

MARSHALLESE SEAFARING AND WEAVING HERITAGE AND SUSTAINABLE COMMUNITIES

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INTRODUCTION

The Republic of the Marshall Islands (RMI) is an island nation located in the northeastern part of Micronesia in the western Pacific. It consists of 29 coral atolls and five islands, which are divided into two island chains, Ratak in the east and Ralik in the west. Its population was 42,418 in 2021 (RMI EPPSO & SPC, 2023, p. 3). The islands were frequently visited by American whaleships in the nineteenth century and underwent German (1885–1914), Japanese (1914–1945), and American (1945–1979) administrations before its independence in 1979.

The Marshallese people are known to have a great seafaring heritage, which was further developed as a result of the remoteness of the islands. Their canoes are reputed to be one of the fastest sailing canoes in the world, around 10 to 15 knots in a good wind (Mason, 1974, p. 53). This was proven in a pan-Pacific sailing canoe race held during the 6th Festival of Pacific Arts and Culture in 1992, in which the Marshallese canoe won first place. They are one of a very few island groups that still practice traditional navigation in the Pacific. Despite the decline of canoe cultures in postwar Micronesia, the seafaring heritage has been successfully revived in the RMI largely due to long-term efforts made by a local NGO, Waan Aelōñ in Majel (WAM, literally ‘Canoes of the Marshall Islands’), since its establishment in 1989. Thus, the canoe culture became the national identity.

In addition, Marshallese women are known for their skillfulness in making handicrafts (*amimōño*, a loan word from Japanese *amimono* ‘knitting’) using traditional materials and techniques. Their handicrafts are considered the most elaborate and productive in Micronesia (Mulford, 2006, p. 6; LaBriola, 2013, p. 24). They have also succeeded in reviving their traditional woven clothes (*jaki-ed*) recently.

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This research project investigated how men's seafaring and women's weaving heritage elements have contributed to the communities' maintenance and development. The project focused on those two ancient traditions' cultural, social, and economic roles in contemporary Marshallese community, as well as those two traditions' positions in the core of Marshallese culture for respective genders. The goal of the project was to develop an understanding of the intangible cultural heritage's relation with seascape and the UN's Sustainable Development Goal (SDG) 11.4: 'Protect the World Cultural and Natural Heritage.' The study was conducted to investigate the role of intangible cultural heritage (ICH) for sustainable cities and communities and the management of cultural and historical landscapes.

BACKGROUND OF THE RESEARCH

Targeted Tangible and ICH Elements

Tangible cultural heritage elements of the seafaring heritage under investigation include canoes (Figure 1), associated items (e.g., sails, masts, sail booms, ropes, bailers, paddles), building tools (e.g., adzes, axes, machetes, knives, hand planes, hand drills, hand saws, chisels, string-lines, paint brushes, sand papers, pencils), and other items (e.g., model canoes, stick charts).

Tangible cultural heritage elements of the weaving heritage include women's handicrafts (e.g., mats, ornaments, decorations) and associated tools, including pandanus leaf pounders (*drekein nin* [Figure 2]), splitting tools (*ar* or *jabwōd* [Figure 3]) for pandanus leaves, plaiting needles, and wooden molds (*monakjans*) for hats and baskets.

ICH under investigation includes the associated knowledge of those tangible cultural heritage elements. Boys and girls used to learn about canoe-building and handicraft-making respectively with other skills as members of the informal age groups in the community (Spoehr, 1949, p. 212). Knowledge and techniques of



Figure 1 Sailing canoe (©T. Nagaoka, 2023)



Figure 2 Pounding pandanus leaves with a pounder (*drekain nin*) to make them soft and pliable (Source: Spoehr, 1949, p. 135, Figure 24, right)



Figure 3 Splitting tools (*ar* or *jabwōd*) for pandanus leaves (©T. Nagaoka, 2023)

seafaring, such as canoe building and navigation, have been strictly guarded, and their transfer was regulated by each holder's governing chief (Gentz, 2018). In contrast, those of handicraft-making have been passed down freely, and generally acquired from mothers, aunties, and grandmothers without any restriction.

Target Communities

This study focused on the Majuro community and outer island communities on Majuro Atoll (Figure 4), where the capital of the RMI is located. It is the most populous atoll in the country with a population of 23,156, which is approximately half (54.6 percent) of the country's population (42,418) as of 2021 (RMI EPPSO & SPC, 2023, pp. 3, 10, Table 3). Although there is no detailed statistical data, its population includes substantial numbers of outer islander populations from different atolls, especially in urban areas, due to the location of the political and commercial center of the country. In addition, we need to note that the RMI has around one-third of the total population (about 24,000) living in the USA (United States Census Bureau, 2019) due to its status of Free Association with the country for such motives as jobs, education, health, and climate change. The urban age-sex pyramid, which includes two urban atolls (Majuro and Kwajalein) due to the limited availability of specific statistical data, is shown in Figure 5. According to the 2021 census data, gender composition is largely equal (RMI EPPSO & SPC, 2023, p. 10, Table 3).



Figure 4 Marshall Islands

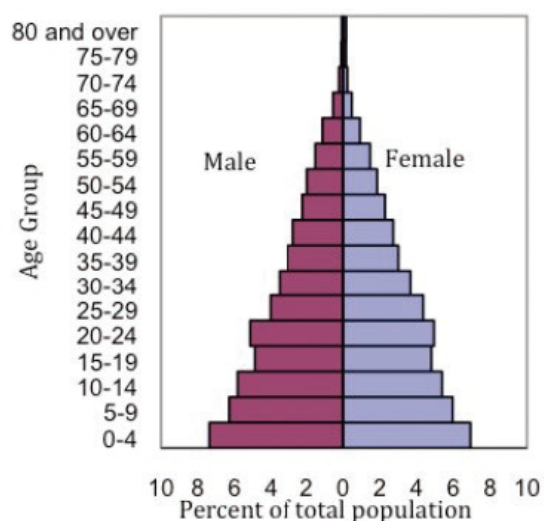


Figure 5 Urban atoll age-sex pyramid (Source: RMI EPPSO & SPC, 2012, p. 20, Figure 4.3)

Methodologies used in Research

During Nagaoka's one-month of fieldwork on Majuro from November to December 2023, on Majuro, interviews, consultations, and related activities to

hear voices from community members, including elders, ICH practitioners, youth, and women, as well as experts and local administrators, were undertaken as part of the case study. The interviews were conducted in the English language, occasionally through translators, who were at the places, based on prepared questionnaires. In addition, archival research was conducted at the RMI Historic Preservation Office, Alele Museum and Library, and the College of the Marshall Islands Library. Statistical information was gathered both online and at the RMI Economic Policy, Planning and Statistics Office. The greatest challenge of the interviews was some informants' poor English proficiency, especially elders and women. In this regard, it was difficult to explain some concepts (e.g., cultural identity) to them.

Based on FY 2023 research activities, FY 2024's activities were focused on sharing last year's research findings with the local communities. We achieved this by organizing a workshop in a public venue in Majuro on September 23th during the Manit (Cultural) Week. Besides stakeholders, the general public was also invited (Figure 6). The workshop, which was organized by Pasifika Renaissance and WAM, consisted of the following presentations:

1. Alson Kelen (WAM), 'The traditional canoeing culture in the Marshall Island'
2. Tony Alik (WAM), 'Voyage of resilience: WAM's sustainable maritime solutions in the Pacific'
3. Takuya Nagaoka (Pasifika Renaissance), 'Marshallese canoe culture and community sustainability'
4. Kimberly Hafner (Public Education System, Ministry of Education), 'IQBE and WAM canoe project partnership'
5. Kimber Rilometo (Office of Commerce, Investment, and Tourism, RMI Ministry of Natural Resources and Commerce), 'Tourism awareness'

This event was filmed and the video was shared on Pasifika Renaissance's YouTube channel (<https://youtu.be/2IsGjjsvFhg>) for those who could not participate in the workshop, including both local Marshallese people and those overseas. In this workshop, from different perspectives, the presenters stressed that this heritage remains the core of the Marshallese culture and has become increasingly important in such contexts as modernization, large-scale migration, and climate change. This workshop promoted public awareness of the significant role of Marshallese seafaring heritage: contributing to the community's sustainability and development.



Figure 6 Workshop held in Majuro, 2024 (©T. Nagaoka, 2024)

THE RESULTS OF THE CASE STUDY

Decline and Revival of Marshallese Seafaring Heritage

Outrigger canoes were previously the only watercraft in the Marshalls that were used for fishing, transporting stuff, and voyaging. Seafaring is largely men's domain, although some women also understand canoe-building and sailing techniques (Spoehr, 1949, p. 139). Women mainly operate smaller paddling canoes and assist men's canoe building in such activities as weaving a sail with pandanus leaves traditionally and preparing helpers' food. In contrast to other Micronesian societies, where canoe houses were/are men's sacred domain, according to Marshallese contemporary elders, women have been allowed to access canoe houses, and canoes are for both men and women.

Traditional single outrigger canoes are divided into three categories: (1) large ocean-going sailing canoes (*walap*), measuring up to 30 metres and capable of carrying as many as 50 people; (2) mid-sized sailing canoes (*tipnol*), measuring 3.6 to 6 metres and capable of carrying up to 10 people; and (3) small paddling canoes (*korkor*), also rigged with a sail, measuring 1.8 to 3 metres and capable of carrying one or two people (Mason, 1947, p. 53; Alessio, 1993, p. 7). The materials for canoes were traditionally obtained from the local environment. The most important of these materials include breadfruit trees for a hull, other trees for different parts, pandanus leaves for a sail, and coconut fibers for different sizes of ropes. However, many foreign materials substituted local ones more recently due to their durability and easiness of preparation, depending on their availability. These include plywood, lumbars, copper screws, nails, bolts, nylon ropes, paint, cloth, and glue (Alessio, 1991c, pp. 10–12).

Table 1 Private dwelling household by island by household goods owned in 2021 (Source: RMI EPPSO & SPC, 2023, p. 68, Table A16)

Island	Number of households	Paddling canoe	Sailing canoe	Island	Number of households	Paddling canoe	Sailing canoe
Ailinglaplap	224	35	15	Likiep	49	2	2
Ailuk	56	6	8	Majuro	3,896	40	21
Arno	217	8	3	Maloelap	83	2	2
Aur	66	0	0	Mejit	48	5	6
Ebon	105	16	9	Mili	105	2	7
Enewetak	64	0	0	Namdrik	70	17	6
Jabat	18	3	0	Namu	101	20	12
Jaluit	206	7	16	Ujae	51	0	1
Kili	82	0	0	Utirik	54	6	11
Kwajalein	1,421	2	6	Wotho	17	0	0
Lae	35	6	2	Wotje	133	1	0
Lib	22	0	0				

The prevalence of imported fiberglass and metal boats and outboard engines in the 1960s drove the canoe away from the mainstream. Young people also lost interest in their traditional culture due to the rapid Westernization after World War II. Thus, daily use of canoes largely declined on most islands, except for isolated atolls such as Namdrik and Ailuk (Miller, 2010, pp. 11–12; Genz, 2018). This situation is shown in recent statistical data (Table 1).

In 1989, WAM was initially established by American boat-builder, Dennis Alessio, who was inspired by the reconstructed Polynesian voyaging canoe, *Hōkūleʻa*'s canoe renaissance,³ to document the major designs of traditional canoes and revive ocean sailing in the RMI (Genz, 2018), which was later joined by a Marshallese collaborator, Alson Kelen (e.g., Alessio, 1989, 1991a, 1991b, 1991c, 1993; Alessio & Kelen, 1995). Later, they developed canoe-building and sailing programs, both of which played a critical role in reviving the canoe tradition in the RMI. This revival released lineage-based knowledge of canoe building and sailing from strict chiefly regulations and opened the knowledge to the public (Genz, 2018). They included modern boat building, using power tools, and fiberglass technology in their training. By merging contemporary engineering with traditional elements, they sought to build canoes with new designs (single outrigger canoes based on traditional designs and foreign double canoes and

³ *Hōkūleʻa*, a Polynesian double canoe reconstructed in 1975, successfully completed a number of experimental long distance voyages in Polynesia, using traditional navigational techniques, and became a symbol of Hawaiian cultural renaissance (Finney, 1994).



Figure 7 Canoe-building by WAM (©T. Nagaoka, 2023)

a. WAM's main workshop building, b. Inside of WAM's main workshop building, c. WAM's workshop, d. WAM's trainer making a canoe model for fundraising, e. Single outrigger canoe, using modern materials, f. Double canoe, using modern materials.

began to use easily accessible modern materials (especially fiberglass for hulls) to make canoes more durable and to conserve breadfruit trees (for hulls), which are important food trees and are often not available (Figure 7).

WAM progressed by incorporating vocational education (e.g., boat building, fiberglass technology, carpentry, woodworking) and non-formal life skills education into its programs, in response to the youth's high unemployment rate and associated social problems (e.g., substance abuse, crimes, violence, sexually transmitted diseases, teenage pregnancy, depression, suicides) (Alessio, 2006). WAM actively engages in school outreach by bringing school children into their canoe-building workshops. Sailing canoe races promoted by WAM gathered considerable public attention and have become the most celebrated cultural events in the RMI today (Genz, 2018). Races are held on such occasions as Kwajalein Liberation Day (February), Majuro Liberation Day (February), Marshall Islands Development Bank Anniversary (March), National Constitution Day (May), World Health Day (May), Marshall Islands Resort Anniversary (August), Manit (Cultural) Week (October), and President's Day (November). Competitive spirit fostered in races strengthened a sense of collective cultural pride. In addition, those races are important because they are the only occasions for most young Majuro people to encounter canoes (Miller, 2010, p. 136).

More recently, as the survival of low-lying atoll communities of the RMI face an immediate threat due to climate change-induced sea level rising, WAM began a campaign to return to traditional sustainable sea transport, which uses wind power as alternative energy and lessens dependence on fossil fuels. In their

ongoing project, four participants from each island learn how to build a fiberglass double canoe over three months at WAM. Upon learning how to sail and maintain the canoes, those vessels are transported to participants' home islands for sailing training and communal use. In another project, 25 students, who are selected based on their necessity for assistance in areas like school education and mental health, build a traditional canoe in six months. This project incorporates basic and vocational education into the program. WAM's past programs achieved considerable success not only in bringing back canoes to practical use, but also in ensuring people's understanding of canoes' importance to the Marshallese identity.

In addition to these efforts of WAM, other factors also contributed to the revival of the canoe tradition. First, as discussed, the isolation of atoll communities certainly generated the necessity of canoes. Remote atolls are only connected to urban atolls by governmental cargo-passenger ships once every several months. The only other way of connection is expensive air service. Within individual atolls, communities are spread over huge lagoons. Additionally, petrol prices are higher on outer islands than on urban atolls. Second, chiefs, who possess the canoe knowledge and control over it, are said to have a role in making sure that the knowledge is passed down to the next generations. As discussed below, the practical and symbolic importance that the canoe tradition holds in contemporary Marshallese society is the key to the survival of this tradition.⁴

Development of Marshallese Weaving Heritage

Handicrafts are culturally, socially, and economically much more important in the RMI than in other islands in Micronesia. For example, they are both casually and formally worn more often there. Further, their role as gifts (for family and community occasions) is socially more substantial. They have been a vital part of Marshallese culture for both daily (e.g., mats, ornaments) and ceremonial uses (e.g., gifts, contributions, tributes) on special celebrations for families (e.g., weddings, birthdays) or community events (e.g., church or school celebrations). Compared to residents of other Micronesian islands, much more Marshallese women engage in the handicraft production for the purpose of money income.

Weaving is generally a woman's job, while men commonly assist women's work in gathering and preparing materials (e.g., beating pandanus leaves with a heavy shell pounder). Some men also know how to weave a mat (Spoehr, 1949, p. 148) and make handicrafts themselves. Knowledgeable and skillful weavers are more than just artisans but are vessels of many important 'cultural values, skills, and knowledges, both traditional and contemporary' (LaBriola, 2013, p. 25).

⁴ The video of Nagaoka's interview to Kelen was shared on Pasifika Renaissance's YouTube channel: <https://youtu.be/AQpxwTkFBal>



Figure 8 Women's handicrafts (©T. Nagaoka, 2023)

a. Mat (*jaki*), b. Wall decoration (*obon*), c. Open basket (*iep*), d. Handbag (*iep*), e. Kili bag (*iep in Kili*), f. Purse, g. Fan (*deel*), h. Hat (*at*), i. 'Wotje's rose', j. Utrok/Majuro's 'set', k. Coaster, l. Headband (*wut*).

Women's handicraft items include mats (*jaki*), wall decorations (*obon*), open/covered baskets (*iep*), handbags (*iep*), white, finely woven so-called Kili bags (*iep in Kili*), as were originally woven on Kili Island by Bikini Islanders, who were relocated to Kili during the 1950s (Mulford, 2006, p. 22), purses, fans (*deel*), hats (*at*), ornaments of various shapes, headbands (*wut*), hair ornaments, and jewelry.⁵ Kili bags and hats are known to be difficult ones to make and only a limited number of very skillful weavers can make them. Some islands are specialized in making particular kinds of handicrafts, such as Wotje Atoll's hair ornaments called 'Wotje's rose,' and Utrok and Majuro Atolls' jewelry sets (e.g., earrings, necklaces, arm rings) called 'set' (Figure 8).

⁵ Since such handicrafts as canoe models and stick charts are predominantly made by men, they are excluded from the discussion in this study.

Marshalllese women typically gather materials for handicrafts locally. If they do not have access to them, they purchase from other people or stores. They include pandanus leaves (*maan*), young coconut leaves (*kimej*), midribs of the coconut fronds (*mālwe*), hibiscus fibers (*law*), and various types of sea shells, including popular money cowrie shells (*likajjir*), as well as imported ones such as dyes and yarns. Several types of foreign shells are also sold at a Chinese shop in Majuro. Some of them are preferred because they contain colours (e.g., purple) that local shells do not have. Those materials, which are prepared to weave or assemble into handicrafts (Mason, 1947, pp. 133–137), are also traded at stores and among weavers (Figure 9).

Handicraft making is an ancient art with modern applications. For example, since the nineteenth century, as a result of Christianization, some items such as clothing and ornaments have been largely replaced by Western goods. On the other hand, other items like mats and baskets continued to be produced for daily uses. New items, such as souvenirs and personal ornaments, were also developed for sale over time since the Second World War (Berta, 2025, p. 10, Table 1). Origins of handicraft sales likely go back to the nineteenth century when the products were sold to foreign visitors, missionaries, and artifact collectors (Figure 10) (Erdland, 1914, p. 108). Women are known to have incorporated new design patterns (e.g., German Iron Cross) (Figure 11) during the German administration (Erdland, 1914, Plate 7, cited in Berta, 2025, p. 10).

Handicraft production was promoted by colonial governments, especially Japanese and American, as part of their economic development schemes. Earlier



Figure 9 Materials for handicrafts (©T. Nagaoka, 2023)

a. Heated, dried, and pounded pandanus leaves (*maan*), b. Boiled and dried young coconut leaves (*kimej*), c. Dried midribs of the coconut fronds (*mālwe*), d. Boiled and dried hibiscus inner bark fibers (*law*), e. Foreign shells sold at a Chinese store in Majuro, f. Foreign cowry shells sold at a Chinese store in Majuro.



Figure 10 Handicrafts sold to foreign visitors, missionaries, and artifact collectors in the nineteenth century
a. Traditional clothing (left: woman, right: man), b. Traditional shell and turtleshell ornaments, c. Handbag collected in 1910, d. Fans collected in 1910 (Source: Kramer & Nevermann, 1938), e. Canoe models, probably souvenirs (Source: Nanyo Kyokai Nanyo Gunto Shibu, 1925).



Figure 11 *Jaki-ed* mat with the German Iron Cross design in the decorative band (Source: based on Erdland, 1914, Plate 7)

American Protestant missionaries and Germans may have made similar efforts, although the possible efforts were not well documented. During the Japanese administration, handicrafts were largely sold by the Japanese in its colonial center on Jaluit, or exported to Japan. On each atoll, local women were appointed by the administration to maintain standards of quality and quantity of production by the other women. These supervisors conferred with handicraft makers and taught them better techniques or new fashions as desired by the Japanese consumers (Mason, 1947, p. 132). This period is characterized by a shift in handicrafts'

orientation from cultural to commercial crafts (Berta, 2025, p. 5).

Today, Marshallese handicrafts are sold locally and globally. Since the number of foreign visitors has been small due to the RMI's remoteness, it is possible to assume that local Marshallese have always been the main consumers. Although there is no statistical data to support this, handicraft suppliers agree that the demand for handicrafts has been growing steadily, especially for overseas sales, particularly after the escalation of outmigration from the 2000s. Marshallese handicrafts are sent not only to other Pacific islands (including Pohnpei, Guam, Hawaii, New Zealand, and Australia), but also to the USA on a larger scale. This Marshallese-USA connection is mainly due to the Marshallese outmigration to the USA. A few handicraft shops sell their items to their customers in the USA online, simply by advertising their products through social media (e.g., Facebook), without using an e-commerce platform. In addition, many handicraft makers also advertise their products through social media and send them directly to their customers in the USA independently.

Berta (2025, p. 5) discusses that there are three meaningful categories of Marshallese, based on distinctive attitudes toward handicrafts: rural, urban, and diaspora Marshallese. Outer islanders (rural) make, sell, and use (e.g., wear, display, gift) handicrafts, but they do not usually buy them for money. Urban people also make, sell, and use them, but many also buy them due to limited access to raw materials, time constraints, lack of skills, and the availability of money. In diaspora communities, handicrafts are in high demand and serve as 'material expressions of cultural belonging more conspicuously than in the RMI itself.' The handicraft variety is expanding mainly to accommodate the needs and tastes of the main consumers: urban and diaspora Marshallese (Berta, 2025, p. 11).

In Majuro, there are five handicraft shops. Additionally, a few other stores and supermarkets also sell handicrafts. These shops buy products from Majuro residents. Some also have agents on outer islands to trade with local producers. Many Majuro women make handicrafts at their homes, while four handicraft shops employ a few women to make them at their shops. Since handicraft-making does not require large-scale cooperation, households are generally the unit of production. However, in the case of occasions such as government or aid-funded workshops, community members loosely form a work group. Marshall Islands Association of Handicraft Businesses, which consists of five handicraft shops, has occasionally organized handicraft-making workshops for girls in the past.

Jaki-ed Revival

Finely woven and intricately and symbolically designed mats (*jaki-ed* or *nieded*) are a masterpiece of Marshallese women's weaving (Figure 12). These mats of

pandanus leaves were used for clothing and ceremonial gifts. The production declined after trade cloth was introduced and stopped after World War II. Irene Taafaki, then Director of the University of the South Pacific (USP) Marshall Islands Campus, and traditional leader, Maria Kabua-Fowler, began to collaborate on the revival of *jaki-ed* with the patronage of Irooj (Paramount Chief) Michael Kabua in 2006 (Taafaki, 2013). Weavers learned detailed techniques by examining photos of nineteenth-century mats held at various overseas museums. New mats were woven for selling at annual auctions, which began in 2007. Then, the *jaki-ed* workshop programme began for ten young women at USP, not only teaching weaving but also giving the apprentices basic skills in finance and running a business in 2011. The two created a virtual museum in 2013 (Jaki-ed Revival Program, 2013) and published a book on *jaki-ed* in 2019 (Taafaki & Fowler, 2019). By now, the program has trained over 200 young weavers around the country, and continues at the College of the Marshall Islands, where a master *jaki-ed* weaver manages the weaving space, supervises weaving internships, and teaches weaving classes (Figure 13). This revival generally succeeded in elevating the cultural significance of weaving (Berta, 2025, p.11).



Figure 12 Finely woven and intricately and symbolically designed mats (*jaki-ed* or *nieded*) (©T. Nagaoka)
a. and b. *Jaki-ed* displayed at the Alele Museum.



Figure 13 *Jaki-ed* weaving demonstrated by Resident Weaver of the College of the Marshall Islands, Susan Jieta (©T. Nagaoka, 2024)

DISCUSSION

Seafaring Heritage's Significance and Sustainability

Related to the basic question of the canoe heritage's contribution to community sustainability, seafaring heritage holds practical and symbolic significance in the contemporary Marshallese society. That is, canoes are used daily for subsistence activities on rural atolls, while they are connected to the symbolism of cultural heritage and maritime identity on urban atolls (Gentz, 2018). Generally, the Marshallese people and ICH practitioners, particularly canoe builders, emphasize the importance of canoes for their practical side, especially as petrol prices rise. Here, the continuity of the canoe-building tradition is threatened by several inter-related factors, such as the lack of interest among young people, the continuing outmigration trend, the lack of large trees suitable for canoe hulls, and climate change.

In contrast, WAM's staff and other government officials in the cultural sector stress canoes' meaning in the formation of cultural identity. In the three-decade process of the canoe tradition revival, this tradition firmly became the core of cultural revitalization and provides the people with the pride of seafaring people today. Some exemplify a proverb originated from the creation legends of the Marshalls, in which the canoe symbolizes community unity: *'Wa kuk, wa jimor. Waan kōjipān koj, waan kōkkure kōj. Waan jokkwier'* ('Canoe to bring us together, canoe belonging to everyone. Canoe to help us, canoe to destroy us. Canoe to give meaning to our lives') (Miller, 2010, p.8).

Similarly, wind-powered canoes reduce the country's reliance on fossil fuels to fight climate change. Further, the canoe tradition's symbolic importance is thought to become greater during this hardship of climate crisis. The canoes can be placed at the centre of awareness and campaign activities about climate threats within the country and toward the world.

RMI Public School System's (PSS) curriculums of Marshallese studies, Marshallese Language Arts, and Social Studies have been continuing to introduce aspects of traditional culture, including the canoe tradition. Recently, PSS started to develop a one-week curriculum to incorporate the canoe culture in school education in collaborate with WAM. While WAM firmly positions the traditional canoes in the center of their educational programs, it has flexibly modified canoe designs and adopted new technology in canoe building. They will continue to do this to ensure the sustainability of the canoe tradition in the future world.

Revival of Voyaging Tradition and Seascape

In the pre-contact period, the Pacific Islanders interacted with other islands for purposes including obtaining resources not distributed on their home islands, ensuring a lifeline against disasters (e.g., typhoons, droughts), and securing marriage partners. The atoll communities in the Marshall Islands were interconnected through inter-island voyaging (Spennemann, 2005), which is seen in the homogeneity of the Marshallese language spoken on those atolls in a vast region. Indigenous perception of the seascape is understood as a living worldview with associated legends and stories of ancestors and spirits and geographical and environmental knowledge of seamarks (e.g., waves, currents, fishing areas, marine lives), which provide moral and cultural norms and utilitarian information (e.g., subsistence, seafaring) (Ahlgren, 2016, p. 79; Genz, 2018). For Marshallese seafarers, it is represented in stick charts (Figure 14), a navigational learning tool, which indicates ocean swell patterns (Krämer & Nevermann, 1938).

German and Japanese colonial administrations maintained regular steamer operations and banned inter-atoll voyages, which resumed after World War II (Mason, 1947, pp. 5, 58). Nuclear testing that took place in the country in 1946–1958 led to multiple dislocations, which affected the people's patterns of movement and settlement and changed the landscape and seascape (Ahlgren, 2016, p. 22). Currently, inter-island traveling almost exclusively relies on modern transportation, such as regular air services and infrequent governmental cargo-passenger ships. Outer islands are largely self-sufficient and their islanders mostly use cheaper ship services except for urgent cases. Voyaging tradition has largely declined in the postwar period but after a long gap, in 2015, this nearly lost esoteric art was revived with a successful WAM-facilitated voyage, which received considerable media attention. The revival of canoe building and sailing has reformed the Marshallese people's ancestral identity as the people of the sea (Genz, 2018). This also contributed to their maintenance of traditional seascape as part of their heritage.

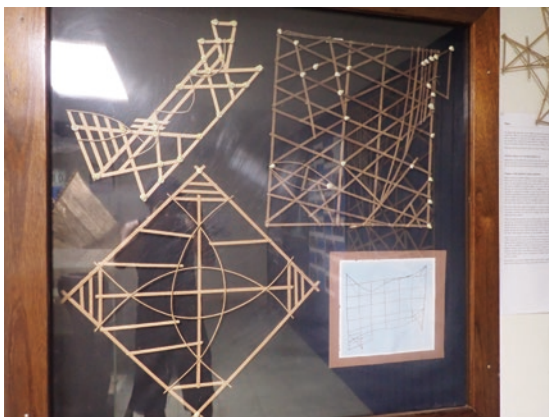


Figure 14 Various stick charts displayed at the Alele Museum (©T. Nagaoka, 2023)

Weaving Heritage's Economic Importance and Sustainability

Contemporary handicraft practitioners all agree on handicrafts' economic benefits, cultural importance, and the importance of passing down this heritage to the younger generation in order to keep the culture alive in the future. In the Marshall Islands' economy, handicrafts are one of the only few possibilities for commercial development besides fishing and copra due to limited resources and remoteness, as pointed out by an early postwar American anthropologist (Mason, 1947, p. 4) as well as a recent statistical report (RMI EPSSO, 2018, p. 59). Among those industries, handicrafts and copra are two major commodities. Especially, handicraft making is women's main income, as half of the rural households engaged in it (Table 2). In 2000, an estimate of the Gross Domestic Product (GDP) for handicrafts was 396,000 US dollars (0.4 percent) and their amount of export was 10,000 dollars (RMI EPSSO, 2001, p. 68, Table 8.2; p. 88, Table 11.3). It is possible, however, to earn more money with handicrafts than with copra or other domestic products. For this reason, households involved in handicraft activities or receiving remittances tend to be at a low risk of food insecurity. In contrast, those involved in selling copra, fishing, or livestock activities tend to be at a high risk (Troubat & Sharp, 2021, p. xi), suggesting the stable income that comes with handicraft making.

Considerable efforts have been made to promote women's handicraft production. The revival of *jaki-ed* discussed above is such an excellent example of women's enthusiasm. RMI Ministry of Natural Resources and Commerce and RMI Office of Commerce, Investment and Tourism have been supporting women's development in the handicraft industry through workshops and other opportunities. One of these includes a plan to create an e-commerce platform that outer island women can participate in. Some outer island communities held workshops to train young weavers in both weaving techniques and business skills, using funding from the RMI National Training Council. Weaving is officially incorporated into the Social Studies curriculum and is taught from the first grade at local elementary schools.

Due to its important social function, the art of handicrafts firmly continues despite threats such as modernization and outmigration trends. Additionally, climate change threatens the heritage, as hotness damages pandanus leaves and

Table 2 Households by agriculture activities by rural and urban sectors in 2011 (Source: Based on RMI EPSSO & SPC, 2012, p. 77, Figure 11.15).

	Growing crops	Fishing	Raising livestock	Making copra	Handicrafts	Others
Rural sector	87.2%	88.7%	86.2%	65.3%	46.6%	1.2%
Urban sector	60.1%	51.1%	36.6%	5.1%	9.3%	1.1%

other plants. Further, the rising sea level is also a threat, as it changes the gathering locations of material shells. Marshallese women not only keep their traditional knowledge and skills but continually adopt new materials, techniques, and approaches as necessary and appropriate for changing needs, styles, and resources, using their creative ideas and elements (LaBriola, 2013, p. 26). Thus, handicraft-making actively contributes to the community's sustainability and development not only economically but also socially and culturally.

Seafaring and Weaving Heritage and Tourism

After deducting transit and stopover passengers, the 2009–2017 true total annual average visitor count to RMI was 4,775.6, and 'holiday/vacation' visitors' annual average count was 1,495.8 (RMI EPSSO, 2018, p. 101). Although tourism is included in the RMI government's top development priorities, along with marine resources and agriculture (Asian Development Bank, 2001), its impact on the country's economy seems to be relatively small. However, buying local handicrafts at souvenir shops and adventuring on WAM sailing tours in the lagoon will contribute to local economy. For example, WAM sailing excursions earn around \$1,200 per month on average. The seafaring and weaving heritages also offer visitors positive cultural experiences and education. For example, in addition to those activities mentioned above, visitors can learn about Marshallese culture at the Alele Museum. Further, tourism activities build local pride towards the Marshallese culture and sustain traditional practices. Thus, these cultural heritage elements not only contribute directly to the local economic development but to the growing tourism industry of the RMI.

CONCLUSION

Traditionally, in many Pacific Island cultures, seafaring heritage is the most important element for men, while weaving heritage is the most important for women. However, these practices have been eroding in most islands because of postwar modernization. This study clearly illustrates that those heritages remain the core of Marshallese culture, signifying the continuity of ancient heritage. It is important to note that these heritages were maintained through the Marshallese people's efforts and have contributed to SDG 11 ('Make cities and human settlements inclusive, safe, resilient and sustainable'), by maintaining and developing the Marshallese community practically (economically) and symbolically. Those heritages also have been exerting positive influence on such contemporary social issues as youth problems, poverty, emigration trends, and climate change.

There is consensus among the contemporary Marshallese people that their traditions and indigenous practices need to be revived or retained, replacing some foreign elements of their lifestyle with traditional ones (Miller, 2010, p. 117). To

deepen our understanding of ICH's contribution toward SDGs, resulting from this study, we need further investigations about how the three categories of people (rural, urban, and diaspora Marshallese) hold different perceptions toward those heritages. We can do this by comparing rural people (the main ICH practitioners) with the other two categories (the majority of the population). In addition, follow-up studies on the relationship between those heritages and the community development will enrich our understanding of the importance of ICH.

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