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Sustainability of the community-based ecotourism development in the Aksu-Zhabagly nature reserve, Kazakhstan: An evaluation through local residents' perception

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Abstract. The development of community-based ecotourism (CBE) has the potential to preserve biodiversity and protect the environment, as well as play an important role in the socio-cultural, economic and politically sustainable development of the community. This paper assesses the implementation of CBE development and compares the sustainability of ecotourism development between the Zhabagly community and the Abaiyl community. The data is obtained mainly through the household questionnaire survey, field observations, in-depth interviews and focus group discussions. 222 representative families were surveyed with 5-point Likert scale questions in this paper including 166 Zhabagly and 56 Abaiyl participants. The study used 18 indicators based on 4 dimensions: environmental, socio-cultural, economic and political. Results from this analysis indicate that the sustainability of CBE development in two communities is slightly different in all 4 dimensions. Zhabagly community is more successful in achieving sustainable CBE development than the Abaiyl community. The results reveal that the overall evaluation of the two communities on sustainability is moderate. However, both communities demonstrate that, potentially, they are politically unsustainable. As a result, we initially assert that the sustainability of CBE development in the Aksu-Zhabagly nature reserve (NR) is far from perfect. In particular, the positive economic and political impact of tourism development is not obvious. To address this shortcoming, tourism development organizations need to jointly develop a design policy for the sustainable development of CBE.

Key words: Community, Ecotourism, Sustainable development, Nature reserve, Aksu-Zhabagly, Kazakhstan

1 Introduction

The Global Ecovillage Network developed local and community-based planning initiative guidelines to improve sustainability and develop community sustainability assessments (Schäfer et al. 2018). These guidelines act as a tool to compare the status quo of existing environmental, social, cultural and spiritual sustainability goals for existing villagers and rural communities. Indicators have been identified as ideal tools and/or metrics for

assessing and monitoring progress in sustainable development (Tsaur et al. 2006). The has been promoting the use of sustainable tourism indicators to measure sustainable tourism management as an important tool for decision-making (Mearns 2011). In order to improve the sustainability of the community-based ecotourism (CBE) sites, it is determined to use sustainable tourism indicators to test the effectiveness of tourism implementation (Tanguay et al. 2013).

CBE has tools for biodiversity and natural environmental protection, including the protection of cultural heritage, economic development and favorable government policies that empower the local community involvement in sustainable management to build sustainable community development. Environmental sustainability can also get help from sustainable ecotourism, which effectively manages the implementation practice and long-term maintenance of natural resource planning for future generations to use (Theingthae 2017). Ecotourism development will provide an opportunity to local people to support the sustainable use of culture and heritage sites. At the same time, revenues generated from culture and heritage sites will be used for conservation and maintenance (Theingthae 2017). Attracting a large number of tourists to ecotourism destinations while focusing on long-term maintenance of an area's unique environment can create economic benefits for the community development and contribute income to the local people (Gilmore et al. 2007). To achieve long-term success in community ecotourism development, the government must ensure local people's involvement in tourism development's decision-making and planning process. At the same time, the government should also pursue a policy of poverty reduction based on the sharing of benefits from community tourism management (Keovilay 2012).

This paper aims to assess the execution of CBE development in Aksu-Zhabagly nature reserve (NR) by comparing the sustainability of ecotourism development in the neighboring two communities (Zhabagly and Abaiyl settlements). The reason is that sustainable ecotourism development based on the aforementioned four dimensions of sustainable management will help to make it more profitable for the local community of Aksu-Zhabalgy NR.

2 Literature review

2.1 Community-based ecotourism development

It is universally recognized that community-based tourism initiatives reduce poverty by increasing incomes and providing rural communities with tools and education for long-term critical thinking and decision-making. CBE is a type of ecotourism that focuses on the development of local communities and allows local people to significantly control its development, management and participation, at the same time, part of the profit should be allocated to community development (Denman 2001, Wood 2002). CBE essentially helps protect biodiversity and wildlife and supports the idea that people living in natural areas should participate in decision-making about conservation strategies (Reimer, Walter 2013). CBE authorizes the host community to participate in the decision-making of ecotourism planning while considering the positive and negative impacts on the environment, social culture and economy (Kaplan 2015). CBE destinations bring potential benefits to individuals, communities and the entire country in terms of creating employment opportunities, foreign exchange earnings and improving the well-being of local residents (Mbaiwa 2003). Moreover, from a social point of view, nature-based ecotourism employs the local population and promotes the development of the regional economy, as well as assures the quality of life among the local population, preserves environmental values and provides quality services to tourists (Williams, Fennell 2002).

Development organizations see CBE as a potential source of economic development and poverty eradication, especially in rural areas with limited agricultural potential. For example, in the past decade, CBE in East Africa and Southern Africa has seen the strongest growth in the global market because of its positive economic impact on the people of the region, making it an essential industry (UNWTO 2001). CBE has increased local income and built the regional economy by protecting the local ecosystem and culture. However, only when the community sees the benefits of ecotourism development, and when the

development of ecotourism does not harm their environment and affect their main source of livelihood, will ecotourism get support among the local community (Alexander 2000, Walpole, Goodwin 2001, Salafsky et al. 2001). CBE and responsible tourism should be part of a sustainable development strategy. Environmental sustainability includes present generations' preservation of natural heritage and biodiversity, and the preservation of important environmental processes for future generations (Törn 2007). However, the CBE project has become a double-edged sword for realizing natural resource protection and improving the livelihoods of host communities (Spenceley, Snyman 2012). For example, for rural communities that use forests and other natural resources as their main source of livelihood, these natural resources are at risk of overexploitation (Mensah 2017).

2.2 Sustainability of community-based ecotourism development

Sustainable ecotourism is embodied by an approach to explore natural resources and unique cultures and traditions without harming natural and cultural resources. Ecotourism is considered as a tool for nature protection and sustainable development, so how to maintain the sustainable development of ecotourism has become an important issue. Ecotourism is a form of sustainable tourism based on natural resources and it mainly focuses on experiencing and learning about nature, landscape, flora, fauna and their habitats, as well as local cultural handicrafts (Dowling, Fennell 2003). Ecotourism is concentrated on activities such as restoration and conservation, community and sustainable tourism visits (Fennell, Weaver 2005). Sustainable ecotourism requires minimizing the consumption of natural resources and cultural heritage as tourist attractions, and it should aim to bring socio-economic benefits to the community, protect the environment and protect cultural traditions (Ok et al. 2011). The goal of ecotourism is to understand culture and history, not to change or destroy biodiversity and ecosystems (Cheia 2013). When promoting ecotourism to a community that solely depends on the extraction of natural resources, awareness raising and a practical implementation of sustainability is essential to gain community support (Ekwale 2014). In order to protect the environment and preserve biodiversity, it is necessary to involve all stakeholders in the implementation of ecotourism policy based on sustainable development (Kumara 2016). Sustainable community-based ecotourism development aims to understand residents' views on actual implementation based on sustainable practices (Theingthae 2017). In ensuring the sustainability of ecotourism products, it is necessary to pay attention to the safety of visitors, the quality and authenticity of service, while respecting cultural sensitivity and environmental protection (Pomering et al. 2009).

3 Case study description

3.1 Study area overview

Aksu-Zhabagly Reserve is Kazakhstan's second natural world heritage site, and it offers amazing and diverse landscapes from semi-deserts to snow-capped peaks. The Aksu-Zhabagly State Nature Reserve was established in 1926 and it is located in the north-west of Talas Alatau and the south of Karatau in the Western Tien-Shan. Aksu-Zhabagly was listed by UNESCO as a natural world heritage site in accordance with the criteria of (vii–To contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance) and (x–To contain the most important and significant natural habitats for in-situ conservation of biological diversity) on July 17, 2016 (whc.unesco.org, 2016). It is a unique wilderness experience where marmots, wild goats, lynxes, wolves, bears, argali and deer live. The wild tulips, the unique natural apples, and the snow leopards (which roam the high mountains of this area) in the Aksu-Zhabagly reserve spread its name all over the world (Akbar et al. 2021).

It is home to 48% of regional bird species, 72.5% of vertebrates, 221 out of 254 fungi species, 63 out of 80 moss species, 15 out of 64 vegetation types, and 114 out of 180 plant formations found in the Western Tien-Shan. Approximately 2500 insect species have been recorded in the reserve (Akbar, Yang 2021). Aksu-Zhabagly State Nature Reserve consists of three zones, it lies in Tulkibas district of Turkistan region and Jualy district of

Figure 1: Aksu-Zhabagly NR of Kazakhstan in the Western Tian-Shan.

Jambyl region of the Republic of Qazaqstan. The main part of the nature reserve (N42 16 34, E70 40 27) has a 131,704 ha property zone and a 25,800 ha buffer zone. The other two zones are Karabastau Sustainability 2020, 12, 143 5 of 18 paleontological areas (N42 56 24, E69 54 54) and Aulie paleontological area (N42 54 18, E70 00 00) with only property zones, 100 ha and 130 ha, respectively (Akbar et al. 2020). The Aksu-Zhabagly Biosphere Reserve is located in four districts of two oblasts in the most densely populated region of Kazakhstan with a total population of about three million people. Approximately 150,000 people live in the transition area of the Aksu-Zhabagly Biosphere Reserve. The main economic activities of neighboring settlements are agriculture, plant growing, and cattle breeding. In the last 10 years, ecological tourism has become highly popular in the reserve, mainly due to ornithological and botanical foreign tourism, and local recreational tourism (Akbar, Yang 2021). Aksu-Zhabagly NR has many tourist attractions, such as gorges, various landscapes and caves. For the development of ecotourism, 10 tourist routes have been developed which were funded by the Global Environment Facility (GEF) project. Along with natural sites, cultural heritage is also of interest for tourism. Medieval cities (Sharafkent and Isfidzhab), ancient mounds (50-60 km from Zhabagly), the sacred place – Baibarak spring and rock paintings – petroglyphs are part of the history of the region.

All the aforementioned facts underscore the diversity of the flora and fauna across the terrain of Western Tien-Shan. This region contains unique sites of upper Jurassic flora and fauna, which, undoubtedly, improves the value of biological and landscape diversification and strengthens the case for nature conservation.

3.2 Case study background

In our study, two neighboring communities (Zhabagly and Abaiyl) are selected that are considered to be the most affected by the development of ecotourism in Aksu-Zhabagly NR. As these two selected settlements are the closest to the reserve area, and the main roads leading to the reserve territory pass through these areas. Zhabagly and Abaiy settlements are electrified and they have good telephone and internet systems. The roads are mostly asphalted, but need repair.

Zhabagly community

Zhabagly village is an administrative unit of Tulkibas district. It includes the settlement of Zhabagly, Abaiyl, and Russian Railway 117. The total population of the Zhabagly village is 3,048 people, including 2,401 people of Zhabagly settlement, 545 people of

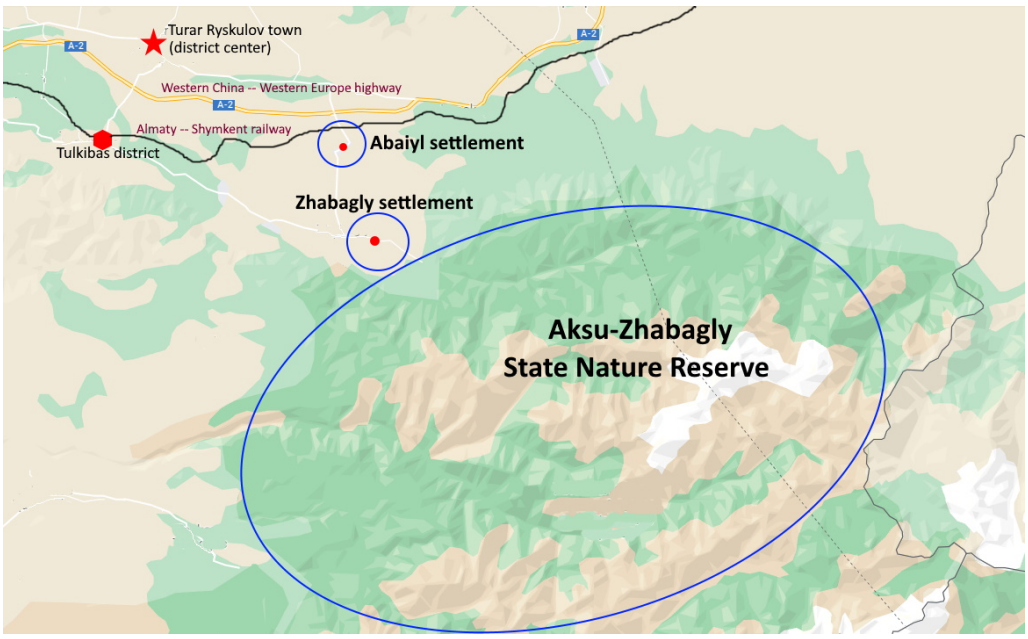

Figure 2: Zhabagly and Abaiyl community location.

Abaiyl settlement, and 102 people of settlement Russian Railway 117 (National Bureau of Statisttics 2019). Zhabagly settlement is 17 km South East of the town Turar Ryskulov (formerly Vannovka), the administrative center of Tulkibas district. Zhabagly settlement has a public transportation connection to the town of Turar Ryskulov and the city of Shymkent. Lying adjacent to the Western Tien-Shan Mountains, Zhabagly settlement is the gateway to Aksu-Zhabagly State Natural Reserve (Figure 2).

Most people from Zhabagly settlement are herders and farmers. The population size is larger compared with the two other nearby settlements, with a total of 2,401 people, of which the economically active population is 1,571 people; nearly all of them Kazakhs. There are 4 Shops, 14 limited liability companies and 4 industrial complexes in the village center. Zhabagly settlement has 4,612.7 ha of agricultural land, 1,755 ha non-irrigation land, 569 ha of irrigation land, 116.7 ha of meadowland and 2,172 ha of pastureland. There are 1,171 cows, 645 horses, 4,151 sheep and goats, and 5,757 poultry birds in the Zhabagly village center (National Bureau of Statisttics 2019). And there are mainly 4 tour operators' offices and guest houses in the village center, two of them are located on the gateway of the Aksu-Zhabagly world heritage site.

Abaiyl community

Abaiyl settlement is located between Zhabagly village center and Akbiik village of the Tulkibas district. Most people from this settlement have a stable job, including many railway workers. The population size is not large, with a total of 545 people, of which 275 are economically active, nearly all of them are Kazakh people. There are no big shops, limited liability companies and industrial complex in this settlement. In total, this settlement has 73 ha of agricultural land, 45 ha of non-irrigation land and 28 ha of irrigation land. The settlement of Abaiyl contains 246 cows, 46 horses, 554 sheep and goats, and 1,122 poultry birds (National Bureau of Statisttics 2019).

4 Data and methodology

4.1 Data collection and methodology

In this study a mainly quantitative research method was employed in data collection and analysis. A questionnaire survey was used to evaluate the sustainability of community-based ecotourism development in the Aksu-Zhabagly NR. The Aksu-Zhabagly NR was

selected because it has been identified as a more CBE developed area among nature reserves in Kazakhstan.

Our advance study area observation helps to effectively perform questionnaire surveys for the primary data analysis. Field research was conducted in a roughly 3 week-long visit to the Aksu-Zhabagly ecotourism destination from the 2nd of March to 22th of March, 2019, with respondents selected from the settlements of Zhabagly (166 people out of an economically active population of 1,571) and Abaiyl (56 people out of an economically active population of 275). Focus respondents were the key CBET stakeholders (local residents) including eco-tour guides, guesthouse owners, cooks, taxi drivers etc., who are representatives from both Zhabagly and Abaiyl settlements.

This study is based on quantitative research, a total 222 respondent participated in this study consisting of 156 local people in Zhabagly community and 56 from Abaiyl community. The questionnaire uses the five points of the Likert scale. The study used 18 indicators to measure progress toward improving the sustainability of CBE development in the case study. This was based on residents' perceptions of the implementation of sustainable ecotourism development: Environment (4 indicators), Socio-cultural (5 indicators), Economic (5 indicators) and Political (4 indicators). The data was analyzed using Microsoft Excel 2016. Descriptive statistics were used to summarize the mean score and weighted average values. The weight of the indicator was calculated by:

$$\text{Indicator weight}(w_{ij}) = \frac{\text{Mean score of each indicator}}{\text{Total indicators mean scores}} \times 100$$

To determine sustainability, weight score of indicators within three relationship aspects are found by:

$$y_{ij} = \frac{r_{ij} - 1}{m} w_{ij}$$

where y_{ij} is the weighted scores of the j-th indicator in the i-th aspect, r_{ij} is the mean score of the j-th indicator in the i-th aspect, and w_{ij} is the weight of j-th indicator in the i-th aspect, m explains the four intervals of sustainability barometer.

$$y_i = \sum_{j=1}^{k} y_{ij}$$

where y_i is the sum of weighted score for the i-th aspect; and k is the number of indicators included in the i-th aspect.

The study used the Barometer of Sustainability to determine gradations of sustainability (Ko 2005). And four interval scales of 1-100 were used, in which 1-25% was classified as "unsustainable (bad)", 26-50% was classified as "potentially unsustainable (poor)", 51-75% was classified as "potentially sustainable (good)" and 76- 100% was classified as "sustainable (excellent)".

Interval scales denoted the indicator mean score between 1 and 5, where 1.0-2.0 denoted unsustainability, 2.1-3.0 denoted potential unsustainability, 3.1-4.0 denoted potential sustainability and 4.1-5.0 denoted sustainability.

To determine the contribution to sustainability from a relationship aspect, the achievement scores were obtained by:

$$D_i = \frac{y_i}{w_i} \times 100\%$$

where w_i is the sum of weighted, y_i is weighted scores, and D_i is the i-th relationship aspect. Theingthae (2017) used this method in his study. His paper assesses the implementation of CBE and compares the sustainability of ecotourism development between the Tha Chat Chai Buddhist (TCCB) community and the Bang Rong Muslim (BRM) community. The results reveal that ecotourism sustainability varied greatly between two communities with empowerment and local community involvement in the implementation of CBE. However, both communities have the poorest possible sustainability rating on the economic dimension.

Table 1: Details of resident sample responses (n = 222)

Characteristics	Zhabagly (n=166) Percentage	Abaiyl (n=56) Percentage
Gender:		
Male	66.3	67.9
Female	33.7	32.1
Age (years):		
Young (18–34)	36.2	39.3
Middle age (35–54)	53	48.2
Elder ($\geq$ 55)	10.8	12.5
Ethnicity:		
Kazakh	91.6	92.8
Russian	4.8	3.6
Other	3.6	3.6
Education:		
Middle (school or college)	85.5	89.3
High (university or above)	14.5	10.7

4.2 Demographic characteristics of respondents

Table 1 shows that out of the 222 respondents, 166 were from the Zhabagly settlement and 56 were from the Abaiyl settlement. Since men generally go out to work in remote villages to earn money while women do housework and raise children, the number of men we interviewed is almost twice as large as that of women, with 66.3% (from Zhabagly) and 67.9% (from Abaiyl) respectively. The highest number of respondents was the middle-age group (35–54) with (53.0%) from Zhabagly and (48.2%) from Abaiyl respectively, followed by the young (18–34), with 36.2% (Zhabagly) and 39.3% (Abaiyl). And the lowest number of respondents was the elder group ($\geq$ 55), with (10.8%) from Zhabagly and (12.5%) from Abaiyl respectively. Nearly all respondents were Kazakhs: 91.6% from Zhabagly and 92.8% from Abaiyl were interviewed, respectively. At the same time, survey questions were answered by 4.8% people of Russian ethnicity and 3.6% other ethnic groups in Zhabagly and 3.6% Russian and 3.6% other ethnic groups in Abaiyl. Most respondents had the middle level (school or college) of education, with 85.5% of Zhabagly and 89.3% of Abaiyl while only 14.5% (Zhabagly) and 10.7% (Abaiyl) had received higher education (university or above).

5 Results

Sustainable tourism enables people to participate and benefit from it. Developing sustainable tourism activities can generate income for local residents and build community facilities. However, it is not only local people who will benefit from sustainable tourism resources, with the private sector also seeing benefits (Polnyotee, Thadaniti 2015). In order to achieve a sustainable development of tourism, tourism development should obtain a higher level of satisfaction or good perception from the local community. To measure the sustainable development of tourism types in a designated area, it is necessary to study how the community as a whole evaluates the area as a tourist destination. Therefore, we consider the following indicators to determine the sustainability of community-based ecotourism development in the Aksu-Jabagy NR. They are the four main components of sustainability principles, including the environmental, socio-cultural, economic and political dimensions. Based on the description and analysis of questionnaires, the results from the total assessment of implementation of sustainable ecotourism management is shown in Table 2.

Environmental dimensions

In the environmental dimensions of CBE development, it is commendable that Zhabagly community is achieving a higher level of compliance. The residents of Zhabagly community recorded the highest mean score on the "existence of flora and faunal biodiversity management plan" (4.52). Since the territory of Aksu-Zhabagly NR is state-owned land which the government controls and holds a monopoly on, including its natural resources, residents and enterprises can engage in activities permitted by law around natural public areas. The residents of Zhabagly community also recorded the highest mean score on "providing and development knowledge of local people in environment conservation" (4.27), reflecting the fact that the people living in Zhabagly settlement have participated in educational activities highlighting the importance of protected natural areas and environmental protection enforced by relevant governmental and non-governmental organizations.

Conversely, the residents of Abaiyl community recorded a medium mean score on the implementation of environmental sustainability dimensions. The lowest mean score recorded from Abaiyl community was on the "trained and development knowledge of local people in ecotourism management" (3.20). This is due to the fact that the majority of the population in this area is railway workers, who are on duty and do not often take part in the tourism development strategies in the reserve.

Socio-cultural dimensions

Overall, on a comparison of basic descriptive analysis, the Zhabagly community have a higher level of perception on the indicators of tourism's positive socio-cultural impact. For the residents of Zhabagly settlement, the perceived highest mean score is on "rehabilitation and conservation of local cultural and historical values" (4.18). At the same time, Zhabagly community also perceived relatively higher compliance with "existence and revival program of traditional clothing, music and dance" (3.89) and "recovery & implementation of local traditional rituals and festivals" (3.71) respectively. It can be seen from the Table 2 that the degree of compliance of the Abaiyl community in indicators of a socio-cultural dimension is moderate. The highest perception from the Abaiyl community is on "existence and revival program of traditional clothing, music and dance" (3.59).

Conversely, both the residents of Zhabagly and Abaiyl community perceived the lowest compliance with "implementation of quality infrastructure development" (Zhabagly=3.21 and Abaiyl=2.57 respectively), which indicated that the state of infrastructure development in Aksu-Zhabagly tourism destination is still at a lower level.

Economic dimensions

In relation to the economic dimensions, results showed that both communities are implementing with a moderate level of compliance. Residents of the two communities perceived the highest mean score for "provide locals with employment opportunities" (Zhabagly=3.68 and Abaiyl=3.51 respectively). And the lowest mean score in this dimension is on "promote the development of other economic sectors" (1.96), recorded by the community of Abaiyl. Because of longer distances from the core zone of the tourism destination, residents of the community of Abaiyl do not perceive a high degree of economic benefits from tourism (Figure 2).

At the same time, the views of both communities that tourism "increases local residents' household income" and "generates foreign exchange" are positive, with a mean score of greater than 3. However, they do not agree with the opinion that "tourism increases government tax revenue", one of the main reasons for this is that most of Kazakhstan's government budget comes just from the oil and gas sector, and tourism is not one of the priorities of economic development.

Political dimensions

Overall, the communities of Zhabagly and Abaiyl have a less positive perception relating to the political dimension. Accordingly, the mean score of "promote investment that

Table 2: Mean scores, weight, weighted score and ranking of indicators for sustainability of the CBE development in the implementation of each dimension accordingly

Dimensions		Indicators	Zhabagly community				Abaiyl community				
			Mean Score	Weight	Score	Rank	Mean Score	Weight	Weighted Score	Rank	p-value
Environmental	EN1	Providing and development knowledge of local people in environment conservation.	4.27	6.93	5.66	3	3.78	7.22	5.02	4	0.000
	EN2	Trained and development knowledge of local people in ecotourism management.	3.78	6.13	4.26	1	3.20	6.11	3.36	1	0.039
	EN3	Existence of management plans for geomorphological formations and soils.	4.05	6.57	5.01	2	3.38	6.46	3.84	2	0.002
	EN4	Existence of flora and faunal biodiversity management plan.	4.52	7.33	6.45	4	3.41	6.51	3.92	3	0.000
Socio-cultural	SO1	Rehabilitation and conservation of local cultural and historical values.	4.18	6.78	5.39	5	3.39	6.48	3.87	3	0.001
	SO2	Recovery & Implementation of local traditional rituals and festivals.	3.71	5.65	3.50	3	3.22	6.15	3.41	2	0.006
	SO3	Implementation of quality infrastructure development.	3.21	5.21	2.88	1	2.57	4.91	1.93	1	0.008
	SO4	Existence and Revival program of traditional clothing, music and dance.	3.89	6.31	4.56	4	3.59	6.86	4.44	5	0.000
	SO5	Convenience of access to tourist attraction and basic tourist facilities.	3.68	5.97	4.00	2	3.48	6.65	4.12	4	0.006
Economic	EC1	Increase local residents' household income.	3.38	5.48	3.26	1	3.27	6.25	3.55	4	0.009
	EC2	Provide locals with employment opportunities.	3.68	5.97	4.00	5	3.51	6.7	4.20	5	0.003
	EC3	Generate foreign exchange.	3.48	6.46	4.81	3	3.02	5.77	2.91	3	0.009
	EC4	Promote investment that support local development.	2.43	3.94	1.41	2	1.96	3.74	0.90	1	0.032
	EC5	Increase government tax revenue.	2.59	4.20	1.67	4	2.13	4.07	1.15	2	0.040
Political	PC1	Promote investment that support local development.	2.23	3.62	1.11	1	1.45	2.77	0.31	1	0.039
	PC2	Safety management for local people and tourist.	2.79	4.53	2.03	3	2.63	5.02	2.05	4	0.045
	PC3	Existence of strategies in promoting education and public awareness.	2.83	4.59	2.10	4	2.57	4.91	1.93	3	0.028
	PC4	Existence of strategies in poverty reduction through tourism development.	2.66	4.32	1.79	2	1.79	3.42	0.68	2	0.041

Notes: Statistically significant at $p < 0.05$.

supports local development from both communities" was low, with 2.23 for Zhabagly and 1.45 for Abaiyl. This reflects a perception that the government does not pay sufficient attention to attracting investment for the management of ecotourism activities. Moreover, residents of Abaiyl community recorded the lowest mean score for "strategies in poverty reduction through tourism development" (1.79), due to limited support for education and public awareness by relevant organizations.

The views of the two communities on "safety management for local people and tourists" are mostly the same, (Zhabagly=2.79 and Abaiyl=2.63 respectively). Although both communities rated the effectiveness negatively, they rated it relatively higher than other political dimensions. When conducting research in the study area, we also found that the authorities did not pay enough attention to providing financial support for the development of local souvenir shops, local gourmet restaurants, homestays and others projects that provide services to attract tourists.

6 Discussion

From the comparison of basic descriptive analysis, we found that there are differences in sustainability in the implementation of CBE development between the two communities (Figure 3). Although the Zhabagly and Abaiyl communities rated CBE development at the same level (potentially sustainable and potentially unsustainable) in two dimensions (socio-cultural and political), their assessments of the other two dimensions (environmental and economic) were different. If we compare the assessment of tourism sustainability of the two selected settlements on 4 indicators, the community of Zhabagly rated all indicators higher than the population of Abaiyl by approximately 10% . One of the main reasons for this is that the village of the Abaiyl settlement is located on the railway bank, far from the nature reserve compared to the Zhabagly settlement (Figure 2), so the people in Abaiyl do not associate themselves with the development of various industries (including tourism) in the reserve. They see themselves as heavily dependent on permanent employment and trade.

Zhabagly residents perceived the highest level of compliance (sustainable) in the environmental dimension with 79.31% while residents of the Abaiyl community believe that the environmental dimension is potentially sustainable with 61.37% (Table 3). This indicates that the development of ecotourism in Aksu-Zhabagly NR has achieved its goal to some extent because residents of Zhabagly settlement gave a comparatively high evaluation on the positive ecological impact of tourism development in the nature reserve.

As far as the assessment of the socio-cultural impact of tourism is concerned, Table 3 shows that the assessment of the residents of the two settlements was at a potentially sustainable level (Zhabagly=67.95 and Abaiyl=57.23 respectively). In a survey of local people, we found that with the development of tourism in the reserve, the local Kazakh people were happy to see the restoration of traditions that had disappeared during the Soviet era. And the demonstration of national traditions to tourists is mostly organized in the Zhabagly settlement.

According to the results of the community assessment of the economic impact of tourism, the village of Zhabagly rated the economic impact of tourism higher than that of Abaiyl. The people of Zhabagly settlement referred to this dimension as a potentially sustainable category with 58.17%, but the residents of Abaiyl classified it as a potentially unsustainable level with 47.91% (Table 3). Although Abaiyl settlement is not far from the nature reserve and the quality of paved roads from this settlement to the Aksu-Zhabagly tourist destination is sufficient, the people in Abaiyl settlement recognize the economic benefits of tourism development to a lesser extent than those in Zhabagly. One of the main reasons for this situation is that the government lacks effective policies to encourage them to participate in tourism. On the other hand, most of the people in Zhabagly are railway employees and seem to be satisfied with their current stable job.

In relation to the political dimension, residents of both settlements gave the lowest score in 4 dimensions. Both community's residents believe that the political dimension of ecotourism development is potentially unsustainable in the Aksu-Zhabagly NR (Table 3). This is because many issues exist in these two communities such as a lack of programs for

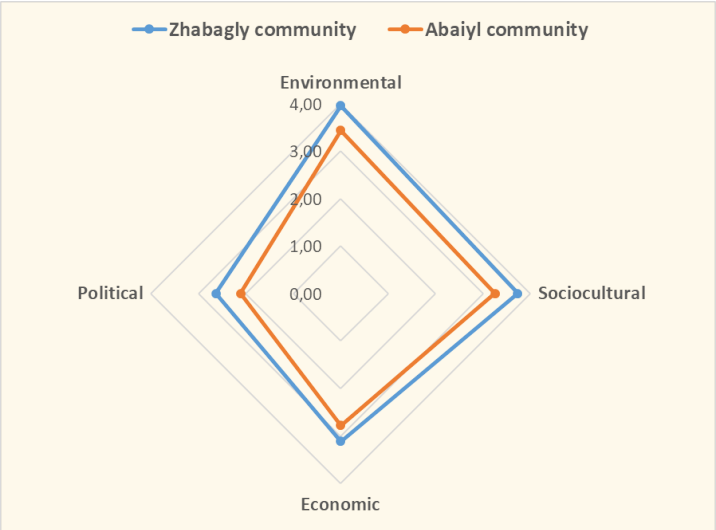

Figure 3: Implementation of CBE development in Aksu-Zhabagly NR.

Table 3: Sustainability achievement of Zhabagly and Abaiyl communities in inter-relationship aspects

Dimensions	Weight (Wi)	Weighted Scores (Yi)	Achievement Percentage (%)	Interpretation
		Zhabagly community		
Environmental	26.97	21.39	79.31	Sustainable (excellent)
Socio-cultural	29.92	20.33	67.95	Potentially sustainable (good)
Economic	26.06	15.16	58.17	Potentially sustainable (good)
Political	17.05	7.03	41.23	Potentially unsustainable (poor)
Total	*100.00*	*63.91*	*63.91*	Potentially sustainable (good)
		Abaiyl community		
Environmental	26.30	16.14	61.37	Potentially sustainable (good)
Socio-cultural	31.05	17.77	57.23	Potentially sustainable (good)
Economic	26.53	12.71	47.91	Potentially unsustainable (poor)
Political	16.12	4.97	30.83	Potentially unsustainable (poor)
Total	*100.00*	*51.59*	*51.59*	Potentially sustainable (good)

sustainable development investment partnership, and a lack of attention by the authority to support investment in local souvenir shops, local food restaurants, homestays and others services for attracting tourists.

Summarizing the above discussion, the assessments of the two main communities directly affected by tourism development in the nature reserve show that two (environmental and socio-cultural) of the four basic dimensions for measuring the sustainability of tourism are sustainable. This means that the development of ecotourism contributed to the protection of the ecology of Aksu-Zhabagly NR and the preservation of national culture and traditions of the local population. The overall result shown by both communities is potentially sustainable (Zhabagly=63.91 and Abaiyl=51.59). Conversely, according to the results in Table 3 we can say that the other two sustainability dimensions (economic and political) are rated as unsustainable. It is clear that the development of tourism in the nature reserve has not had a direct impact on improving the well-being of local people and reducing poverty in the surrounding community.

7 Conclusions

By investigating the views of neighboring communities on the ecological, socio-cultural, economic and political impact of tourism in the nature reserve, we assessed the sustainability

of community-based ecotourism in the Aksu-Zhabaly State Reserve in Kazakhstan. This process helps to conceptualize the socio-economic value of NR together with its positive environmental impact, to demonstrate its usefulness, and to promote knowledge that has practical policy implications in a variety of ways. At the same time, it provides innovative theoretical knowledge by combining relevant areas of NR tourism research and sustainable tourism development, and emphasizes the need to provide more empirical evidence on the issues studied through case studies.

The study concludes that the two main neighboring communities of the Aksu-Zhabagly tourist destination are dissatisfied with two dimensions (economic and political) of sustainable tourism development to some degree, which are the main driving forces for the development of local areas. Currently, few people see the economic benefits of the tourism industry, especially in the village of Abaiyl, which is relatively far from the reserve. At the same time, the government has not developed effective policies for the active involvement of the local population in tourism. In general, this shows that the sustainability of ecotourism in the Aksu-Zhabagly region is still low. In order to ensure best practices and a high level of CBE development, it is important to involve local people in sustainable ecotourism development initiatives. To improve the sustainability of community-based ecotourism in the Aksu-Zhabagly NR, the following recommendations are made: first, the relevant tourism management organizations should promote the positive economic influences of ecotourism development on local communities. The indicators relating to the economic dimension which have the lowest mean score are "promote the development of other economic sectors" and "increase government tax revenue". Marketing strategies, promotion, and collaborative organizations can improve community productivity and support local small businesses in achieving their goals in the process. In order to achieve long-term survival and an economic recovery of both communities, they must ensure a high degree of implementation of economic dimensions. Secondly, in both communities, relevant government units and community leaders should promote the implementation of the strategies involving "attract investments that support local development" and "poverty reduction through tourism development". For example, local communities' tourism relevance, participation rank and empowerment level should be improved.

There are a number of key limitations of this study to evaluate the status of the sustainability of ecotourism development by analyzing and discussing a limited number of indicators, such as ecological, socio-cultural, economic and political dimensions, and survey the local residents through quantitative analysis. Firstly they are not fully representative of the entire population of stakeholders in the Aksu-Zhabagly tourist destination. In addition, the empirical research is biased due to the use of a single case study, the research's duration and budgetary constraints. A single case study could give some new ideas or theoretical propositions, but may not be an effective basis for laying a general theoretical foundation. If a study is conducted by using this method among several communities from the point of view of all major stakeholders in the region, we hope that this method has the potential to serve as a theoretical basis for many other ecotourism development areas.

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