

From cultural heritage to sustainable energy: Africa as a laboratory for the future. The case of Gorée Island in Senegal

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Abstract

This article explores the intersection of cultural heritage preservation and sustainable energy transitions in Africa, with a focus on Gorée Island in Senegal as a case study. Inscribed on the UNESCO World Heritage List in 1978 for its testimony to the Atlantic slave trade, Gorée today represents not only a site of memory but also a laboratory for future-oriented sustainability practices. The island's integration into Dakar's electricity grid in 2018, replacing polluting diesel generators, has significantly improved energy security, reduced greenhouse gas emissions, and stimulated socio-economic development. This infrastructural shift has also created opportunities to link heritage safeguarding with renewable energy innovation, in line with Senegal's broader decarbonisation strategies, such as the Taiba N'Diaye Wind Farm. Drawing on the One Health approach, the article highlights the

measurable human, animal, and environmental health benefits of clean energy adoption, including improved air quality, reduced disease burdens, and protection of ecosystems. At the same time, cultural dimensions reinforce social cohesion, resilience, and well-being in the face of climate challenges. The Gorée case demonstrates that aligning heritage conservation with sustainable energy investments generates scalable and replicable models for other island and coastal World Heritage sites in Africa and the Mediterranean. By situating local practices within continental strategies such as the African Union's Agenda 2063 and global frameworks led by UNESCO and the International Energy Agency (IEA), this study positions Gorée as an example of how Africa's cultural heritage can illuminate pathways towards integrated, sustainable futures.

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Introduction: heritage, energy, and the One Health perspective

In Africa, cultural heritage is not just memory: it is a living resource that today engages with the challenges of energy and climate. In Senegal, the small island of Gorée, off the coast of Dakar and inscribed on the UNESCO World Heritage List in 1978 for its Outstanding Universal Value as a testimony to the Atlantic slave trade, tells centuries of history and resilience (Figure 1).¹ Among the tangible elements that reflect Gorée's universal value are: the Castle, a rocky plateau covered by fortifications overlooking the island (Figure 2); the Relais de l'Espadon, once the residence of the French governor; and other sites that narrate the historical layers of this place. Today, the island is a destination of pilgrimage for the African diaspora, a meeting point between the West and Africa, and a place of exchange and dialogue between cultures, carrying ideals of reconciliation and forgiveness.¹ Since 1992, the Gorée Institute has served as a Pan-African cultural and diplomatic hub, promoting reflection, cooperation, culture, technology, and dialogue on a continental scale.²

From diesel to the grid: the island's energy transition

Since 2018, Gorée has had stable and reliable access to electricity thanks to a 2.7 km submarine cable (Figure 3), inaugurated on January 9 of that year, which connects it to Dakar's power grid. This replaced old diesel generators, increasing capacity from 6.6 to 30 kV.^{3,4} Replacing diesel with grid electricity has reduced greenhouse gas emissions, improved air quality, and enhanced the island's energy security. According to the World Bank, electrification has significantly improved residents' quality of life, lowered energy costs, stimulated new economic activities, and strengthened socio-educational and tourism services. A notable innovation has been the intro-

duction of prepaid meters, enabling payment for electricity *via* mobile phone.³ The cable is more than just an infrastructure project: it represents a gesture of respect for history and a signal of symbolic rebirth – “A new era is opening up for Gorée, as if the island were being reborn in light with these successful and sustainable works”, as stated by Mayor Augustin Senghor during the inauguration. On this island, where sun and wind are abundant and the community preserves ancestral knowledge, Gorée becomes a laboratory for integrating renewable energy and cultural preservation.

Socio-economic impacts of electrification

Gorée is currently implementing a five-year management plan that includes structural restorations and preventive conservation; training artisans in traditional techniques; promoting sustainable visitor itineraries; and raising awareness among communities and tourists on issues of memory and sustainability.^{5,6} In parallel, Senegal is investing in large-scale renewable energy projects, such as the Taiba N’Diaye Wind Power Station, the largest wind farm in West Africa, contributing to the country’s decarbonization goals.⁷ At the continental level, the African Union’s Agenda 2063 defines the vision of “The Africa We Want”, emphasizing cultural heritage, renewable energy, and regional integration as engines of sustainable development.⁸ International organizations, such as the International Renewable Energy Agency (IRENA) and the United Nations Development Programme (UNDP), have also highlighted Africa’s potential to become a leader in renewable energy markets and in sustainable development policies.^{9,10}



Figure 1. The “Door of No Return” on Gorée Island, a UNESCO World Heritage Site since 1978, symbolizes the transatlantic slave trade (Photo by Annateresa Rondinella).

Cultural heritage as a driver of sustainable development

Cultural heritage is increasingly recognized not only as a testimony of the past but also as a strategic asset for shaping sustainable futures. In this context, the Gorée Institute, established in 1992, assumes great importance as one of Africa’s leading centers of cultural diplomacy. The case of Gorée shows how cultural heritage can be both a memory and a driver of development. The Gorée Institute fosters critical reflection, culture, cooperation, and Pan-African engagement through conferences, exhibitions, and workshops.² Its role extends beyond conservation, serving as a platform where the painful memory of slavery is transformed into opportunities for reconciliation, social cohesion, and innovative policymaking. With the advent of stable energy, these cultural diplomacy activities have expanded. The Institute now operates with reliable infrastructure, enabling hybrid international conferences, online training, and broader cultural exchanges with the African diaspora. On the institutional front, since 2016, the Municipality of Gorée and Senegal’s Ministry of Culture and Historic Heritage have implemented a five-year management plan and, in 2017, established a Management and Safeguarding Committee.⁶ UNESCO, with support from Japan (2017) and France (since 2020), has funded structural rehabilitation (including walls, walkways, and coastal areas), training programs for artisans, digital tools for visitor management, signage, and awareness campaigns targeting teachers, residents, and tourists.⁵ Earlier, UNESCO collaborated with the Qatar Foundation (2006-2009) on projects to safeguard Gorée’s coastline through technical support, heritage building rehabilitation, and local capacity-building initia-



Figure 2. Fortifications on Gorée Island, testimony to its strategic and historical significance (Photo by Annateresa Rondinella).



Figure 3. Installation of the 2.7 km submarine power cable connecting Gorée Island to Dakar’s grid, replacing diesel generators, and improving energy security (Source: World Bank, 2018).

tives.⁵ In the past, Gorée benefited from direct UNESCO conservation funding. Today, while maintaining international collaboration, the site is progressing toward greater self-sufficiency, where cultural diplomacy and energy transition mutually reinforce each other: the former providing content and legitimacy, the latter ensuring the material and technological conditions for its dissemination. Gorée thus positions itself as an African laboratory of cultural diplomacy powered by clean energy, where heritage, sustainable development, and resilience converge.

A One Health approach to heritage and energy

The integration of cultural heritage preservation with sustainable energy transitions has direct and measurable impacts on human, animal, and environmental well-being. From a human health perspective, replacing polluting energy sources with clean technologies improves air quality, reduces respiratory diseases, and lowers the burden of non-communicable illnesses linked to environmental degradation.¹¹ For animals and ecosystems, reducing greenhouse gas emissions and local pollutants mitigates habitat loss, protects biodiversity, and decreases the incidence of environmentally driven zoonotic diseases.^{12,13} Moreover, the cultural dimension strengthens social cohesion and mental well-being, offering communities a sense of identity, continuity, and resilience in the face of climate-related disruptions.¹⁴ By adopting a One Health approach – which recognizes the interconnectedness of people, animals, and their shared environment – heritage sites like Gorée can act as demonstrators for integrated policies that simultaneously advance decarbonization, cultural safeguarding, and the holistic health of all living systems.¹⁵⁻¹⁷

Conclusions

The Gorée case illustrates how cultural heritage can be reframed as an engine for sustainability, resilience, and innovation. By integrating heritage safeguarding with renewable energy access and the One Health perspective, the island demonstrates that memory and modernity can converge to address contemporary challenges. This synergy highlights the potential of African World Heritage sites to function as laboratories for sustainable transitions, offering scalable models for other contexts worldwide. Beyond energy and environment, Gorée also underscores the role of cultural diplomacy in transforming painful memories into opportunities for dialogue and cooperation. In this respect, it resonates with other World Heritage sites such as Aapravasi Ghat in Mauritius, a powerful monument to the journey from slavery to freedom. On the International Day for the Remembrance of the Slave Trade and its Abolition, UNESCO invites us to honor enslaved and indentured laborers and to share their legacy.² Ultimately, Gorée shows that linking cultural identity, energy innovation, diplomacy, and well-being can open pathways towards integrated and responsible development.

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