Role of Heritage Impact Assessment in Sustaining Historic Sites

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Abstract:

Recently, Heritage Impact Assessment (HIA) has been established as a tool for resolving issues that would promote World Heritage (WH) protection in line with sustainable development principles. The increase in HIA requests for impacted WH assets over the last several years indicates that a greater emphasis is being placed on HIA as a useful tool to aid in the management and conservation of cultural heritage against inconsistent development works. However, there was a shortage in the application of a sustainable and integrated impact assessment approach within HIA, which is a key challenge in different HIA projects. Therefore, this paper contributes to addressing the importance of integrating dimensions of sustainable development into the procedures of HIA in accordance with Environmental Impact Assessment (EIA) to be more holistic and sustainable. At first, a literature review was conducted to address the different procedures of HIA and how they could be integrated into a more holistic model of impact assessment that considered sustainable development dimensions. Then, AHP analysis was performed with three experts in the heritage conservation field to address the importance of each dimension within the novel model.

As a result, the findings demonstrated the need for establishing integrated impact assessment approaches that investigate the different impacts of development activities on historic sites. Such approaches can help heritage managers in their decision-making and mitigation plans to safeguard historic sites in the context of sustainable development.

Keywords: Heritage Impact Assessment, Cultural Heritage, Environmental Impact Assessment, Sustainable Development, Historic Sites

1. Introduction

Environmental protection is seen as "the major issue of sustainable development" (Tweed & Sutherland, 2007) and has been acknowledged as one of the three fundamental pillars of sustainable development (i.e., "economic development, social development, and environmental protection"(Linnér & Selin, 2013)). First and foremost, the Rio 92 Conference, also known as the Earth Summit Agenda 21, or the United Nations Conference on Environment and Development, emphasised the crucial role of impact assessment, particularly Environmental Impact Assessment (EIA), in sustainable development (Viñuales, 2015).

Impact assessment is defined as the "process of identifying the future consequences of a current or proposed action" (Change, 2019). Particularly, Environmental Impact Assessment (EIA) is acknowledged as a tool to help the decision-making process (Donnelly et al., 1998; Marshall et al., 2005) by evaluating the consequences of development proposals and projects on a variety of environmental components. In order to "detect, forecast, evaluate, and mitigate the biophysical, social, and other pertinent environmental implications of development projects prior to significant choices being taken and commitments being made," EIA is referred to as a proactive tool. EIA has been acknowledged as a thorough evaluation method that serves as the foundation for additional impact assessment approaches (Gazzola et al., 2019; Morgan, 2012).

In this context, the International Association for Impact Assessment stated that one of the primary objectives of EIAs was to "promote development that is sustainable and optimizes resource use and management opportunities" (Marshall et al., 2005). The EIA's main concern is "to ensure more sustainable and low environmental and social risk solutions" (Partidário et al., 2012). Altogether, the EIA has been considered as a proactive assessment tool that supports sustainable and balanced decision-making in spatial planning and development. It has been recognised as a useful assessment tool to provide a transparent process—"clear [and] easily understood requirements for EIA content"—as well as a systematic and comprehensive methodology (Seyedashrafi et al., 2017) that improves environmental awareness and protection (Cashmore, 2004; Jay et al., 2007; Jha-Thakur et al., 2009; Weston, 2010).

The EIA directives identify cultural heritage as one of the sensitive components among the several impact receptors. The evaluation of cultural heritage within EIA has, nonetheless, been a crucial concern (Fleming, 2008; Roders & Van Oers, 2012; Yilmaz & Gamil, 2018). On the one hand, the continuously inadequate consideration of the specific requirements of cultural World Heritage properties in EIAs (namely of their Outstanding Universal Values (OUV) [1], authenticity, and integrity) and on the other hand, the increasing number of affected properties, has led to the development of Heritage Impact Assessment (HIA) within framework of EIA by ICOMOS (Roders & Van Oers, 2012). Recently, The State of Conservation (SoC) reports have revealed that an increasing number of HIA requests demonstrate that more focus is being placed on HIA as "a conflict-solving tool to assist the cultural heritage conservation (Ashrafi, Kloos, et al., 2021).

Heritage Impact Assessment (HIA) has been established to detect and analyze major impacts on cultural World Heritage (WH) properties, specifically to improve the cultural heritage protection within the sustainable development concept (Ashrafi, Kloos, et al., 2021).

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[1] Outstanding universal value (OUV) means **cultural and/ or natural significance** which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole.

Numerous documents emphasise the importance of cultural heritage and the need to safeguard it as part of sustainable development. The UNESCO Universal Declaration on Cultural Diversity, for instance, emphasises the value of cultural legacy in the process of growth as a way to "achieve a more satisfactory intellectual, emotional, moral, and spiritual existence" (Article 3 of the document) (Torres, 2002). The significance of cultural heritage and its protection "as a resource for sustainable development" is emphasised in the preamble (Articles 1, 5, and 10) of the Council of Europe Framework Convention on the Value of Cultural Heritage for Society (Europe, 2006). The essential role that WH sites play in sustainable development is highlighted in paragraph 119 of the UNESCO Operational Guidelines for the Implementation of the World Heritage Convention (Committee, 2008). Furthermore, in order to "curb the detrimental consequences of globalisation," as stated in the Paris Declaration on Heritage as the Driver of Development (ICOMOS, 2011), heritage protection is essential. Additionally, it emphasises how important cultural heritage is to promote sustainable development through supporting ecotourism, raising local employment and quality of life, improving urban livability, creating a feeling of community, and other means.

Notably, the 2012 World Bank research defined "heritage as cultural capital" and said that investments in legacy have a sound business case and produce "positive returns" (Licciardi & Amirtahmasebi, 2012). Protecting ancient urban and rural areas is crucial for advancing "sustainable patterns of production and consumption and sustainable urban and architectural design solutions," according to the Hangzhou Declaration: Placing Culture at the Heart of Sustainable Development Policies from 2013 (UNESCO, 2013). In a similar vein, the European study initiative "Cultural Heritage Counts for Europe (CHCFE)" found that cultural heritage initiatives might have a positive influence on Europe's economy, culture, society, and environment as the four cornerstones of sustainable development (Echter, 2015).

Last but not least, target 11.4 of the UN 2030 Agenda for Sustainable Development emphasised the necessity of "strengthening efforts to maintain and safeguard the world's cultural and natural assets" (Nationerna, 2015). To meet the social and economic problems and opportunities of urban development, it is stated that the "history conservation project leverages upon the local area's historical and cultural legacy assets to heighten the sense of pride" (Cities & Governments, 2018; Hegazi, 2022). As a result, Goal 11's policy statement on applying HIA is highlighted (Hosagrahar et al., 2016). In conclusion, cultural heritage preservation is essential to sustainable development. Here, HIA as a tool for supporting decision-making can help to reduce the negative effects on sites designated as World Heritage Sites, which is crucial for their protection and maintenance (Ashrafi, Neugebauer, et al., 2021).

The review of the numerous HIA reports for World Heritage sites showed that the visual impacts of development initiatives on the sites were the focus of the HIAs. Prior to this, it was the responsibility of HIA to assess how changes to the heritage's physical elements affect its OUV (Bond et al., 2004). If just some types of effects are considered, it's feasible that some extra significant potential consequences will go unreported. As a result, it might make evaluation and decision-making less effective.

In this regard, it is necessary to investigate the impacts of development projects on the main dimensions of achieving a sustainable developing of cultural heritage such as its social, economic, and environmental contexts. This vision inherently implies a more sustainable approach to the impact assessment procedures, beyond the individual assessment of the heritage physical properties. Therefore, considering the developing impacts on the heritage surrounding context is crucial within the application of HIA.

This research works towards introducing an integrated and sustainable impact assessment approach in the HIA procedure in recognition of the methodological and practical gap that exists in the impact assessment of cultural heritage. To achieve this aim, it is necessary to address all other indicators in relation to the cultural heritage which may be affected by the development works. Afterwards, their relative importance within the impact assessment process should be evaluated.

2. Literature Review (Procedures of EIA and HIA)

The HIA procedure roughly follows a similar EIA procedure including its major phases to predict the major impacts concerning the decision-making process in a systematic manner. Importantly, the "quality of information" (Arabadjieva, 2016; Craik, 2008) and a logical, methodical, and structural assessment process (Elling, 2009; Weston, 2004) are strongly correlated with the effectiveness of these methods. Figure 1 shows the HIA Procedures which is developed based on the sequence of EIA procedures.
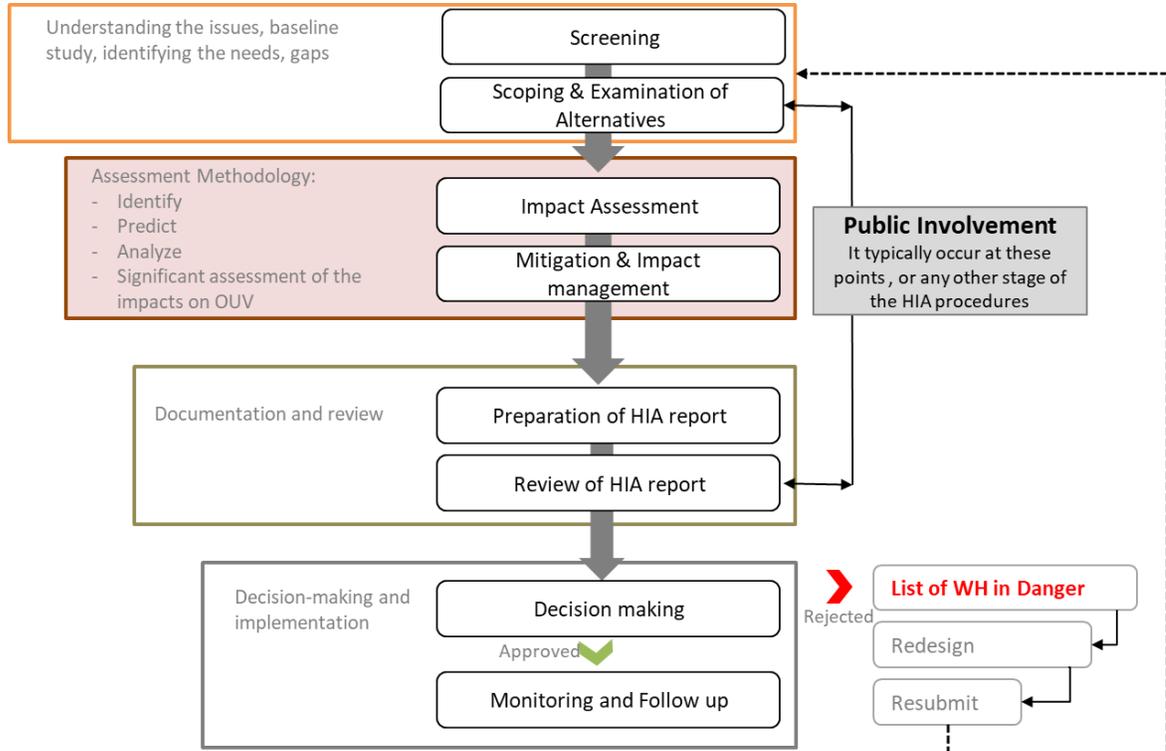
Figure 1: The integration between HIA and EIA procedures adopted from (Ashrafi, Neugebauer, et al., 2021; Elling, 2009).

The entire process is comprised of four distinct parts. The first phase focuses on identifying potential impacts and current gaps. It consists primarily of the screening, scoping, and examination of several alternatives' stages. The second phase is the impact assessment, which is a crucial step. It focuses on identifying and predicting threats and their associated substantial repercussions that could damage the OUV, authenticity, and integrity of World Heritage assets. Due to the outstanding value of the World Heritage assets, the possibility for substantial consequences is examined. The evaluation should be conducted by a multidisciplinary team of specialists, including experts in HIAs. As a result of the impact assessment phase, mitigation measures and impact management must be presented to avoid, mitigate, or compensate potential negative impacts and maximise positive effects.

In the third step, all obtained information, including project impacts, impact severity, and mitigation methods, is documented and reviewed. The HIA report is created for the second phase of critical and technical evaluation (by external experts and ICOMOS). In the final phase, the ultimate decisions, implementation, and monitoring are made. The approved proposal or project (which has been authorised by the World Heritage Committee) must be monitored and followed up on to ensure that the mitigation techniques employed throughout execution are consistent with the HIA report. In case that the project is rejected, the World Heritage site may be placed on the list of World Heritage in danger in accordance with Article 11 of the World Heritage Convention to encourage the state parties to redesign and resubmit more sustainable and heritage-friendly plans. In the alternative, if the state parties do not respond appropriately and on time, the World Heritage property could be removed from the WH List (Boda, 2018).

It is important to note that public engagement is a crucial aspect of the evaluation process that could occur at any phase of HIA. Public involvement is described as "the involvement of persons and groups who are positively or negatively affected by a proposed intervention (e.g., a project, a programme, a plan, a policy) that is subject to a decision-making process or who are interested in it" (André et al., 2006). However, public participation is crucial to the scoping and reviewing processes, which boosts the assessment's effectiveness (Elling, 2009; Weston, 2004). For instance, the public has a significant role in determining the assessment's priorities during the scoping phase and in collecting data for forecasting the outcomes during the impact assessment phase. In addition, the public's input plays a key role in analysing and examining the report's quality and acceptance prior to decision-making (André et al., 2006).

2.1 Impact assessment and sustainable development dimensions

Among the several individual steps of an HIA procedure, the phase of impact assessment stands out as particularly crucial and challenging. In addition, the phase of impact assessment is frequently referred to as the "technical heart" of the EIA or HIA approach (Sadler & McCabe, 2002). As stated in the definitions of EIA and HIA, "identifying," "predicting," and "assessing" the impacts are the primary goals of both EIA and HIA.

Moreover, impact identification and prediction are essential to HIA practise. The analysis of the numerous HIA reports for World Heritage assets found that the HIAs have focused mostly on the visual impacts of development initiatives on World Heritage properties. As stated by Bond et al. (2004), HIA was once concerned with analysing impacts on the physical components of the heritage that diminish its value. However, focusing just on some types of impacts may lead to overlooking other potential major impacts. As a result, it can reduce the effectiveness of evaluation and decision-making.

In contrast, no poverty, clean energy, sustainable cities, and great education are among the ambitious goals that must be attained by 2030. The pressure is on, and specialists from all across the world are responding to this call with all hands-on deck. As a result of the fact that cultural heritage is an expression of human societies through a variety of media, professionals seek to preserve all types of legacy, including monumental structures, works of art, folklore, artefacts, language, and landscapes. However, the shared objective is straightforward: to conserve the past so that future generations may enjoy, benefit from, and learn from its legacy. Similarly, the Sustainable Development sector strives to address the requirements of the present without jeopardising those of future generations.

Recognizing this theoretical and practical gap in the impact assessment of cultural assets, this study aims to develop an integrated and sustainable approach to impact assessment for the HIA procedure. In this context, the next part introduces the new dimensions that should arise during the process of impact assessment.

2.2 The sustainable impact assessment model

In the United Nations' Agenda 2030 for Sustainable Development, a list of Sustainable Development Goals (SDGs) was established (Hermann, 2018). The United Nations Agenda 2030 for Sustainable Development serves as an imperative to transform the framework of cultural heritage protection in light of the pressing issues affecting the cultural and natural heritage of today's global societies and the potential of heritage to assist in addressing these issues. Heritage - with its value for identity, and as a repository of historical, cultural, and social memory, preserved through its authenticity, integrity, and 'sense of place' - is a crucial aspect of the development process and plays a crucial role in sustainable development and urbanisation; as a fundamental asset of long-term tourism development; strengthening social fabric and enhancing social well-being, and enhancing the appeal and creativity of regions (Hegazi et al., 2022; Tahoon et al., 2022).

ICOMOS is a global leader in the integration of cultural assets into sustainable development. In recent years, it has actively participated in discussions around sustainable development. In addition, it has sponsored key scientific events and issued policy publications to emphasise the importance of cultural heritage to the process of sustainable development. Consequently, ICOMOS has been adopted some of SDGs in the context of cultural heritage for assessing impacts on cultural heritage and enhancing sustainable development of our heritage (ICOMOS, 2022), as shown in Table 1.

Table 1: Heritage and the Sustainable Development Goals according to ICOMOS (ICOMOS, 2022).

Dimension	SDGs	Indicators	Definition
Society and peace	4 QUALITY EDUCATION	Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
	10 REDUCED INEQUALITIES	Reduced inequality	Reduce inequality within and among countries
	11 SUSTAINABLE CITIES AND COMMUNITIES	Sustainable cities and communities	Make cities and human settlements inclusive, safe, resilient, and sustainable
	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Peace, justice, and strong institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels
Environment	6 CLEAN WATER AND SANITATION	Clean water and sanitation	Ensure availability and sustainable management of water and sanitation for all
	7 AFFORDABLE AND CLEAN ENERGY	Affordable and clean energy	Ensure access to affordable, reliable, sustainable, and modern energy for all
	13 CLIMATE ACTION	Climate action	Take urgent action to combat climate change and its impacts
	14 LIFE BELOW WATER	Life blew water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development

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		Life on land	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Economy and Prosperity		No poverty	end poverty in all its forms everywhere
		Quality education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
		Gender equality	Achieve gender equality and empower all women and girls
		Decent work and economic growth	Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all
		Responsible consumption and production	Ensure sustainable consumption and production patterns
Policy and partnerships		Partnership for the goals	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

In addition to the SDG indicators listed above, Table 2 outlines the addition of additional indicators that examine the consequences of development and other changes on cultural heritage values. The impacts on cultural heritage are the direct or indirect results of the proposed development or change of usage. They can result in the physical loss of part or all of a property and/or modifications to its setting - the environment in which a place is experienced, its local context, encompassing present and past relationships with the adjacent environment (ICOMOS, 2022; Tahoon & Hegazi, 2019).

Table 2: Impact assessment of cultural heritage model (ICOMOS, 2022; Tahoon et al., 2022; Tahoon & Hegazi, 2019)

Impacts	Dimension	Indicators
Social impacts	Society and peace	quality education
		reduced inequality
		sustainable cities and communities
		peace, justice and strong institutions
Environmental impacts	Building Environmental Resilience	clean water and sanitation
		affordable and clean energy
		climate action
		life blew water
		life on land
Economic impacts	Economy and Prosperity	no poverty
		quality education
		gender equality
		decent work and economic growth
		responsible consumption and production
Political impacts	Policy and partnerships	partnership for the goals
Heritage impacts	Physical impacts	state of conservation
	Cultural impacts	cultural participation
		cultural expression
		creativity
		identity
		cultural rights
	Tourism impacts	over tourism
		Significant economic leakage from destinations
		Visitors' inconsiderate behavior
		major environmental impacts caused by ever-expanding tourism industry

3. Methodology

This research incorporates both quantitative and qualitative methods. It started with literature review for developing the sustainable impact assessment model. This model targets not only the dimensions in relation to the cultural heritage itself, but also other dimensions of sustainable development, as shown in the previous section. The Analytical Hierarchy Process (AHP) was then used to investigate the relative importance of each dimension in the developed model, as illustrated in Figure 2.
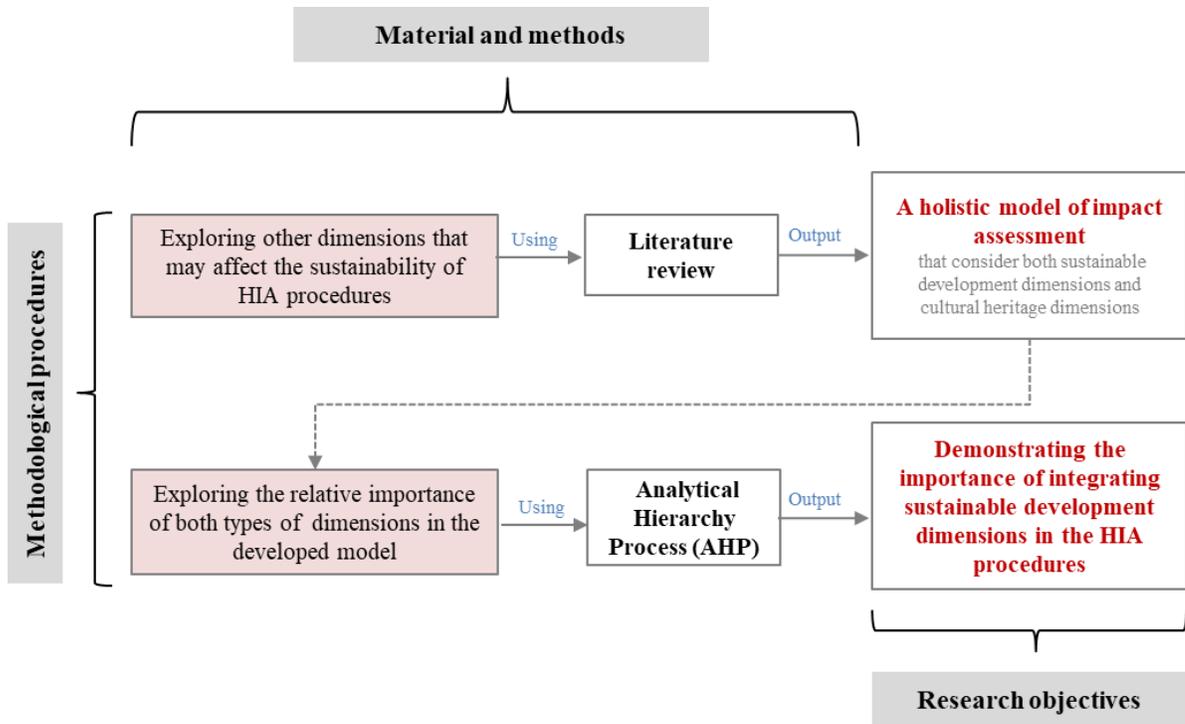
Figure 2: The outline of the methodological procedures to reach the research objective.

3.1 Analytical Hierarchy Process

The Analytical Hierarchy Process (AHP) was developed by Thomas Saaty in 1977 as a decision-making assistance (Ishizaka & Labib, 2011). AHP is one of the most popular multiple-criteria decision-making tools due to its adaptability to interact with a variety of other methods. It seeks to calculate the weights of attributes based on the judgments of experts or decision-makers regarding the relative importance of each criterion.

AHP's benefits lie in its ability to 1) obtain the weights of attributes systematically and accurately and 2) provide the decision-maker with a check of the consistency of the ranking of the relative importance among the involved criteria and re-do the ranking if it is inconsistent to satisfy the consistency condition (Vaidya & Kumar, 2006). Saaty outlined four essential steps for the AHP method (Vargas, 1990);

- Developing the AHP hierarchy,
- Pair-wise comparison,
- Estimating the relative weights,
- Check the consistency,

Other steps with more details produced in 2013, AHP covers three main steps (Xu & Liao, 2013): 1) the hierarchy is constructed by breaking down the case study into a set of interdependent and interrelated elements, 2) pairwise comparisons are performed to determine the relative importance between attributes, and 3) weights of attributes are calculated. The relative importance between attributes is measured based on a nine-point scale. Saaty (1988) determined the scale of relative importance using a numerical scale from 1 to 9 which are listed in Table 3.

Table 3: Scales for pair-wise comparison (Saaty, 1988)

Preference expressed in numeric variables	**Preference expressed in linguistic variables**
1	**Equal importance Moderate**
3	**Moderate importance**
5	**Strong importance**
7	**Very strong importance**
9	**Extreme importance**
2,4,6	**Intermediate values between adjacent scale**

The pairwise comparisons matrix were assigned to three experts in the field of cultural heritage conservation and management with professional experience no less than 15 years. The experts were asked to give a value from the numeric scale shown in Table 3 in the cells of the comparison matrix to reflect their relative preference (also called intensity judgment or simply judgment) in each of the compared pairs. Once all these judgments are entered in the pairwise comparison matrix, the results will be obtained and it came to the consistency check, as described in the following subsection.

3.1.1 Consistency Check

The consistency index is calculated according to Equation 1. If the consistency index is low, then the variation from consistency is minor and the weights given by experts are consistent. When the consistency index equals zero, perfect consistency is shown.

$$CI = \frac{\lambda_{max} - n}{n-1} \qquad \text{(Equ. 1)}$$

Where: CI indicates a Consistency Index, n is the matrix size.

The consistency index is compared to the random index (RI) to obtain the Consistency Ratio (CR) as shown in Equation 2.

$$CR = \frac{CI}{RI} \qquad \text{(Equ. 2)}$$

If the ratio (CI/RI) is less than 0.1, the degree of consistency is satisfactory and the relative importance computations between attributes are acceptable. If, however, (CR) is greater than 0.1, it indicates that the decision-making process may be meaningless, or the judgement is inconsistent. The random index values can be obtained from Table 4.

Table 4: Random Index Values (Vaidya & Kumar, 2006)

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.52	0.89	1.11	1.25	1.35	1.4	1.45	1.49

4. Results and Discussion

The results of this research showed the AHP calculations in order to obtain the relative importance of each dimension in the impact assessment as shown in the following subsections.

4.1 AHP Calculations

By following the AHP procedure described above, the first step of calculations indicates a square matrix of a pairwise comparison through forming a matrix (size n) = (size 7) for the hierarchy. Obtaining the relative weights of attributes by using Saaty relative scale measurement by the judgement. The diagonal elements of the matrix are equal to one. Table 5 shows the preference for the professional experts for each attribute.

Table 5: Pairwise Comparison Matrix

		1 society and peace	2 Building Environmental Resilience	3 Economy and Prosperity	4 policy and partnership	5 physical impacts	6 cultural impacts	7 Tourism impacts	sum
1	society and peace	1.00	1.43	1.00	5.00	0.50	2.00	1.43	12.36
2	Building Environmental Resilience	0.70	1.00	0.70	3.50	0.35	1.40	1.00	8.65
3	Economy and Prosperity	1.00	1.43	1.00	5.00	0.50	2.00	1.43	12.36
4	policy and partnership	0.20	0.29	0.20	1.00	0.10	0.40	0.29	2.47
5	physical impacts	2.00	2.86	2.00	10.00	1.00	4.00	2.86	24.71
6	cultural impacts	0.50	0.71	0.50	2.50	0.25	1.00	0.71	6.18
7	Tourism impacts	0.70	1.00	0.70	3.50	0.35	1.40	1.00	8.65
	Sum	6.10	8.71	6.10	30.50	3.05	12.20	8.71	

The second step was conducted to obtain the normalized pair-wise comparison matrix by dividing each element of the matrix by its column total. Step three was performed to calculate the Eigen values. The weighted sum matrix was found by multiplying the pair-wise comparison matrix by the computed weight. Notice, the elements of the Eigen vector become the diagonal of the weighted sum matrix. Furthermore, the weighted sum values are obtained by getting the sum of each row in the matrix. Furthermore, all the elements of the weighted sum values were divided into their respective weight to get the Eigen values (λ) which are shown in Table 6. Then, the average of these values was computed to obtain Eigen-value max (λmax).

Table 6: Normalized-Pairwise Comparison Matrix

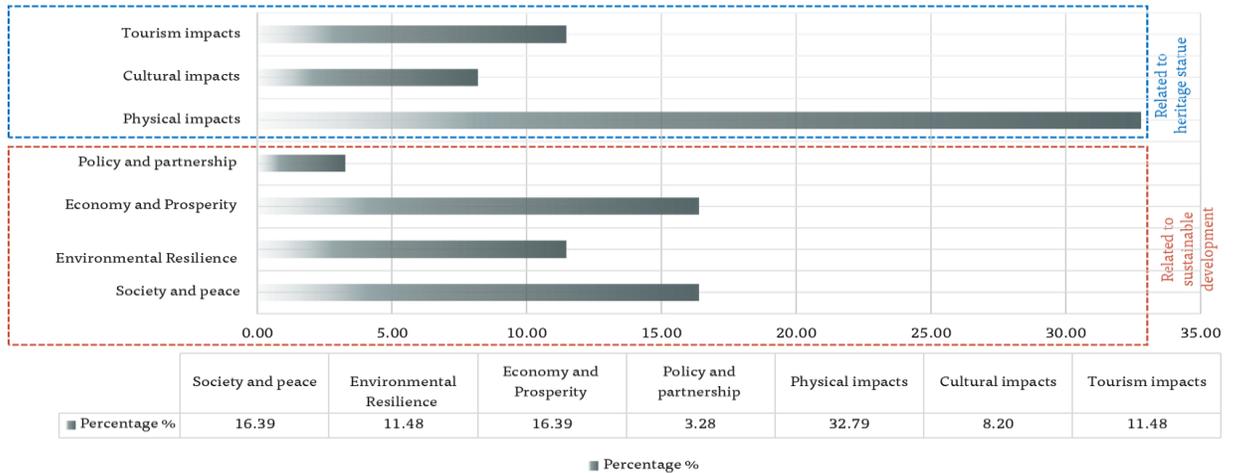|		1 society and peace	2 Building Environmental Resilience	3 Economy and Prosperity	4 policy and partnership	5 physical impacts	6 cultural impacts	7 Tourism impacts	Average	weighted sum value	Eigen value (λ)
1	society and peace	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	1.15	7.00
2	Building Environmental Resilience	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.80	7.00
3	Economy and Prosperity	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	1.15	7.00
4	policy and partnership	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.23	7.00
5	physical impacts	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	2.30	7.00
6	cultural impacts	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.57	7.00
7	Tourism impacts	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.80	7.00
	sum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		

λ_{max} = the average of the Eigen value (λ) = 7

CI = (7-7)/ (7-1)=0

CR = 0/1.35=0

Consistency index equals zero, which is mean that consistency is perfect.

The results demonstrated the necessity of including the dimensions of sustainable development in the HIA procedures. As shown in Figure 3, the dimensions "economy and prosperity," "environmental building resilience," and "society and peace" have a significant weight when compared to the other dimensions of the heritage itself. These dimensions should be assessed to ensure that the impact assessment of developing projects is holistic and sustainable.

	Society and peace	Environmental Resilience	Economy and Prosperity	Policy and partnership	Physical impacts	Cultural impacts	Tourism impacts
Percentage %	16.39	11.48	16.39	3.28	32.79	8.20	11.48

Figure 3: Percentage of impact assessment dimensions

Overall, Figure 4 shows that the dimensions related to the heritage site are higher in their relative importance than the dimensions of sustainable development; otherwise, there is a clear convergence between the proportions of both. Thus, this result explains the importance of taking into account the dimensions of sustainable development in the impact assessment process because of their direct and significant impact on the efficiency of the HIA process, the preservation and sustainability of historical sites for future generations, and protection from all negative impacts of development projects.
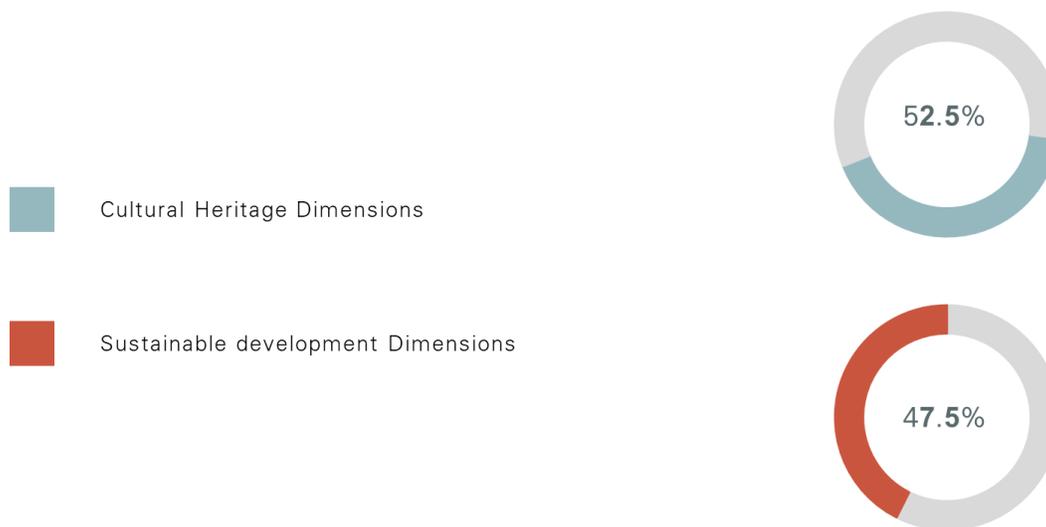
Figure 4: The sum of the relative importance of each dimension in the impact assessment

5. Conclusion

Impact assessment of development projects on cultural heritage are difficult to measure, and both qualitative and quantitative aspects need to be assessed to provide evidence to policymakers on cultural heritage as a vector for sustainable development. Indicators that are too broad and universal miss the granularity and specificities, whilst those that are too narrow miss the full scope, thus preventing an appropriate assessment of the impacts of cultural heritage and heritage-based projects. The results of this paper emphasized on the necessity to Improve existing evaluation approaches of cultural heritage impact assessment within HIA procedures by using a wider range of impact assessment indicators in relation to cultural participation, cultural expression, creativity, identity, cultural rights, cultural tourism , and state of conservation as well as the interconnection between cultural heritage and global challenges such as gender equality, equity and global justice, mental health and well-being, climate change, environmental degradation, biodiversity loss, and poverty reduction.

These indicators showed significant influence on the sustainability of cultural heritage. In the future research, researcher recommends with conducting research to assess replicability and scalability of current evaluation dimensions of impact assessment and find adaptable measures to assess these indicators in different heritage contexts.

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