

Case Study

Empowering voluntary approaches for environmental sustainability and resilient communities: a case study from Okinawa, Japan

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Abstract

What can government do to secure environmental sustainability and resilient communities? We discuss an emerging policy approach in natural tourism resource management in the Okinawa Prefecture using the case of the 'Conservation and Use Agreement' (CUA, hereafter) defined in the *Act on Special Measures for the Promotion of Okinawa*. The CUA is the certification by the Governor of Okinawa Prefecture, which endorses the self-regulation concluded by site-level eco-tour operators. We analysed the legal and administrative structure of the CUA and the implementation process of nine (existing/expired) CUA cases based on thorough literature reviews and in-depth interviews. We discuss three points from the analysis. Firstly, the number of CUAs remains small because of its huge transaction costs compared to the benefits of the status. Secondly, the CUA generally works as a precaution; however, it is not effective for solving the existing overuse issues for its voluntary characteristics. Thirdly, the administrative resources need to be strengthened for better communication with operators to further enhance the implementation.

Keywords Ecotourism · Over-tourism · Responsible tourism · Governance · Co-management · Transaction cost

1 Introduction

Overuse of Natural Tourism Resources (NTR, hereinafter) is a problem from both environmental and economic aspects [1–3]. Overuse causes the degradation of ecosystem services and NTR, which impairs the quality of users' experiences [4–6]. This will cause negative impacts on the tourism industry and local communities such as congestion, unstable tourist numbers and consequently vulnerable employment [1, 3]. As Tourtellot [7] describes tourism as 'part threat, part hope', proper management is indispensable to achieving environmental sustainability and resilient communities [8]. In the same spirit, Saarinen [9] acknowledges community-based natural resource management approaches in the tourism context as pathways to sustain symbiotic relationships between wilderness conservation and livelihood since humans (tourists) are part of nature and tourism has an essential role in bringing them closer in a sustainable way [9, 10].

Tourism activities in national parks and protected areas are relatively better planned to prevent the degradation of the natural environment from tourism impacts [2]. Nevertheless, some of them face similar challenges, for instance, Wang et al. [11] highlighted the first indication of environmental depletion in China's protected areas due to intense tourism activity during the peak summer season. NTRs, however, do exist 'beyond the boundary' of the protected areas and are prone to be more vulnerable because of the lack of regulations and responsible authority [5]. Tanaka [12] argues that conservation of 'beyond the boundary' will face complex land ownership, overlapping and fragmented laws and institutions. Consequently, diverse stakeholders increase the transaction costs for making rules and their implementation.

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Furthermore, the public sector is often hesitant to take action because of the limited administrative resources compared to its huge transaction costs [13].

Increasing global tourist trends and the strong influence of social media (e.g., TikTok or Instagram) causes NTRs situated 'beyond the boundary' of protected areas to be more affected by sudden overuse problems [14, 15]. For instance, Cape Maeda in the Okinawa Prefecture was not well known even to local people some 20 years ago; however, it became a booming destination after being named the 'Blue Grotto', and now it is chronically facing overuse issues [16]. The emerging influx of tourists to island destinations places an environmental burden on nature. For example, managing tourism-led human waste in Pinaisara Falls of the Iriomote Island, a recently designated UNESCO's World Natural Heritage Site in 2021 [17], lays sociocultural disturbances in parts of the local community in Okinawa such as crowds of tourists and commotion around local residences [18].

In many countries, conservation of the natural environment has been considered 'public matters', which cannot be solved by market mechanisms because of its rivalry and excludability characteristics [4]. In most countries, national parks or wildlife conservation areas are strictly controlled by various measures including licences, permits, or reservation systems [19–21]. In Japan, however, nature-based tourism is largely implemented in a 'laissez-faire' manner no matter the area. Tanaka [13] argues the reasons behind the laissez-faire policy include weak government represented by a lack of administrative resources and weak regulatory power, complex land ownerships, overlapping laws and institutions, and diverse stakeholders. Accordingly, eco-tour operators often establish cooperatives or unions introducing their self-regulation to protect the NTRs and to be excluded or differentiated from free-riders who do not follow the rules [22, 23]. However, self-regulation often does not work because it cannot practically exclude free-riders due to its voluntary characteristics. Management of NTRs often lacks the conditions of successful self-governing institutions of common-pool resources introduced in Ostrom [24, 25] represented by clear boundaries of resources, accurate information, stability of user groups, common understanding of resources, generalised norms of reciprocity and trust as initial social capital, as well as plans to live and work in the same area for a long time. NTR users have higher complexity including foreigners, tourists and local people as well as eco-tour operators who do not share a common understanding of resources, who lack the generalised norms and trust, and will not work/live in the same area for a long time.

Here the global challenge is 'What can government do to secure environmental sustainability and resilient communities utilising the vigour and initiatives from the private sectors?' This study aims to shed light on the legal and administrative mechanism of an emerging policy approach in NTR management in the Okinawa Prefecture using a case of 'Conservation and Use Agreement' (pronounced *Hozen-Riyou Kyoutei* in Japanese / CUA, hereafter) defined in the *Act on Special Measures for the Promotion of Okinawa*, and to identify the key challenges in its implementation. Specifically, we expect to deliver a comprehensive discussion on what factors contribute to the CUA's initiation, continuation, and/ or non-renewal. As of May 2022, five CUAs exist, while four CUAs are already expired (details of the agreements are elaborated in Sect. 4). CUAs can be perceived as a bottom-up approach based on public-private partnership, whose contents are initiated by site-level tourism operators and acknowledged by the prefectural government to uphold the use of natural resources in tourism sustainably and responsibly. A similar voluntary agreement is the tourism-related Marine Conservation Agreement in Fiji, found beneficial for tourism, biodiversity, indigenous well-being, and fisheries management [26].

In this study, we specifically take the Okinawa Prefecture because the Act and its CUAs are only applicable in the Okinawa Prefecture. Furthermore, the northern part of Okinawa Main Island and the Iriomote Island in the Okinawa Prefecture are on the World Heritage List as of July 2021, for their significant natural habitats and in-situ biological diversity. This event will attract more visitors seeking nature-based tourism in the Okinawan Islands. Indeed, the International Union for Conservation of Nature (IUCN), the advisory body of the UNESCO World Heritage Convention, recommended that the Japanese Government 'cap or reduce levels of tourist visitation from current level' [27]. Every effort is required to control the negative impacts of tourism visitation in the Okinawan Islands. In this light, our findings are expected to inform regional authorities regarding the current and potential issues in the context of CUA, so as to formulate proper countermeasures accordingly.

NTRs are defined in this article as 'tourism resources related to the habitat of fauna and flora or other natural environments', following Article 2.1 in the *Ecotourism Promotion Act 2007* in Japan. NTRs are represented by, for example, small rivers for kayaking or canyoning, coral reefs for diving or snorkelling, underground rivers for caving, trekking routes for hikers and/or rice terrace for sightseeing. Those are important resources for the local economy and biodiversity.

This paper is structured as follows. Section 2 elaborates on the methodology of the study, Sect. 3 expands on the background, and the legal structure of the CUA, Sect. 4 explains the status of CUAs, Sect. 5 discusses the challenges of CUAs, and Sect. 6 concludes the future pathways of the CUA, including the implications toward developing countries.

2 Methodology

This paper takes multiple approaches. One is a thorough literature review including reports, informal meeting minutes, and internal documents obtained from interviews. For formal information, we relied on the *Operational Guidelines of Conservation and Use Agreement (Operational Guideline, hereafter)* published by the Okinawa Prefectural Government in 2013, the latest version as of May 2022. We conducted in-depth interviews with the officials of the Okinawa Prefectural Government and eco-tour operators completing the CUA. We chose the interviewees from the formal focal point of the CUA, the 'Representing Operator' in the Act since this person initiated the CUA and is aware of the process of conclusion, daily management, monitoring, and key issues of the framework onsite. We contacted the operators directly to meet in person for interviews. Importantly, we interviewed the CUA operators, the potential CUA operators, and those expired CUA operators, to better understand the issues related to the programme. The list of interviewees and details are shown in Table 1. We interviewed four different officials in the Division of Nature Conservation, Okinawa Prefectural Government from the start of the study in 2014 because persons in charge of the CUA usually change positions every 2 years based on the Japanese administrative practice. We repeatedly interviewed certain key informants during the period 2014 to 2022. Those multiple interviews were necessary to understand the continuously changing CUA status. For example, we included the latest expired CUAs in 2022 to include updated information. We also visited the CUA sites to build trust with the interviewees and to better understand the local context and site-level implementation.

Face-to-face interviews were selected as the main method in this study because local-level tour operators are not usually accustomed to academic interviews and they feel more comfortable talking in person. Data sources will be specified in the main sections with the details of the interviews including date and year. Interviews with the Representing Operators are semi-structured, but not limited to the given topic to fully understand the real motivations behind the conclusion of the agreement and current issues. Semi-structured questions include: 1) How and why they applied for the CUA status (including how they knew about the CUA); 2) Evaluation of the CUA (how do they evaluate the CUAs after conclusion or expiration); 3) Issues with the CUA from a daily management perspective; 4) Communication with Okinawa Prefecture and other stakeholders; 5) Any other matters. We started from the beginning for interviews since little is known about the site-level implementation of the CUA.

Finally, we discussed our results by analysing the project implemented from 2012 to 2014 by the Okinawa Prefectural Government and complemented our findings from resource management literature that provide insights into the rational decision-making under complex interactions among stakeholders to reveal the potential improvement of the CUA.

3 Background and legal structure of the Conservation and Use Agreement

3.1 Background of the Conservation and Use Agreement

The CUA is defined in Articles 21–25 of the *Act on Special Measures for the Promotion of Okinawa 2002* (the Act, hereafter). The Act was originally enacted in 1972 after the retrocession of Okinawa islands from the US to Japan (the Okinawa islands were occupied by the US after Japan's defeat in World War II). The Japanese Government has been strongly supporting the promotion and development of the Okinawa Prefecture based on the Act because of the various disadvantages, such as remoteness from the Japanese main islands, the heavy concentration of US military bases, and the sub-tropical climate prone to many typhoons and the humidity [28]. The original name of the Act was the *Act on Special Measures for the Promotion and Development of Okinawa*; however, the term 'development' was omitted in the 2002 amendment because of criticisms that heavy public works in Okinawa are destroying the natural environment of the islands.

The CUA was recently included in the 2002 amendment to promote sustainable development of the Okinawa Islands in light of surging ecotourism popularity at the time. Article 21 ordains that 'Those who guide and/or advise the *Environmentally Sound Nature Experience Activities* as a business in Okinawa, can conclude "the Agreement on the Implementation of Environmentally Sound Nature Experience Activities" to be certified by the Governor of Okinawa for appropriateness of the said Agreement'. In plain words, 'Environmentally Sound Nature Experience Activities' in the Article means 'eco-tours' and the 'Agreement' (CUA) is the certification by the Governor of Okinawa to prove that the self-regulation by eco-tour operators is considered appropriate.

Table 1 Detail of Interviews Regarding CUAs. Source: Author

Interviewee (name of the CUA and potential sites)	Affiliation	Date (dd/mm/yyyy)	Method (in-person interviews unless otherwise stated)
Okinawa Prefectural Government	Division of Nature Conservation	01/06/2014 03/02/2015 18/03/2015 28/03/2018 18/10/2018 19/06/2019 11/11/2021	Non-structured
Nakama River	Tobu Transportation, Inc	17/10/2014 08/08/2014 03/08/2015 31/03/2018	Participatory observation to the Nakama River CUA Council Semi-structured Non-structured
Hija River	Career Support, Ltd	09/12/2014	Semi-structured
Mount Ibu	Yanbaru Ecotourism Lab	10/12/2014	Semi-structured
Shiraho Coral Reef	NPO Natsupana	07/04/2019	Non-structured
Oura River	Wansaka Oura Park	22/06/2022 17/03/2022	Reasons for non-renewal (phone interview) Semi-structured
Fukugawa River	Whole Earth Nature School Okinawa	22/06/2022	Reasons for non-renewal (phone interview)
Janabishi	Dolphin Loop Diving Service	17/03/2022	Semi-structured
Fukido River	Fukido-gawa Kanko	18/03/2022	Semi-structured
Cape Maeda*	Initiative for CUA in the area (Okinawa Marine Leisure Cooperative Union)	22/06/2022	Non-structured (phone interview)
Yabiji*	Key stakeholder (Miyakojima Marine Resort Cooperative Union)	22/06/2015	Non-structured (possibility for CUA conclusion)
Haneji-naikai*	Initiative for CUA in the area (Yagaji Eco-tour Net)	09/09/2015 18/03/2015	Non-structured (possibility for CUA conclusion) Non-structured (reasons behind the renouncement of CUA)

*NTRs that have not engaged with a CUA, albeit demonstrate the urgent need for CUAs

3.2 Legal structure of the Conservation and Use Agreement

According to Article 21.4, the CUA must define 1) the land area of the agreement, 2) contents of eco-tours, 3) conservation measures to be taken, 4) valid duration of the agreement, 5) sanctions for violators, and 6) any other matters.

A representative of the self-regulation group should apply for the CUA and be the point of contact (Article 21.2). The CUA can be completed by a single operator as well (Article 21.3). The Governor of Okinawa determines based on criteria: the appropriateness in the context of the Okinawa Promotion Plan, inclusion of the majority of operators in the self-regulation in the defined land area, relevance with ministerial ordinances, the contents of the agreement are not unjust or discriminatory, and the relevance with the Act, related laws and regulations. Furthermore, the Governor should announce the public inspection for two weeks (Article 21.6) and inform the Mayor(s) of the relevant municipality to hear their opinions (Article 21.7) when there is an application for a CUA. Once the Governor certifies the CUA, it must be widely advertised to tourists through the Internet, brochures, and/or any other means (Article 21.9).

Importantly, since one of the criteria is defined as 'including the majority of the operators in the said area', operators can continue their business even 'without' executing the CUA. The *Operational Guidelines* [29] also caution that the CUA should not impose any excess penalties on violators (sanctions should be moderate within the bounds of common sense).

Legally speaking, the CUA framework does not pose any sanctions except for the nullification of the CUA status (Article 23–24). If there is any violation of the CUA, Okinawa Prefectural Government will firstly caution, then ask for non-operation for a certain period, finally proceeding to the nullification according to the *Operational Guidelines* [29]. It should be noted, however, Okinawa Government does not have any legal power to stop the operation even if there is a certain violation. In this regard, the CUA is rather 'a gentleman's agreement' that has public recognition. As of November 2021, there are no cases for caution or nullification of CUAs (face-to-face interview with the Okinawa Prefectural Government, November 11, 2021).

3.3 Process for obtaining the Conservation and Use Agreement

The self-regulation should be widely agreed upon and/or acknowledged by stakeholders to obtain certification from the Governor. According to the *Operational Guidelines* (p 18), a Letter of Agreement (LoA) from the landowner(s), local government(s), and any other right holders such as the forestry and fishery associations or the agricultural cooperative is required. As for other secondary stakeholders, the 'record of the meetings' must be submitted; for example, the head of the resident association, the head of the community centre, influential individuals, etc. The *Operational Guideline* also mentions various bodies, such as the police, fire, hospital, tourism associations, and academia as stakeholders of the CUA and contact with them is required accordingly.

CUA representatives should also submit the annual monitoring report to the Okinawa Prefectural Government. The CUA must be renewed every two to five years based on the valid duration described in the application form because the Act itself is temporary legislation to be renewed every ten years. If the agreement is not renewed one to two months before the expiration date, it will automatically expire based on the *Operational Guideline* and a new application will be required.

According to the interviews with the Okinawa Prefectural Government and CUA holders, the application process and renewals are huge burdens for eco-tour operators which is usually a micro-enterprise (face-to-face interviews to an official on June 19, 2019, and the CUA representatives on October 17, 2014; December 9, 2014; March 17&18, 2022; June 15&22, 2022). The tour operators often have difficulties identifying the stakeholders, negotiating with them, and obtaining the LoAs, and paperwork. For instance, sea kayaking and diving/snorkelling are usually based on 'tacit approval' of fishery cooperatives to use the facilities like the port and bathrooms; thus, some operators mention the difficulty in obtaining a 'formal agreement'. According to our interviews, two interviewees gave up on obtaining the CUA for this reason and two CUA holders mentioned similar difficulties with the fishery cooperative (face-to-face interviews with the potential operators and CUA holders on March 16 & 18 2015; March 17&18, 2022).

4 Result: current status of the Conservation and Use Agreement

As of May 2022, five CUAs remain valid (four on Okinawa Island and one on Iriomote Island) and four CUAs expired (two on Okinawa Island and two on Ishigaki Island); all islands are naturally within the Okinawa Prefecture. Locations are shown in (Fig. 1). Only two CUA cases existed until 2013. Okinawa Prefectural Government implemented a project

from 2012 to 2014 to increase the numbers of CUAs by sending advisers/coordinators to facilitate the negotiation with various stakeholders on behalf of the tour operators. Through this project, six new CUA applications were made.

Table 2 shows the details of the CUAs in practice (three CUAs expired in 2021–2022 are also included in the Table). Eco-tours operated in the CUA are mainly kayaking, trekking, scuba diving, snorkelling, stand-up paddle, tour boat, and walking tour. The number of participating operators per CUA ranged from one to thirteen, with an average of 8.625 operators.

Agreed contents for natural environment and safety are diverse; however, many CUAs limits the number of tourists per guide/boat/party, prohibit taking any flora and fauna from the CUA sites, and monitor the site at least twice a year.

Agreed content for the local community is a prominent part of the CUA, which seek environmental conservation as well as local resilience. Mount Ibu and Oura River CUAs mention a collection of donations from participants to pass to local communities. The representative of Mount Ibu CUA, emphasises the importance of this. He started the eco-tour business in 1999 donating a part of the benefit, namely 200 yen (approx. 2 USD) per tourist, to the local community (face-to-face interview on December 10, 2014). Nakama River, Hija River, and Shiraho Coral Reef CUA mention cooperation with local fishery cooperatives. Shiraho Coral Reef and Fukido River CUA agree with the active participation and cooperation of the local community and schools.

Importantly, these agreements follow the current practices and do not strengthen the regulations further. According to the interviews, CUAs are valued as moral entry barriers for new operators, which results in the prevention of overuse (face-to-face interviews with the Okinawa Prefectural Government, Representatives of Nakama River, Hija River, Mount Ibu and Oura River).

Although the process to acquire/renew the CUA certification entails certain tasks including various paperwork, negotiations and monitoring reports, tour operators can obtain the award certificate and their activities are promoted through websites and brochures of the Okinawa Prefectural Government. Okinawa Prefectural Government also supports the promotion of CUAs through symposiums, conferences, and workshops, by providing information and technical support, as well as subsidising the travel costs for participation in the tourism promotion conference in Tokyo when budgets allow ([30], face-to-face interview with an official on March 18, 2015, and June 19, 2019).

4.1 Motivation behind the applications and the 2012–2014 Project

The first CUA was certified in 2004. Tour operators of Nakama River in Iriomote Island had already established self-regulation among them from 1999 to 2003. The Okinawa Prefectural Government asked the Tobu Transportation, Inc., which is the main operator in the area, to apply for the first CUA (face-to-face interviews with the CUA representative, the President of Tobu Transportation, Co. on August 8, 2014; October 18, 2014; and August 3, 2015). The CUA representative explained the historical background of self-regulation (excerpt from the interviews).

'It was 1995 when I became the head of the tourism section in the company. I was surprised by the congestion and the unsafe situation of the river. As a background, we receive the reservation from tour agents based in Naha or Ishigaki Island. It is a packaged group tour from Ishigaki Port with fixed time, fixed contents, and fixed price. When the ferry does not arrive on time, which often happens, what we do is increase the speed of the boats or buses to keep the time because the tour contents are already fixed. Onsite operators were always crunched for time and had acrimonious situations with colleagues and other boat operators. We even had the frontal crash of boats since we didn't have the proper rules among boat operators. We negotiated with the agents to understand the situation to give more discretion onsite, but they didn't hear. We were always in weaker positions and agents were overbearing. We thought this situation is not good for us and started the discussion with the other boat operators to make a safety manual and self-regulation from 1999 to 2003. The local office of the Ministry of the Environment (*which is in charge of the national park management and ecotourism) also supported our discussion and completion of self-regulation.... After the completion of self-regulation among operators, Okinawa Prefectural Government contacted us to apply for the first CUA. Based on the existing self-regulation, we applied for the CUA the following year.' (face-to-face interview on August 8, 2014)

Nakama River's CUA was awarded the *Ecotourism Special Award* by the Ministry of the Environment in 2005, the following year of CUA certification.

It took 6 years to have the second case for a CUA. Tour operators in Hija River followed to acquire CUA status in 2010 to implement sustainable tourism. The CUA representative of Hija River answered that he already knew about CUA when it was introduced in the Nakama River and he thought of applying the scheme to the Hija River when he started his business in this area (face-to-face interview on December 9, 2014). Since he was a member of a fishery cooperative

Table 2 Status of CUAs in Okinawa Prefecture. Source: Author, based on materials from the website of Okinawa Prefectural Government [31–38] and the latest phone interview on June 9, 2022

CUA region (order)	Nakama river (I)	Hija River (II)	Mount Ibu (III)	Oura River (V)	Shiraho Coral Reef (VI)	Fukido River (VIII)	Fukugawa river (IX)	Janabishi (VII, X)
Municipalities	Taketomi Town	Kadena Town	Kunigami Village	Nago City	Ishigaki City	Ishigaki City	Nago City	Ginowan City
Initial date	2004/06	2010/03	2014/10	2014/11	2015/08	2016/10	2021/04	-
Valid until	2024/03	2022/07	2022/08	2022/03 (expired)	2022/03 (expired)	2021/07 (expired)	2023/03	First in 2015 expired in 2018; Second 2024/03
Representing operator (focal point)	Tobu Transportation, Inc	Career Support, Ltd	Yanbaru Ecotourism Lab	Wansaka Oura Park	NPO Natsupana	Fukido-gawa Kanko	Whole Earth Nature School Okinawa	Dolphin Loop Diving Service
Number of operators	10	3	1	6	12	13	11	13
Activities	Tour boat, kayaking, stand-up paddle (SUP)	Kayaking	Trekking	Kayaking, SUP, walking tour	Snorkelling, kayaking, walking tour, etc	Kayaking, trekking	Trekking	Scuba diving, snorkelling
Agreed contents for the natural environment and safety	Speed limit to protect Mangrove Forest; monitoring survey every 3 months; limit on the number of kayak users (8 people per party); safety lecture for eco-tour guides	Prohibit taking flora/fauna; limit the number of kayak users (up to 20 per time); limit the number of uses (six kayakers per party); prohibit landing on the tidal flat	Appropriate number (twice a day, six people per tour); no pets/animals allowed; monitoring twice a year	Prohibit taking flora/fauna; limit the number of kayaks (5 kayaks per guide; up to 40 kayaks simultaneously)	Beware of the corals; no entry for the egg-laying site (sea turtles); limit the number of boats (up to four boats, 50 people); monitoring survey for coral reefs and red soil sediments; limit the number of tourists (10 per guide/ snorkelling, 4 per guide kayaking, 20 per guide for walking tour)	Prohibit taking flora/fauna; beware of the fauna and flora; periodical clean-up; do not leave the kayak onsite; take the safety lecture/training; limit number of tourists (6 kayaks per guide); limit the number of tourists (10 per guide/trekking)	Monitoring survey every year; limit the number of tourists (20 per guide/trekking); insurance guaranteed; beware of the fauna and flora; monitoring and discussion of monitoring results; limit the number of tourists (6 per guide/ underwater guiding for licence holders; 8 per guide/snorkelling, 2 per guide/diving); maximum three boats per point	Avoid damage to coral, especially upon mooring; conduct biannual conservation activities, periodic monitoring and discussion of monitoring results; limit the number of tourists (6 per guide/ underwater guiding for licence holders; 8 per guide/snorkelling, 2 per guide/diving); maximum three boats per point

Table 2 (continued)

CUA region (order)	Nakama river (I)	Hija River (II)	Mount Ibu (III)	Oura River (V)	Shiraho Coral Reef (VI)	Fukido River (VIII)	Fukugawa river (IX)	Janabishi (VII, X)
Agreed contents for the local community	No entry to forests during hunting season; be cautious with fishing equipment; establish a platform for discussion with local people	Do not touch the fishing equipment and boats; be cautious about fishing activities; participate in the fishery cooperative's activities and clean-up	Adhere to local rules (Ada District rules); donate 100 yen per person to the local community (optional)	No parking in the community; collect donations from tourists for the local community; actively participate in local events	Active participation in the local schools' events; be cautious about fishing activities	Actively participate in the local schools' environmental activities; do not occupy the parking lots	Report the activities to the local community; ask the tourists to consider the local community	Not interfere with fishermen's operations; use of water supply, toilets, etc. in the fishing port is regulated by the fishery association; obey traffic and trash rules

in the region, it was relatively easy to obtain the LoA from the fishery cooperative. In addition, he had support from the Okinawa Prefectural Government for the preparation of the application documents (face-to-face interview on December 9, 2014). The representative of Hija River CUA acknowledges that the CUA certainly contributed to the sustainable use of the NTRs by setting a moral entry barrier to other operators. Since its conclusion, the number of operating companies remains the same, and he emphasises the effectiveness of the agreements. He also mentioned that the CUA is an effective way to build trust between local stakeholders and public sectors. He emphasized that a small tour operator like his will not be able to communicate with the Okinawa Government or local municipality without obtaining a CUA (face-to-face interview on December 9, 2014).

The CUAs designated between 2014–2016 are strongly supported by Okinawa Prefecture's promotion project that took place from the years 2012–2014. For example, the representing operator of the Oura River, mentioned that he did not know about the scheme when he was contacted by the Okinawa Ecotourism Association which jointly commissioned the project from Okinawa Prefecture (Face-to-face interview on March 17, 2022).

In the project, the Okinawa Prefectural Government prepared and sent out a large questionnaire survey to all registered eco-tour operators in Okinawa Prefecture (772 companies at the time) in 2012 to identify the NTRs which require urgent assistance for conservation. The government received answers from 166 companies (a 21.5% return rate). Table 3 shows the results of the questionnaire; however, none of them was selected as the Model area(s) shown in Table 4 which can receive strong support for pursuing the CUA. The Okinawa Prefectural Government [39] explains the selection criteria for the Model areas as; the number of tour operators, their motivations, the existence of key person(s), and relationships between operators and local stakeholders.

The report concludes that "NTRs showed in Table 3 certainly have urgent needs for the CUA; however, they lack the maturity for selection as Model areas" mentioning the lack of key person(s) and lack of identification of the stakeholders on-site.

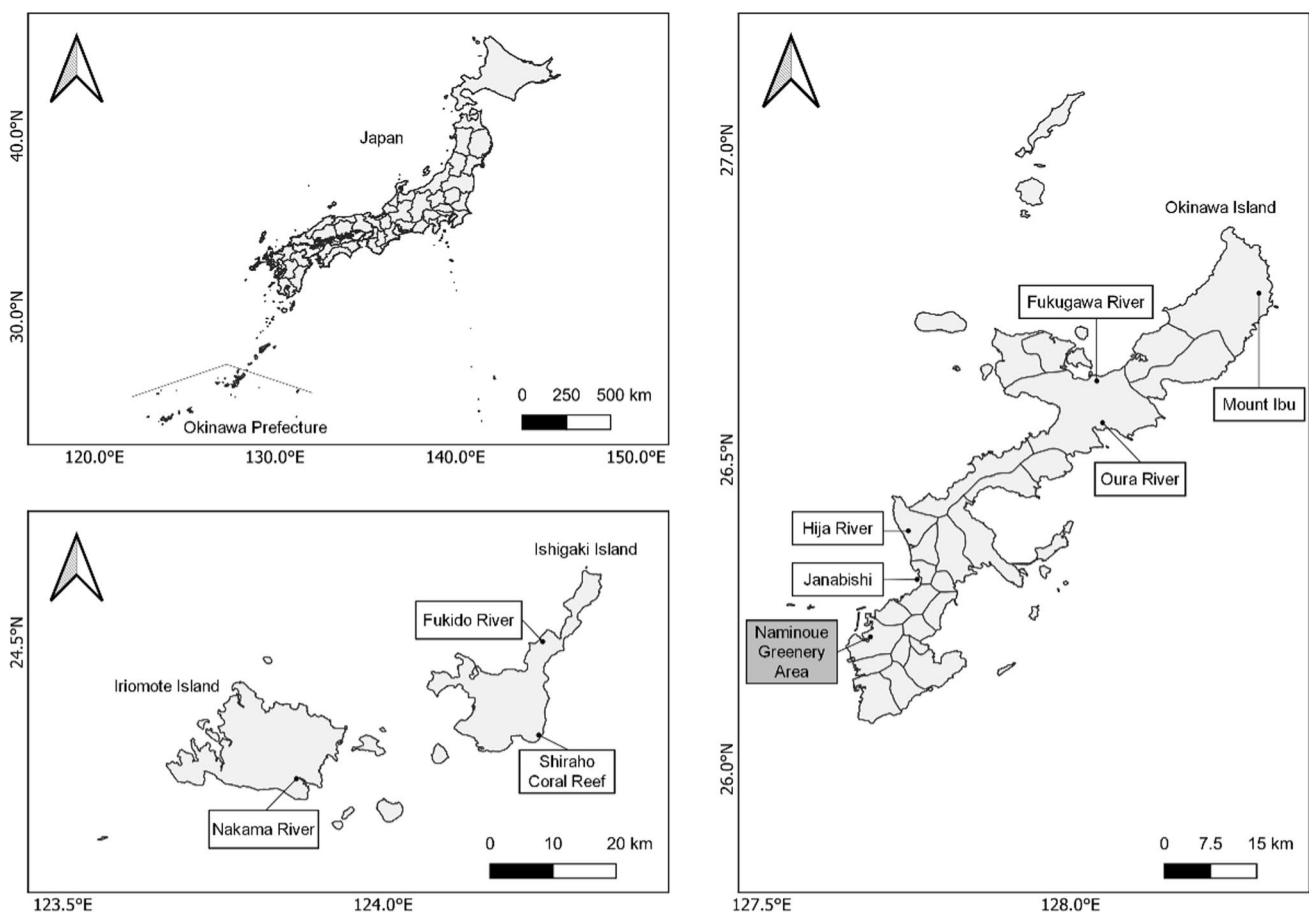


Fig. 1 Locations of CUAs in Okinawa Prefecture. *Source: Author.* Naminoue Greenery Area, Fukido River, Oura River and Shiraho Coral Reef are expired CUAs as of May 2022. Naminoue Greenery Area is not included in Table 2

Table 3 NTRs that need urgent conservation measures: a questionnaire conducted by the Okinawa Prefectural Government in 2012. Source: author, based on [40]

	Name of the NTR (name of the municipality)	sum	Estimated number of operators at the site (in parenthesis, numbers are based on the interview data by the author)	Municipalities' Intention	Number of operators who want to obtain CUA
1	Cape Maeda (Onna Village)	13	(Around 40–50)		11
2	Kerama Islands (Tokashiki Village and Zamami Village)	8	(More than 200)		0*
3	Tah waterfall (Ogimi Village)	4	More than 20	⊙	2
4	Pinaisara Falls (Taketomi Town)	3	More than 30	⊙	2
4	Henoko (Nago City)	3	No Information		2
4	Yabiji (Miyakojima City)	3	More than 20	⊙	2
4	Miyagi/ Sunabe beaches (Chatan Town)	3	Around 20		5
4	Yonehara (Ishigaki City)	3	Around 15	○	5

⊙ indicates that urgent intervention is necessary, ○ indicates the need for consideration

*Because Kerama Islands sought the conservation measure by another act called Ecotourism Promotion Act, which is more robust than the CUA at the time, none of them answered positively to the CUA

Table 4 Model areas chosen in the project.

Naminoue Greenery Area (Naha City), CUA in 2014 expired in 2017
Janabishi (Ginowan City), CUA in 2016 expired in 2018/CUA in 2021
Haneji-naikai (Nago City), renounced
Oura River (Nago City), CUA in 2014 expired in 2022
Mount Ibu (Kunigami Village), CUA in 2014
Fukido River (Ishigaki City), CUA in 2016 expired in 2021

4.2 Expiration of the CUAs

As of May 2022, CUAs have expired in four areas: Naminoue Greenery Area, Oura River, Shiraho Coral Reef, and Fukido River. The CUA in Janabishi had expired once in 2018 but they resubmitted the application and it was re-certified in 2021. The reasons for expirations are similar for all cases. The representing operator of Janabishi mentions:

‘There are many documents related to the CUA. Annual reports, renewed applications... honestly, too much work. Merits for the CUA do not exceed the burden. Self-regulation and conservation efforts are implemented no matter what the CUA status is. I, personally, did not feel any benefit from being part of the CUA. It took time to tell the CUA members about the agreement’s expiration, but when they were told, they were like ‘oh, you should keep the status active’. They pestered me to resubmit the application’ (face-to-face interview on March 18, 2022).

The representing operator of Oura River also mentioned that ‘we simply did not make the renewal deadline due to being very busy’. He confirms the resubmission of the application form in 2022. Other cases of expiration of the CUA are largely similar situations to that of Janabishi and the Oura River except for the Naminoue Greenery Area, which had its first expiration case in 2017. The representing operator of the Naminoue Greenery Area used to be the ‘designated administrator’ (*Shitei-kanrisky* in Japanese, a private entity that manages public facilities) of Naha City and for the maintenance of the areas. The private entity ended its contract for the management of the Naminoue Greenery Area in 2017 and the new designated administrator simply did not renew the status (face-to-face interview with the Okinawa Prefectural Government on March 28, 2018). Due to the renewal of the application requiring same amounts of documents as the first application is made, operators are not very eager to submit the application form in the limited renewal period which is one to 2 months prior to the expiration.

5 Discussion: Key challenges of the CUA

Although CUA certification is a noteworthy framework that can support the voluntary approaches initiated by the private sector through empowerment and support from the government, there remain key challenges in increasing its effectiveness and applicability to other regions.

5.1 The small number of CUA certification

Since its commencement in 2002, there have been only nine certifications including four expired cases. Okinawa Prefectural Government [30] summarises the reasons for the small number of CUA certifications as, (1) huge burdens to the eco-tour operators in the context of negotiation/coordination with key local stakeholders, (2) lack of recognition of CUA in general, (3) small incentives for eco-tour operators mentioning the difficulties for keeping the monitoring surveys and gathering the report after the acquisition of CUA. Simply set, burdens to obtain CUA status, or transaction cost is larger than the benefit of CUA [30]. This is repeatedly confirmed through the interviews and we observed increasing numbers of expirations in 2021–2022.

As the coalition formation theory suggests, it is necessary for a CUA to be formed where the benefit of a CUA member is at least as great as the benefit of a member who leaves the CUA as discussed, for example, in the context of fishery management [41] and management of ecosystem services in agriculture [42]; that is, a free-rider payoff (internal stability) [43]. Namely, operators must have an incentive to stay as a member of the CUA. The large transaction cost significantly reduces the benefit of the CUA, and it is a burden to form/renew a CUA. Ostrom [24] also argues that the common-pool resources are sustainably conserved when the resource is more valuable than the monitoring costs; cost to exclude the

free riders. Huge transaction costs represented by the negotiation process and paperwork in the application/renewal are not appropriate frameworks since most eco-tour operators in Japan are micro-enterprises who do not necessarily share successful conditions in common-pool resource management argued in Ostrom [24]; accurate information, stability of user groups, common understanding of resources, generalised norms of reciprocity and trust as initial social capital, as well as plans to live and work in the same area for a long time. The consistent increase of CUAs by project funding and four cases of expiration after the project clearly demonstrate the need for policy support to decrease the transaction costs during the application and renewal processes or to increase the benefits created from the CUA status. For instance, providing more administrative support in the application/renewal processes and the extension of the renewal period will contribute to the transaction costs reduction whereas strengthening the advertisement on commercial guidebooks and magazines and providing official arm badges to CUA members will enhance the benefits.

5.2 Good for the precautionary principle, but not effective for problem-solving

Gaps between the sites with urgent needs for conservation and the selection of model areas in the 2012–2014 project clearly demonstrate the difficulty to solve the existing overuse issues. Interviews with the Okinawa Prefectural Government (2014, 2015, 2019, 2021) and potential CUA operators (Cape Maeda and Yabiji) reveal the difficulty in identifying the exact number of eco-tour operators working in overused NTR areas listed in Table 3 because of the number, including seasonal, ad-hoc and/or foreign operators. During the project period, Okinawa Prefectural Government intentionally chose Model areas where little is known, limited number of operators, and where a lead person existed who was motivated to obtain CUAs for sustainable businesses and environmental protection.

As a result, five CUAs were concluded out of six model areas from 2014 to 2016. In this regard, the CUA framework is not very suitable to 'solve' the existing overuse issues; however, it generally works as a precaution against over-tourism. Hija River and Mount Ibu CUAs proactively acknowledged the precautionary function of the CUA and others also appreciated the CUA status; for example, easy to caution non-CUA operators and unmannerly visitors, easy to communicate with public sectors for their support (Nakama River, Oura River, Janabishi, Fukugawa River). Meanwhile, in China, the lack of binding legislation and certification for ecotourism providers makes it hard for consumers to recognise the genuine operators, and hence threatens the sustainable development of the host region [44].

5.3 Lack of monitoring, lack of resources

The interviews with the representatives of the CUAs regularly mention the lack of monitoring by the Okinawa Prefectural Government. The representative of Nakama River CUA claims that even if there is a violation of the CUA among operators, it is very difficult to caution him/her since they meet almost every day onsite (face-to-face interview on October 17, 2014). To improve the monitoring situation, Nakama River CUA established the 'Nakama River CUA Liaison Council' in 2014 inviting Okinawa Prefecture, the local offices of the Ministry of the Environment and the Forestry Agency as observers. The representative of the Nakama River CUA, expects those public sectors to work as the aegis of the agreement. The Nakama River CUA representative expects Okinawa Prefectural Government to be the responsible body to keep the CUA effective by strengthening the monitoring and networking.

However, interviews with the Okinawa Prefectural Government reveals that there is only one responsible officer for CUAs in the Okinawa Government, and s/he does not necessarily have the expertise in the related field, such as nature conservation, sustainable tourism, environmental law and policy (face-to-face interview on March 15, 2015). In addition, the annual budget for the CUA is very limited (usually none) unless there is specific project funding from the central government.

Our findings suggest that prefectural government should allocate adequate financial and human resources from general account to maintain the good communication with ecotourism operators and implement the effective monitoring system.

6 Conclusion

The CUA certification is a framework that can support voluntary approaches initiated by private sectors through empowerment and various supports. The CUA is noteworthy because it focuses on environmental conservation and the local community, which is often overlooked in conservation literature. Mount Ibu and Oura River CUAs voluntarily donate part of their benefits to the local community. Additionally, most CUAs are supporting local elementary schools and junior high schools through environmental education activities and/or participating in annual events. However, the number of CUAs remains small and we discussed the increasing number of expirations in 2021–2022. This is due to the huge transaction costs associated with negotiation with stakeholders and the paperwork required for the application and renewal process. Certain supporting policies should be provided to reduce the transaction costs or to increase the benefits derived from the CUA status. More flexible application/renewal processes, strengthening the advertisement on commercial guidebooks and magazines and/or providing official arm badges to CUA operators are recommended for consideration.

Secondly, the CUA can function as a precautionary framework but is not always effective for solving overuse issues. In Sect. 4, we discussed the selection process of model areas and clearly demonstrated this limitation. Model areas chosen by the Okinawa Prefectural Government do not include sites, which have 'urgent needs for conservation measures', represented by Cape Maeda or Pinaisara Falls. Instead, the Okinawa Prefectural Government focused on relatively unknown sites with fewer operators and more feasibility for CUA certification. Analysis of site-level implementation demonstrated that most interviewees welcomed CUA certification for its effectiveness as precautionary barriers to other tour operators and establishment of communication channels to public sectors and local stakeholders for consultation. In this light, it can be summarised that the current CUA scheme hardly contributes to solving ongoing problems; however, can be regarded as an effective tool for a precautionary agreement to conserve tourism resources from potential over-tourism.

Finally, it is imperative to increase the roles of the Okinawa Prefectural Government in coordination, mediation, and monitoring not only at site levels but also at inter-agency levels to improve the CUA scheme and to contribute more to environmental sustainability. As the Ministry of the Environment and Forestry Agency have several robust conservation measures represented by national parks or national forests, CUAs should be closely coordinated with other legal forms such as the *Natural Parks Act* or *Ecotourism Promotion Act* that have binding forces to regulate the tourists in designated areas. The Nakama River CUA shows that the voluntary efforts are ongoing to involve those agencies in daily management. Considering the logic of collective actions [45], the Okinawa Prefectural Government should exercise its authority and resources to keep the CUA effective by strengthening monitoring and networking with other agencies. As Hayakawa [46] argues in the case of chemical material regulations, the government can induce the motivations for self-regulation by utilising information resources within public sectors. Close communication with operators and coordination/collaboration among public sectors should improve the CUA schemes as a robust precautionary framework. To do so, it is recommended that Okinawa Prefectural Government allocate adequate financial and human resources from general account to the Division in charge, not temporal subsidy from the central government.

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Declarations

Informed consent *Consent to Publish:* Verbal informed consent was obtained prior to the interview.

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