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Digital environmental activism: Narratives of decline and hope in Instagram before-and-after photographs

Behnam Rezagholizadeh*
Department of Communication Sciences, Allameh Tabataba'i University, Tehran, Iran. (*✉ b.rezagholizadeh@aut.ac.ir, https://orcid.org/0000-0002-6911-6218)

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Abstract

Background: In recent decades, Iran has faced multiple forms of environmental decline, such as water crises, drying up of lakes and rivers, air pollution, and forest destruction. In such a context, Instagram has become one of the most important spaces for informal environmental activism in Iran.
Aims: This study involves the simultaneous construction of the narrative of "irreversible decline" and "hope for collective action" as well as the identification of the semiotic system and layers of signification in four comparative "before and after" images posted on Instagram that refer to the decline of Lake Urmia, Zayandeh Rud, Karun, Hamun, urban air pollution, and the destruction of Fandoghloo Forest.
Methodology: Adopting a qualitative approach and drawing on Kress and van Leeuwen's social semiotics- which conceptualizes the image as comprising three dimensions of meaning (representational, interactive, and compositional)- this study examines the Instagram platform. The unit of analysis consists of "before and after" comparative images related to Iran's environmental issues, with a focus on the narratives of decline and hope. Samples were selected purposively, and the analysis is solely concerned with the visual meaning and narrative of the images.
Findings: The images produce a powerful narrative of environmental decline by using temporal comparison, high modality, and ideological arrangement, and by linking the crisis to symbolic places, they activate collective memory and identity. The visual contrast between the lush past and the dry or polluted present evokes feelings of nostalgia, sadness, and environmental mourning, and provides the context for the formation of Affective Publics. At the same time, these images have the potential to transform mourning into active hope and collective action.
Conclusion: Digital environmental activism in Iran relies mainly on visual-emotional strategies of decline, but for long-term sustainability, it requires the development of hope-based and constructive narratives. By providing a local analysis of the limited media environment, this study adds to the global literature on environmental visual communication and highlights the dual role of platform logic in empowering and constraining activism.

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1. Introduction

Iran is facing the most severe environmental degradation in the world. Frequent droughts, coupled with over-extraction of surface and groundwater through a large network of hydraulic infrastructure and deep wells, have brought the country's water situation to a state of bankruptcy (Madani et al., 2016). This is evident in the drying up of lakes, rivers, and wetlands, the decline of groundwater levels, land subsidence, water quality degradation, soil erosion, desertification, and frequent dust storms. It is estimated that by 2100, air temperatures in most parts of Iran will increase by about 4.5°C. On the other hand, Iran is the largest contributor to climate change in the Middle East and the seventh largest polluter in the world, emitting about 616,741 million tons of carbon dioxide (Taghizadeh & Gholami, 2025).

These changes, largely caused by mismanagement and unsustainable development policies, have become a "silent disaster" in the public sphere and pose a serious threat to the country's public security: exposure to air pollution and fine particles is associated with an increased risk of lung cancer, heart disease, chronic respiratory diseases, diabetes, hospitalization, and mortality, and imposes significant economic and health costs on society (Mohammadi et al., 2016; Abadi et al., 2025; Yousefi Kebriya et al., 2025). Also, deforestation, soil erosion, and land subsidence have caused a food crisis and are one of the factors influencing the decision to migrate internally in Iran; Between 2011 and 2016, about 4.3 million Iranians changed their place of residence, a large part of which was due to environmental conditions (Farzanegan et al., 2023; Rostami & Paski, 2024). All of these problems can have long-term economic, social, security, etc. consequences.

An event becomes an environmental issue when it attracts media attention; involves part of the government; requires government decision-making; is not dismissed by public opinion as a random and one-off event; and is related to the personal interests of a significant number of citizens (Hannigan, 2023). Therefore, from a communication science perspective, Iran's environmental crises are not simply a technical or political issue, but have become a communication phenomenon in which digital media, especially Instagram, play a central role in framing, narrative creation, and public mobilization (Hansen & Machin, 2016). Instagram is the most widely used social network in Iran with 73% in March 2025, making it the most important platform for informal environmental activism (Statcounter Global Stars, 2025).

Recent research shows that on visual platforms such as Instagram, simple and understandable visual formats– especially comparative "before and after" images– are increasingly used in environmental activism. These visual formats can make complex messages about environmental change quick, understandable and shareable for social

media users, creating an alternative space for citizen-to-citizen communication in the absence or limited coverage of traditional media (Ardèvol et al., 2021).

Thus, "before and after" images in the digital domain are a clear example of "visual-emotional activism" that has become a key strategy in conditions of limited street activism and media constraints. Zizi Papacharissi (2014) introduces the concept of "Affective Publics" and explains that in the context of digital media, emotions such as anger, empathy, sadness or hope circulate through images, videos and visual signs, forming networks of actors around shared emotional experiences. In such circumstances, digital images not only serve as representations of reality, but also become an alternative strategy for collective action; a strategy that can maintain and strengthen the political and social presence of citizens in the digital public space in the absence or limitation of street activism and official media coverage. This form of activism, called "platformed activism", adapts to the logic of platforms, in such a way that modes of protest, mobilization and political expression are often reproduced in shareable, emotional and algorithmically compatible formats. In this sense, platform activism simultaneously possesses both empowering capacities and structural constraints that arise from the platforms' control over communication infrastructures (Poell et al., 2018).

Despite significant advances in understanding the role of digital media in social and environmental activism, research focused on the analysis of comparative "before and after" images on Instagram as a specific type of environmental visual content in Iran is still limited. This study is the first social semiotic study (Kress & van Leeuwen, 2021) on comparative images in Iranian digital environmental activism, which not only adds to the global literature on environmental visual studies, but also provides a local and generalizable model for other countries with similar conditions to Iran.

The main research question is how do environmental "before and after" images on Iranian Instagram simultaneously construct a narrative of "irreversible decline" and "hope for collective action"? What sign systems and layers of meaning are activated in this format? Answering these questions fills the existing research gap in visual studies of Iranian digital environmental activism and contributes to a better understanding of communication mechanisms and activism in conditions of structural constraints. Therefore, the scientific necessity of this research lies in the analysis of semiotics, one of the most powerful and comprehensive tools of Iranian digital environmental activism: images that, at a glance, both evoke longing for a lost past and invite the audience to hopeful individual and collective action.

2. Literature review

Comparative "before and after" images on Instagram are not only

representations of the state of the environment but can also act as effective tools of digital activism that, through the representation of decline and hope, are able to shape emotions, meaning, and collective action in the digital space. To understand this phenomenon, it is necessary to simultaneously consider both environmental communication theories and digital media and platform frameworks.

2.1. Environmental communication and image

Environmental communication studies how messages related to environmental issues are disseminated and received, and one of the main challenges in this field is the abstract and complex nature of environmental concepts, which often makes it difficult for the public to understand. One type of environmental communication is Visual Environmental Communication, which emphasizes that images and visual elements not only convey information, but also shape attitudes and encourage pro-environmental behaviors by evoking deep emotions (Hansen & Machin, 2013).

This concept considers visual framing to be a fundamental factor; composition on current damage or future consequences directly affect the audience's perception. Research shows that negative images (such as damaged nature) attract more attention and increase the intention to take action, while positive images (unspoiled nature) may create false satisfaction (van Beek, 2020). "Before and after" images also represent real, objective changes in the environment and serve as visual evidence for change. From a semiotic perspective, these images highlight the cause-and-effect relationship between human activities and environmental consequences, and by displaying changes in a specific time sequence, they provide accurate and understandable visual evidence for the audience (Doyle et al., 2018).

Taghizadeh and Gholami (2025) state in their research that studies on the visualization of climate change messages have mainly focused on developed countries, and that Iranian users have addressed climate change through four key discourses: scientific, political, environmental, and protest. In addition, the visual discourses in the Persian language of Platform X are seen as global and address the present tense and the framework of consequences. In general, the public attention to climate change in Iranian society reflects the dynamism of the environmental movement in Iran and the growth of environmental literacy among Iranian social media users.

2.2. Platform logic and digital activism

Platformization theory posits that social media are not only tools for conveying messages, but also have their own logics, regulations, and mechanisms that influence how content is produced, distributed, and consumed. This platform logic includes algorithms, participatory structures, and specific technical capabilities that can shape how activist

messages are seen and effective (Poell et al., 2018). For example, Instagram algorithms may display more emotional or emotionally-charged visual content than purely informational content. This means that comparative "before and after" images, which are often accompanied by strong emotions and visual responses, are likely to be more widely shared and viewed on social media. This platform framework is particularly important in the context of environmental activism, as digital environmental activists need to align their visual strategies with the platform logic in order to communicate their message to a wider audience.

Research shows that social media are not only communication tools but also active spaces for collective action. Connective Action in the digital age suggests that collective action is no longer necessarily tied to formal organizations, but is shaped by individual networks and shareable content (Bennett & Segerberg, 2014).

Visual anthropology studies also point to the importance of visual narratives in fostering activism. In examining environmental Instagram posts, researchers (Ardèvol et al., 2021) have shown that comparative "before and after" images often function as Cartesian mythic narratives that highlight contrasts between the past and the present.

2.3. Affective publics and digital media

According to this concept, digital media provide spaces for the circulation of emotions and the formation of emotional communities that come together around shared experiences and emotions (Papacharissi, 2014). These publics differ from those in traditional concepts of collective action because they are centered on emotion and feelings, not formal and organized structures.

In the field of environmental communication, images play an important role in facilitating audience understanding and evoking emotional responses. These images act as visual evidence that shows the direct relationship between human activity and environmental impacts and have a stronger emotional and cognitive impact than graphs or purely scientific reports. Photographs are able to better engage audiences with the issue by transforming abstract concepts into tangible, pictorial, and experiential visual signs (Ballantyne, 2018).

Therefore, before-and-after comparative images on platforms like Instagram can evoke and circulate these "shared emotions", thereby forming emotional communication networks that engage environmental activists in a synergistic way (Hautea et al., 2021). These images visually represent environmental change and can simultaneously evoke two opposing feelings of ecological grief and hope for change (Wang et al., 2017).

2.4. Ecological grief and active hope

"Ecological Grief" is a real and scientific emotional phenomenon that

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refers to feelings of sadness, loss, and bereavement caused by environmental change. These emotions can be formed in response to the loss of places, species, natural environments, or even a future that will no longer exist, and are linked to people lived and cognitive experiences (Cunsolo & Ellis, 2018). This type of grief can be experienced at both the individual and collective levels and is associated with real environmental changes, such as the death of lakes and wetlands, the destruction of forests, and the decline in biodiversity. Ecological grief suggests that climate change is not just a scientific issue, but also a psychological and social phenomenon that affects people's mental health and sense of belonging to nature.

Other studies (Markkula et al., 2024) show that these types of emotions can have profound consequences for mental health, cultural identity, and sense of belonging to place. The concept of "Active Hope" is a practical framework for dealing with crises. Active hope describes choosing to act and participating in the path of change, despite the uncertainty of the outcome. This hope is based on the belief that individuals can play a role in changing the status quo and take responsibility for collective and individual action, even when the final outcome is uncertain (Macy & Johnstone, 2012). In this context, active hope is not a passive emotion but a motivational approach that leads individuals to action and social participation.

By depicting decline while simultaneously offering practical solutions, comparative environmental imagery provides a pathway for the audience to move from environmental mourning to active hope and digital activism (Askanius & Uldam, 2013). In the environmental field, this means encouraging the audience to engage in positive actions such as planting trees, reducing pollution, and raising awareness, without immediate failure or success being a condition. Recent research shows that comparative images on social media platforms such as Instagram often have a dual structure: first, they depict environmental degradation in a shocking way, and then they depict hope and individual or collective action to prevent the audience from becoming paralyzed (Qian et al., 2024). This visual pattern allows images to not only represent destruction, but also act as tools for digital environmental activism, guiding the emotions and motivations of the audience.

3. Methodology

This qualitative study, based on social semiotic analysis (Kress & van Leeuwen, 2021), considers images to have three dimensions: representational meaning, interactive meaning, and compositional meaning. The research field is the Instagram platform, and the unit of analysis includes comparative "before and after" images related to Iran's environmental issues and the analysis of visual narratives of "decline and hope" in these images, including: urban air pollution; drying up of lakes and wetlands; destruction of vegetation and natural resources, etc.

Table 1. Review of previous studies

Method	Objective	Source
Qualitative content analysis and visual discourse analysis	Analysis of visual discourses on climate change in Persian-language content on the X platform and Instagram	Taghizadeh & Gholami (2025)
Visual semiotic analysis	Examining the role of images and visuals in environmental communication, framing, and meaning-making	Hansen & Machin (2016)
Qualitative visual analysis and content analysis	Investigating visual narratives and environmental activism on Instagram	Ardèvol et al. (2021)
Theoretical and qualitative analysis	Examining the concept of Affective Publics and the role of emotions in digital networks	Papacharissi (2014)
Platform logic analysis	Analyzing platform logic and its impact on social and activist movements	Poell et al. (2018)
Theoretical and visual semiotic analysis	Studying the power, meaning, ethics, and truth in images and visual representations	Mitchell (2011)
Content analysis and interaction analysis	Examining the degree of interaction and effectiveness of climate change images in digital spaces	Wang et al. (2017)
Comparative qualitative image analysis and statistical interaction analysis	Investigating the patterns of emotional activation of climate change images and their effectiveness on Instagram	Qian et al. (2024)
Theoretical analysis	Conceptualizing and analyzing ecological grief in response to environmental changes	Cunsolo & Ellis (2018)
Theoretical and motivational analysis	Presenting the concept of "active hope" as a framework for activist engagement with crises	Macy & Johnstone (2012/2022)
Visual analysis and interactional analysis	Analyzing video activism and emotional engagement in climate activism	Askanius & Uldam (2013)

In this study, the focus of the analysis is on the visual text and intra-image structures in order to maintain methodological coherence with the social semiotic approach to the image, and the hypertextual elements of the Instagram platform are not included in the analysis.

The samples were selected purposefully, and the selection criteria were: explicit or implicit depiction of the "before" and "after" situation of an environmental crisis; focus on an important environmental issue in Iran; and maximum public dissemination on Instagram. Finally, four comparative images were selected as the final sample, which allows for in-depth analysis and interpretation. The analyzed photos were selected from both general and specialized environmental pages that have the most followers and have been shared on other pages. The selected

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examples show that these images are not only placed on the pages of environmental activists, but are also used in public spaces as sources of action and persuasion, since environmental crises in Iran are a concern for the entire Iranian society and all people in every corner of the country are involved in one or more of these crises. It is worth noting that in the findings and image analysis section, due to the privacy of users, the profile details have not been mentioned.

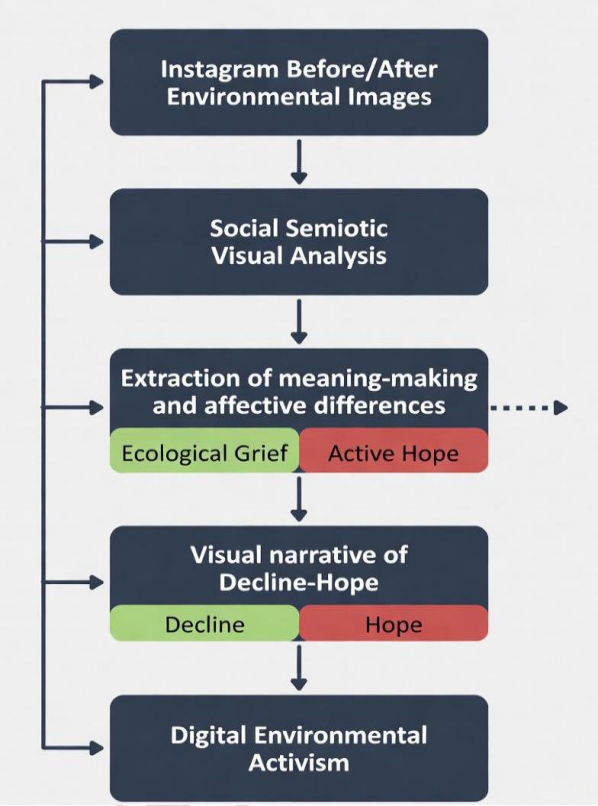
The data analysis was conducted in a comparative manner and at two-time levels: "before" and "after". Each pair of images was first analyzed separately and then in relation to each other. The analysis is based on three main dimensions of visual socio-semiotics. This framework views images as a social semiotic system and suggests three main meta-functional levels for analysis:

- **Representational meaning.** Examining what the image represents and how the visual elements (people, nature, objects) illustrate relationships and processes. This level includes two main types: a) Narrative: depicting an action, reaction or event, and b) Conceptual: classifying, comparing or representing situations;
- **Interactional meaning.** Examining the relationship between the image, its producer and the viewer. Key elements of this level are: contact, social distance, viewing angle, modality or degree of realism of the image such as color, detail and brightness (high modality= more scientific and factual validity) which indicates how "real" or "abstract" the image seems; and
- **Syntactic meaning.** Examining the arrangement of elements in the image frame and their informational value such as: informational value, salience and framing.

These three dimensions are examined for both "before" and "after" situations and their semantic and emotional differences are extracted. In addition, the image analysis focuses on identifying the dominant emotional values (such as sadness, loss, alarm, hope, and the possibility of restoration) and examines how the image produces a narrative of environmental decline or the possibility of action and restoration through a "before and after" comparison. This analysis is carried out without entering into statistical analysis or platform comparison and focuses solely on the meaning and visual narrative of the images.

In the final step, the results of the semiotic analysis are interpreted in the framework of the concept of "visual narrative of decline-hope". This concept shows how the "before and after" images simultaneously produce a narrative of environmental decline and the possibility of action, awareness, and restoration in the context of social media through visual, temporal, and emotional contrasts.

Since the images were selected from public Instagram accounts, the identities of the users are not mentioned in the analysis and the focus is solely on the visual content.



Source: Author

Figure 1. Conceptual framework; From Instagram Before-and-After images to digital environmental activism, mediated by ecological grief and active hope

4. Findings

In this section, the results of the social semiotic analysis of comparative "before-and-after" images posted on Instagram are presented. The analysis centers on how Iran's environmental crises are represented and the visual meaning-making strategies surrounding them. The selected images address diverse issues, including the desiccation of wetlands and lakes, urban air pollution, and ecosystem degradation, all framed within comparative visual narratives. Each image is analyzed according to the three dimensions of representation, interaction, and Compositional. The findings demonstrate how these images, through temporal and emotional contrasts, simultaneously construct narratives of environmental decline and active hope within the context of digital activism.

Figure 2, focusing on Lake Urmia[1], stands as a prominent example

1. Lake Urmia, Iran's largest inland lake, was once the largest saltwater lake in the Middle East and the sixth-largest saltwater lake in the world. In 1999, its surface area reached approximately 6,000 km^2, ranking it among the 25 largest lakes globally by area. Hosting over 100 small rocky islands, Lake Urmia supported 226

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of visual narratives of environmental decline within Instagram's digital activism space.

Figure 2. Lake Urmia

In the dimension of the meaning of representation, the upper section of the photograph ("before": April 13, 2024) depicts an expansive body of water accompanied by social activity. The presence of a passenger boat filled with tourists and the Iranian national flag signifies the lake's multifaceted role- environmental, social, and symbolic. Water dominates the frame as the central element, symbolizing ecosystem vitality and the potential for communal life. In stark contrast, the lower section ("after": October 5, 2025) presents an empty, gray, and abandoned landscape: boats grounded on dry land and the near-total absence of water evoke sensations of loss, anxiety, and crisis. Graphic elements, such as dates highlighted in red, further reinforce the perception of a downward trajectory and urgency.

In the dimension of the meaning of Interactive, this dual image uses a relatively direct angle of view and a medium distance to engage the viewer. The high modality (photorealism) reinforces the credibility of the crisis. The striking color contrast between the deep blue of the “before” and the gray-brown of the “after,” along with the almost

bird species, 27 reptile species, 24 mammal species, and the unique brine shrimp Artemia urmiana. It was registered as one of Iran's national parks in 1972.

complete removal of water, conveys a sense of visual shock and loss to the viewer.

In the dimension of the meaning of compositional, the vertical structure of the image (top: improved state; bottom: crisis state) generates ideological informational value: the desirable past positioned above (as ideal) and the harsh present below (as imposed reality). The bipartite framing and salience of the dates portray the degradation process as linear and seemingly irreversible. In sum, this comparative visual narrative not only represents environmental decline but also, by linking the crisis to national symbols (the Iranian flag) and collective memory (social presence at the lake), arouses feelings of ethical and political responsibility, inviting viewers to reflection and action.

At a conceptual level, the image simultaneously produces two narratives: decline, through the removal of water, stillness, and spatial silence; and active hope, via the reminder of the "before" state and the implied possibility of restoration. By activating ecological grief, the image calls the audience to ethical contemplation and collective accountability, thereby lending meaning to digital activism. Consequently, this before-and-after image serves not merely as a depiction of crisis but as a mechanism for generating awareness, emotion, and social demand.

Figure 3, in question is a multi-panel collage that presents a visual, multi-scalar narrative of Iran's water crisis. By juxtaposing "before-and-after" photographs across four distinct sites- Lake Urmia, the Karun River[1] (White Bridge in Ahvaz), Lake Hamun[2], and the Zayandeh-Rud River [3] (Si-o-Se-Pol Bridge in Isfahan)- it illustrates the gradual degradation of water resources. This collage-like structure, employing temporal framing (2009 versus 2019, with comparable dates), systematically depicts the progressive destruction of aquatic ecosystems.

In the dimension of the meaning of representation, the upper satellite images of Lake Urmia reveal a sharp reduction in water coverage between 2009 and 2019, over a span of ten years. The gradual elimination of green and blue hues, replaced by expansive bright and gray surfaces, signals the collapse of the world's largest saltwater lake.

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1. The Karun River, at 950 km, is Iran's longest river. Its watershed spans eight provinces. Designated as Iran's seventeenth natural heritage site, it was added to the national natural heritage list by the Cultural Heritage Organization on February 9, 2011.
2. Hamun Lake and Wetland in Sistan and Baluchestan Province is Iran's third-largest lake, the world's seventh-largest international wetland, and one of Iran's biosphere reserves. It was registered by UNESCO as a biosphere reserve during the fourth World Biosphere Reserve Congress held in Lima, Peru, in 2015.
3. The Zayandeh-Rud is the largest and most water-rich river in Iran's central plateau, with a 41,000 km2 watershed passing through Isfahan. It became the 118th natural heritage site on Iran's national list on February 9, 2011.

This representation frames decline not as an instantaneous event but as a prolonged, temporal process. In the upper right panel, the White Bridge in Ahvaz over the Karun River appears in the "before" state with flowing water and in the "after" state with a dried riverbed, transforming the river from a vibrant urban lifeline to an empty, barren space.

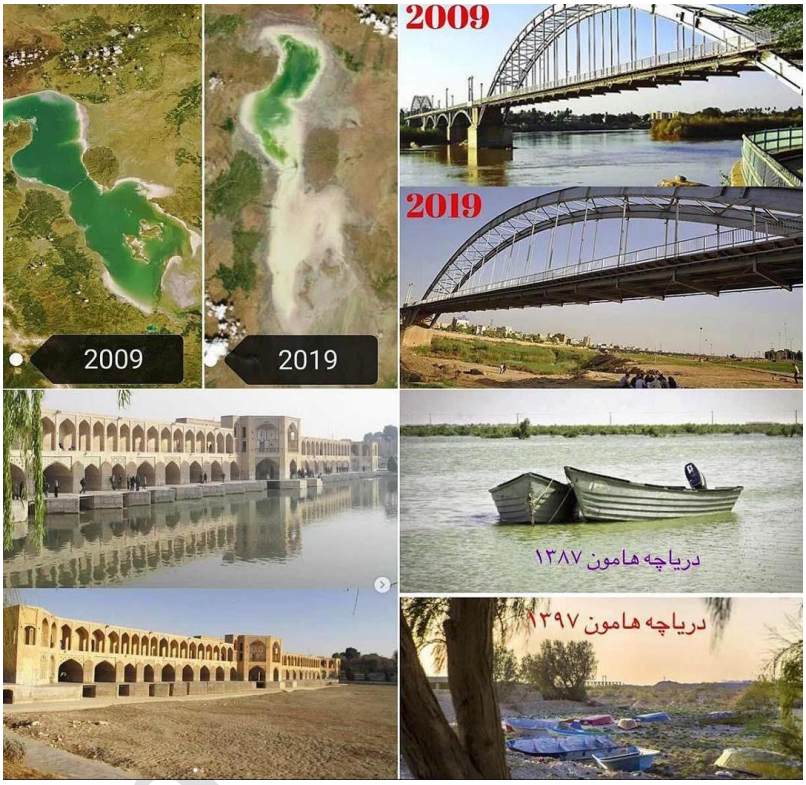

Figure 3. Multi-part comparative image of Iran's water crisis

The lower left panel shows Isfahan's Si-o-Se-Pol Bridge over a desiccated Zayandeh-Rud; the absence of water severs this historic structure from its natural-cultural bond, turning it into a symbol of disconnection between cultural heritage and the environment. The lower right panel depicts Lake Hamun in 2009 with floating boats and in 2019 with stranded vessels on a cracked bed, providing concrete evidence of ecological and livelihood collapse. The progressive fading of deep blue, its replacement by dry gray and brown tones, and the loss of vital elements like flowing water or vegetation portray an irreversible shift from dynamic ecosystems to abandoned landscapes. The inclusion of human traces (bridges, stranded boats, Si-o-Se-Pol) in the "after" states implicitly points to human responsibility and inefficient resource management.

In the dimension of the meaning of Interactive, the blend of satellite overviews and ground-level shots shifts the viewer between positions:

a distant observer of vast structural crises (Urmia) and a proximate witness to human and cultural consequences (Ahvaz, Isfahan, Hamun). This scalar alternation heightens both cognitive engagement and emotional involvement. Temporal labels (2009/2019 and Persian calendar years) serve a meta-interactive function, prompting viewers to undertake historical comparisons and ethical judgments about the trajectory and timing of decline.

In the dimension of the meaning of Compositional, the arrangement of image grids, and the direct "before/after" contrast are the most important mechanisms for producing meaning. The saturated colors and blue surfaces of the "before" images are juxtaposed with the neutral colors, cracked textures, and dry surfaces of the "after" images. The repetition of fixed elements- lake, river, bridge, and boat- in both situations maintains spatial continuity and highlights the intensity of change and decay. The multi-part framing and textual elements (years and place names) present the process of destruction in a linear and inescapable manner, and force the viewer into the structural causes (dam policies, climate change, unsustainable management).

Ultimately, this multi-part image not only documents the decline of Iran's water resources, but also evokes a sense of geographic and collective solidarity by linking local crises (Urmia, Zayandeh, Karun, Hamun) to a national narrative. Framing in such visual environmental communications, by evoking a sense of loss and urgency, pushes the audience towards activism and politics.

Figure 4 is a vertical two-part composition that represents the temporal and discursive opposition between the present (air pollution) and the past (snowfall). The upper part shows a woman in a mask in a thick orange haze, hunched over, covering her mouth and nose; the lower part depicts a scene of nighttime snowfall on a city street. The white texts, highlighted on a black background, ideologically articulate this opposition: "something that closes schools now" versus "something that used to close schools".

In the dimension of the meaning of representation, the upper part is narrative-reactive: the human figure reacts in a defensive posture (hunched over and covering her face) to the invisible threat of pollutants. The orange haze acts as a visual sign of particulate matter. The lower part is conceptual-eventual, representing snowfall as a natural, beautiful, and pleasurable phenomenon. This contrast contrasts man-made danger with a positive natural phenomenon, highlighting the substitution of past collective joy for present individual suffering.

From the perspective of interactional meaning, the presentation structure is dominant, placing the viewer as an objective observer of the crisis. The close distance in the upper part (personal/intimate frame) induces a sense of suffocation and the proximity of the threat. The direct horizontal angle reinforces the viewer's involvement. The very high modality- resulting from the photographic realism, the color saturation

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of the smog, and the natural details- increases the undeniable credibility of the crisis.

Figure 4. Urban air pollution

In terms of compositional meaning, the high/low arrangement has ideological informational value: the high is the new imposed reality (pollution) and the low is the lost ideal (snow). The white text with high prominence and the separate framing of the two sections intensify the temporal discontinuity and nostalgic sense of loss.

This image is an example of negative framing in environmental visual communication, which, by creating visual shock, nostalgia, and environmental mourning, forces the audience to morally reflect on the human causes of the crisis. The ideological text, by referring to "school closures"– which evokes the collective joyful memory of children and families with snowfall– reinforces the sense of loss of the quality of everyday life. The lack of direct eye contact shifts the focus to the crisis itself (rather than the specific individual) and increases the sense of objectivity and collectiveness of the threat.

At a discursive level, the image delivers an implicit critique of environmental and urban-management policies. School closures, once the happy consequence of a beautiful natural event, have become the direct outcome of human-induced crises. Thus, the image is not merely informative; it functions as critical, cautionary activism.

Figure 5 depicts the loss of forest density in parts of the Fandoghloo Forest[1] over a three-year period.

1. The Fandoghlu Forest is located in Namin, Ardabil Province, in northwestern Iran. It marks the starting point of the Hyrcanian forests, which extend across approximately

Figure 5. Fandoghloo forest

In the dimension of the meaning of representation, two aerial views of the Fandoghloo Forest from 2020 and 2023 are placed side by side. Red boundary lines explicitly delineate areas affected by reduced forest cover. The representation is inherently processual and transformative: the 2020 image shows a dense, continuous, dark-toned forest, whereas the 2023 image reveals fragmented vegetation cover, brighter patches, and diminished density, prominently highlighting clear signs of ecological degradation. The image portrays nature as a "silent victim" and the crisis as a gradual, observable process.

In the dimension of the meaning of Interactive, the image lacks direct human figures but employs a vertical overhead perspective to convey scientific objectivity. The viewer is positioned as a macro-observer, able to comprehend the extent of degradation at a regional scale. The drawn red lines play a crucial role in engaging the audience: these graphic markers guide the gaze and focus attention on critical areas. The temporal comparison (2020–2023) generates cognitive and emotional shock, evoking feelings of warning, sorrow, and environmental anxiety. At the same time, the inclusion of a ground-level photograph of the forest and the Fandoghloo Forest sign on the right side reveals the site's identity, strengthens the viewer's emotional connection to the place, and anchors the abstract aerial view in a tangible lived world.

In the dimension of the meaning of Compositional, the image is organized according to a comparative before/after logic. Positioning the two aerial photographs above and below one another, along with temporal labels, creates a linear narrative structure progressing from a "healthy state" to a "degraded state." The deep green tones in the 2020 image stand

120 km. Designated as Iran's twenty-fourth historical and natural heritage site, Fandoghlu was inscribed on the UNESCO World Heritage List on July 5, 2019.

in sharp contrast to the grayer, lighter hues in 2023, producing intense visual opposition that underscores ecological decline. The red lines achieve the highest salience, functioning as warning signals. The ground-level image on the right serves as a semantic anchor, preventing the crisis from becoming entirely abstract and linking the degradation to a specific, named, and identity-bearing location.

In sum, this comparative framing, drawing on scientific data and discursive implications, highlights the inadequacy of natural resource management and purported conservation efforts, inviting viewers to ethical and political reflection on the human causes of deforestation. Thus, the image predominantly constructs a narrative of environmental decline: reduced forest cover, ecological fragmentation, and loss of natural cohesion. Nevertheless, the presence of the ground-level forest photograph and the introductory sign open space for an Active Hope narrative- one rooted not in spontaneous natural recovery but in awareness, protection, activism, and responsible management. In this way, the before-and-after image functions not only as documentation of destruction but as a visual tool for digital activism, calling audiences to recognize the crisis and the necessity of intervention. This narrative is simultaneously rational (macro-scale, scientific objectivity) and affective (warning, loss, accountability), aligning closely with the framework of visual social semiotics and the concept of "decline-hope narratives" in this study.

5. Conclusion

In recent years, Iran has been facing drought, severe air pollution, land subsidence, forest and rangeland fires, soil erosion, etc. due to environmental mismanagement such as water resource mismanagement, excessive groundwater extraction, and fuel oil burning. The aim of this research is to examine how Iran’s environmental problems are represented in “before and after” images published on Instagram and to analyze the visual narratives of “decline and hope”. The “before/after” image is analyzed as a narrative and emotional tool in the context of digital environmental activism. This approach allows for the simultaneous analysis of the meaning, emotion, and ideology embedded in the image.

Using comparative temporal framing, high modality, and ideological arrangement such as top/bottom and left/right, these images irrefutably depict Iran's ecological decline- the drying up of lakes and wetlands, air pollution, and deforestation. The visual contrast between the past, which was rich in water, clean, and lush, and the present, which is deserted, polluted, and empty, not only evokes a sense of loss and nostalgia, but also, by linking the crisis to collective memory (the joy of snow, social presence in nature), forms “emotional generalities” that move from despair, disillusionment, and “environmental mourning” to demands for political and social responsibility.

Table 2. Summary of the visual social semiotic analysis of four environmental images

Image	Representational meaning	Interactive meaning and modality	Compositional meaning	Discursive implications and overall interpretation
Lake Urmia	Conceptual comparison: transformation of a dynamic, socially vibrant ecosystem (abundant water, boats, flag) into an empty, desolate space	High modality; direct gaze from participants; evokes anxiety and Ecological Grief	Top/bottom structure (ideal past at top; imposed crisis at bottom); left/right progression	Links crisis to national symbols (Iranian flag) and collective memory; activates ethical and political responsibility; constructs narratives of decline and potential revival
Multi-site water crisis	Processual change: gradual collapse of vital water systems; bridges and stranded boats imply human mismanagement	High modality; shifts between distant (satellite) and close (ground-level) views; evokes urgency	Grid layout with before/after oppositions; top/bottom and left/right axes; fixed elements highlight loss	Connects local crises into a national narrative; fosters geographical solidarity and collective accountability; emphasizes structural causes (dams, climate change)
Urban air pollution	Narrative reaction (defensive posture against invisible threat) versus conceptual event (joyful natural snowfall)	High modality; direct gaze from woman; close distance creates empathy, anxiety, and suffocation	Top/bottom ideological value (inverted ideal at top; lost reality at bottom); salient white captions	Implicit critique of urban and environmental policies; transforms school closures from delight to danger; cautionary activism evoking nostalgic loss
Fandoghloo Forest	Conceptual-processual: shift from dense, continuous canopy to fragmented, lighter patches; red lines mark loss	High modality; overhead scientific perspective; red lines guide gaze and evoke warning/anxiety; ground-level sign adds emotional tie	Top/bottom and left/right comparison (2020 healthy vs. 2023 degraded); red lines as salient warnings; ground image as anchor	Highlights mismanagement of natural resources; rational (scientific) and affective (loss, responsibility); constructs dominant decline narrative with latent active hope through awareness and intervention

The comparative before-and-after images provoke moral reflection by creating visual shock and conflict between the claim of official protection and the reality of destruction. Also, these narratives have the potential to transform grief into active hope, although in the images under study, the focus is predominantly on decline and less on practical solutions or images of successful recovery. Therefore, despite the dominance of signs of decline, the analysis of the images shows that hope is not completely absent, but is formed as active hope and at the interactive and interpretive level of the audience. The visual comparison of the "before" and "after" situations restores the possibility of imagining the lost situation and, in this way, strengthens awareness, responsibility, and the possibility of environmental action in the digital space. Accordingly, Instagram images are not only representative of Iran's environmental crises, but also have the capacity to transform ecological grief into awareness and social demands as tools of digital activism.

6. Limitations

This research faces several limitations. First, the focus on social semiotic analysis of the images has meant that extratextual elements of the Instagram platform- such as captions, likes, comments, and user engagement metrics- were excluded from the analysis. Consequently, the study does not address audience feedback or the broader social impact of the images, concentrating solely on intratextuality meaning-making.

Second, the samples were purposively selected and limited (four images), which precludes statistical generalization of the findings.

Third, the analyzed images are not necessarily produced by official institutions or authoritative scientific sources; they are often created and reshared within digital activism and social media contexts.

Finally, the image analysis relies on the researcher's qualitative interpretation, which, though grounded in a clear theoretical framework, is inherently subjective in nature.

Conflict of interest

The author declared no conflicts of interest.

Ethical considerations

The author has completely considered ethical issues, including informed consent, plagiarism, data fabrication, misconduct, and/or falsification, double publication and/or redundancy, submission, etc. This article was not authored by artificial intelligence.

Data availability

The dataset generated and analyzed during the current study is available from the author on reasonable request.

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References

Abadi, A.R.S.; Hamzeh, N.H.; Kaskaoutis, D.G.; Vuillaume, J. F.; Shukurov, K.A. & Gharibzadeh, M. (2025). "Spatio-temporal distribution of PM2.5 and PM10 concentrations and assessment of public health risk in the three most polluted provinces of Iran". *Sustainability*. 17(1), 44. https://doi.org/10.3390/su17010044.

Ardèvol, E.; Martorell, S. & San-Cornelio, G. (2021). "Myths in visual environmental activism narratives on Instagram". *Comunicar*. 29(68): 59-70. https://doi.org/10.3916/C68-2021-05.

Askanius, T. & Uldam, J. (2013). "Online civic cultures: Debating climate change activism on YouTube". *International Journal of Communication*. 7: 1185-1204. https://ijoc.org/index.php/ijoc/article/view/1755.

Ballantyne, A.G. (2018). *Exploring the Role of Visualization in Climate Change Communication - an Audience Perspective*. Linköping Universitet.

Bennett, W.L. & Segerberg, A. (2014). *The Logic of Connective Action*. Cambridge University Press. https://doi.org/10.1017/CBO9781139198752.

Cunsolo, A. & Ellis, N.R. (2018). "Ecological grief as a mental health response to climate change-related loss". *Nature Climate Change*. 8(4): 275-281. https://doi.org/10.1038/s41558-018-0092-2.

Doyle, J.; Farrell, N. & Goodman, M. K. (2018). *Celebrities and Climate Change: History, Politics and the Promise of Emotional Witness*. Oxford University Press.

Farzanegan, M.R.; Gholipour, H.F. & Javadian, M. (2023). "Air pollution and internal migration: Evidence from an Iranian household survey". *Empirical Economics*. 64(1): 223-247. https://doi.org/10.1007/s00181-022-02253-1.

Hannigan, J. (2023). *Social Construction of Environmental Issues and Problems*. Routledge.

Hansen, A. & Machin, D. (2016). *Visual Environmental Communication*. Routledge.

----------. (2013). "Researching visual environmental communication". *Environmental Communication*. 7(2): 151-168. https://doi.org/10.1080/17524032.2013.785441.

Hautea, S.; Parks, P.; Takahashi, B. & Zeng, J. (2021). "Showing they care (or don't): Affective publics and ambivalent climate activism on TikTok". *Social Media & Society*. 7(2). https://doi.org/10.1177/20563051211012344.

Kress, G. & van Leeuwen, T. (2021). *Reading Images: The Grammar of Visual Design*. 3rd ed. Routledge.

Qian, S.; Lu, Y.; Peng, Y.; Shen, C. & Xu, H. (2024). "Convergence or divergence? A cross-platform analysis of climate change visual content categories, features, and social media engagement on Twitter and Instagram". *Public Relations Review*. 50(2):102454. https://doi.org/10.1016/j.pubrev.2024.102454.

Macy, J. & Johnstone, C. (2012/2022). *Active Hope: How to Face the Mess We're In without Going Crazy*. New World Library.

Madani, K.; AghaKouchak, A. & Mirchi, A. (2016). "Iran's socio-economic drought: Challenges of a water-bankrupt nation". *Iranian Studies*. 49(6): 997-1016. https://www.researchgate.net/publication/311500466.

Markkula, I.; Turunen, M.; Rikkonen, T.; Rasmus, S.; Koski, V. & Welker, J.M. (2024). "Climate change, cultural continuity and ecological grief: Insights from the Sámi Homeland". *Ambio*. 53(8): 1203-1217. https://doi.org/10.1007/s13280-024-02012-9.

Mitchell, W.J.T. (2011). *Cloning Terror: The War of Images, 9/11 to the Present*. Chicago: University of Chicago Press.

Mohammadi, A.; Azhdarpoor, A.; Shahsavani, A. & Tabatabaee, H. (2016).

"Investigating the health effects of exposure to criteria pollutants using AirQ2.2.3 in Shiraz, Iran". *Aerosol Air Quality Research.* 16: 1035-1043. https://doi.org/10.4209/aaqr.2015.07.0434.

Papacharissi, Z. (2014). *Affective Publics: Sentiment, Technology, and Politics*. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199999736.001.0001.

Poell, Th.; van Dijck, J. & de Waal, M. (2018). *The Platform Society: Public Values in a Connective World*. Oxford: Oxford University Press.

Rostami, J. & Paski, A.A. (2024). "Iran faces dwindling water and escalating climate pressures, aggravating displacement threats". *Migration Policy Institute.* March 6. https://www.migrationpolicy.org/article/iran-climate-migration.

Statcounter Global Stars. (2025). *Social Media Stats Islamic Republic of Iran*. https://gs.statcounter.com/social-media-stats/all/iran.

Taghizadeh, M. & Gholami, F. (2025). "Visual climate change communication in Iran's social media: A discourse analysis of X". *Cyberspace Studies*. 9(2): 337-354. https://doi.org/10.22059/jcss.2025.391224.1131.

van Beek, L.; Metze, T.; Kunseler, E.; Huitzing, H.; de Blois, F. & Wardekker, A. (2020). "Environmental visualizations: Framing and reframing between science, policy and society". *Environmental Science & Policy.* 114: 497-505. https://doi.org/10.1016/j.envsci.2020.09.005.

Wang, S.; Corner, A.; Chapman, A. & Markowitz, E. (2017). "Public engagement with climate imagery in a changing digital landscape". *Wiley Interdisciplinary Reviews: Climate Change.* 9(2). https://doi.org/10.1002/wcc.509.

Yousefi-Kebriya, A.; Nadi, M., Afaridegan, E. & Sun, Z. (2025). "Wetland shrinking and dust pollution in Khuzestan Iran: Insights from Sentinel-5 and MODIS satellites". *Scientific Reports.* 15: Article 13626. https://doi.org/10.1038/s41598-025-96935-2.