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Government crisis communication tools in the light of the extreme drought of 2022

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'Every disaster is a crisis, but not every crisis is a disaster.'
(Dubai, 2008)

Abstract

Aim: The purpose of this study is to investigate the communication of the drought (water crisis) of 2022. As water is a vital element, the alpha and omega of survival, the authors should expect the emergence of existential anxieties during related crises that may result in messages being ignored. This makes the communication of the responsible public authority even more difficult. The authors' aim to make forward-looking recommendations for water professionals in the face of future water crises.

Methodology: In order to help develop more effective crisis communication the authors analysed the National Directorate General for Water Management's communications before, during and after the crisis (using the method of media monitoring and analysis) and carried out the evaluation based on their own criteria, which were compiled on the basis of the literature. They conclude their summary findings by making recommendations.

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Findings: In their opinion, although the communication of the OVF has been characterised by a rapid and accurate flow of information, the role of social responsibility should be strengthened in the future. The proportion of textual and visual content and the choice of publication channels should be reconsidered.
Value: Due to the acceleration of the hydrological cycle, it is likely that in the future humanity will have to prepare for more intense periods of extreme water scarcity. According to satellite gravimetric measurements, the water security of the Carpathian Basin is changing in a negative direction. The authors' results underline that the emerging climate crisis opens up new dimensions in governmental/authority crisis communication, both in terms of preparedness and response.

Keywords: water crisis, crisis communication, crisis stages, public sector

Extract

The January-July period of 2022 was the driest in 120 years. The onset of water scarcity was predicted by water experts on the basis of measured data, but the extent of the scarcity exceeded expectations. A water crisis developed.

Water is essential, the alpha and omega of survival. When access to water is challenged, it creates a sense of threat. Communicating water crises is particularly challenging because it can cause existential anxiety, triggering an elemental defence response in recipients, which can sometimes result in the message being ignored.

Communicating about water and water scarcity as a government agency is even more difficult, as messages must be delivered to citizens by conquering and overcoming these anxieties in order to successfully manage the crisis. In 2022, the National Directorate General for Water Management (OVF), and later the National Technical Management Team (OMIT), which was set up during the active phase of the crisis, as the national level information provider for water scarcity management, faced a new crisis communication challenge that could lead to a serious loss of image.

This work examines and analyses the elements of the communication strategy used by the OVF before, during and after the crisis, with the intention of complementing forward-looking research on crisis communication in the public sector. Water management also has a major impact on agricultural land use, in fact they live in symbiosis with each other. Tensions may arise along the natural friction points between them during a water crisis of this magnitude, the extent of which will depend on effective government risk and crisis communication, and the significance of the studies in this article therefore correlates with

key issues for the future. The proven fact of an accelerated hydrological cycle in the context of a growing climate crisis means that the extreme drought that has been recurring every 50 years is likely to become more frequent. Satellite gravimetric measurements indicate a slow drying of our region, so that the water security of the Carpathian Basin could easily turn negative.

In the light of our study, it can be said that there was no loss of image in the water crisis for the organisation that carried out the communication, but the crisis event we studied highlights that the emerging climate crisis should open up new dimensions of both preparedness and response, not only in the field of water management, but also in the organisation and practice of government communication.

Introduction

There is now slow evidence that rapidly increasing anthropogenic forcing since the Industrial Revolution is upsetting the hydrological cycle and global climate patterns. These trends are, of course, leading to changes in the Carpathian Basin (Jánosi, Bíró, Lakatos, Gallas & Szöllősi-Nagy, 2023). Due to changing climatic factors, the hydrological cycle is accelerating and becoming markedly more rapid, which poses new challenges from a crisis communication perspective, as it may result in alternating flash floods and more extended periods of drought.

In meteorological terms, the extreme drought of 2022 is due to global causes. Since 1901, the period from January to July has been the driest on record, with extreme heat waves and very high evaporation rates in several summer months. Based on measured groundwater table data and hydro-meteorological forecasts, the Minister of Interior declared a period of permanent water scarcity for the whole country from March 21, 2022, until October 2022. By mid-August, the whole country was in the grip of an extreme drought, with the situation being most dramatic in the central and southern parts of the Great Plain.

During the active phase of the crisis, 11 water management authorities were on alert to ensure optimal water distribution. For the first time in its history, the OVF (Országos Vízügyi Főigazgatóság, National Directorate General for Water Management) introduced multi-stage water management measures in the Tisza-Körös Valley Cooperative Water Management System. As a result, the water demand in the Tisza Valley could be met without restrictions even at the peak of the crisis, no shortage of water supplies at the primary plants occurred, and the drinking water supply of the city of Szolnok was avoided from falling victim to the crisis.

During this period, the OVF had to provide appropriate crisis responses to very novel questions. Rather than successfully communicating floods as other

types of water crises, drought required a much more complex outward-facing strategy. First and foremost, stakeholders facing a situation of persistent water scarcity had to be convinced that the system put in place would benefit them and mitigate the effects of the crisis. The strategy proved successful; the vast majority of farmers cooperated in the implementation of the irrigation scheme, and even exceptional water needs that were received out of order were met, except for one or two exceptional cases (VzTT 2022), so the application of the irrigation scheme can be seen as a priority crisis strategy of the OVF.

Literature review

Crisis communication

Crisis communication can be described as an exploration of the overall communication management of a crisis. It is, therefore, essential to define the concept of crisis itself as a first step. Even if the word's connotation suggests otherwise, the outcome can be negative and positive. The unpredictability of the outcome is significant for communication (Fekete & Sándor, 1997).

In the case of crisis communication, the exchange of information between the parties involved is subject to severe time pressure since its effectiveness lies to a large extent in the extent to which the so-called critical field between the so-called secondary reality perceived by the public and the primary reality known by the organisation from the beginning of the crisis event can be minimised (Fenyvesi, 2005). The effort to narrow the potential information gap prevents amplifying the communication noise prevalent in crises.

In many respects, the essential elements of crisis communication and the factors of classical communication are the same. However, one of the most important differences is that the attributes of the crisis strongly determine the purpose of the communication. The sender of the communication has to avert a sudden threat. Their messages must reduce the sense of danger in the recipients of an undesirable event, the outcome of which is unpredictable.

When designing the strategy, the primary communication questions are: Who?; What?; For whom?; Through which channel?; What impact is it communicating? (Lasswell's paradigm);[1] Questions (Lasswell & Bryson, 1948).

1 Harold Dwight Lasswell created a famous basic model of mass communication. Lasswell was most interested in the impact on the recipient in his research, in line with the direction that gave rise to the recent crisis communication theories. Furthermore, although the questions are straightforward, they have underlying content since Lasswell asked his questions from the perspective of a political scientist and communication theorist and in a broader social context.

Crisis communication in the public sector

Crisis communication is essential in the public sector, where poorly structured communication processes can easily undermine citizens' trust in public administrations. In a crisis, the public sector faces more stringent communication constraints than a non-public body. Generally speaking, the functioning of governmental bodies is highly structured and, therefore, requires coordinated interaction with multiple segments of government and other groups. Their messages are subject to more extensive media scrutiny and often enjoy public cynicism. Government agencies overwhelmingly (as in this case) carry out crisis communications in response to external crisis events, usually by specialised units (police, defence, disaster management, etc.) (Dubai, 2008).

A public sector body must maintain its image. However, its governmental nature means it is more exposed to this than the corporate world, while its responsibility to reflect the 'we are in control' image is also multiplied. In designing the communication management process for public crises, it is essential to bear in mind that the recipients are static in the sense that they build government responses to previous and future crises into their collective memory and evaluate them based on their satisfaction with the public good (Lee, 2009). Moreover, it is a crucial fact that while a corporate entity may create numerous opportunities for the validation of a crisis communication Image Restoration/Repair Theory (IRT) strategy in the post-crisis phase, a public entity that destroys the government's reputation through a poorly communicated crisis can only prove its crisis management capacity in a subsequent disaster (Avery, Lariscy, Kim & Hocke, 2010).

In light of the above, the current ambition of both the private and the public sector to devote as many resources as possible to crisis management and the development of the necessary communication strategies seems justified. Nowadays, the number of crisis communication theories has multiplied, and the application or blending of any of the crisis communication theories (SCCT; Situational Crisis Communication Theory), IRT (Image Restoration Theory), AT (Apology Theory), can be effective in different phases of a crisis if applied in a well-understood way (Tanács & Zemplén, 2015).

Research objectives and methods

Our research aims to help develop more effective crisis communication strategies for future public sector water crises. Accordingly, we have devoted most of our work to analysing risk and crisis communication communications from

the OVF/OMIT (Országos Műszaki Irányító Törzs, National Technical Management Team), which concern society and are directed outwards from the organisation. We have assessed them based on our criteria based on the literature.

We aimed to include communications from the organisation dealing with the crisis in the study because media coverage reaches recipients indirectly, filtered through press members (Coombs & Holladay, 2008).

The intention to objectively evaluate a communication strategy, to make it measurable and comparable, requires a very complex set of criteria. Official reports from the water sector have been used as a source to examine the type of crisis and the history of the crisis.[2] After reviewing the documents available, we sought to reconstruct the crisis communication process using the text analysis method. Due to the qualitative nature of the research, in order to gain a deeper understanding and draw relevant conclusions, we compared the crisis messages produced by the OVF with the principles set out in the literature, and then, in order to evaluate them, we took into account the feedback and reactions of the crisis public, bearing in mind the known facts about water and the information provided during an expert interview.

As a starting point for the research, the factors of the researched communication process (complemented by the characteristics of social media)[3] Moreover, the specific elements of crisis communication models were compared and examined.

Based on one of the most prominent theories in the crisis communication literature[4], three distinct periods can be distinguished in the course of crises. In the case of the extreme drought of 2022 as a water crisis, these three phases can be clearly distinguished so that the division into pre-, active and post-crisis phases (Coombs, 2012) was also used as the basis for our assessment.

We would have liked to use the content published on the official OVF website (URL1) as a database during the period under review (March-December 2022). However, in the end, we could not consider it a basis for analysis. The organisation, perhaps as a post facto of the new communication process in the wake of the extreme drought, has started to develop a new website, which has not been completed by the end of our work so that the archival content for the period of

2 Technical report on the activities of the water sector in 2022 (December 2022) and (VzTT 2022).

3 In linguistics, Roman Osipovich Jacobson, a Russian-born American linguist, isolated six factors to create a general linguistic communication model. He defines effective communication by emphasising the sender, the receiver, the message, the context and the contact (the physical channel), but this model does not mention the possibility of feedback. However, with the rise of web-enabled devices, it is necessary to consider the need for feedback and the increasing noise and redundancy of communication. Furthermore, using social media implies a dissociated activity since it is usually carried out as a sideline, making communication challenging.

4 Inclusive Crisis Communication Theory (SCCT).

the crisis under discussion is not available yet. As a result, the official website needed to provide an adequate sample to study the active crisis phase's communication processes and crisis strategy. The organisation's YouTube channel (URL2) has no content related to water scarcity.

Our research was done through official press releases and posts on OVF's web interfaces (URL3 and URL4). Compared to the initial assumption, this narrowing of the communication fields to be investigated pointed us toward media usage trends. A more detailed mapping of the crisis responses mediated by the social channels of the organisation is also timely because research supports the fact that the novel logic of society is most characterised by the fact that the existence or happening of what is not represented on social media platforms is existentially questionable (Bíró-Szigeti, Vlaszov, Molontay & Virsinger, 2023).

Based on the above, the best way to evaluate the communication of the water crisis was to look at the active period of the crisis.[5] This phase lasted from 20 July 2022 to 22 August 2022, and the core of the research was the analysis of the communications made by OMIT during this period (9 press releases) and the feedback received from the recipients.

The corpus was subjected to a qualitative content analysis, and by tracking likes, comments and shares, we wanted to map the audience behavior and the impact on the community at the level of communication. The volume and content of responses to each post provide relevant feedback to the organisation on, for example, how effectively it is communicating its responsiveness and whether its crisis communication is achieving its primary objective, which is that a public sector crisis should be identified as building understanding in the social environment.

Results

The sender of the crisis communication

The OVF is responsible for protection against water damage. The OVF is under the authority of the Minister of Interior and acts as a central management body, coordinating the work of the water management directorates and providing comprehensive information. Its special protection body is the OMIT, which is activated by OVF's crisis strategy when the scale of the protection requires

5 It is clear from the attached table (Table 1) that in the so-called recovery phases before and after the crisis, according to the data available to us, the organization did not create any communication messages on its social media platforms that could be related to the communication of the water crisis.

coordinated action by several water directorates. The OMIT is, therefore, one of the essential elements of crisis management carried out by the OVF, as centralised communication is essential to provide adequate crisis response, hence the need to set up a crisis team.

For the first time in its history, it was set up on 20 July 2022, to lead the fight against water scarcity. It continued its activities – in the active phase of the crisis – until 22 August 2022, during which it also created the responses to the crisis, and the steering tribe can be seen as the transmitter of the communication process.[6] The crisis team, expressly set up to deal with drought management issues, comprised 35 people, including delegates from 10 different teams and the technical services. Among its members were, of course, members of the press team led by the press officer.

The channel

In order to achieve the critical objectives of crisis communication – such as providing credible information and reassurance, identifying the causes of the crisis, demonstrating how to avert the threat, mitigating damage and compensating victims[7] – it is essential for the organisation to choose the most appropriate communication channel. Nowadays, social media platforms allow for real-time information exchange in a short timeframe that, in the event of a water scarcity event like the extreme drought of 2022 as a consequence of the eco-crisis[8], will surpass the possibilities of traditional communication tools in terms of speed and social reach.

The main communication channel for the OVF during the crisis communication on the persistent water scarcity situation was the Facebook page[9] of *Országos Vízügyi Főigazgatóság-OVF*. As the primary social media platform of the OVF, this is where the crisis messages with the highest reach were published.[10]

6 URL5.
7 URL6.
8 'The current scientific consensus is that we are experiencing a planetary-scale environmental collapse, a crisis whose main vector is the energy issue, and more specifically, the transition to the large-scale use of fossil fuels. The problem is the subject of several interdisciplinary debates, stimulated in particular by the concept of the Anthropocene: the idea that humanity has become a geological force capable of upsetting the climate stability that has characterised the last 11–12 thousand years.' (Marques, 2018).
9 URL3.
10 The press releases published on the OVF Facebook page are also published on the Water website, which was the website of the National Directorate General for Water between 2013 and 2021. OMIT has a special place in its menu bar, and all its press releases from 09. 03. 2021 to 23. 12. 2023 can be found in the site's archive (URL7).
However, since the site is no longer under development, as indicated by the date markers, its traffic and, therefore, the success of the messages could be better.

Based on the number of followers, a community of 8000 people has now been built around the profile[11]. In terms of the crisis communication process during the period under review, the site reached roughly one in 900 people affected by the crisis. In general, the site provides general information on the water situation. The profile developer, in line with current user trends, shares much content that gives a glimpse into the organisation's life, giving a sense of a 'behind the scenes' opportunity to reveal some of its secrets.[12] Posts related to a crisis or adverse event are also featured in the site's news feed, browsing the site most often to find notifications of successful clean-ups of water spills and spills. Communications about a water shortage period prior to the period under review only sometimes appear in the news feed.

The OVF has also had an Instagram profile since 25 March 2022, so it has created this platform almost precisely in line with the crisis management process under discussion. However, the organisation did not use the page to transmit crisis messages in our study period. Eight posts were shared in the pre-crisis phase, 1 in the active phase and 4 in the post-crisis phase. However, in terms of content, they all touched on aspects of the protection recovery during a prolonged water shortage and did not provide data for conducting this research.

Likely, the OVF did not use this newly created social media platform to deliver crisis communication messages because its operating mechanism, development potential and outreach maximisation were utterly unknown, and the experimentation process was incompatible with any of the crisis communication strategies.

The message

The messages conveyed in crisis communication should inform the recipients in such a way that they can make competent decisions about the proper behavior and actions to take. When a public authority is called upon to respond to the crisis, the messages become the opinion of an entire society. A crisis caused by water scarcity, or messages of risk and crisis around sustainability issues in water management, can be considered a public issue affecting all members of society. In a crisis, only those messages that prevent misleading information from entering the collective consciousness through social discourse will prove potent (Kriskó, 2021).

11 January 2024 data. There is no data on the number of followers up to 31 December 2022, but it is assumed to have been fewer.

12 Recent social media trends clearly include a 'real-world' attitude, which refers to the desire for content on social media to reflect real-life situations rather than an expected dream world, as well as a requirement for behind-the-scenes content and reimagined transparency (URL8).

Over the pace of the study intervals, the content of the OVF-mediated posts can be sorted into three categories:

- only text messages without visual illustrations;
- messages containing both image and text;
- video, usually accompanied by a description.

Next, the posts created as crisis messages were further analysed based on engagement indicators. The Facebook interface provides different options for stakeholders to provide both non-verbal (like, share) and verbal (comment) responses. Measuring the interaction of recipients can indicate the effectiveness of messages. The number of likes, shares and comments can indicate the content of messages that the recipients of the communication most easily receive.

Table 1

Content and popularity indicators for the OVF's crisis communication on Facebook about the 2022 water crisis during the 3 phases of the crisis

Phase	Date	Topic Drough	Type	Post/Piece			Popularity rate
				Likes	Comments	Shares	
Precrisis	22 March	not	image+text	261	2	45	26
	24 March	not	image+text	223	8	31	262
	25 March	not	image+text	47		10	57
	29 March	not	image+text	151	3	8	162
	31 March	not	video+text	93	3	42	138
	11 April	not	image+text	134		19	153
	14 April	not	image+text	193	18	5	216
	26 April	not	image+text	23	2	15	40
	18. May	not	image+text	39	5	21	65
	02. June	not	video+text	99	1	87	187
	23. June	not	image+text	27			27
	27 June	not	image+text	46	1	18	65
	30 June	not	image+text	89	1	11	101
Total				1425	44	312	1781
Active crisis	20 July	yes	text only	245	146	300	691
	21 July	yes	text only	450	230	180	860
	22 July	yes	text only	80	10	46	136
	26 July	yes	text only	102	1	66	169
	29 July	yes	text and link	67	1	22	90
	02 August	yes	text only	38		17	55
	05 August	yes	image+text	71	4	46	121
	09 August	yes	text only	94	26	57	177
	10 August	not	image+text	171	7	39	217
	12 August	yes	text only	58	5	30	93
	17 August	yes	text only	83	6	45	134
	25 August	yes	text only	72	1	22	95
Total				1531	437	870	2838

Phase	Date	Topic Drough	Type	Post/Piece			Popularity rate
				Likes	Comments	Shares	
Post-crisis	01 Sept.	not	video+text	130	10	79	219
	05 Sept.	not	shared event	20			20
	07 Sept.	not	text only	167	6	1	174
	19 Sept.	not	image+text	22		3	25
	23 Sept.	not	video+text	245	56	69	370
	08 Oct.	not	image+text	105	3	19	127
	18 Oct.	not	image+text	48		74	122
	09 Nov.	not	image+text	205	2	5	212
	06 Dec.	not	image+text	203	4	12	219
	24 Dec.	not	image+text	351	21	14	386
Total				1496	102	276	1874
247 days in total		**11 yes / 24 no**		**4452**	**583**	**1458**	**6493**

Note. Tables prepared by the authors.

The pre-crisis phase

All of the defining strategies agree that the pre-crisis period focuses on preparation, anticipation and prevention (Kriskó, 2017). The pre-crisis phase of the communication process under study covers the time interval between the declaration of the Minister of Interior on the country-wide persistent water shortage and the establishment of the OMIT (21 March 2022–20 July 2022).

In this – pre-crisis – phase, water management preparations were made, and the water levels of reservoirs, watercourses and canals were increased to the appropriate level for protection.[13] Preparation should, of course, be used to find technological, technical and human resource solutions and formulate appropriate communication messages to enable the government to demonstrate its indefensibility by making preparations and to help build understanding and support in the social environment (Coombs, 2009). One of the so-called anticipatory rhetorical strategies of crisis communication neatly captures the great importance of communicating the risk of an impending threat and preparedness for it during the preventive period.

We filtered the content posted on Facebook pages using different keywords relevant to the research topic during the study periods. Only posts containing the following words were used as study material: water scarcity, drought, water crisis, drought, disruption, ban, supply problem, scarcity, and rainfall shortage. As shown in our table of data extracted from the temporal, content and engagement measurement of the posts, 13 posts were made on the site during

13 Activities of the Water Sector in 2022 Technical Report December 2022.

the pre-crisis phase from 22 March to 30 June 2022, but no posts containing the keywords we searched for were published. This indicates that there was no nationwide pre-call or alert to stakeholders and also implies that the reception of subsequent crisis messages was not facilitated by the typical crisis communication move to involve the public in the preparations, specifically those affected by the impending crisis whose economic exposure was most significant.

The active phase of the water crisis

In the active phase of the crisis, between 20 July and 22 August 2022, the role of communicator was taken over by the crisis team of the OVF, OMIT, which based its communication on the publication of press releases.

The press release is clearly the most appropriate genre for informing the public.

The press releases published on the OVF Facebook platform with a variable periodicity are professional and contain relevant information on protection. Examining the language levels, the use of technical terms, which provoke ambiguous reactions, is avoided, and the sentences are not overly complicated, in line with the level of everyday speech. The texts are chronological, linear, clearly structured and easily understood by society. In terms of length, they go beyond the length predominantly favored by social media users,[14] but in all cases, the posts begin with a very pithy lead, which both attracts and directs the attention of the communication's recipients and provides a summary of the text.

A thought-provoking result of the content assessment is that most of the posts produced during the active period of the water crisis are text-only, despite Altheide's statement as early as 1985 four of the essential requirements for effective crisis communication (Altheide, 1985). On this basis, thematisation, ensuring as close access as possible to the crisis, communicating accurate data and exclusive information, increasing drama and incorporating quality visual elements are all minimum criteria for successful media communication in protracted crises. In the 21st century, the visualisation of text is paramount, as the use of mass media accelerates the individual's perception, making the visual representation more attention-grabbing.[15]

A textual analysis of the crisis messages shows that government communication, in this case, focused on information production and dissemination. The

14 Effective use of the various web tools requires text descriptions of different lengths. It is recommended to optimise the length of messages on a given social media platform in advance, which can be helped by monitoring current trends in social media usage. Relevant research shows that short, concise, attention-grabbing posts of less than 50 characters have the highest organic reach (URL11).

15 A video has at least 59% more reach than a text post (URL11).

OVF adopted a communicator-centered strategy, framing the texts from a rhetorical point of view, aiming to reduce the threat by describing defensive actions with maximum control. This strategy was made possible because the course of a crisis arising from a natural phenomenon usually makes the organisation independent of its significant responsibilities. Of course, it can have a substantial reputation-destroying effect if not handled properly.

Examining the engagement indicators, it is clear that during the relatively short period of active crisis management, users engaged with social media content at a much higher rate, with both the number of non-verbal responses and the verbal feedback indicators showing markedly high values compared to the pre-crisis phase. The number of likes on posts during the 33 days of the active crisis period is equal to the number of likes received during the 100 days of the pre-crisis stage, while the number of comments increased almost tenfold, and the number of shares doubled.

The press releases published on 21 July and 29 July strategically assume the application of another dominant crisis communication theory. The OVF's communication also incorporated the image improvement theory. During the crisis, the OVF was strongly criticised by public opinion, the media and certain political groups. There were allegations of mismanagement of water resources, and the organisation was accused of a drainage-centric approach due to the persistent water shortages that had developed. Quote from the OVF post of 21 July 2022, written to improve the image of the OVF: *'The water sector has been dealing with the water surplus and water shortage problem as a whole since the new Water Management Act, i.e., since 1995, because the Act provides that »water damage is the organized activity against surplus and shortage of water.« This definition is worth bearing in mind when accusing the water sector of a drainage-centric approach.'* (URL3).

The table used to assess the comments (Table 2) shows that the number of offensive comments on the OVF's communication on 20 July 2022 (the beginning of the active phase of the crisis) was very high (44), with a large proportion of the public declaring the OVF to be the main culprit in the crisis caused by the extreme drought due to negligent water management and the failure to drain the surplus water as quickly as possible.[16] When the 21 July message was for-

16 'For 30 years, the Water Department has allowed rainfall and floods to rush across the country.'
We should not let all the water that comes in naturally out of the country. We have successfully turned the Carpathian Basin into a semi-desert with excessive river regulation!'
'Water conservation instead of drainage! Good water management is wetland management!
We must divert the water beyond the dams!
The floodplain without water is a desert!' (URL3).

mulated, the Image Restoration/Repair Theory (IRT) (Benoit, 1995) was used to overcome the reputational threat. IRT provides recommendations for using 14 different types of strategies, of which OMIT used the tactics of denial and reinforcement. In its well-constructed posture, it sought to demonstrate its unquestioned competence, denying its responsibility for the crisis, a fact supported by a detailed explanation of the organisation's expert actions. At the same time as the post was written, a social discourse was launched, with the most likes (450) becoming the message with the most comments (230) and the most shares (180). This crisis communication strategy can also be seen in the publication of 29 July, when OMIT's press release was colored by the sharing of a study by MET.[17] The offer of a more thorough understanding of the physical meteorology of the drought that has developed has an image-enhancing feature, minimising the responsibility of the OVF.

The post-crisis phase

The crisis ended with the rains of 20 August, and the OMIT issued its last press release on 25 August 2022, after which the crisis was in its aftermath. After this date, no messages related to the persistent water shortage were generated until the end of 2022. However, the OVF, recognising its 21st-century communication requirements, has begun to strengthen its presence on online and social media platforms, with a natural result of a steady increase in its followers. Even if the rhetoric of renewal in crisis communication is not verbal, its actions show that crisis is also an opportunity for renewal.

Recipients and feedback

Concerning Facebook, the recipient group is easy to determine based on the statistical data available with the appropriate administrative authority. However, in the crisis under discussion, a government body is the crisis manager and communication manager; therefore, the recipient group is the entire population.

In our research, in line with the orientation of the latest theories on crisis communication, we have combined the study of the recipients and the feedback they give, and we also wanted to reveal the impact on the recipients.[18]

17 URL9.

18 Social media community activity is the most common of the reactions, with fewer comments and even fewer shares (URL10).

Based on the feedback that can be given, a rate can be determined, which is the number of likes and comments and the percentage of followers of the page and can be an indicator of the receptive behavior of a post.[19] (Swani, Milne, Brown, Assaf & Donthu, 2017).

Today, the literature on crisis communication considers the Situational Crisis Communication Theory (SCCT) (Coombs & Holladay, 2002) the most promising. The substance of this theory is that it attempts to construct the communication process from the receiver's perspective by determining where the receiver of the communication can position responsibility for the event. Community portals, which enable the multi-directional flow of information, facilitate dialogue between the agency and the recipients. In this way, using the SCCT framework to maximise the impact of crisis communication, it is easy to determine how the crisis public perceives the crisis. Identifying this is of unquestionable importance, as the potential for feedback converges to virtually infinity, making the impact on trust and image almost incalculable. The speed of any loss of trust can be remarkably rapid since, in the virtual world shaped by social media, the comments play the role of 'word of mouth.'[20] and therefore have a very high news dissemination value.

However, the immediate optional feedback provided by Facebook also carries the potential for loss of control. There are many dangers in dealing with malicious, untruthful information and aggressive posts. The OVF also faced this barrier in its communication on the 2022 extreme drought. During their social media presence, water professionals initially commented on any posts that received feedback that could increase communication noise.

To get a closer look at the impact of the OVF's crisis communication on the 2022 water crisis on the recipients, the verbal reactions to the communications made were grouped according to the following criteria:

- Total comments: total number of comments on posts published during the active crisis phase.
- Attacking comments: condemnation of the OVF, referring to inadequate water management and/or communication in the context of the water crisis.
- Supportive comments: positive feedback on the water management and communication efforts made.
- Posts with neutral content: interchangeable dialogues between commenting recipients or posts unrelated to the topic.
- Question: reception questions to the OVF.

19 These ratios are summarised in Table 2, which contains the data from our study.
20 WOM (word-of-mouth marketing).

- Political comments: comments that are critical and blaming of government policy – not related to water management – and not explicitly addressed to the OVF.
- Response: the number of answers given by the OVF to the questions put to them.
- Missing posts: number of posts that are likely to be blocked or deleted for moderation.

Table 2
Quality of feedback received on crisis messages from the OVF during the active crisis period

Date	All	Attacker	Sponsored by	Neutral	Question	Political	OVF's reply	Missing
20 July	**146**	44	3	28	8	14	2	47
21 July	**230**	51	20	56	19	5	4	75
22 July	**10**	3	3	2	1		1	
26 July	**1**				1			
29 July	**1**			1				
2 August	**0**							
5 August	**4**	3			1			
9 August	**26**	2	1	19	3		1	
12 August	**5**	1		2	2			
17 August	**6**			6				
25 August	**1**			1				

Note. Table prepared by the authors.

The above analysis of the comments also underlined the problematic nature of the potential for channeling social media feedback into crisis communication. Statistical insights clearly show that most comments generated negative, offensive content. The tone of the comments is primarily angry, as evidenced by the use of digital formal devices to express emotional excess, such as all capital letters and the frequent use of symbols and emojis expressing anger and frustration. Few comments are supportive, positive, and approve of the steps taken in water management. There is no correlation between the number of questions addressed to the organisation by those affected by persistent water scarcity and the response given by the OVF, with many questions still needing to be answered. The OVF as a profile has only one comment: a very accurate report on the state of Lake Fertő. Comments from the organisation are made by the organisation's staff using their private profile, which definitely obscures the communication, as we can only assume that the feedback

is from a professional. The numerical assessment also indicates that the most active recipient base was at the beginning of the crisis, with the most responses to posts appearing at the beginning of the active phase of the crisis (20 and 21 July 2022). While OVF has taken steps to strengthen the image-building strategy in the comments section further, it has not been able to use the interactive nature of social media to its advantage. Given the novelty of the challenges of multi-faceted communication provided by web-based tools, moderating reactions also require a high level of skill on the communicator's side. In light of the figures, it is striking that the ratio of original comments counted by Facebook to comments that can be read in real-time is in deficit, suggesting that its communication transmitter has not allowed the feedback received to remain fully transparent.

Summary

In line with the results of the literature, the communication strategy of the OVF in the context of the water crisis – during the active period of the crisis – was based on ensuring a rapid, timely and accurate flow of information, the crisis and the crisis management process were simultaneous, thus preventing the image of the crisis in the different public opinion groups from being distorted by other news sources, providing unprofessional information or creating panic.[21] In the context of the water crisis under discussion, given the existence of an environmental and natural threat, it is essential to note that the amplification of the communication noise could not only have had the effect of providing a breeding ground for contradictory reports, speculation and untruthful information from different media but could also have significantly hindered the protective work of the special intervention units.

However, the use of social media platforms as a channel to communicate about drought, on the one hand, and the under-utilisation of the potential of web-based tools, on the other, provide many empirical lessons.

The role of social responsibility in water management should be strengthened in developing and managing a future permanent water scarcity situation. Its importance needs to be anchored in the community, and new patterns of action need to be overwritten by effective communication strategies. Situational crisis communication theory provides a framework to describe the crisis by exploring public perceptions of the crisis, focusing on recipients' reactions when

21 URL12.

developing strategies. In designing a progressive risk and crisis communication strategy, the analysis of feedback from recipients provides an essential crutch.

The global climate changes affecting future water management make it vital to increase the impact of crisis messages on the recipient's ability to stimulate action, greatly facilitated by the proliferation of mass media platforms online. The interest in effective risk communication on sustainability issues dictates that recipients should not be engaged as listeners in one-way communication. Instead, the governmental organisation should develop a form of educational, social dialogue through the feedback it receives on social media platforms. Along with our logical conclusion, the accurate mapping of possible recipient feedback should be more at the origin of the development of effective preventive crisis communication for the upcoming persistent water scarcity conditions.

Proposals

The research concludes with several recommendations for steps that can be taken to enable more effective crisis management for the water sector by maximising the use of the tools already available.

Prevention

In our view, even if the image-destroying impact of natural crises is – based on the literature – small, the confidence-building effect of informing water professionals about the start of protection measures in the run-up to a water crisis should be exploited in the field of messaging, especially in the light, receptive manner of social media.

Recently, there has been a recognition of the need to shift the focus of government communication towards a customer-centric approach (Gregory, 2011) to allow for an ongoing dialogue with stakeholders. This expectation requires that skills and mechanisms for using media tools are integrated into the communication of the governmental organisation (Phillis, 2004). A detailed analysis of the contributions generated during the extreme drought in 2022 would provide a good starting point in developing a pre-crisis communication strategy on water scarcity for the coming period.

The Operational Water Scarcity Assessment and Forecasting System

In light of the research results, the OVF has implemented the foremost step of preventive crisis communication, mediating the threat's emergence process,

on its online interface. The drought monitoring system,[22] created by water professionals, debuted during the water crisis discussed in this study. The system itself uses data measured by 114 monitoring stations to calculate the HDI (Hungarian Drought Index) index, which consists of two sub-indices: HDIo (meteorological water stress) and HDIs (water stress). The OVF provides an online interface to the system accessible to anyone (URL12). From a crisis communication perspective, the site provides information on damage prevention and planning. However, the processing and adaptation of data on the novel water crisis caused by water scarcity have often been a challenge for professionals due to the novelty of the situation (Teszári, 2022). The public affected by the crisis is believed to have been unable to correctly decode the information obtained from visiting the site, and its basic comprehensibility is questionable. In the future, it would be advisable to make this platform run with expertise and precision more accessible and highly promoted.

Instagram

Instagram is an excellent platform for building value-rich communities (Dér & Márkus, 2020). According to statistics, approximately 2.593 million people[23] use this platform in Hungary, but the number of users is growing dramatically in our country, and the disadvantage of not being a member of the user community is growing proportionally. Data also shows that the younger generation is more represented on Instagram. The largest share of users is in the 18–24 age group, while 1.3 million Hungarian Facebook users are over 55 years old; the number of users in this age group on Instagram is 139,000.[24] Based on these criteria, there is a clear need to strengthen the OVF's Instagram presence in 2024, as a more significant proportion of the generations affected by the coming water scarcity crisis will communicate on this platform. Generally speaking, this platform, compared to Facebook, is much less textual and more focused on visuals. It is also characterised by the use of deliberate, on-topic hashtags and the possibility of creating lively interactions, so it is recommended that an existing profile be developed based on these criteria.

22 Two young colleagues of ATIVIZIG prepared it, Dr. Balázs Benyhe and István Fehérváry.
23 2021 data (URL13).
24 2021 data (URL13).

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URL2: *Vízügy Magyarország YouTube channel.* https://www.youtube.com/@vizugymagyarorszag

URL3: *Országos Vízügyi Főigazgatóság - OVF Facebook page.* https://www.facebook.com/vizugy

URL4: *orszagosvizugyifoigazgatosag Instagram page.* https://www.instagram.com/orszagosvizugyifoigazgatosag/

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