

Exploring the Role of Monumental Values in the Mountainous Regional Development Using Traditional Bridges as an Illustration

Research Article

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Abstract

Aim of this research is to examine the contribution of traditional bridges as monuments to the regional development and to empirically analyze the possible interdependence of their monumental values. In 2015, 135 standardized questionnaires were answered by school teachers during an adult education project, including a visit to the bridges of Mpalta (Dipotama), Gorgianades, Karitsa and Xerolikos (Korischades) in the region Evritania, central Greece. Bivariate correlation test Spearman was used for the analysis. Riegl's model (1903) of monumental values has been used (historical value, age-value, aesthetic value, use value). All dimensions of all monumental values contribute to the creation of use value, as perceived by the interviewed visitors. The historical value enhances use value through technical features inspiring safety, reflections of past events etc. Tourists are supposed to be mostly attracted by architectural issues and local materials while the researchers are expected to focus on building methods or historical facts. Nostalgia enhances the perception of all possible uses, disclosing a desire of transition from "monumental" into "functional", particularly to "multifunctional". Remembrances of romantic past, uniqueness, etc. are related with several dimensions of use value. Emotional stimulus seems to be induced to the tourists and researchers by the feeling of strength (eternity, immortality) characterizing "primitive" building materials and methods. Synergy appears among all four monumental values, but mostly among historical, aesthetic and use value. Thus, "knowing", "feeling" and "using" seem to be induced by each other. The multiple monumental values characterizing the traditional bridges constitute them functional and of social, economic and entrepreneurial importance for the mountainous regions.

Keywords: Monument; Bridges; Forest policy; Environmental education; Rural development

Introduction

Aim of this research is to examine the contribution of traditional bridges as monuments to the regional development and to empirically analyze the possible interdependence of their monumental values. It is well-known that "monument" etymologically has a Latin origin. It means "reminding" or "advising". People regard as "monument" a signified entity, normally permanent and relatively big, such as

buildings or other constructions, statues, stones, landscapes, trees etc. Monuments can be either human-made (e.g. a building) or natural structures (e.g. a tree). Some monuments have been constructed from the beginning aiming at eternizing certain events or ideas. Some other structures became monuments by perceptions of people adopted after the formation of these structures. Riegl (original published in 1903) characterized the former as "intentional" monuments while the latter

as “unintentional” [1]. Apart from that he also suggested four types of monumental “values”: the historical value (providing evidences about the past), the age value (nostalgia, normally induced by the feeling of damaging, decay or abandoning), the art or aesthetic value (which, in wider sense, may be depicted as induction of aesthetic emotions, either coming in accordance or in conflict with current values) and the use value (economic profit). It is discussable whether all these values appear in intentional and unintentional monuments. Eventually, it would be more accurate to speak of intentional or unintentional values of an entity which may be perceived as a monument at a particular moment and by particular viewers.

Old-fashioned bridges at mountainous areas are normally called -and possibly most by people of urban centers- “traditional”, as they are arch-formed, relatively narrow and built by materials and techniques which are quite unusual nowadays. In the past, these bridges were of decisive social, political, economic and historical importance. Without them, even the structure of the “nation” and the “state” could be different, as the society which is today regarded as a “single” nation and/ or state could be fragmented and divided in several and smaller “societies”, “cultures”, and perhaps “nations” and “states”. These bridges had drastically contributed to the social networking among mountainous communities, which otherwise would remain isolated. It is, thus, a reasonable hypothesis that these bridges are nowadays structures of monumental character, and the visitors viewing them tend to perceive the four monumental values mentioned above.

The use value of these monuments is here regarded as their contribution to the mountainous regional development. In the present analysis the use value is defined in a wide concept. Namely, it is not conceived by the authors as only the economic profit derived from at least one of the other three values but as the profit derived from the use of the bridge itself (passage). In other words, the use value here includes in a wider sense both the monument-related use and the instrumental use.

Literature review

Silva and Lea have intensively explored the links between rural tourism and national identity, focusing on Medievalism, but without measuring value correlations [2]. Lignola and Manfredi have provided interesting interdisciplinary insights into technical aspects of monuments’ restoration but they did not include perceptual issues of the monumental values which are supposed to be restored [3]. Bakri et al. have deepened into issues of valuing built cultural heritage, examining both institutional and perceptual aspects but in urban and not mountainous rural context [4]. Pascual et al. [5], Pieraccini et al. [6] and Zvietcovich et al. [7] suggested a substantial multidisciplinary approach to analyze, characterize and monitor monuments but they insist on photogrammetric and technological aspects rather than on the depiction or examination of their values as they are perceived by the people. Fernandez et al. have also presented a similar approach of surveying monumental settings, laying emphasis on topographical aspects, however, without suggesting particular relations between monumental values and morphological and geophysical parameters of monumental elements and places [8].

Kaufmann focused on the conceptual and perceptual parameters of cultural heritage but following a humanities-based and psychological or even psychiatric approach and not a quantitative multi-dimensional empirical approach [9]. Artusson et al. proposed a political economy approach to monumental landscapes, focusing on ritual and ceremonial context, however, from the Early Neolithic time [10]. Efe et al. presented the case of a monumental tree and discussed monumentalization parameters, which can be useful for analyzing general perception of monumental values [11].

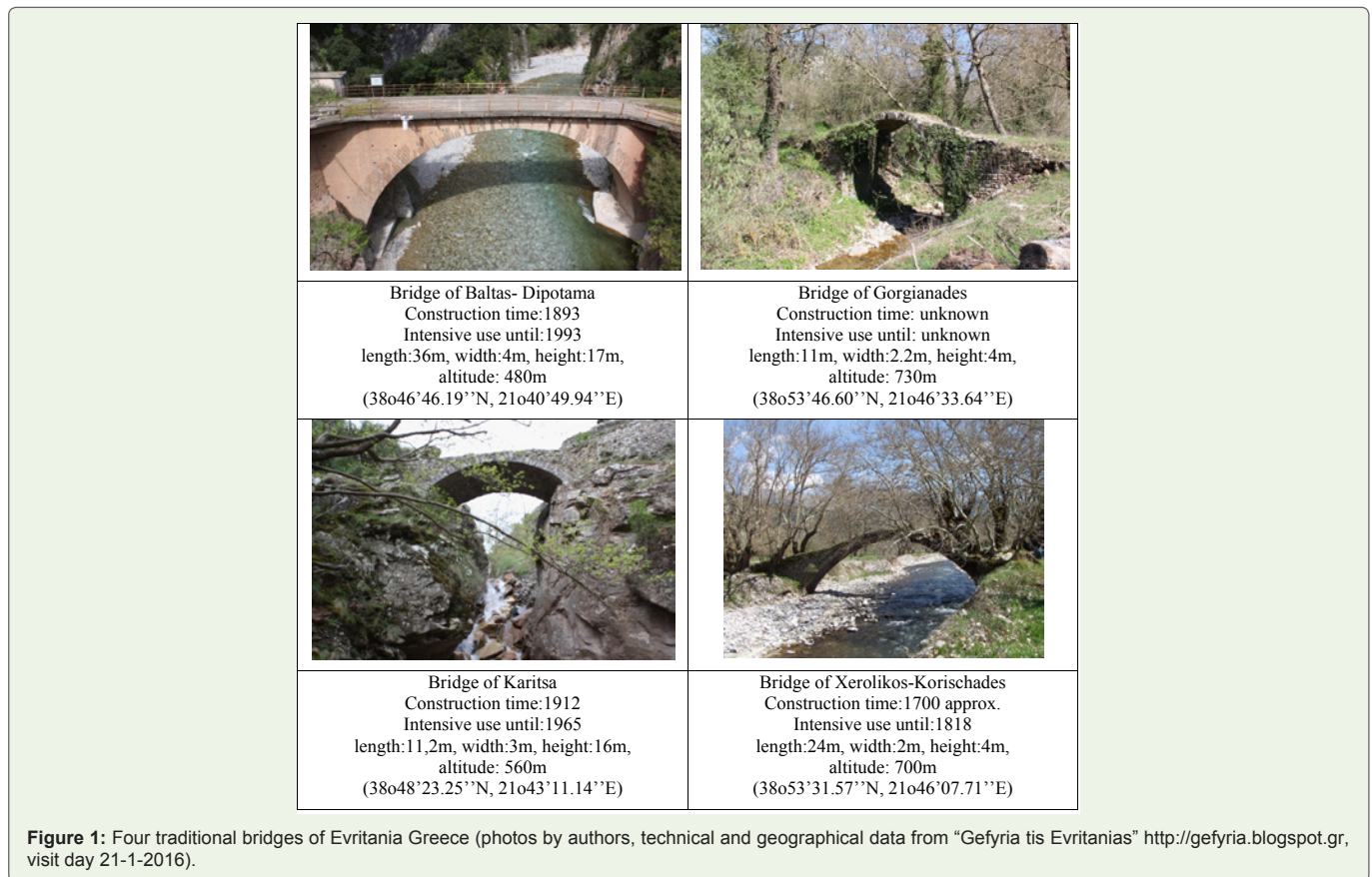
Building materials have been insightfully explored by Anania et al. [12]. However, their approach considers only technical and physical aspects (e.g. minero-petrographic and mechanical parameters) and not value perceptions related to these materials. Tomao et al. have proposed an interesting model considering safety parameters and classical monumental values in the light of the need of risk assessment and not in the context of values perception analysis and correlation [13]. Similarly, Salman et al. have meticulously dealt with environmental impact and natural hazards on monuments, laying also emphasis on topographical and technical aspects, without connecting the damage of a monument with the values it inspires to the visitors [14].

Whitney et al. have intensively explored the complexity of anthropogenic interventions, ecological patterns, deforestation and land use issues in monumental areas, but not strongly focusing on the perceptual parameters and their interdependence [15]. Matsumoto has tried an interesting analysis of monumental elements signified as political and religious symbols, through a prism of archaeological, iconographic, linguistic and cognitive approaches [16]. However, this insightful approach was hermeneutic rather than empirical.

Method

In 2015, 135 standardized questionnaires were answered by school teachers during an adult education project implemented by Environmental Education Centers (units subordinated to the Hellenic Ministry of Education), particularly by the centers of Makrinitza (Magnisia) and of Karpenisi. A basic description of this sample of 135 teachers is the following: Age: 6% under 30, 15% 30-40, and 79% over 40 years old. Gender: 48% female and 52% male. School level: 59% primary and 41% secondary school. During the project the participants visited four traditional bridges of the region Evritania (central Greece), specifically the bridges of Mpalta (Dipotama), Gorgianades, Karitsa and Xerolikos (Korischades). Evritania is located in central Greece. The coordinates and the technical features of the bridges are presented in figure 1. These bridges were appropriate for the particular empirical research, because they are characterized by obvious differences regarding monumental values and also are located in a quite mountainous area. Therefore, a multisided view of the monumental character of traditional bridges was provided.

The 135 teachers (interviewees) participated voluntarily in this adult education project. Thus, the participants were specifically interested, at least to certain extent, in studying traditional bridges. Therefore, this is not a random sample representing the whole teaching staff of Greece. However, this is not a weakness of the sampling, as the aim of this research was not to provide descriptive statistics but



only correlations. Additionally, the monumental values measured by questionnaire, constitute non-physical, namely perceptual variables. Thus, the sample should be a judgment sample including individuals specifically interested in traditional bridges so as to be able to perceive monumental values. Bivariate correlation test Spearman was used for analyzing the primary data at a significance level of 1% and 5%, so as to avoid the influence of possible outliers.

The four monumental values were operationalized on the basis of in-depth interviews with teachers and of the literature. The interpretation of the results was also based on in-depth interviews with the participants.

Results and Discussion

The role of historical value

In the table 1, it is observed that all dimensions of the historical value present several positive correlations with the dimensions of the use value. More precisely, the impression of use of the bridge for passage seems to be enhanced by the information perceived about the traditional architecture and statics (.226), the building method (.206) and the historical facts (.186). This can be attributed to the fact that a bridge which is supposed to be built by constructors having paid attention to such technical parameters in the past gives the impression that it is still safe enough for passing through. Additionally, a bridge which is connected with historical events is natural to reflect an

intensive passing of solders, refugees etc.

Not surprisingly, the interviewees consider a bridge to be a tourist attraction, if it provides evidences about all dimensions of historical value (.450 to .385) and at the utmost about traditional architecture/ statics (.450) or about local materials (.421) used. This is understandable, considering that all these historical dimensions are attractive as they provide a multifaceted and irreplaceable combination of knowledge, which may be either of local or of wider interest. The architectural/ technical features as well as the local materials seem to give the most peculiar, specific and irreplaceable impression to the tourists, as they are often connected with local knowledge, cultural ecology, "organic architecture" and eco-geography.

Concerning the economic activity, it is mostly supposed to be favored by evidences perceived about traditional architecture/statics (.211), technicians-builders (.198), possible sponsors (.354), who have supported the construction or possibly the maintenance of the bridge, social needs (.175) (e.g. transport of patients, forest products and other commodities, teaching staff, cultural communication) that are satisfied by the bridge, torrential phenomena (.196) (the existence or no existence of which may be of importance for the entrepreneurship of the area), historical facts (.299) and neighboring constructions (.416).

The use of the bridge as an icon on postcards is a classical way of a landscape exploitation. Thus, several dimensions of historical

Table 1: The contribution of the historical value to the use value (scaled from 0-3).

	Spearman's rho	Passage	Tourist attraction	Economic activity	Postal card	Research
Information/ hypotheses perceived about...	...traditional architecture/ statics	,226(**)	,450(**)	,211(*)	,334(**)	,467(**)
		,010	,000	,016	,000	,000
	...building materials	,102	,381(**)	,096	,284(**)	,379(**)
		,247	,000	,279	,001	,000
	...local materials/ environmental character	,074	,421(**)	,129	,282(**)	,432(**)
		,402	,000	,142	,001	,000
	...building method	,206(*)	,373(**)	,105	,287(**)	,499(**)
		,018	,000	,234	,001	,000
	...technicians-builders	,074	,397(**)	,198(*)	,240(**)	,434(**)
		,410	,000	,026	,007	,000
	...sponsors	,085	,213(*)	,354(**)	,045	,284(**)
		,355	,020	,000	,625	,002
	...specific social needs	,063	,329(**)	,175(*)	,223(*)	,286(**)
		,474	,000	,047	,011	,001
	...geomorphological features	,048	,396(**)	,108	,250(**)	,341(**)
		,592	,000	,226	,005	,000
	...torrential phenomena	,077	,343(**)	,196(*)	,194(*)	,220(*)
		,385	,000	,027	,028	,014
	...transportation in the past (what and how)	,104	,175(*)	,076	,141	,237(**)
		,248	,050	,398	,113	,008
...historical facts	,186(*)	,337(**)	,299(**)	,184(*)	,488(**)	
	,039	,000	,001	,041	,000	
...neighbouring constructions (e.g. fulling, inn)	,114	,385(**)	,416(**)	,174	,348(**)	
	,214	,000	,000	,057	,000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

value (.334 to .240, .223 to .194, .184). especially the visible ones such as architectural/ technical and material characteristics, geomorphological features or torrential phenomena during their occurrence are naturally conducive to its use as an icon on postcards. Historical elements which may be not visible but mentioned or additionally re-produced on a postal card (such as historical facts) can also enhance the use of the bridge as an icon.

It is also understandable that historical elements which are invisible and simultaneously mostly indifferent for the public do not influence the value of the bridge. These appear to be the possible sponsors, what and how exactly was transported in the past and possible neighboring constructions (.045, .141 and .174 insign.). The irrelevance of the neighboring constructions for the picturesque use of the bridge, though they also may be related to the use of the stream water (e.g. a fulling) or of the bridge itself (e.g. inn), implies that a bridge appears to maintain an independent iconic signification and importance. Hence, it may be perceived by the interviewed teachers

not merely as an interesting icon but also as an autonomous symbol. The bridge can be perceived as a symbol of social networking und unification, over-coming obstacles (streams, canyons) “posed” by the nature. Furthermore, it can be signified as a symbol of unifying “civilization”, considered to be developed in and coming from the accessible plain, with the mountainous “wilderness”. As long as a traditional bridge is so seriously signified in the perception of the interviewees, then it can easily stand autonomously on postcards and not as a part of a landscape “needing” other landscape elements (like neighboring constructions) in order to become “interesting”.

In the view of the interviewees, the research activity, namely the attraction of researchers (academics or journalists), seems to be stimulated by all dimensions of the historical value (.467 to .348), as they are perceived by the interviewees. Therefore, these two categories of public (tourists and researchers) seem to be in general motivated by the same stimulus : a wide range of discovering and exploring. However, according to the perception of the interviewees,

Table 2: The contribution of the age value to the use value (scaled from 0-3).

	Spearman's rho	Passage	Tourist attraction	Economic activity	Postal card	Research
Feeling...	...of nostalgia	,228(**)	,367(**)	,339(**)	,573(**)	,386(**)
		,009	,000	,000	,000	,000
	...of damage	-,039	-,003	-,062	,020	,219(*)
		,664	,975	,486	,818	,015
	...of needing maintenance	,141	,292(**)	,183(*)	,161	,451(**)
	,109	,001	,037	,067	,000	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3: The contribution of the aesthetic value to the use value (scaled from 0-3).

Spearman's rho	Passage	Tourist attraction	Economic activity	Postal card	Research
Uniqueness	,140	,560(**)	,304(**)	,435(**)	,528(**)
	,114	,000	,000	,000	,000
Beauty	,132	,599(**)	,233(**)	,451(**)	,672(**)
	,135	,000	,008	,000	,000
Strength	,163	,263(**)	,150	,123	,270(**)
	,065	,003	,090	,166	,002
Safety	,274(**)	,076	,055	-,014	-,030
	,002	,391	,532	,871	,741
Myths/ legends	,117	,468(**)	,225(*)	,270(**)	,683(**)
	,189	,000	,011	,002	,000
Folk songs	,176(*)	,471(**)	,328(**)	,393(**)	,578(**)
	,047	,000	,000	,000	,000
Historical memories/ emotions	,136	,473(**)	,268(**)	,371(**)	,679(**)
	,134	,000	,003	,000	,000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

these two categories are specifically differentiated in certain details: while, as afore-mentioned, the tourists seem to be mostly interested in architectural issues and local materials, the researchers apparently focus most strongly on building method (.499) and/ or historical facts (.488). This is understandable, as the building method is much more technically specific and the historical facts much more demanding in humanities-related knowledge. In any case, none of them is at first place suitable for a mental relaxing but rather for satisfying visitors with restless mentality.

The role of age value

In the table 2, main dimensions of age value, namely nostalgia, feeling of damage proceeding on the bridge as a monument, and feeling of needing maintenance, appear to be correlated with various dimensions of use value.

Nostalgia seems to enhance the perception of all possible uses of the bridge (.228 to .386). Interviewees who feel nostalgia, induced by comparing the actual situation of a bridge with the past, tend to desire a re-vitalization of the bridge and its conversion from “monumental” into “functional” (using it as a passage). They also tend to desire a

multifaceted use of it (as tourist attraction, pole of economic activity, icon on postcards and subject of research). Such a full use of a bridge not only enhances its reputation but also makes it widely known and eternizes it.

Interviewees feeling that a bridge is damaged through the time (.219) tend to deem it a subject of research. This can be interpreted as a reaction against to the proceeding damage. Researchers are expected to save information about the past or information of technical-physical character, before the bridge is fully destroyed by natural or human factors. Interviewees who feel the need of maintenance are those who tend also to believe that the bridge can still become a pole of tourist attraction (.292) and of economic activity (.183) (taverns, souvenir stores etc). This is reasonable as a bridge should be saved as a monument in order to function as a pole of development. Moreover, they also tend to see it as a subject of research (.451). This attitude can be attributed to the fact that maintenance is necessary for saving the bridge as an object that may provide clear data and evidences to the researchers.

The role of aesthetic value

Table 4: Synergy of monumental values (average measured in scale 0-3).

Spearman's rho	Average age value	Average aesthetic value	Average use value
Average historical value	,371(**)	,706(**)	,537(**)
	,000	,000	,000
Average age value		,298(**)	,282(**)
		,001	,002
Average aesthetic value			,612(**)
			,000

** Correlation is significant at the 0.01 level (2-tailed).

The aesthetic value is a directly discernible value of a monument. Not only the beautifulness but also various other features, inducing feelings/ emotions, may compose the notion of aesthetic value. The aesthetic value differs from the age value, as the latter is supposed to be more individualized while the former one is supposed to express more widely recognized features (e.g. uniqueness, safety, myths).

In the table 3, interviewees who consider a bridge to be appropriate for passing seem to require the feeling of safety (.274) and/or its connection with folk songs (.176). The meaning of safety is rather self-evident, as it could be regarded as a practical prerequisite for walking on the bridge. The folk songs, though not of “practical meaning”, surely cite to romantic past and also ceremonial patterns, which may revive at present. Folk songs can be combined with local people who may celebrate, passing through the bridge.

In the view of the interviewees, a bridge may become a tourist attraction on the basis of elements attributing it a character of uniqueness or beauty, a feeling of strength (.560 to .263) or (.560 to .263) or a connection with myths and legends, folk songs and historical memories/ emotions (.468 to .473). The feeling of safety seems not to influence the perception of the bridge’s attractiveness (0.076 insign.). Similar results occur in the case of the economic activity (.304 and .233 as well as .225 to .268) and of the iconic use on postcards (.435 and .451 as well as .270 to .371). Safety and strength feeling appear to be irrelevant to these two cases (.150 and .055 as well as .123 and -.014 insign.). In case of the research, the results are also similar (.528 to .270 as well as .683 and .679) while safety feeling seems again to be irrelevant (-.030 insign.). Especially, strength perception is partially induced by the view of vegetation roots which endanger the stability of the bridge. This constitutes an additional challenge for scientific research.

The irrelevance of safety feeling for these four dimensions of the use value can be understood as a result of its purely practical character which does not contribute to further emotional reactions. According to the perception of the interviewees, strength feeling is the only element relative to safety which appears to enhance tourist attraction and research. This can be attributed to the emotional stimulus induced by the feeling of strength, namely the subsequent feeling of eternity and immortality, which are achieved with the “primitive” building materials and methods used on the bridge. For this reason, such a strength feeling becomes attractive for tourists. For similar reasons, strength appears also to be worth researching.

In general, uniqueness, beauty, tradition (myth/legends and folk songs) as well as history seem to stimulate tourists and researchers, as they provide a good escape from the monotony of the everyday life (especially the urban life) and a multifaceted subject of research, combining natural, technical and socio-cultural issues.

Synergy of monumental values

In the table 4, all four monumental values appear to depend on each other. However, certain of them seem to maintain a stronger relation to each other, as in the case of historical and aesthetic value (.706). Obviously, a bridge which provides evidences about the past also stimulates thereby aesthetic emotions. The “knowing” seems thus to induce “feeling”. This can be attributed to the fact that the knowledge about the past revitalizes picturesque elements and scenes enhancing the potential of escaping aesthetic stereotypes which are imposed in the everyday life. In other words, the real aesthetic value of a monument seems to lie in the breaking of the everyday life values. Besides that, the past induces emotional remembrances which build values (such as heroism, stability) that may be perceived as beautiful feelings and impressive world views.

The next strongest synergy occurs between the aesthetic and the use value (.612), as perceived by the interviewed visitors. The aesthetic value constitutes an attractive opportunity of recreation and escaping the everyday monotony of stress. It is thus of high relevance for the use value of a monument.

The third strongest synergy appears between historical and use value (.537). This is possible to occur either by inducing aesthetic value and thereby use value, as analyzed above or directly (e.g. attracting researchers).

Conclusions, Suggestions and Points for Future Research

All dimensions of all values contribute to the creation of use value, as perceived by the interviewed visitors. Various interpretations may be proposed for understanding these correlations. Concerning the historical value it enhances use value through technical features inspiring safety, reflections of past events, multifaceted knowledge of local or wider interest, particularly related to cultural ecology, “organic architecture” and eco-geography, entrepreneurial use (forest and agricultural commodities etc.), satisfaction of social needs, iconic and symbolic content. Invisible elements such as sponsors or other details remain indifferent to the public. Tourists seem to be mostly attracted by architectural issues and local materials while the researchers tend to focus on building methods or historical facts.

Concerning the age value, nostalgia enhances the perception of all possible uses, disclosing a desire of transition from “monumental” to “functional”, particularly to “multifunctional”. Such an intensive re-vitalization of the bridge is also in accordance with the desire for making it famous and “eternal”. Regarding the bridge as a subject of research may also be understood as a reaction against proceeding damage and for eternity. Maintenance is perceived as a prerequisite for carrying out research.

As for the aesthetic value, remembrances of romantic past, uniqueness, beauty and feeling of strength are related with several

dimensions of use value providing a) opportunity of escaping everyday monotony and b) a multifaceted subject of research. Safety feeling appears to be only of practical and not of emotional importance. Emotional stimulus seems to be induced to the tourists and researchers by the feeling of strength (eternity, immortality) characterizing “primitive” building materials and methods.

Synergy appears among all four monumental values, but mostly among historical, aesthetic and use value. Thus, “knowing”, “feeling” and “using” seem to be induced by each other. The multiple monumental values characterizing the traditional bridges constitute them functional and of social, economic and entrepreneurial importance for the mountainous regions. Even today, traditional bridges can be used for the transport of people and commodities as well as for reaching areas which would be inaccessible through the normal forest road network. Enabling such accessibility is of multisided relevance for forest policy implementation (e.g. forest fire prevention or even fighting, improvement of habitats and silvicultural or other forestry actions, students and forest employees education), environmental education of pupils, architectural training, cultural and tourist promotion of a mountainous area through postcards, paintings, documentary films or other products of iconographic, historical and ethnographic interest or continuing folklore activities, and rural development by attracting tourists or transporting agricultural and forest products.

The maintenance, promotion and organized usage of traditional bridges by the state and/or the regional authorities (prefectures and municipalities) can be regarded as a rational option for the development of mountainous regions. The use of traditional bridges can be enhanced by and integrated in various programs concerning cultural activities, tourism, building and monument restoration, rural or even agricultural development.

A point of future improvement is to test the same indicators of monumental values of bridges on a larger sample of visitors. Formulating a typology of monumental features leading to certain profiles (types) of monumental bridges is also a challenge for future research. A comparison between perceptual data of monumental bridges and of other kinds of monumental entities such as buildings, landscapes etc constitutes also an interesting question for future research.

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