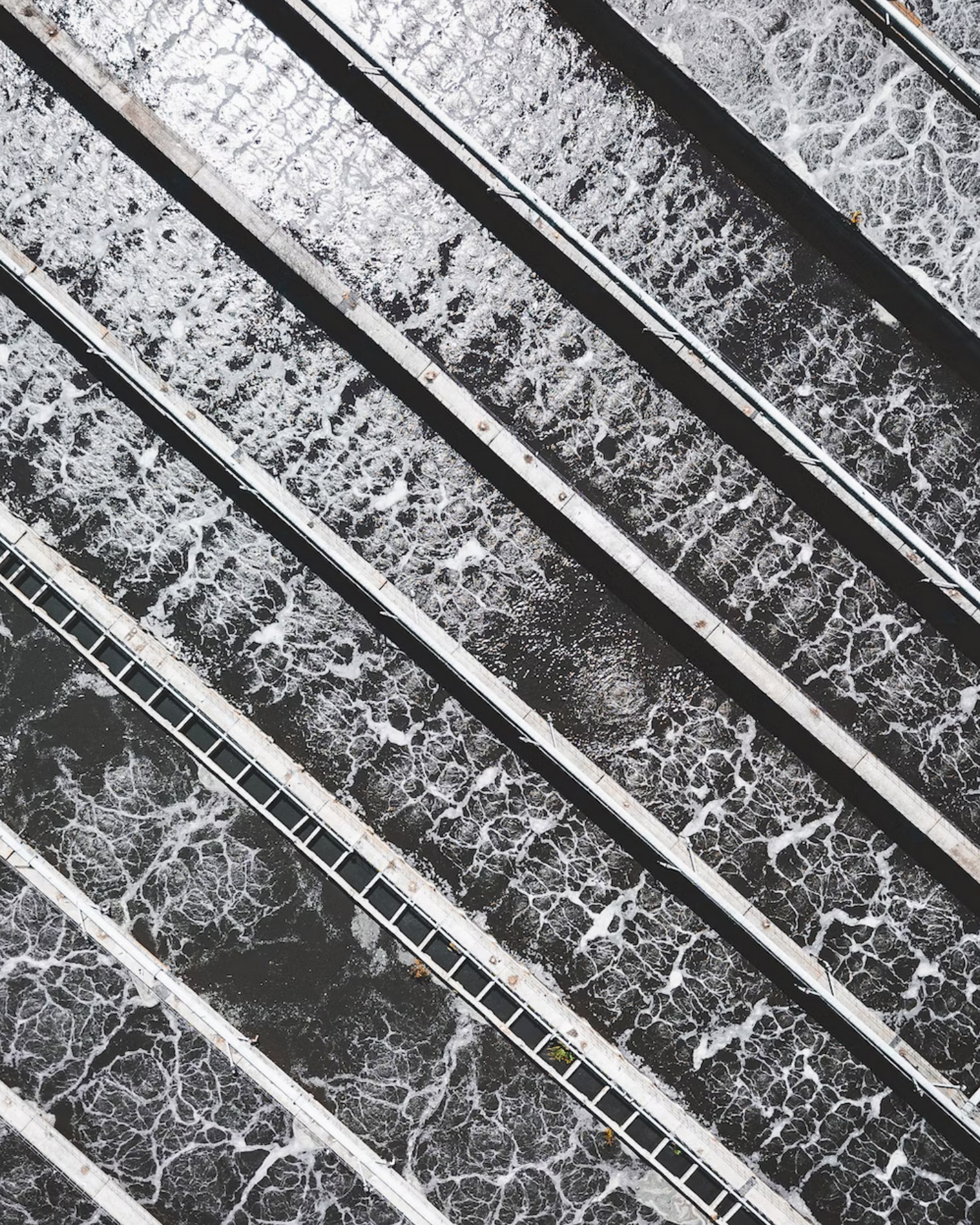

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Intersection of Heritage, Water, and the Work of the ICOMOS Sustainable Development Goals Working Group

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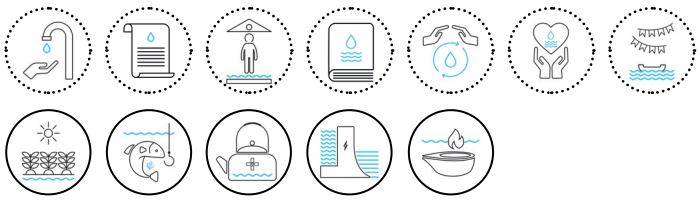
The Sustainable Development Goals Working Group (SDGWG) of the International Council on Monuments and Sites (ICOMOS) advocates for heritage by publishing reports, attending conferences and engaging in networking. The SDGWG is particularly interested in how water, heritage and sustainable development intersect. Various aspects of this intersection are demonstrated by three case studies of underwater cultural heritage: a study of submarine cables and pipelines, the traditional floating garden system of chinampas in Mexico City, and the indigenous water tanks of kulams and gender-associated stepwells in India. This paper examines the current state of protection and advocacy, while also discussing the challenges faced by water heritage. While significant challenges remain, the SDGWG is developing solutions to ongoing and sometimes overlooked problems.

KEY THEMES



< Fig. 1 Oxidation ponds (Source: Ivan Badura, 2018; via Unsplash).

Introduction: The Sustainable Development Goals Working Group as an Interdisciplinary Task Force

The integral connection between water, land and civilizations has been well studied by scholars. The successful management of water resources has shaped many heritage sites around coastal areas rivers and freshwater sources and examples of ingenious irrigation systems adapted to local water conditions can be found around the world. The International Council on Monuments and Sites (ICOMOS) is a non-governmental organization committed to furthering the conservation, protection, use and enhancement of the world's cultural heritage. Since its establishment in 1965, members of ICOMOS have worked to protect various types of heritage, including water heritage, and have developed approaches for the conservation of sites. They also aim to encourage the cultural, social and economic development of communities, while limiting any detrimental environmental impact of heritage, promoting peace and advocating for strategic partnerships with stakeholders and practitioners.

Prior to the establishment of the UN Sustainable Development Goals (SDGs) in 2015, ICOMOS had already advocated for the positive integration of culture and cultural heritage in urban development plans and policies as a way of enhancing the sustainability of urban areas (ICOMOS 2021). As early as 2011, ICOMOS recognized the need for culture and cultural heritage to be acknowledged in sustainable development efforts, as reflected in a Resolution at the 17th General Assembly of ICOMOS (ICOMOS 2021a). In 2014 ICOMOS established the Sustainable Development Goals Working Group (SDGWG) as an interdisciplinary task force to coordinate the response and implementation by ICOMOS of the United Nations 2030 Agenda. ICOMOS is continuing to promote the role of heritage in sustainable development.

The SDGWG promotes the existing and potential contribution of heritage practices to multiple SDGs, aside from the dedicated target identified for heritage – Target 11.4, "strengthening efforts to protect and safeguard the world's cultural and natural heritage." The working group collaborates with other scientific bodies within ICOMOS to find meaningful connections between water, heritage and sustainable development. With the International Committee on Underwater Cultural Heritage (ICUCH) (ICUCH, n.d.), it produced "The Future of Our Pasts: Cultural Heritage in a Sustainable Ocean," which was presented at the UN Ocean Conference in July 2022 (ICOMOS 2022). This statement illustrated ways in which heritage contributes to the success of the Decade of Ocean Science for Sustainable Development. During the UNESCO World Conference on Cultural Policy and Sustainable Development in September 2022, the SDGWG worked with ICOMOS Mexico and looked at the practical challenges of the floating cultural landscape of the Chinampas in Mexico City in relation to changing food and water consumption patterns and climate change. Most recently, the SDGWG has worked with the International Scientific Committee on Water Heritage (ISC Water and Heritage, n.d.) to create a series of side events for the UN Water Conference in March 2023. These events are intended to promote the valuable contribution of water heritage and to link its role to the success of the SDGs.

In 2021 the SDGWG developed a policy guide (ICOMOS 2021a) identifying the role of heritage in contributing to each SDG. The guide highlights the role of water-based heritage practices, involving both freshwater and salt water, to help achieve the SDGs. It encourages heritage

actors to "Harness the potential of heritage in providing viable strategies for the sustainable management of water resources that support the availability of fresh water and sanitation for all" and to "Harness the potential of heritage to protect bio-cultural diversity and ensure the sustainable use of the oceans, seas and marine resources." The policy guide also provides several examples of water heritage projects that support the SDGs, such as the irrigation methods of the terraced landscape of the Honghe Rice Terraces in China; the qanat water channels at the Pahlavan-Pour World Heritage Site in Iran; spate irrigation systems found in Pakistan, Yemen, North Africa and East Africa; and the underwater heritage of stone tidal weirs, which can be found in many parts of the globe.

The following examples further demonstrate how the important relationship between water and heritage links to many dimensions of the SDGs. These examples have been selected to reflect a variety of heritage forms and highlight different dimensions of sustainable development.

Underwater Cultural Heritage as Resource and Cultural Connection

All 17 SDGs are closely connected to heritage and culture (ICOMOS 2021b) and they can also be connected to water. Underwater cultural heritage is, in many instances, tangible and intangible evidence of the past development of communities and has the potential to provide answers to current and future challenges.

If cultural heritage, according to UNESCO, is the "cultural legacy which we receive from the past, which we live in the present and which we will pass on to future generations" (UNESCO, n.d.), submarine cables and pipelines can be considered cultural heritage. In fact, the first submarine cable was used in the 1850s. Today, thousands of kilometers of submarine cables lie on or under the seabed carrying telephone calls and internet data (only 1 per cent of telecommunications are established via satellite) (Perez-Alvaro 2013). Consequently, submarine cables are closely related to many SDGs now because of their importance to economic growth, industry innovation and infrastructure (SDG 9) and to reducing inequality around the world (SDG 5 and 10). They can be indispensable to the well-being of people who live far from friends and family and depend on the internet to maintain connections.

Pipelines are another example of water-related cultural heritage. Humans have always needed to control the movement of water. Ancient Rome and Greece are examples of societies with well-developed plumbing systems and the basis for today's networks of pipes, which supply cities and towns with water (Carter 2007). Nowadays, the gas and oil used by modern economies are transported by old and new pipelines under water across oceans and are key for most of the SDGs: good health from heated homes (SDG 3), quality education in temperature-controlled schools (SDG 4), affordable energy (SDG 7) and economic growth for industry and infrastructure (SDG 8). They may not be part of a sustainable system in the long term, and it will be necessary to re-evaluate them in the future, but at the moment gas and oil pipelines remain necessary for many people around the world. Submarine cables and pipelines were not only solutions to problems that communities faced in the past and examples of what were once technological advances, but they can provide examples of solutions for present-day problems.

^ Fig. 2 Technical visit to chinampas of Xochimilco, Mexico City, Mexico (Source: Bretony Colville).

Fresh Water and the Rights of Indigenous Communities

Within the boundaries of modern Mexico City, there is a traditional permaculture landscape composed of chinampas that is still in use today (fig. 2). The area is listed as part of the World Heritage Site of the Historic Center of Mexico City and Xochimilco. An extremely productive agricultural landscape, chinampa farming is a traditional practice that dates to as early as 1256 CE (Reed 1966). During the Spanish conquest of Tenochtitlán, Bernal Díaz del Castillo, a Spanish conquistador, documented that most of the produce in a market that supported approximately 60,000 people came from the floating gardens of the chinampas (Reed 1966). Now the landscape has been severely reduced, with only 18 per cent of its original extension remaining in 1986, however it is still being actively cultivated, studied and conserved (Pozo 2022).

The traditional chinampa system involves a delicate balance of land and water. The system is being threatened by urban growth, overuse

^ Fig. 3 Chinampas canals clogged with invasive waterlilies (Source: Bretony Colville).

of water resulting in soil subsidence, invasion of introduced species, and harmful chemicals. These threats are common problems around the world, however, the *chinamperos* the traditional practitioners, are using a combination of traditional and modern techniques to combat them. The natural filtering system produced by the unique construction methods help maintain the quality of the water, while the introduced species are being controlled and used as green fertilizer. The lessons learned at this site could possibly be used to improve conditions at other locations, such as Ifugao in the Philippines, known for its rice terraces, some of which have also been listed as a World Heritage Site.

In 2022 the SDGWG and the Mexican National ICOMOS Committee organized a technical visit to the chinampas. Through this event, connections were made between the academics working with the local community in Mexico and academics working in Ifugao. Local Mexican government officials also attended the event, and further meetings were organized to discuss the threats faced by the site in more detail (fig. 3). The traditional knowledge and building

^ Fig. 4 ***Perungulam vaykaal*** (water channel) along the Thamirabarani river basin (Source: Saranya Dharshini).

systems are integral to the conservation of the chinampas, as well as to what is hoped will be the recovery of more of the islands.

Human-Made Water Sources and Gendered Spaces

In many cultures, water is associated with traditions and rituals that are integral to a particular way of life. India is a country where rivers and water bodies are considered to be holy and often reverently named after goddesses. Water architecture and management in India have a long history and historic water bodies such as kulams (water storage) and stepwells exemplify civic life and sustainability.

The kulams of the Thamirabarani river basin were developed over centuries beginning in the Pandya period (fourth century BCE to fourteenth century CE) (Subbarayalu 2014; Mohanakrishnan 2001). An indigenous water system, kulam is a component of a larger water network that assures water equity and conservation (fig. 4). While the water system is still in use, it is gradually being ousted. Without heritage status and protection, the future of the kulams looks bleak (fig. 5). "Fostering Resilience: Focus on the Intersection of Cultural Landscape, Climate Change, and Gender," presented during the ICOMOS International Scientific Committee

^ Fig. 5 Condition of the Perungulam Kulam (water storage) during the pre-monsoon months (Source: Saranya Dharshini).

on Cultural Landscape dialogue series, raised awareness about the lack of heritage protection and slow eradication of historic water bodies (Dharshini 2021).

In the case of the stepwells of western India, even though some of the stepwells are protected as heritage sites, they are not in use. Their historic links to gendered spaces and women's patronage has also been overlooked (fig. 6). Built for communal use, women's sponsorship was crucial to the development of stepwells, particularly in western India, where the climate is hot, semiarid and erratic in terms of rainfall. Since the eleventh century CE, women not only sponsored and developed the stepwells, but they also provided inspiration for the design aesthetics, drawing on women's tales of bravery, valor and love. The artistic and architectural language of these stepwells emphasizes the value of feminine spaces, female patronage and the place of gender in water history (Dharshini 2020). Creation of feminine spaces were necessary in a period where it was customary for a woman to leave her family and friends after marriage to become part of her husband's family. Around the world, women and girls are usually responsible for fetching water, a tradition tied to gendered spaces (UN-Water 2023). Stepwells provided women with a private space to congregate with other women in a public realm (Jain-Neubauer 2016). "The Role of Women in

^ Fig. 6: Dada Harir ni Vav (stepwell) in Ahmedabad (Source: Saranya Dharshini).

Subterranean Waterscapes of India," presented and published as part of 2019 ICOMOS Water as Heritage international conference proceedings, reflected on the need for inclusivity and diversity in narratives of water history to encourage equity in gender representation and participation.

Even today in most countries, domestic water is considered a responsibility of women, however fewer than fifty countries have laws or policies that particularly mention women's participation in water management (UN-Water 2021). The Heritage and Gender Equality task team of ICOMOS, a joint effort of the SDGWG and the Rights-Based Approaches Working Group, envisions that water heritage sites and traditional practices can play an important role in women's empowerment by emphasizing gender narratives and providing an inclusive participation platform at all levels of decision making. The task team realizes that some traditional heritage practices can be viewed as discriminatory and could potentially reduce gender parity and equity, therefore, it is essential to realize a balance in the nature of traditional gender roles and the need for gender equality in water heritage to ensure equal opportunity and accessibility for sustainable use.

Conclusion

ICOMOS' mandate is to promote the conservation and protection of monuments, buildings and sites; however, the membership has

a much wider impact on culture and heritage. As part of this larger organization, the SDGWG coordinates the ICOMOS response to the SDGs and exploring how culture and heritage can be a driving force to what comes after the completion of the UN 2030 Agenda. The work includes mapping various ways water heritage contributes to achieving SDGs 6 and 14 and it supports other specialist groups within ICOMOS to showcase how various types of heritage enable the achievement of the global sustainable development agenda.

There are two avenues that the SDGWG uses to achieve its goals: formal engagement and advocacy guided by UN Agenda 2030, and informal networking between members and sharing case studies of how heritage practically contributes to the sustainable development of communities. Both avenues rely on and are enhanced by the other. For example, at events such as the High-Level Political Forum, members of the SDGWG engage with other professionals and stakeholders in a way that increases their own knowledge but also widens professional networks that may not have otherwise developed. The case study of the Mexican chinampas is a recent example of the type of cross-fertilization that formal and informal networking and advocacy can provide.

There are also limitations to what the SDGWG can do. Its advocacy must fit within wider international policy frameworks, such as the UNESCO World Heritage Convention, and its actions are currently confined within the agenda set by the SDGs. While advocating for greater awareness of certain issues, such as often overlooked water heritage like submarine cables, the working group is not a governance organization and can only advise on and work with policies that are defined and approved by political entities and states. Another limiting factor is the lack of heritage-based indicators for the two water SDGs. Without relevant data that the indicators provide, it is hard to develop evidence-based advice and education. This is shown in the example of the stepwells, where stronger indicators are needed to support efforts to promote both clean water and equal rights for people of all genders.

While there are still significant challenges being faced by water heritage, the SDGWG is developing solutions to ongoing problems. The SDGWG will continue to draw attention to the important intersection of water, heritage and sustainable development.

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