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The perception of an image of the state forest enterprise by general public in chosen region of the Slovak Republic

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Abstract: This paper deals with the comparison of the general public perception and the opinion of state forest managers on image of the state forest enterprise. The research was organised during the period 2015–2019. One group of respondents involved all managers of 23 sub-enterprises of state forest enterprise Lesy SR. The other group consisted of 384 respondents representing the general public residing in the Banská Bystrica region. Structured questionnaire with one open and 16 closed questions was applied for data collection with a help of electronic means. Collected data were processed with descriptive (particularly frequency analysis) and two-dimensional statistical methods. The results of the image inquiry aimed at three issues: (*i*) perceptions of the forest management effectiveness of the state versus non-state forest enterprises, (*ii*) perception of marketing strategy and its tools of the state forest enterprise, and (*iii*) comparison between public awareness/experience with public relations activities of the state forest enterprise.

Keywords: forestry; public relations; marketing mix; state forest enterprise; Slovakia

Forestry faces many challenging tasks, among others also how to deal with its decreasing social confidence and marginal public support. In the past, the forester was understood as an honourable person, whereas in the last 50 years the situation has changed and forester as well as forestry are not seen positively, but as an "enemy of the public" (Novotný 2011; Riedl et al. 2019). The reason for this remarkable change is mainly seen in unclear public relations between forest community and society. Moreover, these developments have been used by their rivals to form a negative image often portraying the forester as a "devastator of the nature" (Novotný 2011; Volker 2020).

As the image is how the forestry community is perceived by the audience, it is a crucial concept in shaping its marketing and especially communications efforts. Communication is the necessary fundamental of all social interactions not only in the forestry sector (Riedl et al. 2019) but also it is widely discussed in literature (Ranacher et al. 2020). For example, Wilkes-Allemann et al. (2021) analysed communication campaigns to engage small-scale non-traditional forest owners in active forest management. On the other hand, Ranacher et al. (2020) focused on the public perception of forestry and forest-based bioeconomy in the EU sector and proposed recommendations in four topic

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categories – forest ecosystem services, forestry and forest management, forest-based industry, wood and wood-based products. Concerning the perception of forestry institutions with authority tasks and management tasks within society and relevant stakeholders, the role of the mediator and speaker of all interests in forests was discussed broadly in Europe (Chudy et al. 2016; Stevanov et al. 2018).

More than 50% of forests across Eastern Europe are owned by the state and their management is dependent on its decision makers (FAO 2011). Even more forests are entrusted to the state forest enterprises (SFE) (UNECE 2019). Therefore, the performance and perception of SFE's influence the development of the whole forest sector as well as forest stability (Liubachyna et al. 2017). Particularly in Slovakia, 40% of forests are owned by the state but more than 51% are managed by the SFE (MARD 2020). The forest enterprise Lesy SR continues rich and long-term forestry traditions as the biggest forest enterprise in Slovakia (Lesy SR 2020) and as a significant employer it provides employment in rural regions (Neykov et al. 2021). The SFE is also responsible for the process of restitutions in Slovakia, which has an impact on how the enterprise is perceived by private forest owners (Dobšinská et al. 2020). In the last decade the media have written about several controversial cases in the management of forest land in connection with SFE. For instance, conflicts between foresters and environmentalists because of different views on the nature protection (Sarvašová et al. 2020) or some disagreement about the conducted trade policy (Šálka et al. 2016). Although the conditions were introduced so that the forestry would be perceived more positively, very little is known about how state forest managers as well as society perceive the forest community in general and particularly SFE Lesy SR. The goal of the present study is therefore to bring more light into the current perception of an image of the state forest enterprise Lesy SR.

MATERIAL AND METHODS

The structure of the marketing mix catches the strategy of the forest enterprise. This strategy, eventually, builds the company image. In this regard, the research question of our study was defined as follows: How do the public and employees perceive the image of a state forest enterprise?

The marketing mix consists of seven tools so called "7P", namely product, price, place, promotion, people, processes, and physical evidence (Rafiq, Ahmed 1995; Armstrong, Kotler 2010).

"Product" presents the product itself (wood assortments) or offered service (outsourced services like silviculture or harvesting), etc. "Price" is characterized not only by the amount of money, but also it includes the possibilities of price adjustments such as rabat, discount, repayment schedule, and so on. "Place" describes the way of product distribution, sales network density, traffic, supply. "Promotion" shows the way of the company communication with its customers. It involves the tools like advertisement, promotion, public relations, personal selling, and direct marketing. The tool "people" introduces e.g., the level of staff skills, their methods of communication, staff training, etc. "Processes" represent the use of machinery for timber felling, forest management approaches, etc. "Physical evidence" is characterized by placing the company logo on its vehicles, using standardized company clothing (forest service uniform), applying the design manual on the company website, etc.

The inquiry was conducted during the period 2015–2019. The target sample consisted of two groups of respondents. One group involved all managers of 23 sub-enterprises of SFE Lesy SR, which has its headquarters in Banská Bystrica. The other group was made of 384 respondents representing the public residing in the Banská Bystrica Region (Table 1). As the sourcing of the whole sample would be difficult and costly, this group was identified with the help of snowball method (Lamnek 1993). Additionally, the Banská Bystrica Region was purposely chosen because it is one of the most forested regions in Slovakia with the share of forests up to 50% (SARIO 2011).

The sample size (n) was calculated by the formula for determination of the qualitative character by allowable error of $\Delta = 5\%$, the highest entropy level of $p \times q = 0.5 \times 0.5$ and significance level of 1.96 (Rimarčík 2007):

$$n \geq \frac{z^2 \times p \times q}{\Delta^2} \quad (1)$$

where:

n – sample size;
z – significance level;
Δ – allowable error;
p, q – degree of variability.

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Table 1. General profile of the target samples

Features		General public	Managers of forest state enterprise Lesy SR
Sample size		384	23 (all state forest enterprises)
Age	26–60 years	77%	87%
	≥ 61 years	23%	13%
Education	secondary education	15%	–
	first stage of tertiary education	23%	–
	second stage of tertiary education	62%	100%
Gender		54% women, 46% men	100% men

The coefficient of variation was chosen for the evaluation of divergence of opinions on the use of individual tools of marketing mix by investigated targets groups (Agresti 2018):

$$c_v = \frac{s}{\overline{x}} \quad (2)$$

where:

c_v – coefficient of variation;
s – standard deviation;
$\overline{x}$ – arithmetic average.

The calculation of the standard deviation is defined as follows:

$$s = \sqrt{\frac{\sum\left(y_i - \overline{y}\right)^2}{n-1}} = \sqrt{\frac{\text{sum of squared deviations}}{\text{sample size} - 1}} \quad (3)$$

where:

y_i – observed values of the sample items;
$\overline{y}$ – mean values of the observations;
n – sample size.

The way of perception of the marketing strategy within the individual tools of marketing mix among the public and company employees was analysed by two-dimensional statistics through the chi-squared test in the Statistica 7 software (7.0, 2004).

$$\chi^2 = \sum \frac{\left(O_i - E_i\right)^2}{E_i} \quad (4)$$

where:

χ^2 – chi squared;
O_i – observed value;
E_i – expected value.

The significance level α was determined on the value of 0.05.

The pre-test of the questionnaire was conducted before its implementation to the public. Structured questionnaire with one open and 16 closed questions was applied for data collection with the help of electronic means (Silverman 2004). The answers acquired concerning the perception of marketing strategy were measured on a 4-point Likert scale (Kozel et al. 2011). All other answers had polar character [see the Electronic Supplementary Material (ESM)]. More precisely, the respondents were asked to indicate their perception on the scale from having very low perception to very high perception. The focus of the structured questionnaire was threefold. Firstly, inquiries aimed to obtain the perception of state forest management versus non-state owners. Secondly, awareness of the marketing strategy of the SFE Lesy SR was in the focus of seven questions related to the tools of the marketing mix. Finally, an extra emphasis was given to the perception inquiry concerning public relations of the SFE Lesy SR. Due to possible obscurities as well as for the explanation of some parts related to individual tools of the marketing mix, the interviewer was always present when questioning.

Collected data were processed by means of descriptive (particularly frequency analysis) and two-dimensional statistical method (Rimarčík 2007).

RESULTS

The results of the image inquiry focused on three issues. Firstly, the perception of the forest management effectiveness of the state versus non-state forest enterprises was analysed. While most of the public viewed the non-state forest enterprises as more effective in forest management, the state forest managers commonly associated effective forest management with their SFE Lesy SR (Figure 1).

Secondly, the perception of marketing strategy of the SFE Lesy SR was analysed (Figure 2). The findings revealed that the public perception

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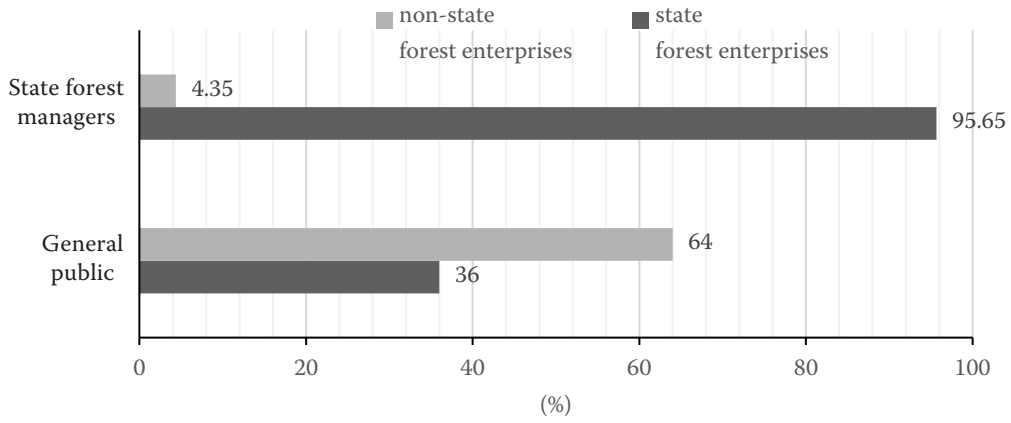

Figure 1. Opinions of the general public and state forest managers regarding forest management in state and non-state enterprises

of marketing strategy grasped via 7Ps was poorer in contrast to the state forest managers' opinions. For instance, while the state forest managers highly perceived product (e.g., felling volume) and price strategy (e.g., price policy), public perceptions of these activities were medium to low. One exception was that all respondents highly perceived people's skills (e.g., education and experience levels).

Following the values of the coefficient of variation, we can state that the public opinions are slightly more different (c_v = 7.89%) from forest enterprise managers' statements (c_v = 6.68%) on the use of the tools of the marketing mix. At the same time, the public evaluated the work of SFE more critically (< –0.46) towards the median value of the 4-point Likert scale (2.5). On the contrary, the state forest managers had the tendency of more positive evaluation (< 1.33). Therefore, the answers from both groups of respondents were examined by correlation analysis to find out the statistical significance of their different perception. At the defined significance level α = 0.05, the *P*-value of chi-square reached the value of 0.0001. This finding confirms the statistically significant difference in the perception of the company image between the public and company employees in the given sample of respondents.

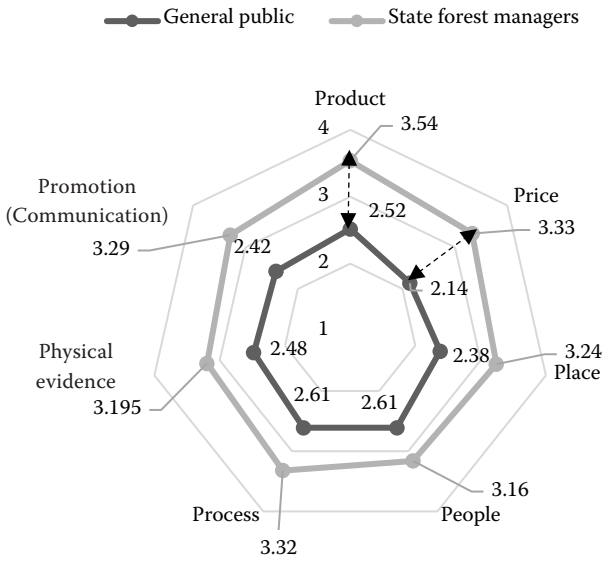

Figure 2. Disparity of the public perception and the opinions of state forest managers relating to marketing strategy of the SFE Lesy SR

As the greatest differences in perception existed between product and price strategy within all tools of the marketing mix (7Ps') (Figure 2), their detailed analysis revealed that the activities such as timber felling and timber trade are almost negatively perceived (at the middle level) by the public (Figure 3). In contrast, state forest managers highly (positively) perceived silvicultural and forest protection activities next to the management of the enterprise.

From the evaluation of other four Ps of the marketing mix, we detected the most different and the closest opinions of both questioned groups in Figure 4. The closest opinions were matched on the forestry clothing within the strategy of "physical evidence" and providing seminars and trainings for schools and other institutions inside the marketing tool "people". The most different views were identified by "process" strategy within the use of certified approaches to forest management (e.g., appropriate technologies and close to nature mechanisms). Another major disparity was detected by the public

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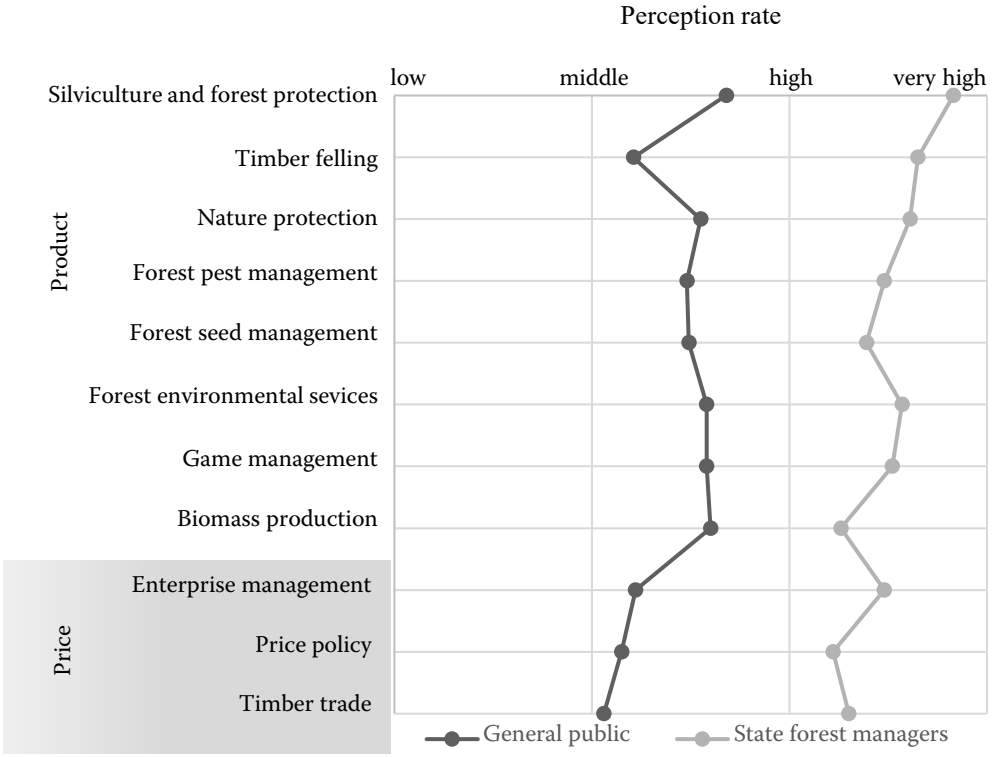

Figure 3. Comparison of the public perception and state forest managers' opinions on the product/ price strategy of the SFE Lesy SR

perception of the state forest administrative buildings with the tool "physical evidence".

Thirdly, special attention was given to the analysis of PR activities of the SFE Lesy SR (Figure 5). The perception of these activities by the public was rather small, as almost 31% of the respondents did not know or experience any activity offered by the SFE Lesy SR. In contrast, "Open-Air Museum in Vydrovo" belonged to the best known and most frequently visited PR activities. On the contrary, the public knew about the activities of SFE in "Forest Pedagogy – Trees of Knowledge" to a lesser extent. The success of the public awareness of the forestry events was assessed through the ratio between

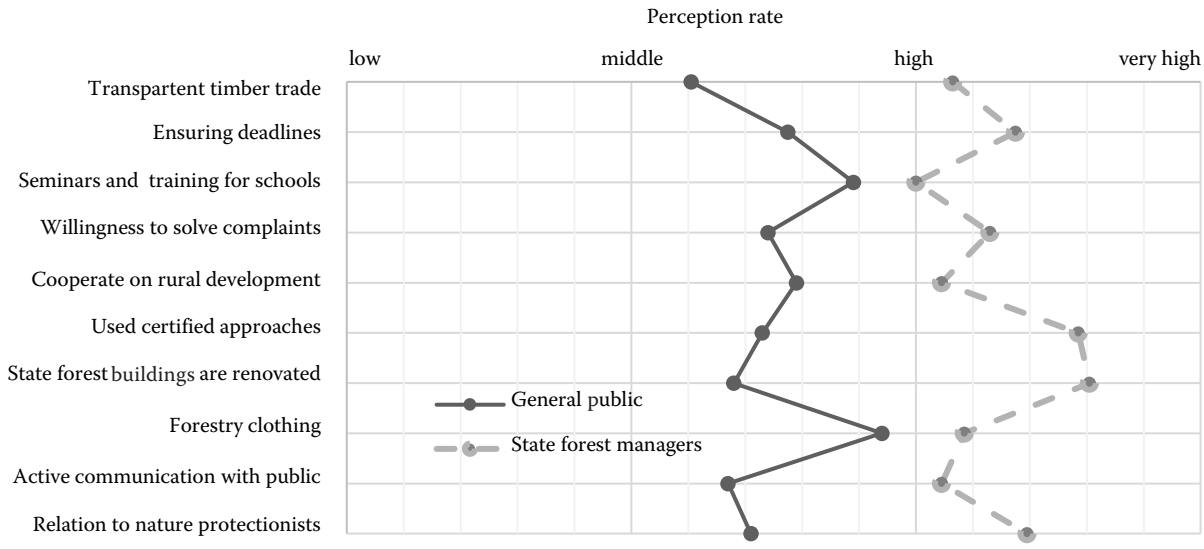

Figure 4. The most different and the closest perception of the public in relation to the statements of the state forest managers on the use of other marketing tools

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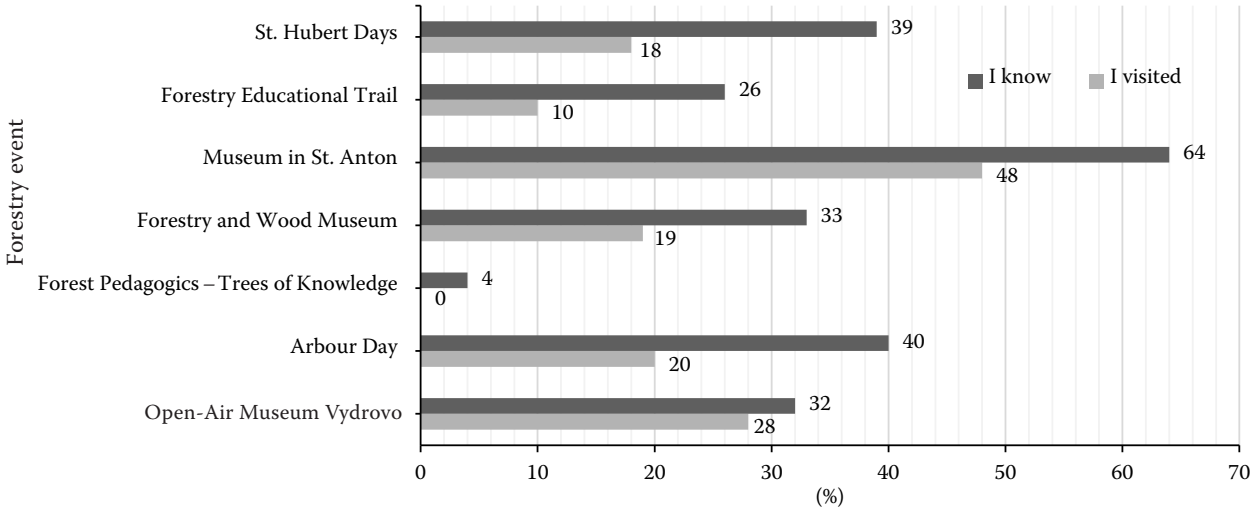

Figure 5. Comparison between public awareness/experience with public relations activities of the SFE Lesy SR

the information about that event (*I know*) and the real taking part in it (*I visited*) or the share of visits in the promoted events. Based on this approach, there were identified only two PR activities having a significant achievement by the public, namely Open-Air Museum (87.5%) a Museum in St. Anton (75%). Across all PR activities, their average success presented only the 50% rate of visits from the range of available information for the public (promotion).

DISCUSSION

The image of the SFE Lesy SR has been rather contradictory in the last decades. Submitted findings revealed that this perception did not change very much during the investigated period. Largely, the public relatively weakly perceived the image of the SFE. Comparable results were provided by Riedl et al. (2019) and Krejčí et al. (2019) where the public is aware of the declining balance of forests stands in the Czech Republic. In Germany, Sweden and Czech Republic, the public sensibly takes notice of environmental problems in forests such as pollution and climate change (Ranacher et al. 2020). For instance, the price policy or high rates of timber felling were associated with almost negative perception (at the middle level), even the high transparency connected with comprehensive statistics on forest resources and forest management practices is available and fair for SFEs in Slovakia (Makrickiene et al. 2019). In contrast, state forest managers commonly quite highly perceived the overall image of the SFE Lesy SR. This finding was confirmed by several studies with approval that employees tend to feel commitment and loyalty towards their workplace and are on the side of their organization (Bayrak Kök et al. 2018). However, the perception of the corporate image is positively related to job satisfaction and negatively related to intentions to leave the organization (Riordan et al. 1997). Rho et al. (2015) confirmed the high loyalty of senior managers to their own companies.

Additionally, the difference in the perception of the company image is statistically significant. These findings lead to two conclusions. Firstly, the public is sensitive to media information on forest and forest enterprise perhaps because they are often negative. More precisely, media reporting on corruption cases within the SFE Lesy SR, unauthorized timber felling in protected areas, long-term timber contracts (Brodrechtová et al. 2018) with selected timber processing companies or problems with overprotection of brown bear caused unfavourable public opinion and damage of the good image. This was reflected mainly in negative perception by the public of timber felling, enterprise management and timber trade (Figure 3) as well as in the use of certified approaches (Figure 4). At the same time, the legal form of undertaking influenced the evaluation of the forest enterprise by the public, so that the state forest managers are perceived as less effective than the non-state ones (Figure 1). This finding was confirmed by several studies at the international level. The state-owned enterprise (SOE) in gen-

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eral is perceived as less effective than the private one (Radygin et al. 2015). Additionally, the OECD (2018) drew attention to the threat of corruption and irregular practices in and around SOEs. Consequently, due to the pressure on SFE in terms of changing the trade policy, the new "Business and trade policy" was revealed, with the aim to perform short- and middle-term contracts (Lesy SR 2018). SFE currently focuses on more activities than timber production, particularly on regulating and cultural services (Sedmák et al. 2019). Further, the public mostly obtains information concerning activities of the SFE Lesy SR from media. On the one hand, this information is often (un)accurately provided by non-governmental organizations. On the other hand, the SFE Lesy SR does not adequately communicate and inform the society about forest operating and public relation activities (Figures 3–5). The abovementioned negative public perception of the use of certified approaches could be one good example (Figure 4) where all forests in Slovakia have been certified by PEFC scheme and the forest management is controlled by an independent certification body on a regular basis (Paluš et al. 2021).

Hence, the communication strategy, particularly public relations, must become strategical for the enterprise to improve its image (Sarvaš 2015). With respect to the awareness of the PR activities, SFE attracted less people to take part in forestry events besides the two of them (Figure 4). Forest community should continue the presentation of its work via "Hubert Days", "Arbour Day" or" Forest Pedagogy" among others. However, it is necessary to develop also consistent forest communication strategy for the self-image of forestry and importance of forests for the public in the media (Novotný 2011; Lähtinen et al. 2017; von Detten, Suda 2020). As Lichý (2013) suggested, SFE's communication with media should be long-term and in cooperation with mainstream media on a regional and national level with all stakeholders (public, experts, NGOs). The long-term character and consistency of the communication with media was also highlighted by Riedl et al. (2019). Moreover, the communication of SFE should be proactive (Baerlocher 2020). According to our expertise we would like to also recommend specific solutions for the enterprise such as (*i*) to carry on existing activities such as Hubert Days, Arbour Day (Lesy SR 2020, ESM), (*ii*) to actively perform Forest Pedagogy (e.g., Sarvaš, Chlpošová 2021), proclamation of special forestry sites (e.g., Miľanová 2018) and more media outputs. Nowadays the enterprise's communication on social networks is must-do in communication (Li et al. 2021), so we would also recommend the SFE to be more active on "metaverse". Finally, for improving the image of SFE not only the communication strategy is important, but also the whole marketing strategy. In this respect, it is necessary to employ transparent economic activities, ethical business behaviours or follow sustainable forest management policy. "It takes considerable time to build up a certain image and customer confidence and it takes only a few minutes to lose this market advantage" (Mantau et al. 2007).

CONCLUSION

The request for the elaboration of this study was based on needs of the SFE to confront its opinion with the public regarding the company management and its relation to use the natural resources. The SFE sees the increasing pressure of the media on forestry. The study was methodically based on a structured questionnaire. Descriptive methods and two-dimensional statistics were used for the data analysis. The study findings cannot be generalised for the whole country, but they are valid with 95% probability and the allowable error of 5% for the Banská Bystrica Region.

The research results draw attention to the statistically significant difference in the image perception between the public and company employees. The public perceives as the most negative just those issues that are similarly negatively evaluated by the media.

From the aspect of individual SFEs as shareholders, it is necessary to continually inform the public about the economic activity via a set of communication channels and to educate the society to an objective perception of the status quo in the use and assessing of natural resources (e.g., forest pedagogy, providing seminars in cooperation with the Faculty of Forestry or National Forest Centre, regularly taking part in the television or radio debates, updating social media accounts etc.) as the answer to this issue is to properly adapt the communication marketing strategy of the SFE mostly by means of PR activities. At the same time, it is essential to provide a transparent process of timber harvesting and trade for instance via auction sale.

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