearance and percentage of the images containing the codes related to natural environment.

Codes	Frequency	Percentage
Sky	72	86.7
Sand	50	60.2
Aral Sea	27	32.5
Green plants	23	27.7
Dry plants	22	26.5
Uplands	22	26.5
Salt	20	24.1
Clouds	19	22.9
Ground	18	21.7
Water	12	14.5
Water spring	7	8.4
Shallowing	4	4.8
Sun	4	4.8
Shells	2	2.4
Blooming	1	1.2
Snow	1	1.2
IMAGES with codes	78	94.0
IMAGES without codes	5	6.0
ANALYSED IMAGES	83	100.0

In Table 8, the codes within the entire image set, related to the natural environment are quantitatively represented. The "IMAGES with codes" row represents the number of images within the material that contain the codes associated with the natural environment. Conversely, the "IMAGES without codes" row represents the number of images that do not contain such codes. Within the analysed material, 6.0% of the images do not contain visual information related to the natural world.

Similarly, Tables 9, 10, and 11 reflect corresponding quantitative representation of codes related to humans, domesticated animals, and anthropogenic objects.

Table 9

Frequency of the codes appearance and percentage of the images containing the codes related to humans.

Codes	Frequency	Percentage
Children	19	22.9
Adults	14	16.9
IMAGES with codes	29	34.9
IMAGES without codes	54	65.1
ANALYSED IMAGES	83	100.0

As Table 9 illustrates, humans are depicted in 34.9% of the images, constituting around 1/3 of the analysed material. However, 65.1% of images do not contain depictions of humans, which illustrates the focus on the environmental and anthropogenic elements rather than human presence.

Table 10

Frequency of the codes appearance and percentage of the images containing the codes related to domesticated animals.

Codes	Frequency	Percentage
Camel	7	8.4
Camel herd	2	2.4
Goat herd	1	1.2
IMAGES with codes	9	10.8
IMAGES without codes	74	89.2
ANALYSED IMAGES	83	100.0

10.8% of images contain depictions of domesticated animals, while 89.2% of the material does not feature them. This aligns with the prior knowledge of the Northern Aral Sea area, indicating that although cattle breeding isn't a primary occupation, it is common and supports the local population.

Table 11

Frequency of the codes appearance and percentage of the images containing the codes related to anthropogenic objects.

Code	Frequency	Percentage
Remains of a ship	24	28.9
Destroyed house	19	22.9
House	17	20.5
Utility pole	17	20.5
Electrical wires	10	12.0
Debris	8	9.6
Settlement from the far	6	7.2
Annex	5	6.0
Enclosure	4	4.8
Offroad car	4	4.8
Interior	2	2.4
Boat	2	2.4
Cellular communication antenna	2	2.4
Kitchen	2	2.4
Water tower	2	2.4
Structure of unclear purpose	2	2.4
Food	2	2.4
Goods vehicle	2	2.4

School album	1	1.2
Kids bicycle	1	1.2
Sweeping mashine	1	1.2
Bucket	1	1.2
Trough with sand	1	1.2
Drying clothes	1	1.2
Shover	1	1.2
Broom	1	1.2
Satellite antenna	1	1.2
Minibus	1	1.2
Motorbike	1	1.2
IMAGES with codes	65	78.3
IMAGES without codes	18	21.7
ANALYSED IMAGES	83	100.0

As Table 11 illustrates, anthropogenic objects are depicted in 65 out of 83 images, which constitutes 78.3%. This means that along with the natural environment, human presence and trace are the prevailing theme.

The quantitative analysis allowed the identification of the patterns which are reflected in Table 12. I utilised codes generated during the second coding cycle to identify these patterns. These codes offer generalised information about depicted elements without delving into specific details about the characteristics of an object or activity. The codes defined during the second coding cycle are based on the previously gained knowledge about the Aral Sea crisis, which guided the merging of codes and the determination of abstraction levels. The most common patterns, or repetitively observable elements of images, include 'Sky', 'Sand', 'Aral Sea', 'Remains of a ship', and 'Salt'.

Table 12

Patterns in the images.

Pattern	Codes	Percentage in the matherial
Sky	Sky	86.7
	Clouds	22.9
Sand	Sand	60.2
Terrain	Green plants	27.7
	Dry plants	26.5
	Uplands	26.5
	Ground	21.7
Water	Aral Sea	32.5
	Water	14.5
	Water spring	8.4

Water scarsity	Sand	60.2
	Dry plants	26.5
Aral Sea declined	Aral Sea	32.5
	Remains of a ship	28.9
Salination	Salt	24.1
Remains of ships	Remains of a ship	28.9
Infrastructure	House	20.5
	Utility pole	20.5
	Electrical wires	12.0
Destroyed infrastructure	Destroyed house	22.9
	Debris	9.6
Villagers	Children	22.9
	Adults	16.9
Children	Children	22.9

The following patterns were identified. Sky is depicted in 86.7% of images. The second highest percentage pattern is sand. It is depicted in 60.2% of images. The code 'Sand' appears 50 times; among them, the code 'Sand' appears 24 times in the settlement context, while one image captures a sandstorm. This enables the identification of the dominant representation of the landscape as one characterised by water scarcity. The prevailing landscape is characterised by a sandy desert-like terrain, where despite the challenging living conditions, people, particularly children, thrive remarkably well. In total, the visual material portrays 68 individuals, among whom 27 are adults: 12 young and middle-aged males, 2 senior males, 8 young and middle-aged females, and 5 senior females. There are 41 children depicted: 26 boys and 15 girls. The observation of age distribution suggests that there are many children in the settlement. Of 68 depicted humans, 15 individuals (22.4%) were depicted with the water spring (standing by it or bathing in it). This suggests that the water spring attracts public attention and carries the potential for future regional development.

Apart from code frequencies, the percentage of codes occurrence in the material was calculated. It is evident that 'Sky' is the most common code (86.7% of appearance in the material), the code 'Sand' appears as the next most common (60.2%). The codes 'Aral Sea' and 'Remains of a ship' constitute 32.5% and 28.9%, accordingly. The code 'Children' appears in 22.9% of images, while the code 'Adults' - in 16.9%. From the total number of 68, where it was possible to identify, 15 individuals, including children, are depicted smiling. This constitutes 22.0% of the total amount of depicted humans.

During the process of the textual context coding, 59 codes and 454 coded segments were identified. The abductive approach was employed from the beginning of the coding process, as the texts aligned with the previous literature analysis on the Aral Sea crisis. However, a quantitative approach was not applicable to the textual context analysis. This was due to instances where the text repeated across images. Additionally, there were multiple images paired with a single description. Therefore, the analysis of contexts involved straightforward discourse analysis.

8.2. Analytical categories

After conducting the content analysis and defining the themes and patterns in the material, the method of discourse analysis was applied. Discourse is about power and knowledge production (Aitken & Craine, 2013: 264); therefore, in discourse analysis, the arguments about discourse, power and knowledge must be materials to analyse (Rose, 2016: 215-216). Based on this, I examined the codes from the perspective of power dynamics, as well as through the lenses of environmental and social issues. Aitken and Craine (2013: 265-267) provide an example of discourse analysis of visuals, remarkable for its relevance to this master's thesis research objectives. In this example, they explain that by exploring visuals, a landscape can be observed through social conditions which are embedded into it. Based on this, I analysed images and texts by exploring environmental and social conditions, which are 'encoded' into images and explained by the accompanying text. This analysis involved assigning the codes to analytical categories. Through the implementation of such categorisation, power relations can be represented through the following eight analytical categories: Politico-economic reasons for the Aral Sea crisis, Environmental negative impact, Socio-economic negative impact, Environmental migration, Vulnerability, Resilience, Adaptation, and Hope (Table 13). These analytical categories represent environmental and social aspects of the Aral Sea crisis through the lens of power relations.

Table 13

Analytical categories that represent various aspects of the Aral Sea crisis through power relations.

Analytical category	Images codes	Texts codes	Description
Politico-economic reasons	-	Technological negative impact Political negative impact Economic negative impact Absence of governments' efforts	Politico-economic reasons of the Aral Sea crisis.

Environmental negative impact	Sand Sand storm Sand in the village Salt Salt is blown up (by a storm)	Negative impact of climate change Desert is around Aral Sea declined Sand storm Sand in the village	Negative impact of the Aral Sea crisis on the environment.
Socio-economic negative impact	Debris Remains of a ship Abandoned house Destroyed house Destroyed annex Destroyed infrastructure Outdated household Outdated car	Water supply issue Fishing industry fails	Negative impact of the Aral Sea crisis on the life conditions in the village.
Environmental migration	Remains of a ship Abandoned house Destroyed house Destroyed annex Destroyed infrastructure	People move away No development in the village Remains of a ship Abandoned houses Lost their job Collapsing houses	Migration from the village as a socio-economic outcome of the Aral Sea crisis.
Vulnerability	Sand in the village Outdated household Outdated vehicles Debris	In the past it was good Difficult to get there Need for communication of the problems	Degree to which the environment and humans can cope with the effects of the Aral Sea crisis.
Resilience	Elder villagers Removing sand Broom Shover Sweeping machine Camel herd Goat herd	Resilience of people Breeding camels Breeding sheeps Breading goats Breading horses Fishing	Resisting the outcomes of the Aral Sea crisis. Villagers remain in the village and resist the effects of the environmental degradation. Continuing fishing.
Adaptation	Camels Goats Satellite antenna Offroad car Goods vehicle	Everything is not so bad New settlement Children	Adaptation to the outcomes of the Aral Sea crisis. Breeding camels and goats as alternative occupation. Technical improvements.

	Rowing boat on a wheelbarrow People on the motorboat Children	Many cars in the village Technical improvement	Children are adapted to live in a 'desert', for example they play with sand. Adaptation to fishing on a distance.
Hope	Water spring Children Smile Rowing boat on a wheelbarrow Individuals visiting the spring Individuals bathing in the water spring	Success of the restoration efforts Water level rises Fishing industry returns Overall improvement World Bank loans Government's restoration efforts Water spring The president Nazarbayev visited the spring Tourism	Hope for a better future. Attention of decision- and policy-makers. Perspectives of the region development such as tourism, including medical, and increase of fishery. Presence of the children in the village

8.3. The institutional context

The analytical categories enabled the definition of the institutional context of the Northern Aral Sea crisis in Akespe, as these categories reflect rules and beliefs embedded in the village life. The range of institutions that are observable in the images and reflected in the contexts are represented in Table 14.

Table 14

Institutions reflected in the images.

Institution	Analytical category	Images codes	Texts codes
Democracy (lack of)	Politico-economic reasons Socio-economic negative impact Environmental migration Vulnerability	Difficult to get there Need for communication of the problems Debris Remains of a ship Abandoned house Destroyed house Destroyed annex Destroyed infrastructure Outdated household Outdated car	Political negative impact Economic negative impact Absence of governments' efforts Water supply issues Fishing industry fails People move away No development in the village Remains of a ship Abandoned houses Lost their job Collapsing houses

Democracy (increasing)	Adaptation Hope	Satellite antenna Offroad car Goods vehicle Children	Everything is not so bad New settlement Children Many cars in the village Technical improvement Success of the restoration efforts Water level rises Fishing industry returns Overall improvement World Bank loans Government's restoration efforts The President Nazarbayev visited the spring Tourism
Traditions	Resilience Adaptation	Elder villagers Camel herd Goat herd Camels Goats Rowing boat on a wheelbarrow	Resilience of people Breeding camels Breeding sheeps Breading goats Breading horses Fishing
Family	Resilience Adaptation	Elder villagers Children Smile	Children

Four institutions are defined based on the analytical categories: Democracy (lack of), Democracy (increasing), Traditions, and Family. Here, the institution 'democracy' encompasses both political freedoms and economic situations. After the collapse of the USSR, the economic conditions in Akespe were influenced by an insufficient level of democratic governance. In recent decades, a notable rise in the level of democracy has influenced the economic situation. Such economic dynamics are evident in the images.

Democracy (lack of) is an institution noticeable in the images and can be identified within the textual contexts. It is reflected in the analytical categories such as Politico-economic reasons, Socio-economic negative impact, Environmental migration, and Vulnerability. In the images, such codes as 'Debris', 'Remains of a ship', 'Abandoned house', 'Destroyed house', 'Destroyed annex', and 'Destroyed infrastructure' reflect the negligence of politicians towards the needs and concerns of the villagers. In the images' contexts, the insufficient level of democracy is represented by such codes as 'Political negative impact', 'Economic negative impact', 'Absence of government efforts', 'No development in the village', and 'Fishing

industry fails'. These codes represent the segments of the visual material or contexts related to the negative impact of the Aral Sea crisis on the life conditions in Akespe.

Democracy (increasing) is represented by the analytical categories Adaptation and Hope. The codes related to technical improvement, tourism, fishing, as well as the codes 'Children' and 'Smile', and 'Overall improvement' indicate the general enhancement of the politico-economic situation in Akespe since the 1990s. The segments of the images and accompanying textual contexts represent economic progress and improved living conditions attributed to the government's successful restoration efforts, World Bank loans, and overall developmental improvements.

Traditions is a group of institutions evident in the images and detectable within the contexts. Here, traditions are beliefs or practices that anchor people to their past activities, such as fishing, while also fostering the development of alternative occupations like domestic animal breeding. They are likely to play a crucial role in maintaining resilience within communities. This institution is represented by the analytical categories Resilience and Adaptation.

Family, along with Traditions, is an institution represented through the analytical categories Resilience and Adaptation. However, the institution Family is characterised by other segments of the images and contexts. The content analysis reveals a notable presence of the code 'Children' in the images, constituting 22.9% of occurrences. Furthermore, the depiction of adults and elder villagers in the village, accounting for 16.9%, suggests a multi-generational coexistence, emphasising the interconnectedness of different age groups within the family unit. This can indicate adherence to family traditions in the village.

8.4. Framing the discourse around the Aral Sea crisis

Frame analysis enables the investigation of frames (Ercan et al., 2022: 17), or conditions for discourses and focuses on the contextual dimension of deliberation (Mendonça & Simões, 2022) and the power relations between actors (Ercan et al., 2022: 17). Research on framing involves employing methods such as content analysis and discourse analysis, among others (Schäfer & O'Neill, 2017). The content and discourse analyses were employed to identify how the Northern Aral Sea crisis is framed in the public discourse. The content analysis allowed the identification of patterns in the visual material. Based on these findings, using the discourse analysis method, the coded material has been split into analytical categories represented in Table 13. Through frame analysis, the analytical categories were examined from the perspective of power relations, as well as from the perspectives of spatial and temporal contexts. Analytical categories reflect such contexts and power relations as they represent patterns in the images through the lens of power and knowledge bouut the landscape. The frame analysis allowed for identification of the landscape characteristics that

shape public discourses surrounding the Aral Sea crisis. These characteristics, or frames, encompass environmental, political, economic, and social aspects of Akespe and its surroundings. The overview of these frames is provided in Table 15.

Table 15

Frames that form the public discourses on the Aral Sea crisis.

Frame	Analytical categories
Environmental	Environmental negative impact. Environmental migration. Vulnerability.
Political	Politico-economic reasons. Hope.
Economic	Politico-economic reasons.
Social	Socio-economic negative impact. Vulnerability. Resilience. Adaptation. Hope.

8.5. "Seing once is better than hearing a hundred times"

Triangulation was employed after conducting the content, discourse, and frame analyses. It involved utilising the expert interviews as the research method, enabling the study of the Northern Aral Sea crisis from the perspectives of individuals involved in raising awareness of and addressing the issue.

The first interview was conducted with Prof. Dr. Nikolai Aladin, a prominent figure in solving the Northern Aral Sea crisis (Dumetz & Aladin, 2021; White & Micklin, 2021). During the interview, Nikolai Aladin and I discussed using photographic images in environmental policy-making. Aladin emphasised the significance of employing visual elements in communicating environmental issues and shaping environmental policy, with a focus on the effectiveness of visuals, such as photography and videos. He also shared his firsthand experience at the Aral Sea to illustrate this point. Aladin also mentioned the necessity of catchy headlines, loud slogans, and collages as a visual tool that can effectively convey messages. Furthermore, Nikolai Aladin and I discussed other topics related to policymaking, including religious issues, corruption in organisations, and musical hits as a communication instrument which can raise public awareness.

The discussion began with discussing the causes of the Aral Sea crisis. The position of Aladin is clear and conveys the message about the Soviet government's prioritisation of utilising public resources for cotton production, rather than preserving the Aral Sea, its ecosystems, and the associated socio-economic conditions.

> *NA: "It all started simply: the country needed cotton, and for the sake of cotton, the sea was ruined. Everything is very simple. There was a threat of running out of cotton, and they chose the threat of running out of water, but to keep the cotton. Absolutely simple."*

Following this discussion, I asked about the Kazakh government's involvement in constructing the Kokaral dam in 1993, including the specific actors and levels of government that participated in the project.

> *NA: "Mostly, we proposed the idea, shared the idea with the local leadership, primarily with the akim Kayupov Bigali. And Bigali just took me and my comrades […] to an even higher-ranking official. We reported there. And based on our scientific developments, community efforts were mobilised, and through collective voluntary construction, the first sand dam was built. […] And I went to Geneva with a report that we needed to get a grant from the World Bank and build a proper dam, instead of constantly repairing it. This was heard, […] and it was decided there that the World Bank would provide funding and the dam would be built. So, our laboratory and our scientific team were presenting scientific ideas, and the local leadership in Kazakhstan, with the help of the hands of ordinary people, implemented all this."*

Here, Nikolai Aladin explains that the problem-solving started at the level of local government, where his scientific team presented facts, and the decision regarding funding the dam construction by the World Bank was made in Geneva, Switzerland, by the United Nations. Alongside presenting scientific facts, photographic images were utilised to illustrate the issues associated with water scarcity that both the environment and people face at the Northern Aral Sea. The photographic images used were created by a scientific team member, Dr. David Piriulin.

> *NA: "There was a very good person working in my laboratory, a talented scientist, a wonderful poet, a wonderful photographer who took pictures with his heart, not with a camera. […] And he worked on the Aral Sea. And he knew a lot about the Aral Sea. He also took good photographs of the Aral Sea. Everything is documented."*

Here, Aladin underscores the significance of using photographs created 'by heart'. Moreover, good photographs can convey a deep understanding of the landscape beyond visual appeal by accurately representing it. Furthermore, Aladin underlines that visuals, including photographs and videos, are particularly important for presenting scientific facts to policymakers, as they work as 'eye-catchers'.

> *SP: [...] "You have mentioned that when someone from the leadership, from decision-makers, looks through a report, for example, yours, it quickly passes through the material because there is no time or some other reason. Is it true that seeing photographs in this material can catch a person's attention?"*
> *NA: "Absolutely true, absolutely true. I'll give you a straight answer: seeing once is better than hearing a hundred times. And it is even better if there is a video. And that is why, when my son asked what he should do to help me in my work, I told him, "Become a cameraman; you will document our work." So, my son became a cameraman. And a photographer, and a cameraman. My son documents our work on the Aral Sea and other water bodies in his spare time."*

One of my questions was about how to make an image effective in communicating an environmental issue more efficiently. The answer was the following.

NA: "[…] There are 'headlines', catchy slogans. There are posters. You need a slogan, and you need a poster. You remember, Uncle Sam says: "I want you." […] This can be done with a photograph, or a collage. So you need a slogan, and you need a visual image."

To attract attention of the public and decision-makers to environmental problems through photographs, photographic competitions are useful.

NA: "National Geographic holds competitions, our APN [Agency of Political News] organises them, fand other mass media as well. Photography competitions on political topics. There are plenty of them."

Nikolai Aladin underlined the significance of religious distinctions among different groups, as these variations considerably impact audience reach and individual perception of an image.

NA: "Understand, we still need to address very serious religious issues, including those on the Aral Sea. Because for Orthodox, Catholics, Lutherans, Baptists, atheists, and people who believe in other religions such as Buddhism, Shintoism, and so on, all this sounds different, and our task is to find religious unity. So that religious differences do not lead to strife, but to cooperation. So, there are also huge religious issues at stake. […] you know that in Islam you can't depict living beings, only ornaments."

Aladin mentioned the importance of the involvement of popular musicians in raising public awareness of the environmental crisis at the Aral Sea.

NA: "By the way, Pink Floyd made a good music video about the Aral Sea at one time.[…] " 'Louder than words'. It caused quite a stir. Kazakhs helped Pink Floyd shoot this video in the steppe on the Aral Sea in Kazakhstan. This music video turned out to be like a bomb. We reached out to Pink Floyd; I personally wrote to Pink Floyd. Then I wrote to many other musicians asking them to do something about the Aral Sea."

Aladin emphasised that a musical hit and a musical video are useful for communicating an issue. However, cultural differences need to be taken into account.

NA: "[…], there is a need for a slogan, a need for a poster, and a need for a musical hit. You see, for a European, it is one thing, and for an Asian, it is another."

A photograph is a way to communicate a problem on an emotional level.

NA: "[…] words appeal more to the mind. And a photograph appeals more to the heart".

Aladin emphasised that 'heart', or good intentions and caring, along with technical and intellectual solutions, contributes to a problem solving.

> *NA: "Moreover, I can tell you, we have such a concept: 'Hardware', there is 'software', and there is 'heartware', from the word 'heart'. And something can be done with software, with hardware, computer equipment, or any hardware. But for this, you need to have heartware in your heart. That is, software, hardware, and heartware."*

8.6. "An image tells a whole story in a half a second"

The second expert interview was conducted with Peter Durtschi, a Swiss journalist who visited the Northern Aral Sea in 2011 and authored an article accompanied with a photographic image in the Swiss newspaper NZZ am Sonntag (Durtschi, 2012). In this article, Durtschi spotlighted the issues surrounding the Northern Aral Sea, the mitigation efforts, and the overall improvement of life conditions in the region (Durtschi, 2012).

During the interview, Peter Durtschi and I discussed the role of photographic images in shaping public opinion and influencing policymakers. We have discussed that the success of an image in influencing policymaking depends on its quality, aesthetics, and ability to evoke strong emotions. Additionally, the distribution and sharing of images through social media and the involvement of popular musicians can play a crucial role in amplifying the impact of visuals. The journalist highlighted that the repetitive use of images, which reflect negative sides of the certain landscape, can lead to desensitisation and a lack of nuanced understanding.

> *SP: "In your opinion, can photographic images reflect public opinion? And how, if they can?"*
> *PD: "They can. […] Some images become icons. […] having grown up in the 80s, as a teenager, I've seen many pictures of the Aral Sea, and it's always the same kind of pictures. It's desert stranded ships. […] that has become like a symbol for the Aral Sea crisis. And it has been reproduced over and over and over. […] It shapes public opinion."*

Here, from the position of an individual living far away from Kazakhstan, Peter Durtschi emphasises that images not only reflect, but also shape public opinion. Images were how people in Europe learned about the Aral Sea crisis, as the Soviet Union kept it "a secret". The repetitive use of certain content of an image and some certain image elements forms public opinion.

> *PD: "There was the Aral Sea, all of a sudden, you see that ship in the sand. […] It has been used a lot, and I have to say, when I think back to the 80s and 90s, all I have ever seen of the Aral Sea is just the same thing. Sand, stranded ships, nothing else. It was like a monothematic approach to this catastrophe."*

Satellite images served as evidence of the Aral Sea shrinking. They were a 'shortcut', in other words, a short way for individuals and decision-makers to learn about this crisis without reading scientific facts.

> SP: "How can you describe the influence of images on solving environmental issues in general and on the Aral Sea?"
> PD: "Well, it was like a shortcut. We did not learn first that the Aral Sea was shrinking, only from satellite images, because it had been kept a secret by the Soviet Union. […] So then came all these pictures when the shrinking of the sea had progressed. And that's when magazines like GEO from Germany, it's a monthly magazine, has published articles about the shrinking of the Aral Sea. […] that was like a short way to illustrate what has happened."

One of my questions was whether any of the images depicting the Aral Sea crisis were utilised in decision-making processes to influence policy-makers and stakeholders involved in addressing this environmental issue.

> PD: "Speaking from a Swiss perspective, […] not a lot has happened. We learned about the Aral Sea, but Swiss politicians were not involved […]. We were just mainly recipients in Switzerland. So, there was no policymaking going on, but it [photpgraphy] has been used maybe a few times, also in fundraising, in adverts, also in Switzerland, to show that something's not going well."

Here, Peter Durtschi mentions the usefulness of photographic images on the Aral Sea crisis in the Swiss context. However, Durtschi argues that such images were significant not for policy-making, but for raising public awareness and for indirect contribution to solving the Aral Sea crisis through fundraising. Moreover, visuals depicting the Aral Sea crisis were used to promote sustainable consumption. For this, for its promotional campaign, the grocery store chain Coop used a musical video by the popular Swiss musician Stress filmed at the former Aral Sea in Kazakhstan (20 Minuten, 2007; Stress, 2009). Peter Durtschi said that visuals, in this case, a musical video, were used for advertising this sustainable food brand.

> PD: "Coop, the big food stores chain […] had been introducing its Naturaplan brand […] between 2000 and 2010. And there was a guy called Stress. He's from Geneva, I guess. He's a rapper. And he's been like a spokesperson for this Naturaplan program. And they went to Kazakhstan in the Aral Sea Basin […] to make an advert about […] environmental protection, and sustainability, and all these topics, and guess where he was taking a film […]. So it has even been used for advertising".

One of my questions was about features of an image which allow to distinguish a powerful image capable of influencing policy-makers.

PD: "A good image shows in a split second, what it's all about […] In Switzerland, we talk about […] shrinking of glaciers in the Alps because of climate change, and these images, you may have seen them, are used to show, in a short, in a brief way, how climate change influences the Alpine climate. And that's the good thing. […] an image tells a whole story in half a second. The bad thing is, in my opinion, that it's being used so often and always in the same context that […] you get used to it. And it only tells one part of the story."

According to Durtschi, strong images can have a disadvantage. Along with shaping public discourses and raising awareness, a powerful image 'freezes' public opinion and shows only certain facets of a problem.

PD: "We are like going just in one direction and all these desert stranded ships, camel skeleton pictures, they always tell what has been and still is. But it's […] it can cause maybe some fatalism in a way that nothing can be done, that's the way it is in Kazakhstan. And it freezes public opinion, if the picture is so powerful […]. And that's the downside of these strong pictures, in my opinion."

Peter Durtschi underscores the importance of conveying the complete narrative, encompassing not only the negative moments, but also the positive sides of an issue, such as the potential for a transformation. Presenting all facets of the story can demonstrate the potential for improvement, nurturing hope and shedding light on viable solutions to challenges.

PD: "I could even sell one of my own pictures to the newspapers because they hardly have pictures of what's happening now at the Northern Aral. So the picture I took, and that was published in the NZZ am Sonntag, was fishermen coming out from their boat, like walking through the shallow water and carrying a big, big basket full of fish. So you see, that's something that maybe tells a different story."

Finally, it was discussed that an image should be strong to become influential, which allows for capturing public attention and fosters an image's distribution.

PD: "To go viral, to be shared, or even to be on a database for newspapers, it must be a strong picture. It must be, like, breathtaking. Either it must be beautiful, or it must be shocking. Or both."

9. Discussion

9.1. Answering the research question

> "Photography should be understood as a thinking process" (Pyyry et al., 2021: 77).

The study of this master's thesis aimed to answer the research question: *How can photographic images contribute to deliberative processes?* Overall, the results indicate that public discourses can be represented visually and contribute to finding a policy solution for an environmental issue. By analysing images and their textual contexts, it was possible to determine that images reflect and represent public discourses. Images' contribution to influencing policy-making and to finding a policy solution were possible to determine during the expert interviews. These findings are consistent with previous research, such as Backhaus et al. (2008), Bleiker et al. (2013), Christiano & Neimand (2018), Hendriks (2017), Mansbridge (2022), Mendonça et al. (2020), Mendonça & Simões (2022), Müller and Backhaus (2007), Oldrup & Carstensen (2012), Pyyry et al. (2021), Rose (2001), Rose (2008), and Rose (2016). The findings of this study support the hypothesis that images can influence deliberative processes as they both represent the knowledge about environmental issues and transmit it.

One possible explanation for this could be that photographic images reflect public discourses. "A good image shows in a split second, what it's all about", as Peter Durtschi mentioned in the interview, and "seeing once is better than hearing a hunreed times", according to Nikolai Aladin. The results obtained while conducting content analysis allowed the identification of patterns in images which form individuals' perceptions of the Akespe and its surroundings. These outcomes are supported by the expert interviews. Peter Durtschi emphasised that repetitive use of certain content of an image and certain image elements forms public opinion. This occurs because images serve as a 'shortcut', essentially providing a concise means for individuals and decision-makers to understand the problem. Likewise, Aladin emphasised the importance of photographs, videos, collages and other visual material in shaping not only public opinion, but also the positions of policy and decision-makers. Moreover, as noted by Aladin, certain images have proven to be effective tools for capturing the attention of policymakers, both locally and internationally, to address the Aral Sea crisis.

Another potential explanation for the ability of images to influence deliberative processes is that images have an impact on shaping public discourses beyond national borders. This occurs due to the broad dissemination of images through mass media channels, thereby reaching a wide audience. This is supported by interview results. Peter Durtschi said that in Switzerland images shaped the understanding of what really happens at the Aral Sea. Furthermore, they serve as effective tools for representing the interests of local populations on the international level. In the context of a complex Western democracy, a deliberative approach is likely to be implemented to raise significant political capital for shaping new policies (IRGC, 2018). Within the Swiss democratic context, photographic images depicting

the Aral Sea crisis appeared useful for raising public awareness and indirectly contributing to addressing the issue through fundraising efforts. In contrast to democratic states, leaders in an autocratic regime or within a private sector organisation characterised by clear hierarchies and a limited number of veto holders might not share this practice (IRGC, 2018). In Kazakhstan, a state that is transitioning to democracy, citizen involvement in decision-making is imperative and must be nurtured. As the results of this study demonstrate, this can be fostered through the distribution of information by means of visuals. However, powerful images have a drawback. While they shape public discourse and raise awareness, they also have the tendency to 'freeze' public opinion, according to Durtschi. While shaping public discourses and raising awareness, a strong image has the tendency to spotlight only specific facets of a problem highlighting only specific aspects that are depicted in the images.

These findings raise the possibility that using an insufficient number of photographic images for a problem communication may result in shifting the focus from certain aspects of an issue while placing greater emphasis on others. The same issue can arise when photographs fail to encompass all aspects of a place and the discourses embedded within it, thereby providing both citizens and policy-makers with insufficient information. Nonetheless, a small number of images can be useful to emphasise a particular aspect or outcome of a problem.

9.2. Fulfilling the research objective 1: the Five-dimensional approach

The research objective 1 of this master's thesis is *to develop a tool that can be used to analyse the role of an image in deliberative processes and that can apply to any photographic image*. The Five-dimensional approach facilitated the structuring of the results obtained during the content, discourse, and frame analyses, as well as the knowledge gained during the expert interviews. This contributed to achieving this research objective. This section provides an analysis of the Five-dimensional approach as a tool for exploring the role of an image in deliberative processes.

The Five-dimensional approach considers factors, or dimensions, that influence deliberative processes when using images. These dimensions, discussed in Section 7.3, are the following: Content of an image and its context, its Aesthetics, Audience, Institutions, or the institutional context of an issue, and Power, or power relations. I analysed the results obtained during previous research stages through the prism of these Five dimensions. The previous stages of analysis allowed for the examination of the case study images through the lenses of content, institutional aspects, and power relations within the context of the Northern Aral Sea crisis.

Overall, the results demonstrate that the Five-dimensional approach is useful for exploring an image's potential for deliberation. However, the obtained data was not enough to examine all five dimensions. It was possible to analyse the following three dimensions: Content, Institutions, and Power. However, the data was insufficient for analysing the dimensions of Aesthetics and Audience. Therefore, further research on these dimensions is

needed. In the following, the Five dimensions are reviewed from the perspective of usefulness for analysing the potential of an image for deliberation.

9.2.1. Dimension of Content

In journalistic communication, photography serves as a crucial means of conveying visual and verbal messages (Petrovici & Szabo, 2018), because while words provide the information about an issue in sequential order, images bring together intricate and complex information, making it perceptible "at a glance" (Mendonça et al., 2020: 158). Hence, the content of an image holds significant importance in providing information regarding the landscape and its discursive processes. By analysing the content of the images, it is possible to identify occurring themes and patterns in the material. For example, Content analysis enables the identification of that the natural environment is deeply intertwined with village life and closely connected with human activities. It also allowed the identification that many images depict children, which sharply contrasts with the desert landscape and destroyed houses. An image's content reflects its creator's thoughts, revealing the discourses they wish to convey and the issues they seek to address.

While analysing the content of images and their contexts, on the one hand, it appeared that across all samples, there was more information in the text than in the image. However, some contexts only offer introductory explanatory details about an image, enabling viewers to delve deeper into its content and interpret it without deviating too far from the author's intent. On the other hand, the content of certain images proved to be more comprehensive than their contexts.

The content of images, as well as the content of their textual contexts, are vital for providing information about an issue and rising public awareness, as patterns in a material indicate the most pressing issues. However, an image needs be analysed in accordance with the objectives of the analysis. For example, the code 'Sky' appears most frequently, yet it does not relate to the topic of deliberation. However, this code relates to the natural environment, which is represented by 55.8% of the material. Patterns in images and representation of Akespe landscape vary across the 11 analysed sources. However, these variations are not relevant to this study, because it focuses on analysing the patterns present in the entire set of materials.

The findings of the discourse analysis reveal that political and economic reasons for the environmental issues at the Northern Aral Sea are not directly seen in the photographic images. Instead, the contexts of the images provide information about social, political, and economic aspects of Akespe. These aspects are both positive and negative. On the one hand, they are represented by the codes related to political, economic, and technological negative impacts, and by the code 'Absence of governments' efforts'. On the other hand, they are reflected in the following codes: 'Success of restoration efforts', 'World Bank loans', 'Fishing industry returns', and 'Overall improvement'. While the material may not explicitly depict the political and economic causes of the issues surrounding the Northern Aral Sea, nor the

processes to resolve them, the outcomes are nonetheless evident. These outcomes are visible in destroyed infrastructure, remains of ships, debris, abandoned houses, overall poor life conditions, and other tangible indicators of the region's environmental, social, and economic problems. The codes representing such outcomes are grouped into the following analytical categories: Environmental negative impact, Socio-economic negative impact, Environmental migration, and Vulnerability. Therefore, context is crucial, as it provides the information that allows to delve into an issue's social, political, and economic dimensions.

The discourse analysis revealed that codes in the images differ from those in the texts for the same analytical categories. This highlights that images can be more representative than text in certain instances, and vice versa. Consequently, when analysing deliberative processes, it is evident that images are ineffective without their accompanying verbal explanations. Within this framework, a video surpasses photography, as emphasised by Nikolai Aladin. As a visual means of transmitting information, similar to photography, it can capture policy-makers' attention. At the same time, in contrast to a photograph, a video can provide a context of an issue in a textual or audio form.

9.2.2. Dimension of Aesthetics

A photographic image, as an artistic expression of a creator's intentions, is characterised by aesthetical components. The analysed images were created by professional journalists and photojournalists. Therefore, it can be suggested that these images align with the requirements for photography aesthetics in journalistic environments. This implies that overall, the analysed photographic images can be identified as capturing attention.

The analysis of the visual material did not focus on the assessment of the aesthetics of the images and their impact on public opinion or policy-makers. However, the interviews provided insights into how the aesthetic qualities of images can influence individuals and shape perceptions. During the interview, Aladin mentions that it is important that photographs are good, which means they are not only visually appealing but also demonstrate a deep understanding of the landscape through strong and compelling composition. Furthermore, Aladin emphasises that visuals, encompassing photographs and videos, are important in communicating scientific facts to policy-makers, serving as powerful tools to capture attention and convey complex information effectively. Likewise, Durtschi emphasises that an image must be 'strong', in order to reach individuals' hearts and minds. It should be stunningly beautiful, shockingly provocative, or ideally, a combination of both. However, according to Durtschi, powerful images which have prominent aesthetic features, have a downside. While they shape public conversations and raise awareness, they can limit public opinion by only showing certain facets of an issue.

The insights gained from conducting expert interviews indicate that an image's aesthetics are important for deliberation. However, within the context of the Five-dimensional approach, further research on images' aesthetics can be useful. This involves applying

methodologies specifically designed to analyse the artistic expressions within an image related to an issue.

9.2.3. Dimension of Audience

The analysed photographs and their contexts are widely distributed both physically and digitally, as they are represented by news agencies, newspapers, news portals, a stock photo images agency, a TV channel, and a news web portal of a radio station (Table 7). Hence, it is highly probable that wide audiences worldwide were embraced. Nevertheless, to provide meaningful insights, the analysis of the audience needs to possess complexity (Müller and Backhaus, 2007: 26), which requires further research.

In this master's thesis, I focused on analysing images and their contexts. The data obtained during this study proved insufficient for analysing the precise audiences and their perceptions of the Aral Sea crisis, as well as their interaction with images depicting it. Therefore, further research is recommended, which may involve using surveys and interviews to gain deeper insights. Nevertheless, the insights obtained by analysing the data obtained during the expert interviews indicate that images do have an impact on audiences.

In the interview, Peter Durtschi emphasises that images have the power to shape public opinion along with reflecting it. The repeated utilisation of specific content within an image, along with certain visual elements, contributes to the formation of public opinion. Durtschi argues that for a picture to reach a wide audience, whether through viral sharing or inclusion in newspaper databases, it needs to be strong, which means beautiful or shocking, or better both. While strong images are effective in shaping public discourse and raising awareness, they also have a drawback. They can 'freeze' public opinion, presenting only specific aspects of a problem. This occurs through the repetitive use of particular content and image elements, which collectively influence public perception.

Nikolai Aladin suggested that to enhance the effectiveness of images in communicating environmental issues, incorporating "headlines," catchy slogans, posters, and collages is essential. Aladin further emphasised the importance of religious distinctions among various groups, noting their significant influence on both audience reach and individual perception of an image. Additionally, Aladin highlighted the utility of photographic competitions in capturing public attention and drawing awareness of environmental problems through photographs. Along with Peter Durtschi, Aladin underscored the involvement of popular musicians in raising public awareness of the environmental crisis at the Aral Sea.

Nevertheless, the data obtained during this study was insufficient for analysing the exact audiences and their perceptions of the Aral Sea crisis, and their interaction with the images depicting the latter. Therefore, further research is needed, which suggests involving surveys and interviews.

9.2.4. Dimension of Institutions

Although individual input is important, decisions are mostly influenced by the existing rules and procedures within institutions (Evans, 2012: 47). Institutions guide the individuals' response to practical difficulties (Evans, 2012: 47); therefore, they are particularly important in deliberative processes. The results of the conducted discourse analysis, as well as the insights gained during the expert interviews, demonstrate that images can reflect the institutional context of a place and, at the same time, they can influence institutions themselves.

The results of the discourse analysis demonstrate that institutional context can be observable in photographic images. Through the analytical categories, four institutions were defined in the images: Democracy (lack of), Democracy (increasing), Traditions, and Family. Within this framework, 'democracy' encompasses the political and economic landscape. The fluctuations in economic conditions are observable in the images and evident in the contexts. Sufficient textual contexts of images are crucial, as images alone do not convey information about politico-economic reasons for an environmental problem.

The knowledge obtained while conducting an interview with Nikolai Aladin indicate that using images proved useful in solving environmental problems. According to Aladin, this process was initiated at the local government level, where his scientific team presented facts about the Northern Aral Sea crisis and solutions for addressing the problem. Subsequently, the United Nations reached a decision regarding funding for the dam construction in Geneva, Switzerland. In addition to presenting scientific facts, photographic images were employed to depict the challenges posed by water scarcity affecting both the environment and the local population in the Northern Aral Sea region. Aladin emphasises that visuals, such as photographs and videos, play a vital role in presenting scientific facts to policy-makers because they serve as effective 'eye-catchers'.

Similarly, Peter Durtschi explained the utility of photographic images depicting the Aral Sea crisis within the Swiss institutional context. Durtschi argues that these images were valuable for raising public awareness and indirectly contributing to addressing the dried Aral Sea crisis through fundraising efforts. Furthermore, according to Durtschi, other means of visual communication are useful in addressing sustainability issues. For example, a video depicting the dried Aral Sea bed and rusty remains of ships was utilised to promote sustainable consumption practices.

Therefore, the results of the analysis of an image through the dimension of institutions indicate that utilising images is useful for examining institutions of a particular place and for addressing environmental issues.

9.2.5. Dimension of Power

The findings of the study indicate that power relations can be conveyed through images. I have analysed power relations by applying the method of discourse analysis of images and their contexts. This method focuses on discourse, power, and knowledge arguments (Rose,

2016: 215-216). Based on this framework, I investigated the relations between codes associated with power and codes associated with environmental and social issues. Through the analysis of images and texts, the environmental and social conditions of the Akespe landscape, reflected in the images and presented in accompanying texts, were identified. This process involved categorising codes into analytical categories, shedding light on the environmental and social dimensions of the Aral Sea crisis through the lens of power relations. The following eight analytical categories were identified.

The analytical category 'Politico-economic reasons' reflects power relations by representing political and economic factors contributing to the Aral Sea crisis. 'Environmental negative impact' reflects the adverse effects of the actions of those in power on the environment. 'Socio-economic negative impact' delineates the crisis's detrimental effects on village life conditions. 'Environmental migration' portrays the migration of individuals from the village as a socio-economic consequence of the Aral Sea crisis. 'Vulnerability' offers insights into the villagers' ability to cope with the effects of the crisis. Through this category, the villagers were represented as less powerful individuals. 'Resilience' illustrates the ability of less powerful people to withstand the consequences of the crisis, demonstrating their resistance to its challenges. Resistance is evident in the remaining villagers despite environmental degradation and continuing fishing a distance from the shore. 'Adaptation' showcases individuals' capacity to resist the crisis, such as technical innovations along with breeding camels and goats as alternative occupations. The examples are the adaptation of children to desertification and the adaptation of the local population to fishing at a distance from the village. Finally, 'Hope' reflects aspirations for a better future, encompassing prospects like regional development through tourism, increasing fishery, and endeavours of political and international environmental organisations in addressing the crisis. This category also interprets multiple depictions of children as indicative of a sufficient birth rate and optimism for village development.

To examine power relations, analysed images or images must be complemented with a textual context, as images depict only outcomes of exerting power. The textual context must adhere to the criteria discussed in Section 7.5.1. These criteria encompass authenticity, credibility, representativeness, and meaningfulness. It is crucial for the textual context to be a trustworthy and unbiased source of information regarding power relations.

9.3. Fulfilling the research objective 2: the potential of an image

The research objective 2 of this master's thesis was *to assess an image's potential to facilitate participatory processes that may lead to deliberation*. The potential of images for fostering deliberation stems from their ability to convey information that goes beyond verbal communication. Images evoke deeper understanding and empathy by representing discourses surrounding various aspects of an issue. Images are a medium through which nuanced perspectives and emotions can be expressed, enriching discussions beyond technical solutions to problem-solving.

In "The Tragedy of the Commons", 1968, Garret Hardin argues that there are no technical solutions which would allow to solve environmental problems (Hardin, 1968: 1243). Hardin defines a technical solution as "one that requires a change only in the techniques of the natural sciences, demanding little or nothing in the way of change in human values or ideas of morality" (Hardin, 1968: 1243). Hence, addressing an environmental issue necessitates a foremost change in human values and attitudes, a transformation achievable through instruments that are not solely technical. Visuals can serve as a potent instrument, with the change beginning by raising public awareness. Increasing public awareness of an issue is a critical step toward 'creating an environment where change is possible' (Christiano & Neimand, 2017: 36). Consequently, public awareness can establish discursive arenas and facilitate deliberative processes. This sequence is schematically reflected in Figure 15.
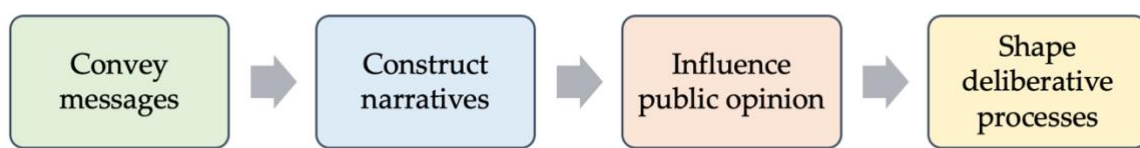

Fig. 15. Relation of photographic images to deliberation processes (own graphics).

Abstract concepts often allow room for individual interpretations, as people may make assumptions about their meanings, while concrete, visual language engages both the visual and emotional aspects of our minds (Christiano & Neimand, 2018). When individuals see an image of what needs to be addressed, they are more inclined to take action towards solving an issue. An image can foster an emotional response of an individual into a concrete, visible initiative. This concept is supported by the results obtained from an interview with Nikolai Aladin. Aladin emphasised that photographic images on the Aral Sea crisis, created by the scientific team member Dr. Piriulin and demonstrated to policymakers of different levels, fostered decision-making. According to Aladin, messages concerning problems are better precepted when accompanied by visual material, such as photographic images or videos, which have an even greater impact.

The findings from the interview with Peter Durtschi also confirm the importance of visual communication tools. Durtschi highlights the significance of photographic images depicting the Aral Sea crisis. Moreover, Durtschi emphasises that within the Swiss context, such images were not primarily useful for policy-making but rather for raising public awareness and indirectly contributing to addressing the Aral Sea crisis through fundraising efforts. Furthermore, visuals depicting the Aral Sea crisis were utilised to promote sustainable consumption practices.

Overall, the findings of this master's thesis study support the statement that "a successful photograph communicates an idea" (Langmann & Pick, 2018: 3). By transmitting knowledge and evoking emotional reactions, images can influence individuals' minds, opening a space for deliberation.

9.3.1. Knowledge transmission

The findings of this master's thesis study indicate that photographic images reflect and communicate knowledge about environmental issues, which is vital for their communication. Images serve as effective instruments for conveying knowledge about the events unfolding in a particular place and for shedding light on discursive processes. They also provide information about framing discursive processes. These findings align with the previous research on the Aral Sea crisis, such as those conducted by the International Risk Governance Center (IRGC) in Lausanne, Switzerland. According to IRGC (2018), in the case of the Aral Sea, governance principles can foster transformation, and encompass inclusivity, adaptability, and distributed deliberation. Sharing knowledge about the Aral Sea crisis among diverse stakeholders, including government, industry, academia, NGOs, and the general public, allows for the effective management of systemic risks (IRGC, 2018).

As images convey knowledge about environmental issues, they can stimulate public discussions, thereby fostering subsequent responses from policy-makers. Discourse influences social institutions (Cope & Kurtz, 2016: 659), thus it shapes deliberative processes which are influenced by institutions (Deutsche, 1996). This underscores the significance of visual communication in effectively raising awareness of environmental issues. Communicating problems through photographic images and distributing knowledge about an issue creates discourses and fosters transformative change.

9.3.2. Knowledge perception

The results of the content, discourse, and frame analyses did not provide insight into how individuals perceived the knowledge conveyed in the analysed images. However, the insights gained during the expert interviews revealed certain aspects of how individuals perceive the Aral Sea crisis when exposed to visual depictions.

The literature analysis indicates that visual information tends to be perceived easier than verbal (Backhaus et al., 2006; Bessetti, 2001; Mendonça et al., 2020; Pyyry et al., 2021), and this is supported by both interviewed experts. By presenting an image, complex information can be conveyed without requiring lengthy verbal explanations, as Nikolai Aladin experienced when communicating the Aral Sea crisis to decision-makers. Likewise, Peter Durtschi emphasises that an image is more effective than text in conveying information about a complex environmental issue as it can explain its essence in "half a second."

Cultural and religious factors play a crucial role when considering how visual information is perceived. Aladin emphasised the importance of religious differences among various groups, noting that such distinctions profoundly affect the audience's reception and individual interpretation of an image. For example, numerous Islamic scholars argue that the Islamic religion contradicts the "visual representation of living beings" (Lutfi, 2024). "In Islam, you can't depict living beings, only ornaments", as Aladin mentioned in the interview. Such religious views can affect the perception of an image by individuals and their subsequent actions or inaction.

Also, the way the media utilise images can significantly shape knowledge perception. As Durtschi shares, the repetitive use of images containing specific content can shape public opinion. Consequently, there is a risk that powerful elites may exploit such images to raise public awareness of an issue and manipulate citizens.

9.3.3. Evoking emotions

The term 'emotion' has Latin roots and derives from the word 'emovere', which can be translated as 'to move' or 'to shake' (Backhaus et al., 2006: 25). Therefore, emotions can be described as psychophysical processes which, starting from the mind, lead to physical manifestations such as heart palpitations, fear sweat, or knee-trembling, whereas the mental part of the emotional movement consists of the evaluation of a perceived event, which varies between liking and disliking (Backhaus et al., 2006: 25).

The findings of the interview with Nikolai Aladin indicate that photographs which communicate on the emotional level were effective when used during communication processes with decision- and policy-makers locally and internationally. During the interview, Nikolai Aladin underlined that in the 1990s, the photographic images "made by heart" were used while communicating with officials to search for a Aral Sea crisis solution. Aladin explained this by stating that images capture an individual's attention more effectively, whereas text can be overlooked. As Aladin outlined in the interview, words tend to engage the mind, whereas a photograph possesses a profound ability to stir emotions. Aladin articulated that without emotions or heartfelt connections between individuals and an issue, technical solutions often prove ineffective. To illustrate this approach, Nikolai Aladin provided me with the graphic image created by a geologist, former researcher, and, nowadays an artist Mikhail Janson (Figure 16). Thus, it is highly probable that photographs that reflect emotions and evoke the latter are useful for deliberation.
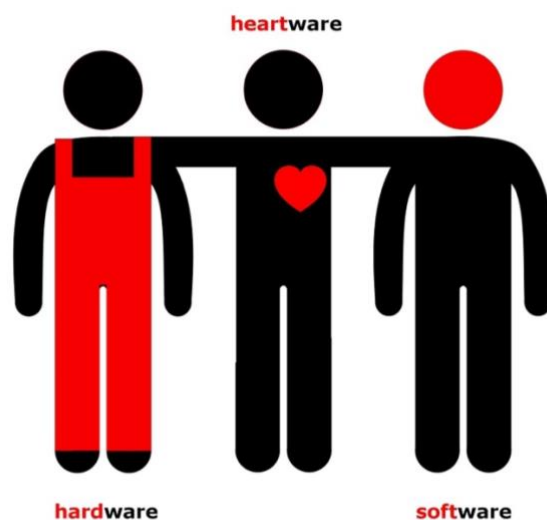

Fig. 16. Hardware, Heartware, and Software. Author: Mikhail Janson.

Moreover, during the interview, Peter Durtschi emphasised that an image must be powerful, even shocking, to effectively convey information about a problem and raise public awareness. This underscores that strong emotions evoked in viewers by images can foster deliberative processes.

9.3.4. Influencing citizens and policy makers

Through photography, photojournalists can deliver messages on environmental and social issues and their consequences to the world. Photographic images can be a medium for shaping the discourse by providing citizens with knowledge. Thus, images can impact the audience and have the ability to influence deliberative processes.

The content, discourse and frame analyses of the images and their contexts did not indicate whether the images had an impact on the citizens of Akespe or decision- and policy-makers. However, the knowledge gained during both conducted interviews confirmed that images have the ability to influence audiences. The explanation for this can be that "seeing once is better than hearing a hundred times", according to Nikolai Aladin, and "an image tells a whole story in half a second", according to Peter Durtschi. Visuals, including photographs and videos, are emphasised by Aladin as crucial for presenting scientific facts to policy-makers because they serve as effective 'eye-catchers'. This indicates that certain information might be overlooked when reading a text, whereas an image can convey facts at a glance. It also suggests that images help to prevent "some political positions from being established while leaving opened a discursive space that can be occupied by others" (Bleiker et al., 2013: 400).

The findings from the interview with Peter Durtschi indicate that the recurrent presentation of particular content within images, along with the strategic use of specific visual elements, plays an important role in influencing individuals. This consistent exposure to certain imagery can gradually impact their perceptions, attitudes, and beliefs. Thus, images can shape "what can and cannot be seen and, indirectly, what can and cannot be thought", therefore influencing what can and cannot be said legitimately in public (Bleiker et al., 2013: 400). However, according to Durtschi, in order to become influential, an image should be 'powerful', which may manifest in its beauty, its ability to shock, or ideally, a combination of both. To have an impact on audiences, an image should also be 'good' and created with 'heart', according to Aladin.

9.3.5. Tacit knowledge and emotions in images

When dealing with complex environmental issues, which theorists have not sufficiently studied, tacit knowledge is of heightened importance (Benson, 2018: 79). During environmental policy-making, a profound understanding of a place and its natural and social environment is needed. It is recognised that policymakers are often based on the tacit knowledge of employees or local communities, who have a deep understanding of ecosystems as a result of continuous interaction with the environment (Benson, 2018: 79).

While conveying information that cannot be effectively transmitted through words, such as tacit knowledge or emotions, alternative communicative tools and discursive platforms are necessary. According to Pyyry et al. (2021: 83), photography is effective in research concerning topics that are challenging to articulate verbally. Therefore, the question arises as to how a photograph can transmit tacit knowledge and emotions.

The analysis conducted in this master's thesis has concentrated on exploring themes and patterns in the images, on power relations and institutional context, on discourses, and the framing of the latter. However, the applied methodology did not allow the exploration of tacit knowledge in the images. It was not possible to determine from the data whether and how tacit knowledge and emotions are represented in the analysed images. Alternative approaches and methods are needed to ascertain this information, such as photo elicitation, interviews, or surveys.

9.4. Discourse framing

Frame analysis, as one of the stages for analysing the role of images in deliberation, was employed in this master's thesis. The results show that the frame analysis of images appeared to be useful for analysing the discourses around the Aral Sea crisis. The results of the frame analysis show that public discourses are framed by various factors, or frames. These frames are split into four groups: environmental, political, economic, and social.

Environmental frame. Interaction with the environment influences individuals and, thus, public discourses. From the environmental perspective, public discourses are formed by the negative impact of the Aral Sea crisis on the environment. The Environmental frame is represented by the analytical category of Environmental negative impact. The Environmental frame is formed by the outcomes of declined water levels in the sea, such as salination and desertification of the area, which impact the environment. This environmental damage is evident in the images. As the content analysis results indicate, such attributes of desertification and salination as sand, dry plants, and salt represent the most common patterns in the photographs.

Political frame. This frame is represented by the analytical category of Politico-economic reasons. On the one hand, the results indicate that the Political frame is shaped by the negative impact of political and technological conditions, as well as by absence of the government efforts. On the other hand, the visit of Kazakh President Nursultan Nazarbayev, the World Bank loans, and the success of the government restoration efforts set the discourse on policy in a positive direction. However, in the images, the political conditions are not evident. Hence, to identify the Political frame, textual contexts of images must be utilised in analysis. The credibility and representativeness of these contexts are therefore crucial.

Economic frame. The Economic frame is formed by the negative impact of the Aral Sea crisis on the life conditions in the village. This frame is represented by the analytical category

of Socio-economic negative impact. The failing fishing industry and the water supply issues, indicated in the contexts, negatively influenced the Akespe life conditions. The outcomes of this influence are evident in the photographs and represented by such image elements as remains of ships, debris, destroyed and abandoned houses, outdated households and vehicles. Thus, image analysis is useful for identifying the Economic frame, but images must be accompanied by credible explanatory contexts.

Social frame. This frame embraces both positive and negative aspects of the social conditions in Akespe, that form perception of the Aral Sea crisis by the village inhabitants. It is represented by the following analytical categories: Environmental migration, Vulnerability, Resilience, Adaptation, and Hope. Environmental migration shapes the perception of the Aral Sea crisis by its outcomes, such as abandoned houses and destroyed infrastructure. Environmental migration is an indicator of individuals' response to the Aral Sea crisis. From the perspective of vulnerability, for the villagers, it is challenging to cope with the effects of the crisis. This is evident in the images and their contexts, which depict and describe insufficient living conditions. Such images are characterised by patterns such as sand (desertification), outdated households, and debris, among others. At the same time, the Social frame is formed by the resilience of the villagers, or their resistance to the outcomes of the Aral Sea crisis. Taken as a vulnerable group of the Kazakh population, the inhabitants of Akespe remain in the village and continue fishing despite the distant seashore. Adaptationis another analytical category which represents the Social frame. It is characterised by such images patterns as technical improvements, specialised vehicles, and domesticated animals as an alternative source of livelihood other than fishing. The final analytical category that constitutes the Social frame is Hope. It is represented by the images' elements such as children, smiles, and the water spring as a tourist attraction. The textual contexts characterising this frame include such codes as the 'Success of the restoration efforts', 'Water level rise', 'Fishing industry returns', and 'Overall improvement'.

The results of the Frame analysis show that images are useful for analysing how discourses are formed. However, it did not allow the determination of which frame prevailed in shaping this discourse. This finding aligns with previous research: according to Simon and Xenos (2000: 367), frames, representing various claims, compete during the deliberation phases. Therefore, it is useful to consider all frames as equally important.

9.5. Limitations of the study

Overall, the results of the study conducted in this master's thesis allowed the identification of the role of images in deliberation thus providing an answer to the research question. However, the study has limitations that restrict the extent to which the findings can be generalised.

According to Rose (2008), when analysing photographs shown to the public by the modern mass media, there is significant evidence indicating that these images reflect the interests of the powerful elites. But how can less powerful individuals declare their position

in the world? A way to reveal this is to provide members of marginalised groups cameras and request them to capture their own perception of the space; and, by treating these photos as evidence of a unique perspective of less powerful people on themselves and their surroundings, one can gain insights into their geographies (Rose, 2008: 154). In this master's thesis, I argue that this perspective can be demonstrated and explained to the wider public by the work of photojournalists. The latter, through the means of photography, can deliver messages on environmental and social issues and their consequences to the world. However, a lack of credibility can influence the effect of images on deliberation. This means that for images to be impactful, their sources must be credible. For example, photographic images must neither be staged nor altered. Further elaboration on the importance of image production and credibility is provided in Sections 5.2 and 7.5.1.

The interviews provided insights into aspects of utilising photographic images that were not evident during earlier research stages, which are content, discourse, and frame analyses. These aspects relate to using images in decision-making and how citizens and policy-makers perceive images. Thus, the analysis of images and contexts alone is insufficient for analysing deliberative processes. Triangulation must be employed by conducting such research methods as interviews or surveys.

Deliberation involves argumentation and exchange of ideas, forming connections between concepts within discussions, and this process is closely tied to framing effects, as different perspectives shape the understanding of the issue (Simon & Xenos, 2000: 367). Thus, individuals' various perspectives and attitudes can limit communication of environmental issues when using visuals in deliberative processes. Also, research indicates that people often avoid information (Christiano & Neimand, 2018). There are three main reasons for this: information makes them feel bad, obligates them to act against their will, or threatens their identity and beliefs (Christiano & Neimand, 2018). From health warnings to climate change, individuals tend to shy away from information that triggers negative emotions like sadness, fear, or guilt, making communication on pressing issues like climate change particularly challenging (Christiano & Neimand, 2018). Thus, given the diverse range of perspectives individuals hold towards a problem, it is important to explore the audience's responses to images. Surveys or interviews can be effective methods to achieve this goal.

The results of the study show that the Five-dimensional approach can be useful as a tool for exploring the role of an image in deliberative processes. However, this approach has its limitations. An image's content and aesthetics are subjective criteria and can be interpreted depending on the analyst's personal position and opinion. Therefore, while analysing the content of an image, it is important to consider what is literally depicted.

The utilised methods were insufficient for analysing the audience's interaction with the images. The distribution of an image can be difficult to evaluate as its analysis requires a comprehensive approach. Even when considering the context in which images are created, image analysis cannot definitively determine the precise impact which images have on viewers (Müller & Backhaus, 2008: 41). This can be explained by the fact that the impact of an image varies depending on individuals' changing "dispositions and attitudes" (Müller &

Backhaus, 2008: 41). Thus, from the data, it was not possible to evaluate whether and to what extent the analysed images directly influenced deliberative processes. To address such questions, deliberation should be organised and facilitated.

Furthermore, analysing images without textual contexts is insufficient to comprehend the dimensions of Institutions and Power. An understanding of the causes of an issue is necessary, which images alone cannot provide. Therefore, analysing images without a textual context or images accompanied by insufficient or not credible contexts is not useful.

Finally, there could be obstacles when it comes to solving environmental issues that have long-term effects and affect future generations. Both citizens and politicians tend to prioritise "short-term concerns," opting for immediate benefits rather than considering sacrifices for the benefit of future generations (Carter, 2007: 179). Therefore, when analysing deliberation, a more complex approach is needed, which should consider the variety of sub-dimensions that influence public opinion and individuals' everyday actions in the long term.

9.6. Positionality

The concept of positionality encompasses both a researcher's worldview and a position regarding a research task in its social and political context (Darwin Holmes, 2020). Positionality influences how research is conducted, as well as its results and outcomes (Darwin Holmes, 2020).

I am a white woman in her late thirties from a middle-class well-educated family. I was born in St. Petersburg, Russia, where I grew up, studied, and worked before moving to Switzerland in 2016. Some of my family roots relate to the North-West of Kazakhstan, which is why the Aral Sea case study is particularly interesting to me.

On the one hand, my education at the Institute of Earth Sciences at St. Petersburg State University and the Department of Geography at the University in Zurich influenced my perception of the natural environment to an extent. During my bachelor's studies, I participated in numerous field trips, including a 1-month long field trip in the South of Russia and Ukraine, which involved work at the Sea of Azov and saline Lake Sivash. The theoretical and practical knowledge obtained during the studies and field trips allowed me, apart from acquiring profound knowledge about the environment, to become familiar with the mode of ecological governance in the post-Soviet space. This knowledge helped me while conducting an expert interview with Nikolai Aladin. The communication was facilitated by Aladin living in Saint Petersburg, my native city.

On the other hand, over the past eight years, my professional activities in Switzerland relate to art and photography. These activities involve attending numerous art-related events, including exhibitions, vernissages, presentations, and talks, as well as organising art exhibitions and art-related events myself. Such activities allowed me to gain knowledge about geographical, institutional, political, and economic aspects of photography as a branch of art.

For researchers, both self-reflection and adopting a reflexive approach to the study are crucial requirements (Darwin Holmes, 2020). A potential bias I might hold is an inclination

towards criticism regarding the level of democracy in Kazakhstan. This predisposition might lead me to believe that in Kazakhstan, individuals have minimal influence on political processes. To address this potential bias, I adopted a reflexive approach, which facilitates a reduction of biased viewpoints (Darwin Holmes, 2020). This approach contributed to the validity of the research.

9.7. Validity

Research must be appropriate and valid (Kitchin & Tate, 2000: 34-35), in order to accurately address the objectives and answer research questions. Kitchin & Tate (2000: 35) provide the following types of validity related to practical research: (1) Construct and Analytical validity, which relate to the "methodological integrity of a study" and (2) Ecological and Internal validity related to "integrity of conclusions drawn from a study". Such validation ensures the methodological integrity of a study and the reliability of its conclusions (Kitchin & Tate, 2000: 35).

Construct validity concerns the generation or acquisition of unbiased and error-free data. These criteria were met by following the data sampling requirements outlined by Kitchin and Tate (2000: 227), which include authenticity, credibility, representativeness, and meaning, as discussed in Section 7.5.1 on Data Sampling.

Concern of **Analytical validity** is the correctness of the data analysis method, which ensures that results represent the data correctly and conclusions are appropriate. This requirement is fulfilled because the employed methodology includes various approaches and allowed for a comprehensive analyse of the material.

Ecological validity enables the validation of conclusions drawn from study results. The concerns of ecological validity are generalisations and inferring individual characteristics from aggregated data. This type of validity addresses questions about the applicability of study conclusions from one area to other areas. This type of validation was fulfilled by addressing the research objectives of this study, which are "to develop a tool which can be used to analyse the role of an image in deliberative processes and can be applicable to any photographic image" and "to assess an image's potential to facilitate participatory processes that may lead to deliberation". Going a long way in fulfilling these objectives involved developing a methodology which is adaptable to a wide range of photographic images.

Finally, **Internal validity** concerns whether the results of a study can be interpreted in various ways or if different conclusions can be drawn from them. Although there are various modes of analysing images and interpreting the results, my objective was to focus on the interpretation of the results of the image analysis in relation to deliberation. However, the data was insufficient to explore deliberation in the case study area in its conventional sense. The insights on deliberative processes in Akespe are derived from the literature review and

the interview with Nikolai Aladin. The results of this study can be seen as primarily connected to the Aral Sea crisis and its environmental, economic, political, and social outcomes, which are outside of the deliberative context. However, the methodologies utilised in this master's thesis allowed for addressing the research questions and substantially advanced the fulfillment of the study's research objectives.

10.   Conclusion

Deliberation refers to the process of involving individuals in decision-making to find a policy solution for a problem. When an environmental issue arises, there is a call for transformative change, which begins by raising awareness of the issue. Environmental issues such as biodiversity loss, scarcity of resources, pollution, and climate change, are not separate problems, but rather are outcomes of unsustainability across scales and geographies, which requires enabling transformative processes on the profound, system-wide level (Hammond, 2020: 220). This is the cause of growing concern of research across various disciplines at the crossroads of environmental and social sciences, and a new approach, which allows the broadening of interdisciplinary boundaries, is needed (Wironen et al., 2019: 1). Considering that many environmental problems are very complex and seemingly unsolvable at first glance (Mansbridge, 2022: 494), there is a call for alternative ways of communication and new spaces for deliberative processes. Such new communicational methods connect creative and idealistic individuals around the globe, allowing new technologies to be supported at deliberative forums and thus strengthening democracy (Mansbridge, 2022: 494). "Through images, stories are told in a way that goes beyond words" (Mendonça et al., 2020: 161), which implies that images connect individuals and contribute to deliberation. As conveyors of knowledge, visuals play a crucial role in transmitting and disseminating information about environmental issues. Physical or digital spaces where this knowledge is visually communicated establish new arenas for discursive deliberation.

The aim of this master thesis was to answer the question: "How can photographic images contribute to deliberative processes?" To address this question, the study concentrated on developing a tool capable of analysing the role of images in deliberative processes that is applicable to any photographic image. Furthermore, the thesis aimed to evaluate the potential of an image to facilitate participatory processes that may lead to deliberation.

The results of this study show that photographic images can serve as instruments that enhance individuals' awareness of a problem. As information conveyors, images can effectively transmit and disseminate knowledge, providing both citizens and decision-makers with a more comprehensive understanding of what is happening. Physical or digital spaces where knowledge is visually communicated create new arenas for discursive deliberation, expanding the boundaries of discourse.

The research comprised five stages. Firstly, the content analysis was employed to quantitatively assess the content of visual material, revealing patterns and themes in the

landscape representation. Secondly, the discourse analysis was conducted to qualitatively interpret this representation in terms of power dynamics and knowledge. The third stage involved the examination of social, economic, and political frames that shape public discourses surrounding the Aral Sea crisis. These frames form public opinion and create a 'ground' for deliberation. Following this, triangulation was implemented through the expert interviews to delve deeper into the role of visuals in addressing the Northern Aral Sea crisis.

The analytical categories defined as a result of the discourse analysis of themes and patterns in the images are a pivotal discovery in this master's thesis study. The analytical categories were determined by analysing the interconnection between segments of images associated with power, environment, and social aspects. By capturing the environmental and social aspects of the Aral Sea crisis, reflected in the images, from the perspective of power relations, the analytical categories facilitated the comprehension of the institutional context and power dynamics. The findings of this study indicate that images can both reflect institutions, as evidenced by the discourse analysis results, and influence them, as revealed through the expert interviews. Remarkably, power relations cannot be identified in photographs. However, the results of their textual context analysis shed light on power dynamics. The analytical categories indicated that photographic images can serve as instruments for conveying knowledge about environmental issues and reflecting public discourses.

Furthermore, the analytical categories formed the basis for frame analysis. The findings of the frame analysis demonstrate the utility of images in analysing the formation of public discourses concerning the Aral Sea crisis by defining frames, or conditions, that shape them. The frame analysis enabled the identification of four frames that shape public discourses: environmental, political, economic, and social.

A holistic approach is needed to make content, discourse, and frame analyses applicable for analysing how an image can influence deliberation. Employing the Five-dimensional approach, the results obtained were examined through the lens of the Five dimensions: Content, Aesthetics, Audience, Institutions, and Power. Along with features of images and their contexts, the Five-dimensional considers factors which shape deliberative processes. Apart from political, economic, and social aspects, or dimensions of institutions and power, it is important to consider the content of the image, its aesthetics, and its distribution.

The results of the study show that the Five-dimensional approach can be used as a tool for exploring the role of an image in deliberative processes. Using the Five-dimensional approach, I analysed the images through the prism of three out of the five dimensions: (1) the content of images and their textual contexts, (2) the institutional context of an environmental issue, and (3) the power relations between the parties involved and their outcomes. The dimensions of (4) audiences and (5) aesthetics of images were not analysed since the data was insufficient. However, the conducted analysis did nevertheless provide an answer to the research question and went a long way in fulfilling the objectives of this study.

10.1. Practical implications

The findings of this master's thesis study can yield implications across various sectors. They offer insights for a range of stakeholders involved in addressing environmental issues. For policy-makers, citizens, researchers, photographers, journalists, and artists, these findings serve as contributions to understanding, communicating, and addressing environmental challenges more effectively.

For policy-makers, the results provide insights into the political, institutional, and social contexts surrounding environmental issues. This understanding is vital for making informed decisions that are sensitive to the complexities of the situation. Additionally, "deliberative democrats need to pay more systematic attention to non-verbal expression" (Mendonça et al., 2020: 155). Images offer policymakers a means to grasp complex issues quickly, bypassing the need to sift through extensive textual information. Moreover, discourses reflected in photographs can inform policy-makers about the issues citizens face and reveal their positions.

Citizens can benefit from the study's findings by using images to represent public opinion in both physical and digital public spaces and deliberative arenas. Ensuring that these images contain sufficient information and accurately reflect public discourses is essential for citizens' voices to be heard during deliberative processes.

The study findings can be useful for researchers. They provide insights into the political, institutional, and social contexts surrounding environmental issues, as well as the frames that shape public opinion. The results also provide insights and avenues for further exploration, discussed in Section 10.2.

The findings of the study conducted in this master's thesis has also relevance for photographers, journalists, and artists who seek to accurately represent public opinion and consider the potential impact of the images on policy-makers.

Additionally, institutions such as museums, galleries, and cultural public spaces serve as platforms for presenting diverse perspectives on various environmental and social issues. Images represented there have the power to shape perceptions, evoke emotions, and influence decision-making. Therefore, aritists who represent their works at such institutions can play a role in shaping public opinion. The findings of this study have the potential to enhance the practices of artists in delivering messages, as well as in evoking and representing public discourses.

10.2. Suggestions for further research

The following suggestions are proposed for future research. Further exploration should focus on understanding the dimension of Audience, or how images are distributed and perceived by individuals from various groups of actors. Individuals' perception of an image is influenced by its aesthetics. The latter plays a vital role in capturing individuals' attention and drawing them into a topic or discussion. However, the content of an image determines the

effectiveness of communication in providing individuals with meaningful information about an issue and the discourses surrounding it. Therefore, future research should pay greater attention to the potential of an image's content in deliberative processes and audiences' perception of images rather than the aesthetics of an image. This can be achieved by implementing qualitative and quantitative methods such as interviews and surveys.

For quantitative research, a discourse qualitative index - the method introduced by Steenbergen et al. (2003) - can be useful. A discourse qualitative index allows for quantitatively measuring the effectiveness of discourse. Exploring the use of images in measuring the effectiveness of discourse and understanding how discourse processes can influence the outcomes of deliberation can be another avenue for research.

Furthermore, future research can delve into the prognostication of deliberation outcomes when using photographic images. This can be achieved through a visualisation by plotting the Five dimensions. The dimensions of Context, Aesthetics, Audience, Institutions, and Power can be explored qualitatively or quantitatively and represented graphically. Such visualisation can potentially predict the effectiveness of an image for deliberation and can be useful for diverse actors addressing an issue.

I did not examine the value conflicts around the Aral Sea crisis in this study. However, it is important to recognise their importance for desision- and policy-making. Understanding value conflicts can be useful for exploring the 'fertile ground' from which successful deliberation emerges. Moreover, when dealing with conflicts of values, images can contribute to the emergence of empathy and comprehension of each side's position, which would lead to mutual understanding and facilitate deliberation (Mendonça et al., 2020: 159).

The methods applied throughout all stages of the analysis did not allow for the identification of the emotional reactions elicited by the images in viewers. Consequently, additional research, such as surveys or interviews, is recommended to delve deeper into this aspect.

Additionally, method of frame analysis, as a method for analysing deliberation, is described in the book "Research Methods in Deliberative Democracy" by Ercan et al. (2022). Despite the comprehensiveness of this account for deliberative democracy, which provides an 'all-in-one guide' for studying the field, the editors recognise the limitation of the book (Ercan et al., 2022: 1). In the context of the dynamic landscape of research on deliberation, the book cannot cover all the methods, particularly those which are in their emerging state (Ercan et al., 2022: 1). Hence, future research should keep pace with advancements in deliberation studies and consider integrating new methods.

Finally, nowadays, when the boundaries between research and activist movements are becoming increasingly blurred (Wironen et al., 2019: 2), an interdisciplinary approach to addressing environmental issues is needed. This involves blending research with artistic reflections on environmental issues, leading to collaborations among diverse actors, including researchers, policymakers, corporations, NGOs, artists, journalists, and society at large.

11. Bibliography

20 Minuten (2007). *Exklusiv: Das neue Stress-Video*. 20 Minuten. Retrieved 2024 March 25, from
    https://www.20min.ch/story/exklusiv-das-neue-stress-video-659753103479

About us | World Press Photo (n.d.). Retrieved 6 October 2023, from
    https://www.worldpressphoto.org/about-us

Aitken, S. C., & Craine, J. (2013). Visual methodologies: What you see is not always what you get.
    In R. Flowerdew & D. Martin (Eds.), *Methods in human geography: A guide for students doing a
    research project* (2nd ed, pp. 250–269). Routledge.

Backhaus, N., Buschle, M., Gorgus, N., Müller, U., & Moreno, T. (Eds.). (2006). *Kraft der Bilder:
    Vorstellungen über Nachhaltigkeit - ein Entscheidungsspiel* (1. Aufl). Geograph. Inst., Abt.
    Humangeographie.
    https://www.zora.uzh.ch/id/eprint/2720/9/2006_Backhaus%20et%20al.%20-%202006%20-
    %20Kraft%20der%20Bilder%20Vorstellungen%20%C3%BCber%20Nachhaltigkeit%20%E2%
    80%93%20ein%20Entscheidungsspiel.pdf

Backhaus, N., Müller, U., & Müller-Böker, U. (2008). *The look of and on sustainable development: The
    role of images in participation processes to establish protected areas*.

Barisione, M. (2012). Framing a Deliberation. Deliberative Democracy and the Challenge of
    Framing Processes. *Journal of Deliberative Democracy*, *8*(1). https://doi.org/10.16997/jdd.124

Benson, J. (2018). Deliberative democracy and the problem of tacit knowledge. *Politics, Philosophy
    & Economics*, *18*(1), 76–97. https://doi.org/10.1177/1470594X18782086

Bernauer, T., & Siegfried, T. (2012). Climate change and international water conflict in Central
    Asia. *Journal of Peace Research*, *49*(1), 227–239. https://doi.org/10.1177/0022343311425843

Bessette, J. M. (2001). Deliberation: Political Aspects. In *International Encyclopedia of the Social &
    Behavioral Sciences* (pp. 3377–3380). Elsevier. https://doi.org/10.1016/B0-08-043076-7/01130-X

Bleiker, R., Campbell, D., Hutchison, E., & Nicholson, X. (2013). The visual dehumanisation of
    refugees. *Australian Journal of Political Science*, *48*(4), 398–416.
    https://doi.org/10.1080/10361146.2013.840769

Bogner, A., Littig, B., & Menz, W. (Eds.). (2009). *Interviewing Experts*. Palgrave Macmillan UK.
    https://doi.org/10.1057/9780230244276

Boyd, C. P. (2023). *Exhibiting Creative Geographies: Bringing Research Findings to Life*. Springer
    Nature Singapore. https://doi.org/10.1007/978-981-19-6752-8

Campbell, D. (2014). *The Integrity of the Image*.
    https://www.academia.edu/9476786/The_Integrity_of_the_Image

Carter, N. (2007). *The politics of the environment: Ideas, activism, policy* (2. ed). Cambridge University
    Press.

Central Intelligence Agency (2024). Kazakhstan. In *The World Factbook*. Central Intelligence
    Agency. Retrieved 17 April 2024, from https://www.cia.gov/the-world-
    factbook/countries/kazakhstan/

Christiano, A., & Neimand, A. (2017). Stop Raising Awareness Already. *Stanford Social Innovation
    Review*, *15*, 3441. https://doi.org/10.48558/7MA6-J918

Christiano, A., & Neimand, A. (2018). The Science of What Makes People Care. *Stanford Social Innovation Review*, *16*, 2633. https://doi.org/10.48558/GW2V-5279

Clement, F. (2018). *Exploring the use of audiovisual media for deliberation. Reframing discourses on vulnerabilities to climate change in Nepal* (pp. 200–224).

Code of ethics | World Press Photo. (n.d.). Retrieved 6 October 2023, from https://www.worldpressphoto.org/contest/2023/code-of-ethics

Cope, M., & Kurtz, H. (2016). Organizing, Coding, and Analyzing Qualitative Data. In N. J. Clifford, M. Cope, T. W. Gillespie, & S. French (Eds.), *Key methods in geography* (Third edition, pp. 646–665). SAGE.

Crang, M. (2009). Visual Methods and Methodologies. In D. DeLyser, S. Herbert, S. Aitken, M. Crang, & L. McDowell, *The SAGE Handbook of Qualitative Geography* (pp. 208–224). SAGE Publications, Inc. https://doi.org/10.4135/9780857021090.n14

Darwin Holmes, A. G. (2020). Researcher Positionality—A Consideration of Its Influence and Place in Qualitative Research—A New Researcher Guide. *Shanlax International Journal of Education*, *8*(4), 1–10. https://doi.org/10.34293/education.v8i4.3232

Deng, Y., Loy, C. C., & Tang, X. (2016). *Image Aesthetic Assessment: An Experimental Survey*. https://doi.org/10.48550/ARXIV.1610.00838

Denzin, N. K. (2007). Triangulation. In G. Ritzer (Ed.), *The Blackwell Encyclopedia of Sociology* (1st ed.). Wiley. https://doi.org/10.1002/9781405165518.wbeost050

Deutsche, R. (1996). *Evictions: Art and spatial politics*. MIT press.

Dryzek, J. S. (2005). Deliberative Democracy in Divided Societies: Alternatives to Agonism and Analgesia. *Political Theory*, *33*(2), 218–242. https://doi.org/10.1177/0090591704268372

Dryzek, J. S., Bächtiger, A., Chambers, S., Cohen, J., Druckman, J. N., Felicetti, A., Fishkin, J. S., Farrell, D. M., Fung, A., Gutmann, A., Landemore, H., Mansbridge, J., Marien, S., Neblo, M. A., Niemeyer, S., Setälä, M., Slothuus, R., Suiter, J., Thompson, D., & Warren, M. E. (2019). The crisis of democracy and the science of deliberation. *Science*, *363*(6432), 1144–1146. https://doi.org/10.1126/science.aaw2694

Dumetz, J., & Aladin, N. (2021). Saving the Aral Sea: A cross-cultural communication success. *Academia Letters*. https://doi.org/10.20935/AL360

Durtschi, P. (2012). Rückkehr der Fische. *Neue Zürcher Zeitung*. Retrieved 20 March 2024, from https://www.nzz.ch/rueckkehr_der_fische-ld.691856

Ercan, S. A., Asenbaum, H., Curato, N., & Mendonça, R. F. (2022). Researching Deliberative Democracy: Methods and Approaches. In S. A. Ercan, H. Asenbaum, N. Curato, & R. F. Mendonça (Eds.), *Research Methods in Deliberative Democracy* (1st ed., pp. 1–24). Oxford University PressOxford. https://doi.org/10.1093/oso/9780192848925.003.0001

Erlon-Baurjan, J. (2019). *The Aral Sea Crisis*. Post Conflict Research Center. https://p-crc.org/2019/10/07/the-aral-sea-crisis/

Esau, K., Fleuß, D., & Nienhaus, S. (2021). Different Arenas, Different Deliberative Quality? Using a Systemic Framework to Evaluate Online Deliberation on Immigration Policy in Germany. *Policy & Internet*, *13*(1), 86–112. https://doi.org/10.1002/poi3.232

Evans, J. (2012). *Environmental governance* (1st ed). Routledge.

Failing, L., Gregory, R., & Harstone, M. (2007). Integrating science and local knowledge in environmental risk management: A decision-focused approach. *Ecological Economics*, *64*(1), 47–60. https://doi.org/10.1016/j.ecolecon.2007.03.010

Gibson, J. J. (2015). *The ecological approach to visual perception: Classic edition*. Psychology Press.

Glückler, J., Suddaby, R., Lenz, R., & Klaus Tschira Stiftung (Eds.). (2018). *Knowledge and institutions*. Springer Open.

Goffman, E. (1986). *Frame analysis: An essay on the organization of experience* (Northeastern University Press ed). Northeastern University Press.

Habermas, J. (1988). *Legitimation crisis*. Polity Press.

Hademyr, M. (2017). Unpacking public places in Gothenburg – The Event City: Becoming a cannibal. In J. Luger & J. Ren (Eds.), *Art and the City* (1st ed., pp. 166–176). Routledge. https://www.taylorfrancis.com/books/9781315303024/chapters/10.4324/9781315303031-11

Hammond, M. (2020). Democratic deliberation for sustainability transformations: Between constructiveness and disruption. *Sustainability: Science, Practice and Policy*, *16*(1), 220–230. https://doi.org/10.1080/15487733.2020.1814588

Hardin, G. (1968). The Tragedy of the Commons. *Science*, *162*(3859), 1243–1248. https://doi.org/10.1126/science.162.3859.1243

Hawkins, H. (2012). Geography and art. An expanding field: Site, the body and practice. *Progress in Human Geography*, *37*(1), 52–71. https://doi.org/10.1177/0309132512442865

Hawkins, H. (2015). Creative geographic methods: Knowing, representing, intervening. On composing place and page. *Cultural Geographies*, *22*(2), 247–268. https://doi.org/10.1177/1474474015569995

Hawkins, H. (2017). Foreword. Art works: Art words—Scales, spaces, scapes. In J. Luger & J. Ren (Eds.), *Art and the City* (1st ed.). Routledge. https://www.taylorfrancis.com/books/9781315303024/chapters/10.4324/9781315303031-11

Hendriks, C. M., Ercan, S. A., & Duus, S. (2017). *A picture worth a thousand words? Visuals in public deliberation*. *3rd International Conference on Public Policy (ICPP3) June 28-30, 2017 – Singapore*. https://crawford.anu.edu.au/files/uploads/crawford01_cap_anu_edu_au/2017-08/hendriks_etal_icpp_visuals_final_small.pdf

Herre, B., & Roser, M. (2023). The 'Regimes of the World' data: How do researchers measure democracy? *Our World in Data*. https://ourworldindata.org/regimes-of-the-world-data

Hoalst-Pullen, N., Gatrell, J. D., & Patterson, M. W. (2021). Applied geography: A problem-solving approach. *Applied Geography*, *128*, 102412. https://doi.org/10.1016/j.apgeog.2021.102412

Hodson, D. (2021). The Politics of Documentary Photography: Three Theoretical Perspectives. *Government and Opposition*, *56*(1), 20–38. https://doi.org/10.1017/gov.2019.3

Horster, D., Van Reijen, W., Habermas, J., & Smith, R. (1979). Interview with Jurgen Habermas Starnberg, March 23, 1979. *New German Critique*, *18*, 29. https://doi.org/10.2307/487849

Ibert, O. (2010). Towards a Geography of Knowledge Creation: The Ambivalences between 'Knowledge as an Object' and 'Knowing in Practice'. *Regional Studies*, *41*(1), 103–114. https://doi.org/10.1080/00343400601120346

IRGC (2018). *IRGC Guidelines for the governance of systemic risks*. Lausanne: International Risk Governance Center (IRGC). https://ethz.ch/content/dam/ethz/special-interest/usys/ied/wcr-dam/documents/IRGC%20(2018).%20IRGC%20Guidelines%20for%20the%20governance%20of%20systemic%20risks.pdf

Jasrotia, A. (2016). *FIGHTING 2° CELSIUS: THE QUEST FOR CLIMATE JUSTICE*. http://www.jstor.org/stable/45163061

Kitchin, R., & Tate, N. J. (2000). *Conducting research in human geography: Theory, methodology and practice*. Prentice Hall.

Klein, N. (2014). *This changes everything: Capitalism vs. the climate* (First Simon&Schuster hardcover edition). Simon & Schuster.

Krapivin, V., Mkrtchyan, F., & Rochon, G. (2019). Hydrological Model for Sustainable Development in the Aral Sea Region. *Hydrology*, *6*(4), 91. https://doi.org/10.3390/hydrology6040091

Kumar, R. S. (2002). Aral Sea: Environmental Tragedy in Central Asia. *Source: Economic and Political Weekly , Sep. 14-20, 2002, Vol. 37, No. 37 (Sep. 14-20, 2002)*, 3797–3802.

Langmann, S., & Pick, D. (2018). *Photography as a social research method*. Sprinter Nature.

Larner, W. (2006). A Brief History of Neoliberalism. By David Harvey. *Economic Geography*, *82*(4), 449–451. https://doi.org/10.1111/j.1944-8287.2006.tb00327.x

Lavoie, V. (2010). *Photojournalistic Integrity Codes of Conduct, Professional Ethics, and the Moral Definition of Press Photography*. https://www.academia.edu/33716989/Photojournalistic_Integrity_Codes_of_Conduct_Professional_Ethics_and_the_Moral_Definition_of_Press_Photography

Linneberg, M. S., & Korsgaard, S. (2019). Coding qualitative data: A synthesis guiding the novice. *Qualitative Research Journal*, *19*(3), 259–270. https://doi.org/10.1108/QRJ-12-2018-0012

Liu, Z., Liu, T., Huang, Y., Duan, Y., Pan, X., & Wang, W. (2022). Comparison of Crop Evapotranspiration and Water Productivity of Typical Delta Irrigation Areas in Aral Sea Basin. *Remote Sensing*, *14*(2), 249. https://doi.org/10.3390/rs14020249

Liverman, D. (2015). *READING CLIMATE CHANGE AND CLIMATE GOVERNANCE AS POLITICAL ECOLOGIES* (pp. 303–319).

Loodin, N. (2020). Aral Sea: An environmental disaster in twentieth century in Central Asia. *Modeling Earth Systems and Environment*, *6*(4), 2495–2503. https://doi.org/10.1007/s40808-020-00837-3

Luger, J. (2017). Conclusion: Towards a 'worlding' of art and the city? In J. Luger & J. Ren (Eds.), *Art and the City* (1st ed., pp. 229–237). Routledge. https://www.taylorfrancis.com/books/9781315303024/chapters/10.4324/9781315303031-11

Lutfi, D. (2024). The Image Debate: Investigating the Rationale Behind Aniconism in Islamic Arab Societies. *International Journal of Religion*, *5*(1), 264–280. https://doi.org/10.61707/qgqn0d77

Maeder, T., Piraud, M., & Pattaroni, L. (2017). New genre public commission? In J. Luger & J. Ren (Eds.), & J. Strelec (Trans.), *Art and the City* (1st ed., pp. 147–165). Routledge. https://doi.org/10.4324/9781315303031-11

Malizu, C. F. (2010). *RE-EXAMINING THE CREDIBILITY OF PHOTOJOURNALISM IN THE DIGITAL PHOTOGRAPHY AND EDITING ERA*. *1*, 133–148.

Mansbridge, J. (2022). Mutual Need: In the Study of Deliberative Democracy, Norms, Practice, and Empirical Assessment Depend on One Another. In S. A. Ercan, H. Asenbaum, N. Curato, & R. F. Mendonça (Eds.), *Research Methods in Deliberative Democracy* (1st ed., pp. 479–498). Oxford University PressOxford. https://doi.org/10.1093/oso/9780192848925.003.0033

Massey, D. B. (2005). *For space*. SAGE.

Meadowcroft, J. (2004). Participation and Sustainable Development: Modes of Citizen, Community and Organisational Involvement. In W. M. Lafferty (Ed.), *Governance for Sustainable Development*. Edward Elgar Publishing. https://doi.org/10.4337/9781845421700.00014

Mendonça, R. F., Ercan, S. A., & Asenbaum, H. (2020). More than Words: A Multidimensional Approach to Deliberative Democracy. *Political Studies*, *70*(1), 153–172. https://doi.org/10.1177/0032321720950561

Mendonça, R. F., & Simões, P. G. (2022). Frame Analysis. In S. A. Ercan, H. Asenbaum, N. Curato, & R. F. Mendonça (Eds.), *Research Methods in Deliberative Democracy* (1st ed., pp. 345–355). Oxford University PressOxford. https://doi.org/10.1093/oso/9780192848925.003.0024

Micklin, P. (1991). TOURING THE ARAL: VISIT TO AN ECOLOGIC DISASTER ZONE. *Soviet Geography*, *32*(2), 90–105. https://doi.org/10.1080/00385417.1991.10640856

Micklin, P., Aladin, N. V., & Plotnikov, I. S. (2014). An Expedition to the Northern Part of the Small Aral Sea (August 29 to September 16, 2011). In P. Micklin, N. V. Aladin, & I. Plotnikov (Eds.), *The Aral Sea* (pp. 337–351). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-02356-9_13

Müller, U., & Backhaus, N. (2006). Regionalisierung und die Methode der Bildanalyse. *Schriftenreihe Humangeographie*, *22*, Article 22. https://doi.org/10.5167/uzh-77027

Müller, U., & Backhaus, N. (2007). The Entlebuchers: People from the back of beyond? *Social Geography*, *2*(1), 11–28. https://doi.org/10.5194/sg-2-11-2007

Neumayer, E. (2001). Pollution Havens: An Analysis of Policy Options for Dealing with an Elusive Phenomenon. *The Journal of Environment & Development*, *10*(2), 147–177. https://doi.org/10.1177/107049650101000203

Oeberst, A., Kimmerle, J., & Cress, U. (2016). What Is Knowledge? Who Creates It? Who Possesses It? The Need for Novel Answers to Old Questions. In U. Cress, J. Moskaliuk, & H. Jeong (Eds.), *Mass Collaboration and Education* (pp. 105–124). Springer International Publishing. https://doi.org/10.1007/978-3-319-13536-6_6

OECD (2017). *Multi-dimensional Review of Kazakhstan: Volume 2. In-depth Analysis and Recommendations*. OECD. https://doi.org/10.1787/9789264269200-en

Oldrup, H. H., & Carstensen, T. A. (2012). Producing geographical knowledge through visual methods. *Geografiska Annaler: Series B, Human Geography*, *94*(3), 223–237. https://doi.org/10.1111/j.1468-0467.2012.00411.x

Our World in Data[1] (n.d.). *Deliberative democracy*. Our World in Data. Retrieved 7 November 2023, from https://ourworldindata.org/grapher/deliberative-democracy-vdem

Our World in Data[2] (n.d.). *Deliberative democracy*. Our World in Data. Retrieved 7 November 2023, from https://ourworldindata.org/grapher/deliberative-democracy-popw-vdem

Pankow, J., & Jermakowicz, W. (1994). Privatization in the Kyrghyz Republic. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1479528

Patterson, J. J., & Beunen, R. (2019). Institutional work in environmental governance. *Journal of Environmental Planning and Management*, *62*(1), 1–11. https://doi.org/10.1080/09640568.2018.1538328

Pellizzoni, L. (2010). Environmental Knowledge and Deliberative Democracy. In M. Gross & H. Heinrichs (Eds.), *Environmental Sociology: European Perspectives and Interdisciplinary Challenges* (pp. 159–182). Springer Netherlands. https://doi.org/10.1007/978-90-481-8730-0_10

Petrovici, I., & Szabo, L. V. (2018). Some Aspects of Aesthetic Creativity in Journalistic Photography. *Postmodern Openings*, *9*(2), 134–144. https://doi.org/10.18662/po/24

Polanyi, M. (1966). *The tacit dimension*. Doubleday & Company, Inc.

Pyyry, N., Hilander, M., & Tani, S. (2021). Photography and photo elicitation as visual methods. In N. Von Benzon, M. Holton, C. Wilkinson, & S. Wilkinson, *Creative Methods for Human Geographers* (pp. 75–86). SAGE Publications Ltd. https://doi.org/10.4135/9781529739152.n6

Rehman, S. N. (2018). A camera never told the truth: An exploration of objectivity in photojournalism. *Annales. Etyka w Życiu Gospodarczym*, *21*(4), 45–57. https://doi.org/10.18778/1899-2226.21.4.05

Rose, G. (2001). *Visual methodologies: An introduction to the interpretation of visual materials*. Sage.

Rose, G. (2008). Using Photographs as Illustrations in Human Geography. *Journal of Geography in Higher Education*, *32*(1), 151–160. https://doi.org/10.1080/03098260601082230

Rose, G. (2016). *Visual methodologies: An introduction to researching with visual materials* (4th edition). SAGE Publications Ltd.

Schäfer, M. S., & O'Neill, S. (2017). Frame Analysis in Climate Change Communication. In M. S. Schäfer & S. O'Neill, *Oxford Research Encyclopedia of Climate Science*. Oxford University Press. https://doi.org/10.1093/acrefore/9780190228620.013.487

Schneck, S. F. (1987). Michel Foucault on power/discourse, theory and practice. *Human Studies*, *10*(1), 15–33. https://doi.org/10.1007/BF00142984

Shi, C., Zhang, F., Zhu, P., & Shi, Q. (2021). How Is Knowledge Perceived as Power? A Multilevel Model of Knowledge Power in Innovation Networks. *Frontiers in Psychology*, *12*, 630762. https://doi.org/10.3389/fpsyg.2021.630762

Simon, A., & Xenos, M. (2000). Media Framing and Effective Public Deliberation. *Political Communication*, *17*(4), 363–376. https://doi.org/10.1080/10584600050178979

Steenbergen, M. R., Bächtiger, A., Spörndli, M., & Steiner, J. (2003). Measuring Political Deliberation: A Discourse Quality Index. *Comparative European Politics*, *1*(1), 21–48. https://doi.org/10.1057/palgrave.cep.6110002

Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O., & Ludwig, C. (2015). The trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*, *2*(1), 81–98. https://doi.org/10.1177/2053019614564785

Steffen, W., Richardson, K., Rockström, J., Schellnhuber, H. J., Dube, O. P., Dutreuil, S., Lenton, T. M., & Lubchenco, J. (2020). Author Correction: The emergence and evolution of Earth System Science. *Nature Reviews Earth & Environment*, *1*(10), 554–554. https://doi.org/10.1038/s43017-020-0100-8

Stress (2009). *Stress—On n'a q'une terre*. Retrieved 2024 March 25, from https://www.youtube.com/watch?v=_cq9mdhfTcg

Svarstad, H., & Benjaminsen, T. A. (2020). Reading radical environmental justice through a political ecology lens. *Geoforum*, *108*, 1–11. https://doi.org/10.1016/j.geoforum.2019.11.007

The University of Chicago (n.d.). *Desiccation of the Aral Sea: A Water Management Disaster of the Soviet Union | The Center for East European and Russian/Eurasian Studies*. Retrieved 25 January 2024, from https://ceeres.uchicago.edu/desiccation-aral-sea-water-management-disaster-soviet-union

Theriault, N., Leduc, T., Mitchell, A., Rubis, J. M., & Jacobs Gaehowako, N. (2020). Living protocols: Remaking worlds in the face of extinction. *Social & Cultural Geography*, *21*(7), 893–908. https://doi.org/10.1080/14649365.2019.1619821

Trainor, S. F. (2006). Realms of Value: Conflicting Natural Resource Values and Incommensurability. *Environmental Values*, *15*(1), 3–29. https://doi.org/10.3197/096327106776678951

USAID (2023). *USAID Environmental Restoration of the Aral Sea I - Activity Fact Sheet*.

Wæhler, T. A., & Dietrichs, E. S. (2017). The vanishing Aral Sea: Health consequences of an environmental disaster. *Tidsskrift for Den norske legeforening*. https://doi.org/10.4045/tidsskr.17.0597

WCED (1987). *Report of the World Commission on Environment and Development: Note /: by the Secretary-General.* UN,. https://digitallibrary.un.org/record/139811

Wells, L. (Ed.). (2021). *Photography: A critical introduction* (Sixth edition). Routledge.

Wenders, W. (2004). Auf der Suche nach Bildern – Orte sind meine stärksten Bildgeber. In C. Maar & H. Burda (Eds.), *Iconic Turn. Die neue Macht der Bilder.* (pp. 283–302).

White, K. D., & Micklin, P. (2021). Ecological restoration and economic recovery in Kazakhstan's Northern Aral Sea region. *FOCUS on Geography*, *64*. https://doi.org/10.21690/foge/2021.64.4f

Wironen, M., Bartlett, R., & Erickson, J. (2019). Deliberation and the Promise of a Deeply Democratic Sustainability Transition. *Sustainability*, *11*(4), 1023. https://doi.org/10.3390/su11041023

World Press Photo (2021). *Technical Report 2021*. World Press Photo Foundation. Retrieved 30 October 2023, from https://www.worldpressphoto.org/getmedia/e7fa72e1-0236-4d45-ba38-3ff3fdd7b9ef/WPPh2021_Technical_Report.pdf

Zhupankhan, A., Tussupova, K., & Berndtsson, R. (2018). Water in Kazakhstan, a key in Central Asian water management. *Hydrological Sciences Journal*, *63*(5), 752–762. https://doi.org/10.1080/02626667.2018.1447111

12.   Sources of the analysed images and their contexts

Babayan, A. (2019a). *Battered Waters | World Press Photo*. Retrieved 2023 November 26, from
https://www.worldpressphoto.org/collection/photo-contest/2023/Anush-Babajanyan-LTPA/12

Babayan, A. (2019b). *Battered Waters | World Press Photo*. Retrieved 2023 November 26, from
https://www.worldpressphoto.org/collection/photo-contest/2023/Anush-Babajanyan-LTPA/11

Babayan, A., & Tagesschau.de (2023). *World Press Photo*. tagesschau.de. Retrieved 2023 November
26, from https://www.tagesschau.de/multimedia/bilder/world-press-photo-307.html

Iminov, I. (2016). *Арал: В поисках потерянного моря*. https://mysl.kazgazeta.kz/news/7717

Kyzylordinskiye Vesti (2020). *Экотуризм: Лечебный родник «Ыстық су»*. Кызылординские
вести | Областная газета. Retrieved 2023 November 26, from
http://old.kzvesti.kz/news/49991-ekoturizm-lechebnyy-rodnik-ysty-su.html

MacFarquhar, N., & Ponomarev, S. (2018). How a Disappearing Sea Became a Town's Main
Attraction. *The New York Times*. Retrieved 2023 November 26, from
https://www.nytimes.com/2018/08/09/world/asia/aral-sea-disappearing-uzbekistan.html

Schlager, E. (2020). *Rettung des Aralsees—Das Meer ist verschwunden*. Deutschlandfunk Kultur.
Retrieved 2023 November 26, from https://www.deutschlandfunkkultur.de/rettung-des-aralsees-das-meer-ist-verschwunden-100.html

Shuptar, V., & Kim, E. (2017). *Пираты Аральского моря (фото)—Газета «Новый Вестник»*.
Retrieved 2023 November 26, from https://nv.kz/2017/11/28/182836/

Tengrinews.kz, & Massaget.kz (2018). *Акеспе—Поселок, засыпанный песком*. Главные новости
Казахстана - Tengrinews.kz. Retrieved 2023 November 26, from
https://tengrinews.kz/mixnews/akespe-poselok-zasyipannyiy-peskom-348333/

The Asahi Shimbun via Getty Images (2018). *Akespe Bilder und Fotos—Getty Images*. Retrieved 2023
November 26, from https://www.gettyimages.ch/fotos/akespe

Zhumatov, S., & REUTERS (2017a).
*Https://pictures.reuters.com/CS.aspx?VP3=SearchResult&VBID=2C0FCIX8DIYA8O&SMLS=1&R
W=1425&RH=783*. Retrieved 2023 November 26, from
https://pictures.reuters.com/CS.aspx?VP3=SearchResult&VBID=2C0FCIX8DIYA8O&SMLS=1&RW=1425&RH=783

Zhumatov, S., & REUTERS (2017b). *Photos: Dried up Aral Sea springs back to life*. Hindustan Times.
Retrieved 2023 November 26, from https://www.hindustantimes.com/photos/world-news/photos-the-aral-springs-back-to-life-after-big-fish-return/photo-Hmp9DbNSMr2g37iQNTkuZJ.html

13.   Appendix

13.1. The interview transcribtion symbols

NA:	Nikolay Aladin, the interviewee
PD:	Peter Durtschi, the interviewee
SP:	Svetlana Puricel, the interviewer
[…]	Omitted text from the transcription
[text]	Clarification of the meaning or an abbreviation definition

13.2. Images

13.2.1. New York Times

The images in this section: MacFarquhar and Ponomarev (2018)

13.2.2.Reuters

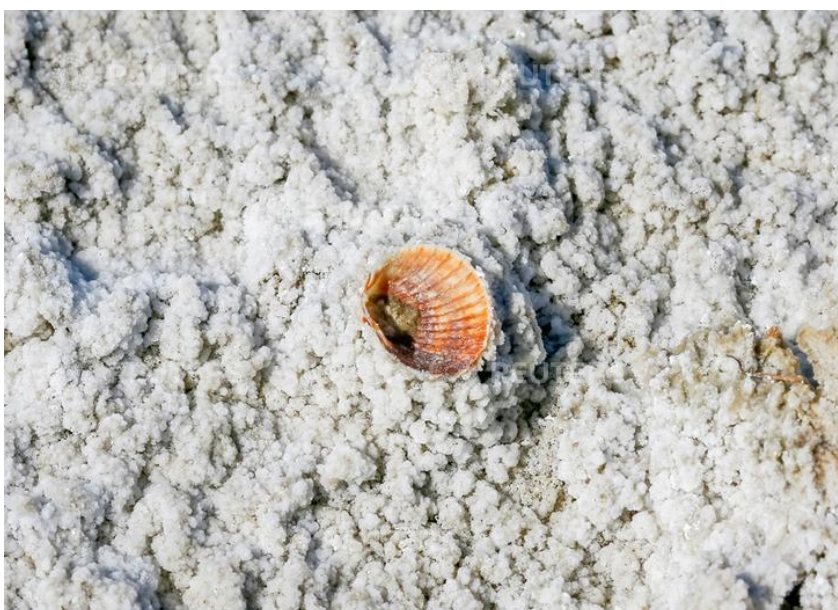The images in this section: Zhumatov and REUTERS (2017a)

13.2.3. World Press Photo

The images in this section: Babayan (2019a)

13.2.4.Getty Images

The images in this section: The Asahi Shimbun via Getty Images (2018)

13.2.5. Hindustan Times

The images in this section: Zhumatov and REUTERS (2017b)

13.2.6. Tagesschau

Babayan and Tagesschau.de (2023)

13.2.7.Deutschland Funk Kultur

Schlager (2020)

13.2.8.Tengri Life

The images in this section: Tengrinews.kz and Massaget.kz (2018)

13.2.9.Kyzylordinskiye Vesti (Кызылординские Вести)

Kyzylordinskiye Vesti (2020)　　　　　　　　　　　　　　　　　　　　　139

13.2.10.   Mysl Kazgazeta (Мысль Казгазета)

The images in this section: Iminov (2016)

13.2.11.   Novyi Vestnik (Новый Вестник)

Shuptar and Kim (2017)

Personal declaration

Thalwil, 27. 04. 2024

Place, date

Svetlana Puricel