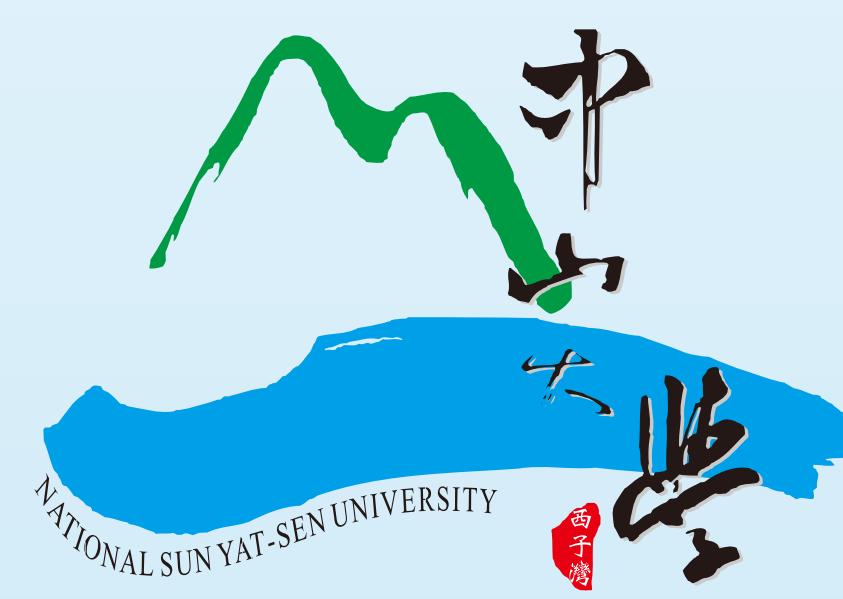


Marine Protected Area Management: Enhancing Effectiveness through Stakeholder Participation in Taiwan and Japan



Shu-Chiang Huang¹, Mitsutaku Makino² and Yi Chang³

¹ International Doctoral Program of Marine Science and Technology, National Sun Yat-sen University, Kaohsiung, Taiwan. E-mail: shuchiang.huang92@gmail.com

² Atmosphere and Ocean Research Institute, The University of Tokyo, Chiba, Japan

³ Graduate Institute of Marine Affairs, National Sun Yat-sen University, Kaohsiung, Taiwan



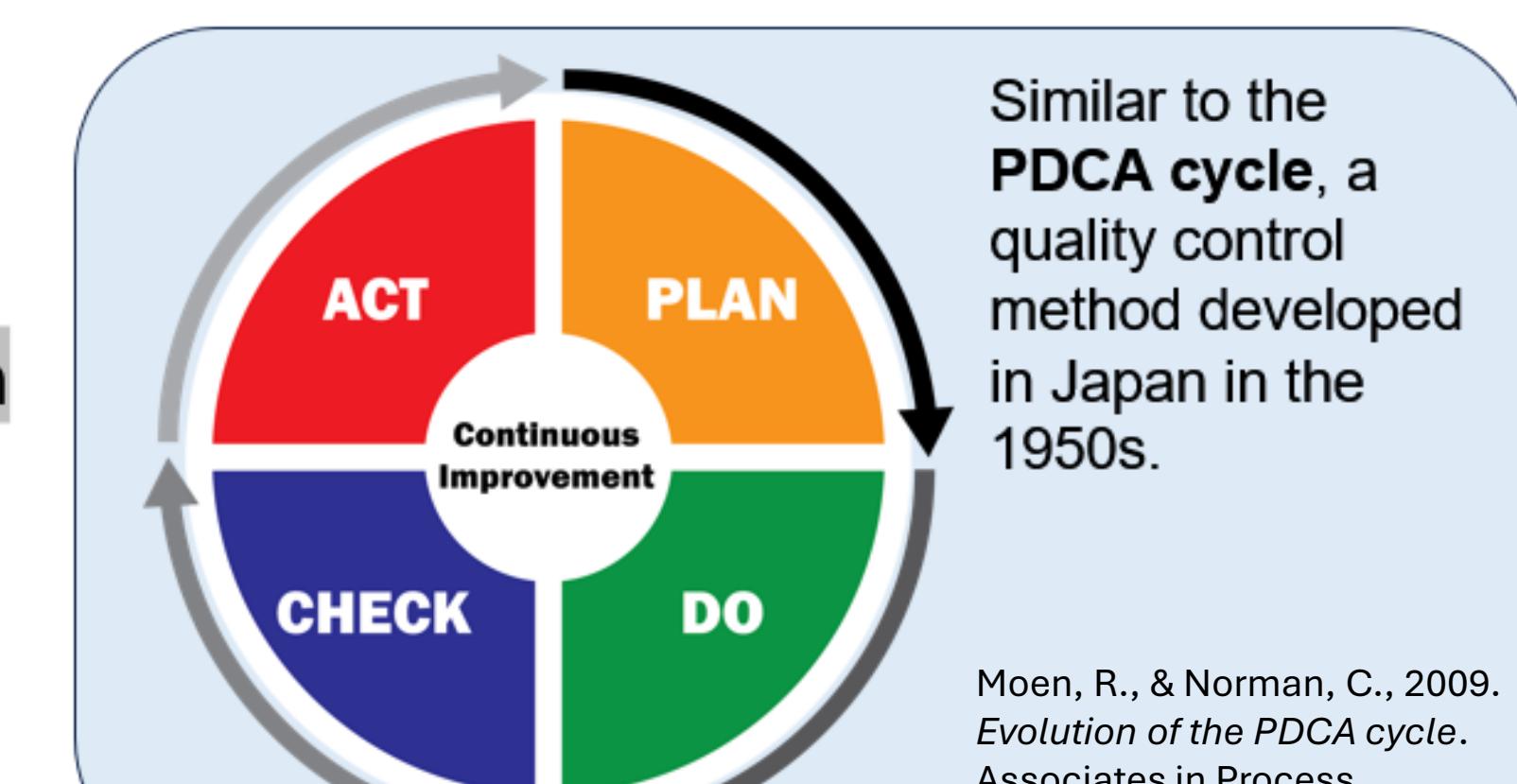
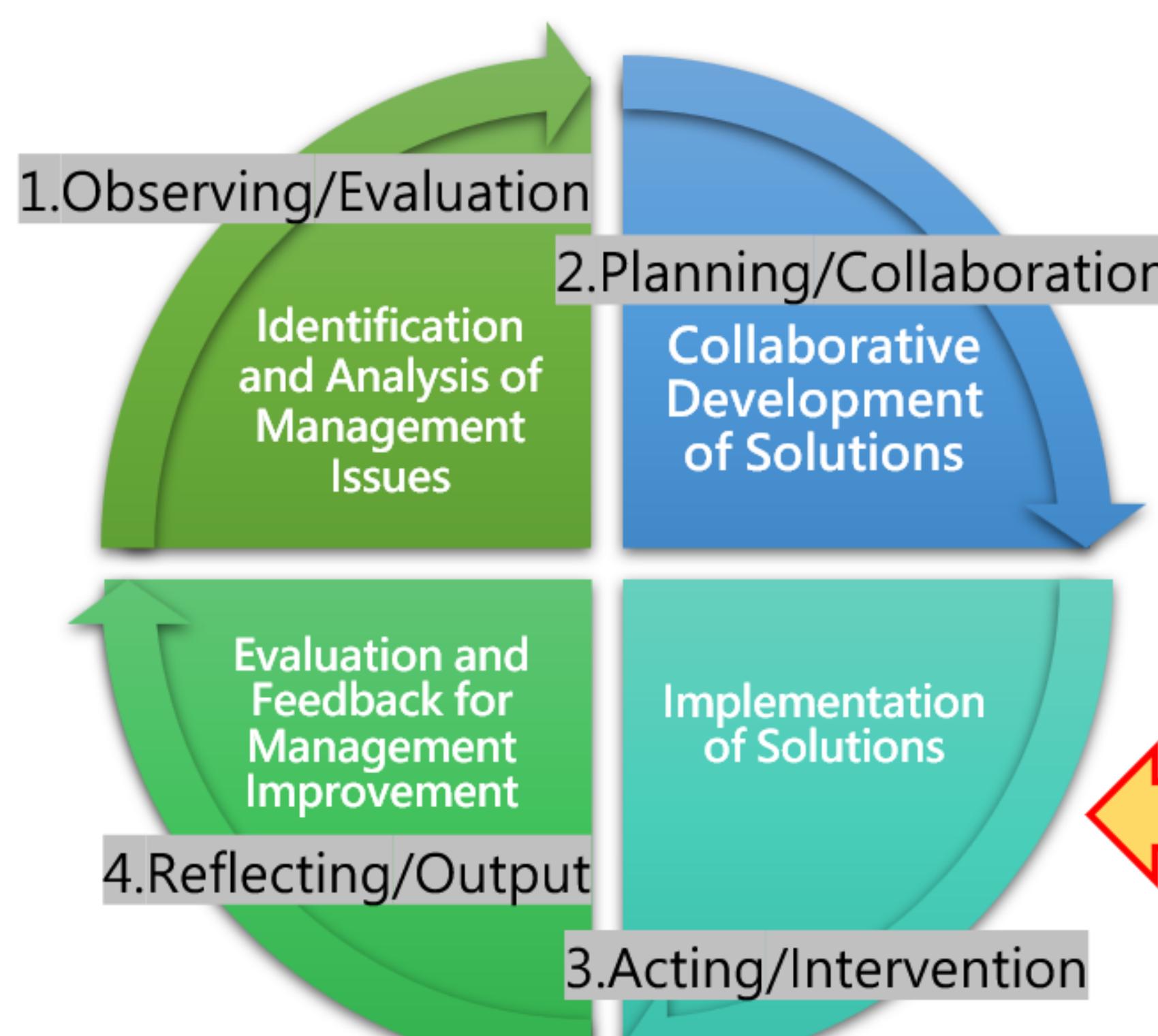
Scan for the Digital Business Card



Background

- To explore how stakeholder participation can improve management effectiveness in Marine Protected Areas (MPAs) governance in Japan
- The Management Effectiveness Evaluation (MEE) examines how well MPAs achieve their ecological, social, and governance objectives¹⁾. While MPAs are essential conservation tools, their effectiveness largely depends on meaningful stakeholder participation throughout the processes of planning, evaluation, and adaptive management²⁾**
- A systematic review of 281 global MEE studies (1994–2023) revealed that **only 12.7% engaged stakeholders beyond evaluation stages**, indicating a gap in translating assessments into actions³⁾
- Action research** in Taiwan demonstrated how collaboration among stakeholders can lead to significant governance improvements²⁾

Action Research



Focusing on communication and collaboration with stakeholders (Education and Learning)

Lewin & Kurt, 1946. Action research and minority problems. *J. Soc. Issues* 2, 34–46.

Successful Case Study in Taiwan

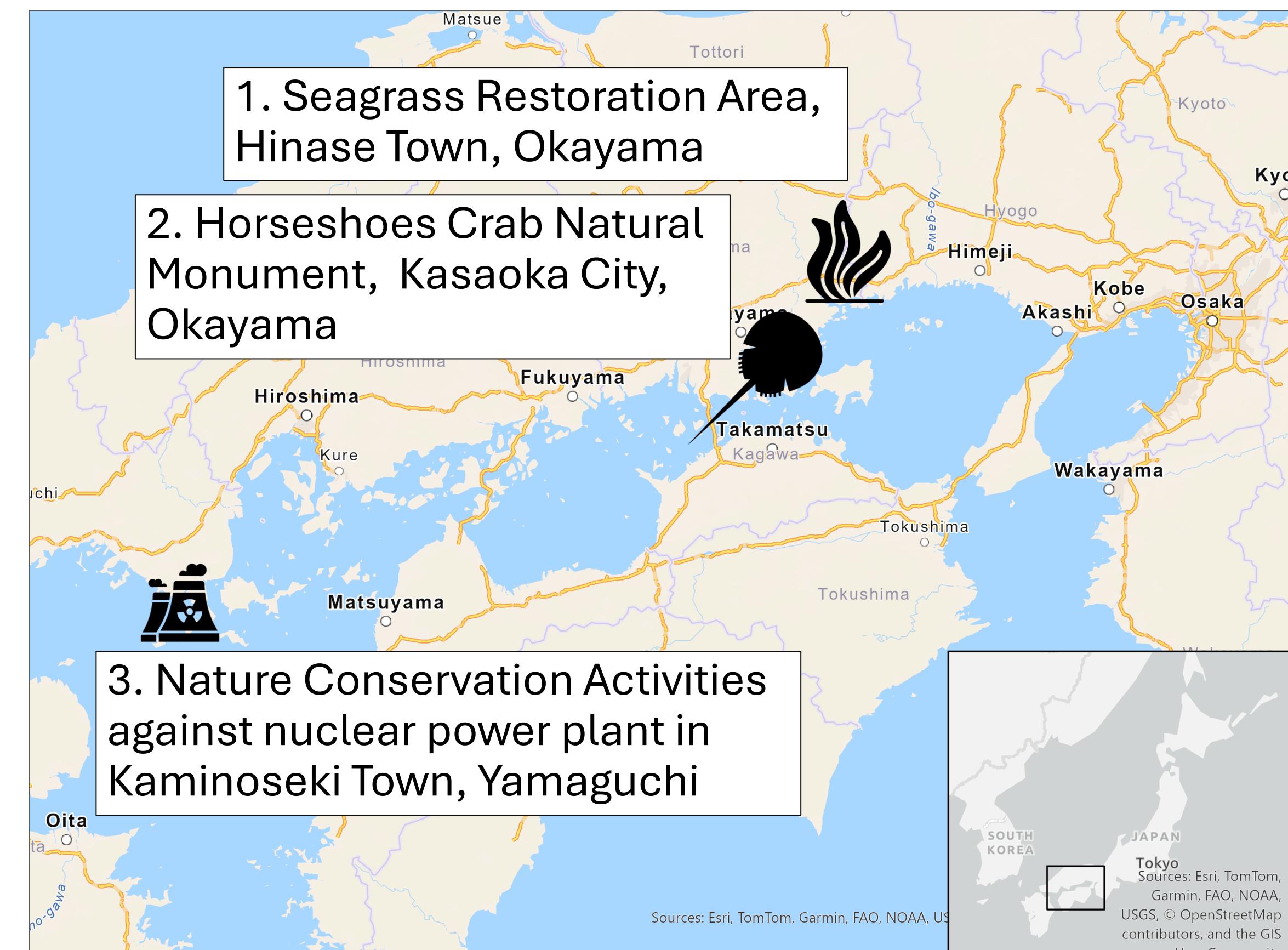
Local collaboration turned evaluation results into tangible conservation outcomes.²⁾

Location: Qimei Conservation Zone, Penghu County, Taiwan



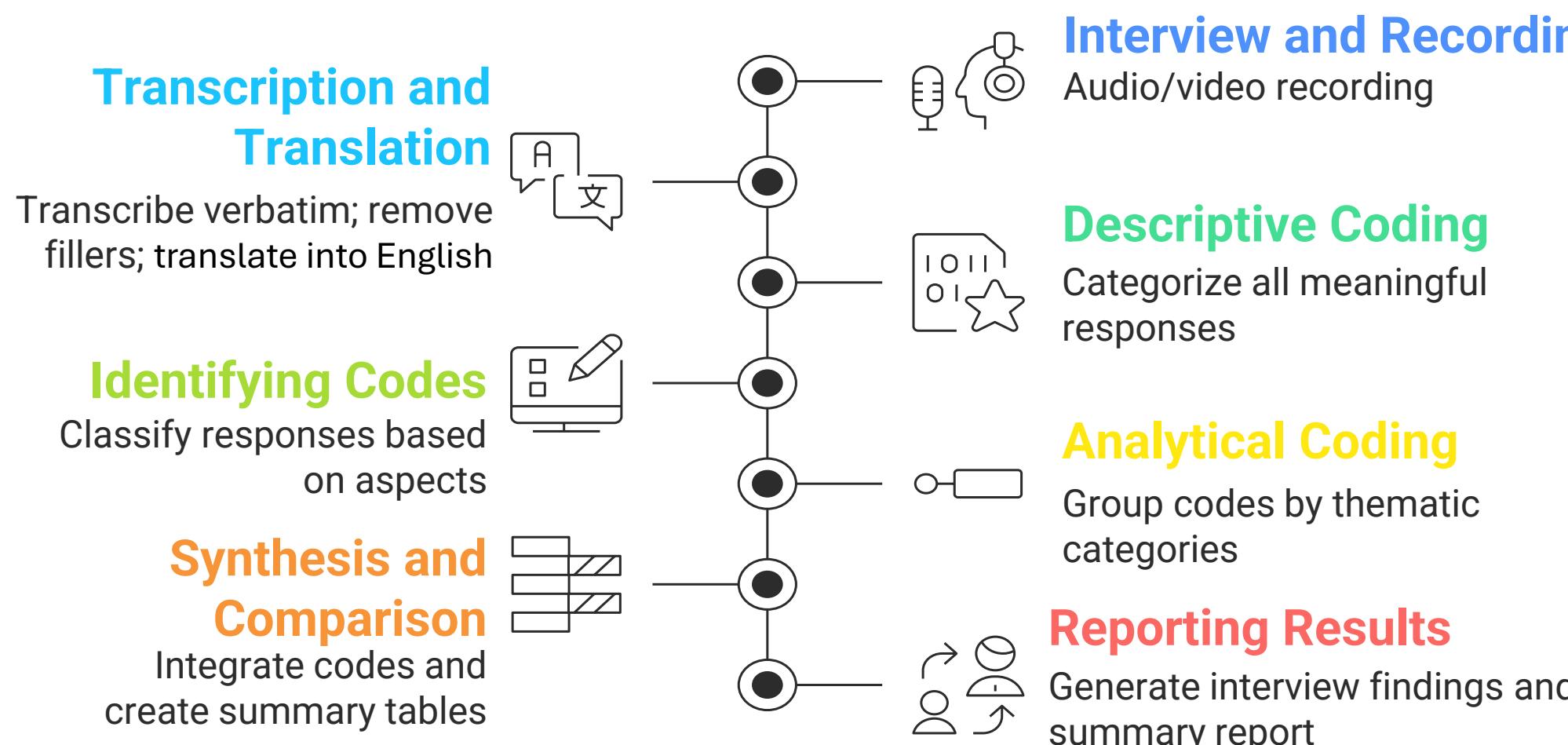
Ongoing Case Studies in Japan

Focuses on three coastal community case studies in Japan to examine participatory MPA governance.



Materials & Methods

Semi-structured and focus group interviews were conducted and analyzed⁴⁾, supported by literature reviews and on-site visits.



Enabling factors were synthesized through cross-analysis of stakeholder interviews and insights from a prior systematic review on MPA effectiveness evaluation³⁾.

Conclusion

Stakeholder participation is central to effective MPA governance. Comparative insights from three Japanese cases highlight that:

- Local leadership and program continuity** (e.g., satoumi councils, museum-led programs) anchor long-term community-based management.
- Citizen science, youth education, and intergenerational engagement** foster lasting stewardship and ecological awareness.
- Cross-sector collaboration** among fishers, NGOs, municipalities, and scientists bridges capacity gaps and enhances co-management effectiveness.
- Place-based identity and grassroots mobilization** play a vital role in sustaining momentum and ensuring social legitimacy of conservation efforts.

Stakeholder Roles and Enabling Factors for Effective Management

Enabling Factors

Hinase ^{5,6)}	Kasaoka ^{7,8)}	Kaminoseki ^{9,10)}
Collaboration 	Deep co-management with fishers Shared monitoring and restoration planning ensure ecological and economic goals align.	Expand fisher-museum monitoring Ongoing partnerships between the museum and local fishers enhance data accuracy and trust in species protection.
Citizen Involvement 	Seeding & Education Participation Residents, and companies join eelgrass planting and learning programs, fostering responsibility and awareness of coastal restoration.	Strengthen roles in conservation events Public participation in breeding and release activities builds awareness and ownership.
Program Leadership 	Fisher-led satoumi council Local fishers manage decision-making, demonstrating bottom-up governance in practice.	City & museum-led program Municipal initiative ensures institutional continuity and resource allocation.
Long-term Engagement 	Youth engagement & visible seagrass recovery Hands-on results motivate sustained local commitment and learning.	Long-term school and fisher participation Intergenerational programs nurture lasting stewardship of the coastal environment.
		Strong public mobilization and local identity Collective resistance and pride in place sustain conservation momentum.

References 1) Pomeroy, R. S., Watson, L. M., Parks, J. E., & Cid, G. A., 2005. How is your MPA doing? A methodology for evaluating the management effectiveness of marine protected areas. *Ocean & Coastal Management*, 48, Issues 7–8, pp. 485–502. 2) Huang, S.-C., Chang, Y., & Chang, S.-K., 2024. From regional effectiveness evaluation and community engagement toward effective marine protected areas. *Ocean & Coastal Management*, 269, 107938. 3) Gibbs, G. R., 2025. *Analyzing qualitative data*. SAGE Publications, Ltd. 5) Tanaka, T., 2018. The 30-year journey of Satoumi creation in the Seto Inland Sea: Toward a new future. Lecture materials, NPO Satoumi Creation Council. 6) Yanagi, T., 2021. Seagrass bed restoration by fishermen at Hinase in Japan. In: *Proceedings of the International Workshop on Integrated Coastal Management and Satoumi Concept*, pp.121–122. International Center for Environmental Management of Enclosed Coastal Seas (EMECS), Kobe, Japan. 7) Seino, S., Ueda, T., Tsuchiya, Y., & Tsuchiya, T., 2002. Conservation history of horseshoe crab *Tachypleus tridentatus* and its spawning ground assigned as a natural monument in Kasaoka Bay in Okayama Prefecture. *Proceedings of the Coastal Engineering Journal of Japan Society of Civil Engineers*, 18, 551–556. 8) Watanabe, S., Yoshikawa, H., Azumakawa, K., Morinobu, S., & Souji, N., 2020. Population structure and growth of juvenile tri-spine horseshoe crabs released on the Kohoshima tidal flat, Kasaoka, eastern Seto Inland Sea, Japan. *Japanese Journal of Conservation Ecology*, 25, 287–295. 9) Yamaguchi, T., 2011. The Kaminoseki Nuclear Power Plant: Community conflicts and the future of Japan's rural periphery. *Asia-Pacific Journal*, 9(41), e3. 10) Ankei, Y., & Ankei, T., 2024. Biocultural diversity of Suonada in Japan: toward the survival of the 'Sea of Miracles'. *Yamaguchi Prefectural University Graduate Studies Bulletin*, 17(25), 633–650. Yamaguchi Prefectural University Press.

Acknowledgements This research is funded by the Ocean Conservation Administration, Ocean Affairs Council, Taiwan (R.O.C.), and the Department of International Cooperation and Science Education, National Science and Technology Council (NSTC).

