Article

Making the Most of World Natural Heritage—Linking Conservation and Sustainable Regional Development?

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Abstract: Today, more than 1000 World Heritage (WH) sites are inscribed on UNESCO's list, 228 of which are natural and mixed heritage sites. Once focused primarily on conservation, World Natural Heritage (WNH) sites are increasingly seen as promoters of sustainable regional development. Sustainability-oriented regions, it is assumed, are safeguards for conservation and positively influence local conservation goals. Within UNESCO, discussions regarding the integration of sustainable development in official policies have recently gained momentum. In this article, we investigate the extent to which WNH sites trigger sustainability-oriented approaches in surrounding regions, and how such approaches in turn influence the WNH site and its protection. The results of the study are on the one hand based on a global survey with more than 60% of the WNH sites listed in 2011, and on the other hand on a complementary literature research. Furthermore, we analyze the policy framework necessary to support WNH sites in this endeavor. We conclude that a regional approach to WNH management is necessary to ensure that WNH sites support sustainable regional development effectively, but that the core focus of WNH status must remain environmental conservation.

1. Introduction

World Heritage (WH) status was established as a conservation tool to safeguard the world's most outstanding natural and cultural heritage for future generations. According to the UNESCO WH Convention [1] (p. 1), the "deterioration or disappearance of any item of the cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world". The popularity of this label remains strong: Today, there are 1031 WH sites, 197 of which are natural and 32 of which are mixed site [2]. With the increase in the number of World Natural Heritage (WNH) sites and changes in paradigms of protected area management, societal expectations towards this conservation "label" have changed significantly. Expectations now range from increasing visitor numbers to direct economic impacts and contributions to sustainable development [3–5].

These developments are reflected within UNESCO, where the role of WNH sites as triggers for sustainable regional development beyond the WNH site itself is increasingly discussed [6–9] and encouraged, respectively [10]. In addition, more and more countries include "sustainable development" as a goal in policies related to the management of WNH sites in particular and protected areas in general. The underlying assumption of such approaches is that the embedding of a WNH site in a sustainability-oriented region is an additional safeguard for the protection of the site.

At the same time, approaches to management have changed considerably over the past decades: So-called "static-preservatory" approaches [11], which stand for a strict separation of protected and

cultivated areas, were predominant up to the 1970s. This understanding was central to the World Heritage Convention, where—initially—conservation was primarily considered as the act of protecting a site from human influence [1]. On the other hand, emerging concepts such as the sustainability debate [12,13] or the recognition that also cultural landscapes can be worthy of conservation influenced a more holistic understanding of protected area management. Mose and Weixlbaumer classify these newer approaches as "dynamic-innovative" [4] (on this debate, see also [14]). Today, also official UNESCO Guidelines advocate for a comprehensive understanding of WNH management that goes beyond the core zone of the protected area [15,16]. Current research suggest that the management of a WNH site needs not necessarily be responsible for all aspects of management, but that they are jointly carried out by different stakeholders or stakeholder working groups [17], a model which is successfully implemented in various Swiss Regional Nature Parks (see, e.g., [18]). Several of the UNESCO World Heritage Paper Series, e.g., highlight the importance of community involvement and make similar suggestions for new forms of co-operative management (e.g., [19,20]).

This article investigates whether WNH sites can motivate regional development that goes beyond the boundaries of the WNH site, and whether such sustainable regional development approaches contribute in turn to the conservation and safeguarding of the WNH site. Furthermore, it examines UNESCO's current policy efforts to promote sustainable development within WNH sites. Based on these results, the article explores the potential arrangement of policies that effectively foster sustainable development approaches while ensuring conservation.

2. Materials and Methods

The results from this paper base on the one hand on a broad-based, global survey of the effects of WNH status on sustainable regional development [21,22]. In this survey, the impacts of WNH sites on the different aspects of sustainable regional development was captured by an extensive survey, in which 61% of the WNH sites listed in 2011 participated. This survey also integrates answers from 34 in-depth interviews with managers, public authorities or scientists to complement the extensive quantitative database with more explicative information. The survey generally assessed the influence of having WNH status on ecological, social, economic and institutional aspects of sustainable regional development. Answers were based on self-assessment with a 5-point Likert scale. 45% of the respondents were from the top management, 25% were senior staff, 10% represented public authorities and the remaining 20% were advisors, researchers or assistant staff. The reverse impacts of sustainable regional development approaches on the status of the WNH site itself were assessed through a detailed analysis of existing case studies, focusing primarily on those impacts that had been brought to light by the survey. In a third step, current UNESCO policies, such as decisions adopted by the WH Committee, UNESCO declarations and internal reports, were analyzed.

On the other hand, in addition to this baseline data, an extensive literature research was carried out in order to compare the effects within WNH sites as assessed by the study with effects described outside WNH sites.

3. Results

3.1. Protected Areas, Sustainable Regional Development and the WNH Discourse

Although concern for conservation has a centuries-long history [23] (p. xv), the first attempts to designate protected areas in their modern form date back to the late 19th century [24]. Different approaches to protected area management have always co-existed, but many of the first national parks followed a relatively strict preservation approach [4] (pp. 117–118). Over the past century, more inclusive approaches that do not treat conservation and development as mutually exclusive have emerged [4]. This paradigm shift was influenced by, among other factors, newly emerging concepts such as sustainable development [12]; a different understanding of human-environment relationships that overcame the humans *vs.* nature dichotomy and stressed the "connatural world" [25];

the awareness that strict conservation may not lead to the desired results, e.g., [26]; the increasing loss of traditional cultural landscapes; or the simple fact that implementing protected areas without regard for the regional economy often results in significant local resistance [27]. In the current global discourse, large protected areas such as WNH sites are increasingly seen as potential triggers for sustainable regional development processes [3,28].

It is important that regional development be understood as more than a merely economic contribution to development. The contribution of WNH to sustainable regional development is multifaceted and goes beyond conserving natural resources for future generations or generating additional income through increased visitor numbers. Rather, WNH can be an instrument that—if used wisely—contributes equally to achieving environmental, socio-cultural, economic and institutional/governance related goals [13,28]. The potential for this outcome is explained in Figure 1, boxes 3 and 4 (the WH sites are represented by the dotted blue box). The sustainability-related goals that a WNH site pursues are normative but are nevertheless part of a broader sustainability framework, defined by international and national strategies (Figure 1, boxes 1 and 2). A WNH's capacity to do contribute to sustainable development depends on the fact that its scope of action goes beyond the mere boundaries of the site itself, *i.e.*, that it is well integrated into the decision- and policy-making processes of the region and its institutional structure (Figure 1, box 3).
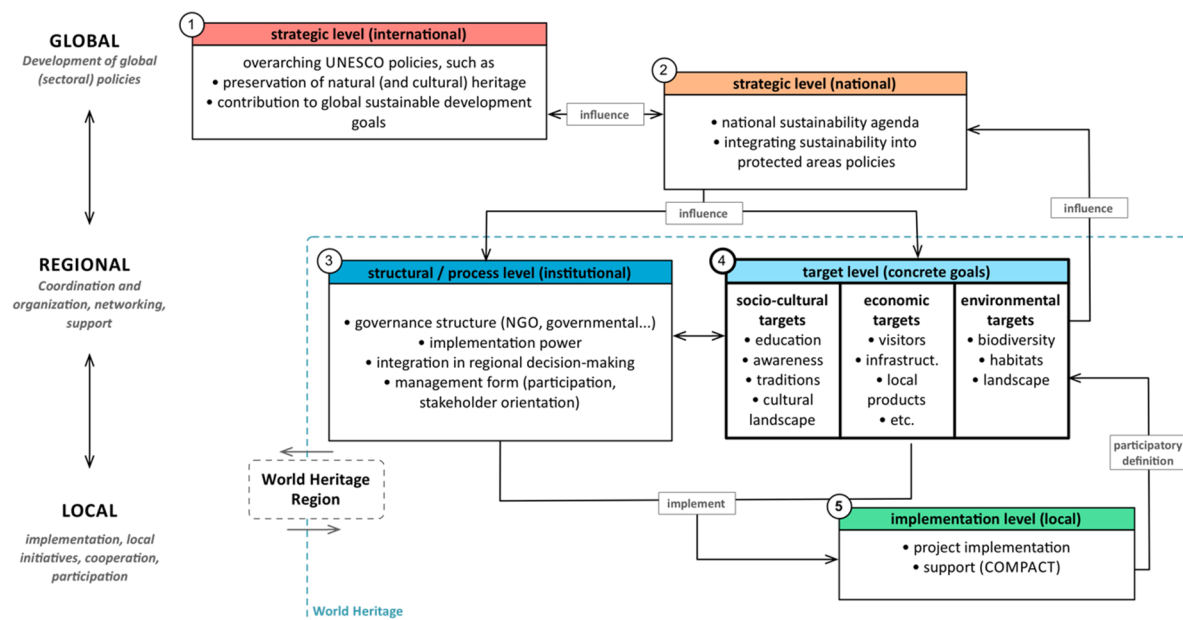

Figure 1. World Natural Heritage and sustainable regional development (draft by the author).

The WNH region can be understood as a functional space at the intermediary level between the local (communities) and state levels (provinces or nations) and is a particularly meaningful frame of reference for sustainable development. On the one hand, the cause and effect relationships of human interventions are directly perceptible at the regional level [29]. On the other hand, a region tends to be less influenced by individual interests than does a local site, but regional units allow for a more detailed overview of issues at stake than do national units (Figure 1, left side). Whether the goals are actually met depends on how they are concretely implemented on a local level. Ideally, a bottom-up participatory process complements the top-down governing process, where the WNH region again works as an intermediary between the local and the national/international. In such a setup, WNH sites can act as a core "process manager" for sustainable regional development.

The relation between WNH and sustainable (regional) development is not self-evident. When the WH Convention was established in 1972, it was designed primarily as a response to the increasingly rapid economic development threatening the world's most outstanding heritage sites [1]. As a result,

the convention was and still is focused principally on conservation. Sustainability as a specific concept is not explicitly mentioned because the notion of sustainable development only became popular later, following the publication of the Brundtland report in 1987 [12]. However, the WH label itself embodies one of the core concepts of sustainability, namely the preservation of a specific good of high value in such a way that it remains available for future generations. The convention specifically states that the "protection of heritage [should be integrated] into comprehensive planning programmes", which implies the need to look beyond the boundaries of the protected area [1] (p. 3).

With time, the linkages between conservation and development have become more explicit in the official UNESCO WH discourse. The term "sustainable" was mentioned for the first time in the 1994 version of the Operational Guidelines [30] with regard to the new category of cultural landscapes. The Budapest Declaration in 2002 [6] called for an "*appropriate and equitable balance between conservation, sustainability and development, so that WNH properties can be protected through appropriate activities contributing to the social and economic development and the quality of life of our communities*". This declaration may be understood as a trigger for a more intensive discussion on WNH and sustainable development: The 2005 version of the Operational Guidelines specifically states that "the protection and conservation of the natural and cultural heritage are a significant contribution to sustainable development" [7]. With regard to the 40th anniversary of the WH convention, a reflection process on the future of the WH Convention was initiated in 2008 [31]. In 2010, after an expert meeting in Brazil, the WH center received a mandate "*to propose revisions to the Operational Guidelines with a view to mainstreaming a concern for sustainable development within them*" [32]. At the same time, the WH center was tasked with developing an action plan. Goal 3 of this action plan is that "[h]eritage protection and conservation considers present and future environmental, societal and economic needs". These goals should be achieved by researching the impact of WH listing, by developing specific sustainability related tools, and by encouraging signatory states to develop policies on conservation and sustainable development [9]. In 2015, the General Assembly of the State Parties finally adopted a decision on World Heritage and Sustainable Development, which "encourages the World Heritage Centre to sensitize States Parties [. . .] of the need to establish appropriate governance mechanisms to achieve the right balance between World Heritage and Sustainable Development, and integration between the protection of the Outstanding Universal Value of World Heritage properties and the pursuit of sustainable development objectives [. . .]" [10] (p. 8). Despite the fact that the WH convention is not self-executing, *i.e.*, that the signatory states to the convention regulate the conservation of the inscribed sites by means of their own laws, both the WH convention itself and the process of inscription can influence the legislation of nation states: Several nations, including Australia, the Philippines, South Africa, France, Hungary and Peru, have already developed such policies [33].

3.2. WNH Sites and Sustainable Regional Development

The reason that sustainable development is increasingly associated with protected areas such as WNH sites is based on two assumptions. For one, it is assumed that large protected areas such as WNH sites are particularly suited to give impulses that go beyond the sphere of the WNH site, and that they themselves can be model regions. For another, it is reciprocally presumed that the core values of WNH sites within regions that focus on sustainable development are better protected against outside threats. In fact, there is considerable evidence that WNH sites do indeed contribute to sustainable development goals beyond their perimeter [21,34]. In doing so, they are decisively influenced by national and international policies. For example, Conradin [22] has shown that there are distinct differences between so-called "development-oriented" and "conservation-oriented" sites with regard to the delivery of benefits: The former deliver more benefits in regard to sustainable regional developments, findings that are supported by practice-oriented research [35]. It seems that the overall strategy that a WNH sites pursues is of decisive influence: Development-oriented sites also notice larger increases in visitor numbers and a stronger growth in participation than conversation-oriented sites [22]. The following examples, drawn from the concept described in Figure 1, highlight how

WNH sites influence sustainable development beyond their perimeters, and how these effects in turn influence the conservation status of WNH sites. Table 1 shows that the latter contribution is often intrinsically linked to the former.

Table 1. Effects of World Natural Heritage (WNH) status on surrounding regions and "rebound effects" on the WNH site itself.

Direct Influence of WNH Status on Surrounding Region	"Rebound Effect" of Achieved Impact on WNH Site
Economically, WNH sites can generate additional regional value through, for example, tourism. Protected areas are increasingly regarded as icons of pristine nature that are particularly worth visiting [36] (p. 839) [37] (p.32), and many scholars have in fact confirmed that WNH status increases visitor numbers [34,38]. Investments in infrastructure (roads, telecommunication, water and sanitation) typically follow increases in visitation [22], further benefiting the region. Despite the fact that tourism can also have negative impacts on the conservation status of a site [39], it may contribute to nature conservation, as the examples in the right column show.	In a survey from 2012 [22], 63% of all participating WNH sites stated that tourism generates additional funding for conservation efforts. In the Mt Kilimanjaro WNH site, for example, entry fees are collected centrally by Tanzania National Parks. Some of this income, generated by one of the most-visited national parks in the country, is redistributed for conservation to other, less well-funded parks, and a certain proportion of the entry fee revenue is directly allocated to community building projects [40]. This example shows the direct link between tourism-generated income and both conservation (ecological effects) and community projects (social effects). Tisdell [37] further suggests that income generated through conservation is likely to boost political support for conservation.
With regard to environmental goals, another study [21] shows that WNH status frequently leads to stricter conservation regimes. These are in turn reflected in national policies that influence other protected areas, a finding that is corroborated by [33]. In order to mitigate adverse effects of conservation on the livelihoods of local communities, the UN-led Global Environmental Fund initiated the Community Management of Protected Areas Conservation (COMPACT) program. COMPACT supports community-based projects that conserve biodiversity around WNH sites or UNESCO Biosphere Reserves, while at the same time improving local livelihoods. The inception of these programs is directly linked to WNH status.	Several COMPACT projects, such as those around Mt Kenya, Mt Kilimanjaro and Djoudj National Bird Sanctuary (Senegal), successfully replace fuel wood collected from protected forest areas with alternative fuel sources such as sawdust briquettes, fast-growing fuel-wood or biogas tanks. These projects directly reduce pressure on protected forest resources [41,42]. Another example from eastern Africa highlights the importance of a management approach that goes beyond the WNH perimeter. As both the Mt. Kilimanjaro and Mt. Kenya WNH sites are important water towers for the surrounding areas, highland-lowland conflicts with regard to water resources are not uncommon [43]. In response, so-called Water Resource Users Associations were established, providing a platform for jointly managing water resources and monitoring both quantity and quality. The cultivation of rice with biologically treated wastewater, initiated by such an association, has drastically reduced demand for spring water and for artificial fertilizer, thus improving both water quality and nutrient balance, with effects beyond the perimeter of the site [44].
Socio-culturally, environmental education should serve as an example for the effects induced by WNH status. The aim of environmental education is to encourage environmentally sensible behavior and a heightened acceptance of protective measures. However, in addition to helping visitors to interpret what they see, environmental education can also help "provide comparative perspectives on threats to resources, as well as analyses of potential long-term consequences if short-sighted actions jeopardize the resource that is the attraction itself. The goal in these situations is to inform so as to stimulate enlightened self-interest of thoughtful people in the community that will in turn encourage voluntary restraint of problematical activities" [45] p. 270.	Although all WNH sites have the mandate to "endeavour by all appropriate means, and in particular by educational and information programs, to strengthen appreciation and respect by their peoples of the cultural and natural heritage" [1] (p. 13), it is difficult to measure the effect of such activities. However, the following example shows how enabling supporting communities to develop "comparative perspectives" can lead to adapted action strategies: In the Kilimanjaro region, the increase in eco/cultural tourism has encouraged local communities to restrict their use of water from a touristically attractive waterfall for agricultural purposes, as tourism proves to be ecologically more profitable. The practice has also increased downstream water flows, reduced conflicts over water uses and improved the incomes of downstream communities [44] (p. 75).

Table 1. *Cont.*

Direct Influence of WNH Status on Surrounding Region	"Rebound Effect" of Achieved Impact on WNH Site
The institutional or structural impacts of WNH status must not be underestimated, as they also directly interrelate with socio-cultural aspects. Applicants for WNH status need to develop a comprehensive management plan [7]. The mentioned survey on World Heritage Sites from 2012 [22] showed that 78% of all WNH sites have such a plan, and that its development often occurs simultaneously with setting up professional and more participative management structures. In many cases, this leads to an increase in civic involvement from both the local population and NGOs beyond the WNH site [46]. In the above-cited survey1, more than half of all participating sites noted an increase in participation and collaboration between different stakeholders. This is crucial for societal appropriation (or local ownership) of the site, which is the basis for a successful and effective management of the site.	According to Moure [47], the challenges faced by the implementation of the Sian Ka'an WNH site in Mexico were addressed by initiating an extensive and inclusive participatory process. Therein, great emphasis was placed on grassroots democracy, the participation of women and the open exchange and dissemination of information in local languages. Participatory approaches were not only chosen to define a joint strategy, but have led to tangible projects such as an apiculture project that reduces the risk of forest fires, the development of tourism marketing strategies that are independent of large-scale foreign investors, or the joint establishment of marine replenishment zones and local fisheries. Community-driven approaches to conservation, according to Reyes-Garcia *et al.* [48], have increased the acceptance of the site. Similar approaches to the local stewardship of WNH resources have also been initiated in Australia for the Great Barrier Reef [49], p. 24 or in Canada for the Jasper National Park [50], p. 160.

4. Discussion: Policy Implications

The abovementioned examples highlight the paramount importance of extending conservation efforts beyond the boundaries of the WNH site. The ties between a site and its surroundings are manifold, making it difficult, if not impossible, for a WNH site to face conservation challenges in isolation. Sustainable development should therefore be a key concern for WNH sites, as has been rightly noted by UNESCO [9,31]. This new and broader approach is necessary not only as a reaction to a reality in which protected areas are increasingly confronted with expectations that go beyond nature conservation [22,27], but also because conservation does not always foreclose an adapted human utilization. Furthermore, WNH sites themselves are only sustainable in the long run if they are societally accepted and economically affordable. This, however, does not mean that stricter nature conservation approaches should be abandoned. WNH sites—established as instruments for conserving the world's most outstanding natural sites—should continue to be the guardians of biodiversity hotspots and magnificent landscapes [51]. However, as WNH sites are rarely isolated islands, there is an increasing need for specifically adapted and graded conservation concepts.

At the international level: Given the intricate relationships between WNH sites and their surroundings, it is important to extend the convention's focus beyond the core aim of conservation. In particular, the convention should further encourage transition or buffer zones between the WNH sites itself and the surrounding region, the so-called WNH region. Buffer zones are considered a practical means of deflecting pressure on the core zones (*i.e.*, the core values of individual WNH sites), whilst also considering socio-cultural and socio-economic needs [52,53]. The trend towards establishing more WNH sites with buffer zones is already visible: Of all WNH sites inscribed between 1978 and 1990, less than 5% had a buffer zone; whereas nearly 45% of all WNH sites inscribed between 2000 and 2011 now include buffer zones [54]. In addition to their central function of preserving the core values of individual WNH sites, buffer zones can have various other beneficial functions. They enable the management to develop a comprehensive understanding of the WNH site and its surroundings, facilitate and improve cooperation between stakeholders in the buffer zone (amongst other, land owners and land users, cooperatives, and private companies) and support them in developing or implementing joint projects [15,55,56] Nevertheless, buffer zones are no panacea and the current trend should by no means implicate that buffer zones should be established at the cost of the core zone; much more, additional regulations should apply for the zones around the world heritage site. Such approaches are currently being discussed [9,31], and the World Heritage

Committee officially recognizes the contribution of WNH sites to sustainable development [10]. In the core zones, conservation should remain the core aim; in transition zones, the focus can be more on the development aspects. Respective model projects, as well as corresponding guidelines, should be developed. Implementation policies could—for instance—look similar to recommendations that the World Heritage Centre has elaborated with regard to the management of historic urban landscapes: UNESCO has recommended to "integrate policies and practices of conservation of the built environment into the wider goals of urban development" [57]—an approach that fosters collaboration and comprehensive management. With regard to the management of WNH sites, this would mean that their management be closer aligned to the wider goals of sustainable regional development.

At the national level, legislative preconditions should be established to incorporate such gradational conservation concepts with regard to WNH sites. Most countries have stricter conservation instruments such as national parks, and concepts oriented more towards sustainable development such as nature parks or the like. Ideally, the two concepts should be combined such that the WNH site benefits from an additional buffer zone. Such a zone works on the one hand to conserve the core values at the environmental, biodiversity and landscape levels, and on the other hand to support the surrounding region in realizing the benefits of the WNH "brand". In addition, such an approach may increase societal acceptance. Governance structures must enable the WNH to act as an intermediary between conservation and development and between local implementation and national strategy, and should in this regard also foster inter-sectoral cooperation, e.g., with private bodies and NGOs [58]. Such co-management approaches are strongly encouraged by research to date, given not only their effectiveness but also their effects on participation, ownership and acceptance; yet they "must be considered a continuous problem-solving process, rather than a fixed state and rely on an understanding involving extensive deliberation, negotiation and joint learning within problem-solving networks" [17,59]).

At the WNH level: In a setup as described above, WNH sites have important coordination and management functions. A good example in this sense is for instance the Swiss Alps Jungfrau-Aletsch World Heritage site. The World Heritage site is managed by a legally independent foundation called UNESCO World Heritage Swiss Alps Jungfrau-Aletsch. The center is funded mainly by public means. The management plan has been developed in an extensive participatory process, involving numerous stakeholders ranging from tourism organizations to authorities, civil society representatives, science and experts on environmental protection. Prior to the nomination in 2001, the communes involved were consulted in a political decision-making process and formally voted to be part of the World Heritage site [60]. Yet, giving WNH sites a certain management competence does not mean that the WNH management is in charge of coordinating all activities related to sustainable development within the WNH region. However, in order that WNH sites can function as intermediaries between conservation and regional development goals, it is important that they have a clearly defined role the decision-making bodies. Furthermore, they must be given the necessary competences, as well as funding.

5. Conclusions

The interlinkages between WNH sites and their surrounding regions are intricate and multifaceted: WNH sites can trigger sustainable development beyond site boundaries. More importantly, these developments may in turn have beneficial effects on conserving the core values at stake. A regional approach to WNH management is crucial: "Sustainable development is a goal that, almost by definition, acquires its meaning at a scale that is often much larger than that of a WH property, suggesting that WH planning and management need to be more integrated in territorial and regional strategies" [61] (p. 330).

The WH Convention is a powerful and internationally accepted tool that can influence protected area management approaches worldwide. The new strategy for integrating sustainable development and the management of WNH sites [10] is thus more than appropriate, as UNESCO gradually adapting its policies that lobby for a rather strict nature conservation orientation approach to an approach that emphasizes permanent environmental compatibility. At the same time, this approach also allows for

a better integration of stakeholders from various levels, thus strengthening ownership and a better interrelation between protected area management and other, landscape and nature relevant policies. Yet, as necessary as this strategic adaptation is, WNH sites must nevertheless remain protected areas at their core. Sustainable development approaches can help ensure the protection of the core values and increasing regional support for the site. Development goals should be pursued primarily in buffer or transition zones bordering the WNH sites, or in such a way that they do not interfere with conservation aims. Sustainable regional development can become a new and promising activity of WNH sites—but not at the cost of trimming core conservation goals.

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