Climate Education and Renewable Energy for Sustainable Development of Karkaraly National Nature Park

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Is the project a case of…:

☐ State-initiated co-creation
☐ Entrepreneur-driven co-creation
☒ Grassroots-based co-creation*

Integrated case analysis

1) Background, history, and national, regional, and local contexts of the case

The Karaganda region of Kazakhstan is characterized by a sharply continental climate, increasing aridity, high risks of forest fires, and significant ecosystem vulnerability. The Karkaraly State National Nature Park (SNNP) is one of the key natural areas of the region, performing essential functions in the conservation of forest-steppe ecosystems, the development of ecotourism, and environmental education.

Kazakhstan is a unitary state with a centralized political-administrative system, where national ministries and regional akimats play a defining role in implementing policy. While climate change is officially recognized at the national level - Kazakhstan has ratified major international conventions and adopted climate and renewable energy legislation - practical implementation mechanisms at the regional level remain limited. This creates a gap between national climate commitments and their translation into localized action.

In practice, the effectiveness of environmental and climate initiatives depends on how national priorities are interpreted and applied by regional authorities, state institutions such as SNNPs, and local communities. Formal hierarchies can sometimes constrain bottom-up innovation, which makes informal coordination, NGO leadership, and community engagement particularly important.

Kazakhstan's national policy is aimed at reducing greenhouse gas emissions, promoting renewable energy sources, and raising public awareness. At the same time, the regions continue to face a low level of climate literacy, limited practical use of renewable energy in protected areas, and a strong need for greater involvement of local communities.

The socio-economic context of the Karaganda region also shapes the project. The region's industrial legacy - dominated by mining and metallurgy - influences environmental awareness and local vulnerabilities. Rural communities depend on natural resources and tourism, making them sensitive to ecological degradation and receptive to practical climate and environmental initiatives.

The project implemented by the "EcoObraz" NGO emerged as a response to these challenges and is aimed at ensuring the sustainable development of the State National Nature Park under conditions of

climate change through education, communication, the development of renewable energy, and engagement with tourists and local residents.

2) The aims of the project and the sustainability problems that it seeks to address

The aim of the project is to promote the sustainable development of the nature park and the local community under conditions of climate change.

Project objectives:

a) To increase the level of environmental and climate literacy among local residents and tourists.
b) To reduce the carbon footprint through the installation of small-scale solar power stations.
c) To develop educational materials and communication tools.
d) To expand the participation of local communities in environmental protection initiatives.
e) To enhance the climate resilience of the infrastructure of the State National Nature Park.

Main sustainability problems addressed by the project:

f) Limited access to reliable and objective information on climate change.
g) The absence of practical applications of renewable energy technologies at ranger stations and checkpoints.
h) High anthropogenic pressure from tourism activities.
i) Insufficient involvement of local residents and schools in environmental protection initiatives.
j) The need to strengthen mechanisms for intersectoral cooperation based on coordinated efforts of public, private, and civil society actors, including citizens.

3) The participants and their interaction and communication in and between meetings

a) "EcoObraz" NGO: development of educational materials, organization of events, and project communication (civil society sector) .
b) Karkaraly State National Nature Park (SNNP): technical support, provision of venues, and expertise from forestry units (public sector).
c) Educational institutions and teachers of the district: participation in training and awareness-raising programs (public sector)
d) Local communities and residents: participants in environmental actions and public events (civil society sector)
e) Media and social networks: dissemination of information and expansion of public outreach.
f) Representatives of local authorities: participation in round tables and coordination of decisions (public sector).

Interaction among participants took place on a regular basis both in physical and digital formats. Physical meetings were held at the facilities of the State National Nature Park, including the park administration buildings. These in-person interactions were especially important for practical coordination - such as selecting tree-planting sites, assessing infrastructure needs, and overseeing the installation of solar panels - because they allowed participants to jointly inspect locations, discuss technical issues on site, and quickly agree on next steps.

Digital communication complemented these physical meetings and ensured continuous coordination between events. The project coordination group used WhatsApp group chat and emails to exchange materials, coordinate logistics, adapt agendas, and share rapid updates. These digital platforms provided

an accessible and informal space for ongoing communication, enabling faster decision-making and maintaining engagement.

4) How often do they meet, and do they communicate between meetings?

Three main types of communication were applied within the project:

a) Regular working meetings between EcoObraz and the State National Nature Park (SNNP) – held on a monthly basis and prior to each major project activity.
b) Educational activities – conducted according to the project calendar (10 seminars and master classes, and 3 public environmental interventions).
c) Three round tables – organized at key stages of the project (August 2024 and October-November 2025).

Between meetings, communication was maintained through WhatsApp group chat, email correspondence, and social media platforms, ensuring continuous coordination and information exchange.

5) The role and forms of knowledge sharing, coordination and joint problem-solving

Knowledge sharing within the project was practice-oriented and multi-level. Expert knowledge was transferred through seminars, master classes, field-based training sessions, interactive and game-based formats, as well as through on-site demonstrations of solar power systems and energy-efficient solutions directly at park facilities.

Seminars covered topics such as forest restoration, climate change, greening practices, and available subsidy schemes for renewable energy, targeting rangers, teachers and local population. Master classes provided hands-on training in installing and maintaining solar panels and drip-irrigation systems, enabling park staff to later replicate these solutions independently. For younger audiences, game-based activities introduced the basics of renewable energy and helped participants explore their ecological footprint in an engaging, accessible format. Together, these activities combined technical learning with participatory interaction, strengthening joint problem-solving and community involvement.

A particularly important role was played by the staff of the State National Nature Park and invited trainers, who acted as intermediaries between expert knowledge and local practices.

Coordination was ensured through the project team and regular working meetings, where locations, timelines, event content, and the distribution of roles among the NGO, the park administration, and partners were jointly agreed upon. Social media and messaging platforms also played an important coordinating role, enabling the rapid resolution of organizational issues and maintaining continuous communication.

Joint problem-solving took place through:

a) discussions at working meetings, seminars, and round tables;
b) adaptation of event formats to the needs of schools and local communities;
c) adjustments to technical solutions for the installation of solar power systems;
d) planning of tree-planting campaigns.

Thus, the project combined vertical knowledge exchange (experts → community) with horizontal exchange (among schools, the SNNP, and NGOs). Vertical exchange was evident, for example, when

energy experts demonstrated how to install and maintain solar stations. Horizontal exchange occurred primarily among the park: rangers and technical specialists shared practical experience with one another on installing solar stations and operating the equipment in different parts of the park. These processes allowed expert knowledge "from above" to be integrated with practical, place-based knowledge "from within," ensuring that the solutions were not only disseminated but also adapted to local conditions and made more realistic and sustainable

6) The relation between consensus and conflict and the handling of the latter

Overall, the project was implemented under conditions of a high level of consensus, as the project goals were clearly understood and fully supported by the State National Nature Park (SNNP), and the planned activities closely matched the practical needs of the park (tourist awareness, renewable energy, and engagement of schools).

Consensus was reached through a centralized decision-making dialogue primarily between the SNNP leadership and the EcoObraz NGO. These two core actors jointly defined the project goals, priorities, and implementation strategy. At the same time, their decisions were not made in isolation: they were guided by information gathered from teachers, rangers, local residents, and other stakeholders. Needs assessments, consultations, and feedback from different groups informed the choices made at the central level, ensuring that the final decisions reflected the realities and expectations of the broader community.

Thus, while the process of forming consensus was not dispersed across multiple independent sub-projects, it was nevertheless grounded in a broad base of stakeholder input. EcoObraz and the SNNP acted as intermediaries who synthesized this input and translated it into coherent shared objectives and agreed-upon actions.

Minor challenges emerged during the selection of sites and the clarification of the technical parameters of the solar power systems. These issues were resolved through additional consultations with forestry units and the adjustment of implementation timelines, without leading to major conflicts or delays in project implementation. Because decision-making was centralized but responsive, disagreements were addressed quickly and constructively.

7) The role and form of leadership: lead actor, steering group and/or collective leadership

The leadership format within the project can be characterized as collective with distributed roles:

a) EcoObraz provided methodological, organizational, and communication leadership.
b) The State National Nature Park (SNNP) ensured technical, resource, and expert leadership in relation to conservation and infrastructure components.
c) Local authorities contributed to institutional legitimacy and supported the expansion of partnerships.

At key stages of implementation, a coordination group (EcoObraz + SNNP) operated to ensure joint decision-making and alignment of actions.

8) The temporal unfolding of the co-creation process: major shifts and ups and downs

The co-creation process within the project unfolded in a phased and wave-like manner, alternating between periods of intensive activity and organizational pauses.

The initial stage (second half of 2023 – early 2024) was dedicated to preparation, including a preliminary study, project design, partnership building, and the launch of information activities. During this period, co-creation was primarily of an expert-driven and organizational nature.

The first major upswing (second half of 2024) began with the start of seminars, master classes, the kick-off round table, and the installation of the first solar power systems. At this stage, co-creation entered a practical phase, and participants began to influence the formats and content of project activities.

The expansion phase (first half of 2025) represented the peak of activity. It included mass tree-planting campaigns, intensive work with schools and school-based summer camps, educational and game-based modules, and meetings of the coordination council. Participation became broad-based and large-scale.

Periods of relative slowdown occurred during the off-season and during coordination with partners and public authorities and were mainly of an organizational and technical character.

The final stage (second half of 2025) was associated with the institutionalization of results, including the installation of information boards, consolidation of outcomes, formulation of recommendations, and the organization of the final round table.

Overall, the project implementation process developed in a stable and resilient manner, without major crises, through successive waves of activity.

9) The most important governance factors (may include factors other than those in focus in this project)

The key enabling factors of the project included:

a) a high level of readiness of the State National Nature Park (SNNP) to engage in joint activities;
b) the openness of schools and teachers to environmental and climate education;
c) the presence of consistent and sustained media support;
d) the involvement of local authorities in public discussions;
e) the practical demonstration of renewable energy technologies and nature-based solutions;
f) the EcoObraz team's strong experience in communication and environmental education.

10) The generated outputs and outcomes

As part of the project, a practical infrastructural basis was established to reduce the carbon footprint of the Karkaraly SNNP. Eleven solar power stations with a capacity ranging from 0.5 to 2 kW were installed, which reduced the use of conventional fuels and ensured a reduction of CO_2 emissions by 42,720 kg.

A significant contribution to climate adaptation was achieved through reforestation on an area of 56.6 hectares, forming a potential annual CO_2 absorption of 186.78 tons. In total, 281,522 seedlings were planted, strengthening forest ecosystem restoration, reducing anthropogenic pressure, and increasing the resilience of the territory to climate risks.

A stable partnership network was formed and strengthened among the SNNP, educational institutions, NGOs, and local authorities. An increase in the engagement of local residents, teachers, and youth in issues of climate resilience, environmental protection, and ecological volunteering was observed.

The approaches to the use of renewable energy and nature-based solutions developed within the project were integrated into the further planning of the SNNP's activities.

The organization of round tables enabled the formulation of practical recommendations for the sustainable development of the park and intersectoral cooperation. As a result, the institutional readiness of the park and its partners for the implementation of subsequent climate, energy, and environmental initiatives was strengthened, including the scaling up of the acquired experience.

11) Lessons learned about the conditions for co-creating green solutions

First and foremost, the project experience demonstrated that the development of climate and environmental solutions for a specific territory requires a thorough preliminary analysis of the local context - environmental, social, and institutional. For the Karkaraly State National Nature Park (SNNP), this context included a high anthropogenic pressure from tourism, the vulnerability of forest ecosystems to climate risks, and the need to modernize ranger station infrastructure. The early involvement of park staff, teachers, local residents, and public authorities made it possible to more precisely define project priorities and significantly increased the practical relevance of the interventions.

The project confirmed that the co-creation of green solutions is impossible without relying on local knowledge and institutional experience. The staff of the SNNP made a key contribution to the selection of sites for the installation of solar power systems and reforestation activities, while teachers and community representatives played a decisive role in adapting educational programs to different age and social groups. This ensured higher relevance of project activities and reduced the risks of purely formal participation.

At the same time, the project revealed that the introduction of technological solutions (solar power systems, drip irrigation) requires not only the supply of equipment, but also mandatory accompanying training, demonstrations, and hands-on master classes. Without such support, technologies do not become a sustainable part of everyday practices. The experience gained points to the necessity of phased implementation of renewable energy technologies with continuous user support.

Another important lesson was the need to take into account natural-climatic and organizational risks. Weather conditions, seasonal limitations, the remoteness of ranger stations, school schedules, and the need for approvals from multiple institutions repeatedly led to delays. These factors must be anticipated already at the project design stage, with adequate time and logistical buffers built into the project schedule.

The project also demonstrated that the sustainability of green solutions directly depends on the level of communication and information support. Regular work in social media and open public events contributed to building trust, expanding partnerships, and strengthening public engagement. Without systematic communication, the participatory effects of co-creation are significantly weakened.

Finally, a key condition for the successful co-creation of green solutions proved to be partnership-based leadership grounded in a clear distribution of roles among the NGO, park administration, educational institutions, and public authorities. This format made it possible to combine managerial resources,

expert knowledge, and public support into a single sustainable and resilient mechanism for implementing climate and environmental initiatives.

Scoring and analysis of governance factors

1. Perceived importance of biosphere conditions

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☒ 0.66	☒ High confidence	☐ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

From the very beginning of the project, its participants and partners were oriented toward a clearly articulated environmental focus, linked to the restoration of forest ecosystems, the reduction of anthropogenic pressure on the territory of the Karkaraly State National Nature Park (SNNP), and the introduction of renewable energy sources. The environmental dimension of the project was consistently reflected in educational activities, tree-planting campaigns, the installation of solar power systems, as well as in public communication and media coverage.

Unlike many similar initiatives, a specialized comprehensive field study of the territory was conducted prior to the start of the project by the Kazakh Scientific Research Institute of Forestry (KazNIILHA). This study included:

a) soil and forest melioration surveys,
b) analysis of vegetation and forest stands,
c) laboratory soil analyses,
d) assessment of land suitability for forestry and the design of reforestation measures on an area of 150 hectares.

This means that the project was based not only on general environmental awareness, but also on scientifically grounded data on ecosystem conditions, which fundamentally strengthened the environmental component of the initiative.

During project implementation, participants (SNNP staff, teachers, schoolchildren, local residents, and representatives of public authorities) consistently demonstrated an awareness of the value of forest ecosystems, the need for reforestation, the protection of rare species, and the reduction of pressure on natural resources. In general, nature conservation issues are perceived as more concrete and understandable by the target groups than climate processes, which tend to be perceived as more abstract and long-term.

At the same time, the level of environmental awareness remains uneven:

a) SNNP staff and teachers demonstrate a high level of understanding of the interconnections between the biosphere, ecosystems, and sustainable development;
b) among schoolchildren, students, and part of the local population, this understanding is still forming gradually, which reduces the overall average assessment of this factor.

Thus, the project has a clearly pronounced environmental conservation component, supported both by field research and by practical actions (reforestation, renewable energy, and environmental education). However, the climate dimension is perceived less distinctly than forest and landscape protection, and the deeper, personalized link between "climate and quality of life" still requires further strengthening through education. Furthermore, while the participants clearly showed interest in their biosphere conditions in isolation, there were no clear reported evidence that it actively supported the collaborative process itself.

2. Legislation, programs, and formal goals

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☒ Medium confidence	☒ Documents
☒ 0.66	☐ High confidence	☐ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

During interviews and working meetings, the project initiators referred to a broad range of national and international strategic documents that were considered as overarching reference frameworks in the development of project activities. These included, in particular, Kazakhstan's Nationally Determined Contribution (NDC), the United Nations Sustainable Development Goals (SDGs), as well as the legislation of the Republic of Kazakhstan on renewable energy and environmental protection. These documents served as a conceptual foundation for the formulation of measures related to the development of renewable energy, climate education, reforestation, and the reduction of anthropogenic pressure on the territory of the Karkaraly State National Nature Park (SNNP).

At the same time, the project proposal formally states alignment mainly with the SDGs, without a systematic and comprehensive analysis of the project's links to national climate strategies and programs. In most project publications and informational materials, direct references to specific laws, programs, and strategies are also limited. This indicates that the legal and programmatic framework has been used more as a background reference point rather than as an active instrument of public communication.

The project was not directly involved in the development or revision of regulatory and legal acts. However, it played an important role in the practical implementation of selected provisions of national climate and environmental policy at the local level. These include:

a) the introduction of solar power systems as instruments of decarbonization and energy efficiency;
b) the implementation of reforestation measures;
c) the integration of new knowledge and approaches into school education programs;
d) the consideration of environmental and climate solutions in the recommendations developed through the round tables.

A significant result is that new knowledge, technologies, and the positions of different social groups (including women and youth) began to be integrated into local action planning and discussions on the future development of the SNNP territory. This confirms the institutional relevance of the measures undertaken, even in the absence of direct legislative engagement.

At the same time, it was revealed that the level of public awareness of climate and environmental legislation remains low. Most project participants perceive environmental measures primarily through

practical actions (tree planting, solar installations, events), but rarely associated them with national and international strategies and legal commitments of the state, of which they are largely unaware.

However, the informants did not report that while these policies and laws provided a general framework based on which they could refer their project, which lubricated the general organizational context of the co-creation project, they did not discernibly create any institutional links that helped improve the collaborative processes.

3. Relative openness of public governance paradigms

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☒ Medium confidence	☒ Documents
☐ 0.66	☐ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

The project represents an example of a decentralized and partnership-based approach to addressing environmental and climate challenges at the local level. NGOs, the park administration, schools, and local communities played a key role in its implementation. In remote areas with limited access to centralized resources, such local forms of cooperation become the foundation for sustainable “green” solutions.

At the broader systems level, Kazakhstan’s public governance model is characterized by a largely centralized and hierarchical structure, where policy priorities, environmental regulations, and budget allocations are determined at the national level and implemented through regional and district akimats. Opportunities for civil society and private actors to participate directly in policymaking or in co-governance arrangements are limited and usually depend on discretionary decisions of authorities rather than institutionalized mechanisms. As a result, genuine multi-actor collaboration is not a routine feature of the system, but rather emerges selectively – where individual officials are supportive or where external donor initiatives create space for cooperation.

The region is characterized by the remoteness of ranger stations and a lack of up-to-date environmental knowledge and technologies. This increases the importance of initiatives that are implemented not only through centralized governance, but also through local action with partial support from the state.

From the very beginning, the project was implemented in an open and public format: information was regularly published in the media and on social networks, open seminars, public actions, and round tables were organized, and access to information was ensured for residents, experts, teachers, and journalists. The project remains open to donor monitoring and independent evaluation. Such transparency contributes to the growth of trust and interest in replicating the experience.

Interaction with public authorities has been working and constructive: sites for the installation of solar power systems and tree-planting activities were jointly agreed upon, representatives of the authorities and the SNNP participated in round tables, and the project’s recommendations were taken into account in discussions on local development plans.

At the same time, institutional openness remains partially stable: the involvement of public authorities largely depends on specific individuals, has a project-based character, and is more often expressed in support of individual activities than in regular co-management.

Thus, the governance model can be described as partially open, where channels of dialogue between society and public authorities exist and function, but mechanisms for permanent co-participation and joint decision-making are still in the process of formation.

4. Formalized institutional channels for citizen participation and community mobilization

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☒ Medium confidence	☒ Documents
☐ 0.66	☐ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

A relevant formal institutional channel within the governance structure of the Karkaraly State National Nature Park (SNNP) is the coordination council, which already existed prior to the project. Within the project, this council was reactivated and supplemented with additional participants, including representatives of local communities, NGOs, and partner organizations. Several meetings were held where participants discussed development priorities, coordinated environmental and climate-related activities, addressed technical issues related to solar installations, and formulated recommendations for further planning. Because the council is a permanent structure within the SNNP, it is expected to continue functioning beyond the project, making it a meaningful – though not decisive – formal mechanism for collaboration.

The project also formalized several partnerships through memoranda of cooperation with enterprises and potential development partners. These agreements strengthened institutional interaction and created a basis for longer-term cooperation.

At the same time, Kazakhstan's governance system is highly centralized, and although formal channels for public participation exist (such as public councils and consultative bodies), their decision-making influence is generally limited. They typically serve advisory or informational functions rather than enabling active citizen involvement in policy-making or co-management. This structural context constrains the potential impact of formal participation mechanisms on collaborative processes.

Thus, while the project did make use of an existing formal institutional channel and helped revitalize its work, the broader governance environment limit the degree to which such channels could substantively enhance collaboration. The coordination council functioned primarily as a platform for dialogue and coordination rather than as a tool of shared governance.

5. Mechanism for ensuring top-down government and bottom-up social accountability

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☒ Medium confidence	☒ Documents

☐ 0.66 ☐ High confidence ☐ Observations
☒ 1

Please elaborate on the reasoning behind your scoring for this governance factor:

Both vertical (top-down) and horizontal (bottom-up) accountability mechanisms were applied in the project, and together they contributed to maintaining transparency and supporting collaboration among participants. Top-down accountability was ensured primarily through the requirements of the GEF Small Grants Programme, including regular project, financial, and narrative reporting, as well as formal approval of activities, locations, and technical solutions within the project framework. These procedures ensured transparency of implementation and the targeted use of resources, without external administrative control.

Bottom-up (social) accountability was ensured through open public events, round tables, the work of the coordination council with local residents, wide media coverage, and systematic feedback collection. Because these practices were repeated at multiple stages of the project, they gradually became recognizable and expected channels for public dialogue. Residents, teachers, schoolchildren, and SNNP staff were able to raise questions, make proposals, influence the themes of activities, and participate in shaping recommendations. This created a basic but functional framework of public accountability, oriented toward joint adjustment of project actions rather than formal complaints. This ongoing information flow increased participants' willingness to stay engaged and facilitated smoother collaborative interactions.

Although these accountability mechanisms were not formalized as part of the project's operational cycle, for which reason the feedback channels could not effectively or systematically feed back into improved collaboration, they nonetheless had a discernible impact on the collaborative process. In terms of future improvements, embedding permanent public monitoring systems can be a potential improvement. This is relevant in light of the facts that systematic civic influence remained limited and many social accountability practices functioned ad hoc through project-based platforms rather than formally established institutional instruments.

6. Strategic agenda-setting by means of translation

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☐ Medium confidence	☒ Documents
☐ 0.66	☒ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

In the project proposal submitted by the EcoObraz NGO, a direct link to the UN Sustainable Development Goals (SDGs) is explicitly stated, primarily to SDG 13 (Climate Action), SDG 7 (Affordable and Clean Energy), and indirectly to SDG 15 (Life on Land) through the implementation of reforestation activities.

However, an analysis of the project documentation, information materials, media publications, social media content, as well as interview data with participants shows that the SDGs were hardly used as an active language of communication with local communities. Local issues- such as reforestation, the installation of solar power stations, and environmental education - were not systematically reframed

through the SDG framework in public discussions, and project participants generally did not demonstrate motivation to engage specifically due to the project's connection to the global sustainable development agenda.

As a result, the translation of the SDGs into the local strategic agenda remained fragmented and non-institutionalized: the SDGs were declared at the level of project design, but did not become a central tool for shaping local governance and social narratives, nor did they serve as an independent factor for mobilizing participants.

7. Construction of narratives about successful multi-actor collaboration

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☐ 0.66	☒ High confidence	☒ Observations
☒ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

During the preparation and implementation of the project, participants repeatedly referred to their previous experience of multi-actor cooperation in the fields of nature conservation, environmental education, and community-based initiatives in the territory of the Karkaraly State National Nature Park (SNNP) and the Karaganda region. This experience included joint activities involving the park, schools, and NGOs, participation in nationwide environmental campaigns such as the "March of Parks," previous donor-supported projects, as well as cooperation with industrial enterprises in the framework of environmental initiatives. Informants not only acknowledged the existence of such experience but also emphasized that it was actively used in the current project - in team formation, role distribution, the choice of engagement formats for working with local communities, the organization of round tables and the coordination council, and in building partnerships with enterprises and potential investors.

Thus, previous cooperation did not remain a background resource but was reinterpreted and embedded in current collaborative practices. Observations of project meetings consistently recorded references to "how things were done before," which organizational solutions proved effective, and which mistakes were successfully avoided.

In conclusion, this narrative primarily served as a tool for building general trust among participants rather than as a source of collective motivation. The key motivational factors remained the practical relevance of the activities (installation of solar power stations, tree planting, training), the expected environmental and social benefits, and the opportunities for territorial development.

8. Building or harnessing institutional platforms and arenas

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☒ Medium confidence	☒ Documents
☐ 0.66	☐ High confidence	☒ Observations
☒ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the project, both physical and digital platforms were actively used to ensure regular interaction among the NGO, the administration of the Karkaraly State National Nature Park (SNNP), educational institutions, local communities, and partners. The main physical arenas included the SNNP facilities, the Nature Museum, schools, as well as venues for round tables and meetings of the coordination council. These venues provided the basic infrastructure for conducting meetings and gatherings to facilitate knowledge exchange.

Digital platforms (social media, working chats, and email) were systematically used for participant mobilization, event coordination, and public reporting. Stable routines of collaborative work developed on these platforms, including program preparation, moderation of discussions, documentation of decisions, and public communication.

Although the meetings facilities were primarily ad hoc, meaning that there was also a variation in terms of the exact SNNP facilitaties that were used from one meeting to another, they nonetheless had a discernible impact on improving the collaborative processes.

9. Provision of access to blended financing

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☒ 0.66	☒ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

The project is implemented with the support of a primary donor - the GEF Small Grants Programme - as well as through financial and non-financial partner contributions from the Karkaraly SNNP, “EcoObraz” NGO, educational institutions, and activity participants (provision of premises, human resources, and organizational support). During the project, memorandums of cooperation were also signed with industrial enterprises and potential partners, creating preconditions for expanding the resource base in the future.

Thus, the project contains elements of blended financing, including donor support and partner contributions. At the same time, the project structure was not significantly adjusted to the requirements of multiple independent funding sources, and the requirements of different donors did not have a noticeable impact on the logic of collaboration among participants. Thus, while the blended financing was significant for the operations of the project, it did not discernibly support the collaborative processes thereof.

10. The capacity to leverage support from authorities to enable local collaboration

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☒ Medium confidence	☐ Documents
☐ 0.66	☐ High confidence	☒ Observations

☐ 1

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the project, support from public authorities was limited and predominantly formal-organizational in nature. No active involvement of government representatives in co-implementation or joint governance of the project was observed.

At the same time, several targeted forms of assistance were recorded. In particular, the Department of Education supported the invitation of participants to educational activities; the Chamber of Entrepreneurs provided premises for a round table; and local authorities supported tree-planting actions.

These forms of support were primarily political-symbolic and facilitated the implementation of specific activities but were not systematically integrated into the mechanism of collaborative development among project participants. Overall, public authorities played occupied a relatively passive role, providing their general approval through the symbolic contributions, although it was by no means significantly affecting the overall conditions of the project.

11. Inclusion and empowerment of relevant and affected actors

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☒ 0.66	☒ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Both relevant and affected stakeholders were deliberately engaged, including staff of the Karkaraly State National Nature Park (SNNP), teachers, students, local residents, representatives of NGOs, business, and public authorities. Participants were involved through educational institutions, the park administration, the coordination council, and open public events. In the project, concrete efforts were indeed made to lower participation barriers and ensure that different groups had a “real voice.” Various significant examples include:

a) adapting educational materials for different age and professional groups, including game-based formats for schoolchildren and simplified explanations of technical processes;
b) conducting hands-on master classes and demonstrations, which made complex technical topics (renewable energy, drip irrigation) understandable even for participants without technical backgrounds;
c) involving women and youth through specially oriented activities, which broadened the spectrum of participants
d) actively collecting feedback and discussing participants’ suggestions, which strengthened the sense of meaningful involvement.

These measures did help select participants feel more confident and engage more actively in the collaborative process. Motivation and involvement - especially among teachers, schoolchildren, and

SNNP staff - clearly increased because the formats were accessible and did not require a high level of prior knowledge.

In addition to formal inclusion, additional measures were taken to ensure the real voice of different groups, including the involvement of women and youth in seminars, public actions, and round tables, the collection of participant feedback, and the discussion of proposals within round tables and the coordination council.

Thus, the project ensured not only the presence of key actors but also their active participation in the collaborative process. At the same time, despite regular engagement, mechanisms for the sustained integration of the input of potentially marginalized groups into governance and decision-making remain limited and largely dependent on the project-based format and thus lacked permanence and stability. This also meant that the mechanisms for inclusion and empowerment were uneven, potentially benefitting some subset of actors more than others, which may have distorted the power balance among the participants. Thus, it is ambiguous whether it systematically supported collaboration, or perhaps counteracted/distorted it due to its potentially uneven application.

12. Clarification of interdependence vis-à-vis common problem and joint vision

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☐ Medium confidence	☐ Documents
☐ 0.66	☒ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the project, purposeful efforts were made to clarify the interdependence of participants and their respective contributions to the achievement of common goals. The complementarity of roles between the “EcoObraz” NGO and the administration of the SNNP was the most clearly recognized and institutionally formalized, primarily in the organization of activities and the implementation of renewable energy and conservation solutions.

At the same time, for a broader range of participants (teachers, local residents, and business actors), the awareness of interdependence remained rather fragmented and situational, manifesting mainly within the framework of specific activities. A shared vision was shaped around individual practical tasks (tree planting, seminars, installation of solar stations), but it was not fully formed as a stable collective understanding of long-term shared responsibility for territorial development.

Overall, participants recognized the surface-level usefulness of cooperation; however, a deeper sense of interdependence among all actors as a key motivational driver of joint action had not fully developed.

13. Trust-building and conflict mediation

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☒ 0.33	☒ Medium confidence	☐ Documents

☐ 0.66	☐ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the project, trust-building among participants emerged organically mainly through regular joint activities, including seminars, master classes, round tables, public actions, and meetings of the coordination council. These formats fostered personal acquaintance, the development of working relationships, and helped reduce potential tensions between different groups of participants. However, none of these efforts were explicit efforts to promote trust. These activities were just part of the collaborative routines of the project.

Similarly, no special institutionalized procedures for conflict mediation were established within the project. Any potentially challenging situations, if they arose, were addressed on a situational basis through informal discussions involving the project coordinators. Insofar as the project was relatively consensus-oriented, mediated through EcoObraz and SNNP, the scope of conflicts were also limited.

Thus, while minor elements of trust-building were present in the project, they were not systematic in nature and were not formalized as a stable mechanism for conflict management.

14. Use of experimental tools for innovation

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☐ 0.66	☒ High confidence	☒ Observations
☒ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Within the project, experimental and pilot solutions were applied, including the pilot installation of solar power stations at selected ranger stations and facilities of the SNNP, the testing of educational modules, presentations, and a climate and renewable energy game, as well as the piloting of workshop and hands-on training formats. During implementation, feedback was systematically collected from participants (SNNP staff, teachers, schoolchildren, and local residents) and used to refine programs, training formats, and informational materials. Subsequent activities were adapted in line with the identified needs and the audience's level of understanding. This step-by-step process gradually improved the quality of activities and allowed adjustments to be made based on real participant experience, thereby strengthening collaboration, although experimentation was not a central element of the project.

At the same time, the applied solutions cannot be considered technologically innovative in a broader sense. However, under the conditions of the Karkaraly SNNP and adjacent territories, they functioned as local innovations, since such approaches (solar installations at ranger stations, systematic climate education, and game-based renewable energy formats) had not previously been implemented there. Thus, the innovative character of the project lay not in the creation of entirely new technologies, but in the introduction and adaptation of existing solutions to the specific natural, social, and infrastructural conditions of the territory. The experimental tools supported collaboration by creating opportunities for joint testing, discussion, and adjustments; however, they did not evolve into a fully institutionalized or

central mechanism of co-creation that ensured that the feedback from these experiments systematically enabled the collaborative processes. Thus, while they did have a discernible impact on the collaboration, informants conceded that there was still room for further improvements.

15. Ongoing critical self-reflection and learning (i.e., process and/or developmental evaluation):

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☒ Documents
☒ 0.66	☒ High confidence	☒ Observations
☐ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

Throughout the project, regular internal review of implemented activities was conducted, including the collection of feedback from participants of seminars, workshops, public actions, and round tables. The results were used to adjust educational programs, interaction formats, and the content of activities at subsequent stages of the project.

The analysis of the needs of teachers, schoolchildren, and SNNP staff made it possible to adapt the level of presentation of climate and energy topics, refine the practical focus of the sessions, and strengthen the applied components of training.

Thus, evaluation materials were not merely formal but were used in the collaborative process, indicating the presence of a sustainable element of project-based learning. At the same time, the feedback and reflection processes, while regular and useful, were not central drivers of collaboration. Their influence remained supportive rather than transformative: they helped fine-tune activities and improve coordination, but the overall collaborative dynamic relied primarily on the organizational leadership of EcoObraz and the SNNP rather than on the evaluative mechanisms themselves.

In addition, the project did not establish a structured, ongoing evaluation framework nor integrate specialized developmental evaluation tools that could systematically guide collaboration. The reflective practices were emerging on an ad hoc basis throughout the project cycle and depended on the initiative of the implementing team rather than on an institutionalized routine. This also limited the scope of institutional uptake of the evaluative feedback.

16. Exercise of facilitative leadership:

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Interviews
☐ 0.33	☐ Medium confidence	☐ Documents
☐ 0.66	☒ High confidence	☒ Observations
☒ 1		

Please elaborate on the reasoning behind your scoring for this governance factor:

The project demonstrates clearly articulated facilitative leadership exercised by the EcoObraz NGO team. This leadership is expressed through the initiation and organization of seminars, master classes, and round tables; coordination of interaction among the SNNP, schools, local communities, businesses, and public authorities; as well as the moderation of discussions and alignment of joint actions.

Project leaders actively advance the collaborative process by ensuring regular meetings, setting agendas, collecting feedback, and subsequently adapting activities. In practice, facilitation included preparing agendas, moderating group discussions so that all participants could speak, summarizing decisions, resolving small disagreements (e.g., on solar station locations), and maintaining continuous communication through WhatsApp chats. These routines helped sustain trust and collaboration**.** This is confirmed by event protocols, programs, and observations from working meetings.

Outcome variable: Successfully co-created green transitions

The outcome variable 'co-created green transitions' will be scored in two parts. First, 'co-creation' will be scored based on an assessment of whether the participants in the initiative, project or process engaged in collaborative problem-solving that fostered creative ideas and innovative solutions (data will consist of survey data combined with interviews and documents). Next, 'green transitions' will be scored based on an assessment of whether the initiative, project or process has fulfilled or is expected to fulfill its green goals, ambitions and aspirations (data will consist of survey data combined with interviews and internal and/or external evaluation reports, including scientific publications).

The scoring of this variable is done in two parts:

a) *Is the developed solution based on collaborative problem-solving spurring creativity and innovative solutions?*
b) *Does the developed solution engender a green transition?*

This scoring should be conducted based on both the survey and complementary green outcome evaluations. Please consult Sections 4.4 and 6.10 in the Research Protocol for more details.

1. Is the developed solution co-created?

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Survey
☐ 0.33	☐ Medium confidence	☒ Interviews
☒ 0.66	☒ High confidence	☒ Documents
☐ 1		☒ Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

The solution developed within the project can be characterized as largely co-created. Although the initiative, overall project architecture, and the key technological and thematic priorities were initially defined by the EcoObraz NGO and invited experts, the further specification of solutions, their adaptation

to the local context, and their practical implementation were carried out in close interaction with a wide range of stakeholders.

Staff of the Karkaraly State National Nature Park, teachers, schoolchildren, representatives of local communities, and partners did not act merely as passive recipients of ready-made solutions. Through a system of seminars, master classes, educational programs, public actions, round tables, and the work of the coordination council, they contributed substantive inputs, articulated needs, identified constraints and priorities, which led to adjustments in formats, content, and implementation approaches. The use of feedback, repeated piloting, and subsequent refinement of educational and demonstration tools confirms the iterative nature of the joint problem-solving process.

Survey data further confirm the presence of collaborative creativity. Survey items related to creativity all show positive mean values, indicating that participants perceived a meaningful exchange of perspectives and knowledge that enriched problem-solving. At the same time, survey items related to innovation show mixed or negative means. This suggests that while the collaboration was creative, it did not consistently produce solutions perceived as innovative or departing from established practice.

Survey Item 9 ("collaboration as prerequisite for success") shows a high mean score of 2.0, indicating that participants widely recognized collaboration as essential to the project's outcomes.

At the same time, co-creation in the project does not take a fully equal and institutionalized form. Strategic project design, final managerial decisions, and the allocation of resources remained largely within the responsibility of the project initiators and the donor structure. For some participants (especially schoolchildren and local residents), involvement in co-creation was primarily consultative and participatory rather than full co-design on equal terms. There is also no permanent, formally established mechanism for joint design throughout the entire life cycle of the initiative.

Overall, the project demonstrates a stable practice of meaningful co-creation in which solutions were not imposed entirely "from above," local actors genuinely influenced the content and forms of implementation, and a continuous exchange of knowledge, experience, and priorities took place between experts and communities. Nonetheless, it falls short in terms of the degree of yielding innovative problem-solving insofar as there were shortcomings in terms of how thoroughly institutionalized the processes of knowledge exchange and joint problem-solving was present. In sum, a more targeted strategy would be required to make actors find more creative or innovative responses. Nonetheless, as is shown with respect to the green output of the project, it was not necessary to engage in any creative or innovative problem-solving for the project to succeed. Instead, its key functions was to elicit inputs and coordinate the relevant actors in the implementation in a joint and collaborative process of implementation.

If possible, please insert your survey responses in the table below (in % for each response), including the mean/average % for each survey item.

	Strong. dis.	Dis.	Slight. dis.	Neither agr/dis	Slight. agree	Agree	Strong. agree	Mean
1. Problem-solving mobilized different experiences, and/or ideas and/or forms of knowledge to develop new perspectives				1 (10%)	3 (30%)	4 (40%)	2 (20%)	1.7
2. Through the collaborative problem-solving process, different experiences and/or ideas and/or forms of knowledge have been mobilized to search for unconventional solutions			1 (10%)	2 (20%)	3 (30%)	3 (30%)	1 (10%)	1.1
3. The collaborative problem-solving process mobilized different experiences, and/or ideas and/or forms of knowledge to search for solutions that go beyond standard/text-book solutions				1 (10%)	3 (30%)	5 (40%)	1 (10%)	1.6
4. The co-created solution breaks with established practices	1 (10%)	2(20 %)	2 (20%)	2 (20%)	2 (20%)	1 (10%)		-0.5
5. The co-created solution disrupts conventional wisdom	1 (10%)	2(20 %	2 (20%	3 (30%)	2 (20%)			-0.7
6. The co-created solution offers new ideas to address the green transition problem			1 (10%	2 (20%)	3 (30%)	3 (30%)	1 (10%)	1.1
7. I'm supportive of the co-created solution					3 (30%)	4 (40%)	3 (30%)	2.0
8. I'm content with the overall collaborative process of the project					4 (40%)	4 (40%)	2 (20%)	1.8
9. I feel the multi-actor collaboration process was a prerequisite for the success of the project					2 (20%)	6 (60%)	2 (20%)	2.0
10. I'm satisfied by the results of the co-creation effort in terms of expected impact on the welfare of the community				1 (10%)	3 (30%)	4 (40%)	2 (20%)	1.7
11. The collaborative interaction in the project has led to an innovative solution				1 (10%)	3 (30%)	3 (30%)	3 (30%)	1.8
12. The actors involved in the project are engaged in collaborative interaction that stimulated creative problem-solving				1 (10%)	3 (30%)	3 (30%)	3 (30%)	1.8
13. The co-created solution meets the proposed goals of the project					1 (10%	6 (60%)	3 (30%)	2.2
14. The co-created solution will be durable and robust in the long run					2 (20%)	5 (50%)	3 (30%)	2.1
15. The co-created solution is expected to significantly improve sustainability for the whole community					1 (10%)	8 (80%)	1 (10%)	2.0

2. Does the developed solution engender a green transition[1]?

QCA score:	Scoring confidence:	Data sources:
☐ 0	☐ Low confidence	☒ Survey
☐ 0.33	☐ Medium confidence	☒ Interviews
☐ 0.66	☒ High confidence	☒ Documents
☒ 1		☒ Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring:

The project demonstrated that the "green transition" can be not just an abstract strategy, but a real process taking place directly on the territory of the park and in the lives of local communities. Solar

[1] By "green transitions", we mean objectives and aspirations that correspond to at least one of the Green SDGs (SDG 6, 7, 11, 12, 13, 14, 15). The project does not have to refer explicitly to the green SDGs, but the project's green objectives

power stations at ranger posts, large-scale tree planting, and work with school students, teachers, and the staff of the State National Natural Park made environmental and climate solutions tangible, practical, and understandable for participants. The project did not merely talk about climate and sustainable development - it embodied these principles through real, observable changes, providing participants with hands-on experience of sustainability measures..

Independent assessments conducted through field observations, interviews with SNNP staff and teachers, and analysis of project documentation confirm that the core green outcome goals of the project were fully achieved.

These include:

- the introduction of renewable energy technologies reducing fossil-fuel dependence of ranger posts;
- measurable contributions to ecosystem restoration through reforestation activities;
- strengthened environmental and climate literacy among key groups;
- demonstrable reductions in anthropogenic pressure through improved visitor awareness.

Survey data also supports this evaluation: item 15 ("The co-created solution is expected to significantly improve sustainability for the whole community") received a strongly positive mean value (2.0), indicating high confidence among participants that the project solutions produce meaningful sustainability outcomes.

While the transition achieved is local in scale, the project has nonetheless fully realized its predefined green outcome goals, creating environmental improvements already in effect and laying the groundwork for continued sustainability benefits.

Although broader district- or regional-level transformation requires future scaling and long-term investment, this does not diminish the fact that the project's intended green outcomes — at the scale for which it was designed — have been successfully delivered.

If possible, please insert your survey responses in the table below (in % for each response).

1. The project:	**Yes**	No	**Don't know**
…did not produce any green transition solution		10 (100%)	
…is expected to produce/has produced a green transition solution aiming to avoid a worsening in the status quo	2 (90%)	8 (80%)	
…is expected to produce/has produced a green transition solution aiming to maintain the status quo	1 (10%)	9 (90%)	
…is expected to produce/has produced a green transition solution aiming to improve the status quo	7 (70%)	3 (30%)	

Please list all the informants you have interviewed for the case study (list project role + interview date):

- Project Facilitator / Owner / Funder (Coordinator), July 10, 2025
- Project Facilitator 2 (Trainer), July 10, 2025
- Owner / Funder (Deputy Director of the National Park), August 28, 2025
- Owner / Project Participant (National Park Specialist), September 12, 2025
- Owner / Project Participant (National Park Specialist), September 12, 2025
- Project Participant (Forester), September 12, 2025
- Project Participant (College Teacher), September 18, 2025
- Project Participant (Local Citizen / Entrepreneur), November 20, 2025
- Project Participant (School Teacher), November 20, 2025
- Bureaucratic Actor (District Education Department Specialist), November 21, 2025

Please list all the observations you have made (type of meeting/workshop/etc. + observation date):

- Project working meetings, March-November 2025
- Workshop for school teachers, March 27, 2025
- Tree planting event, April 26, 2025
- Workshop on the installation of solar panels, August 28-29, 2025
- Round table (Karaganda), October 3, 2025
- Round table (Karkaralinsk), November 21, 2025

Please list all the documents you have analyzed (document name + source + year):

- Project application (2024)
- Project reports (2024-2025)
- Questionnaires for participants of the events (2024-2025)
- Training and meeting agendas (2024)
- EcoObraz NGO and partners social media accounts (2024-2025)
- Research by KazNIILHA (Kazakh Research Institute of Forestry and Agroforestry)

Please note the response rate for the survey/measurement of outcome variable:

100% (10/10).