

Preservation of the Mountains of Central Asia

- Toolkit for project developers,
- contractors and public observers of
- infrastructure projects





Preservation of the Mountains of Central Asia, 2021

Prepared by Zoi Environment Network (www.zoinet.org) with support from CEPF (www.cepf.net).

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The team of authors hopes that the materials in this toolkit will be used by environmental NGOs, groups of concerned citizens and organizations in Central Asia. All information is presented selectively and in a simplified format.



In loving memory of

Neimatullo M. Safarov

1944-2021

On August 22, 2021, Neimatullo M. Safarov, a famous Tajik biologist, Doctor of Biological Sciences, an experienced leader, honored worker of Tajikistan and coordinator of the Convention on Biological Diversity, passed away. He was an honest, energetic and charming person, a great enthusiast and a prominent specialist in his field who devoted 40 years of his life to nature protection and research.

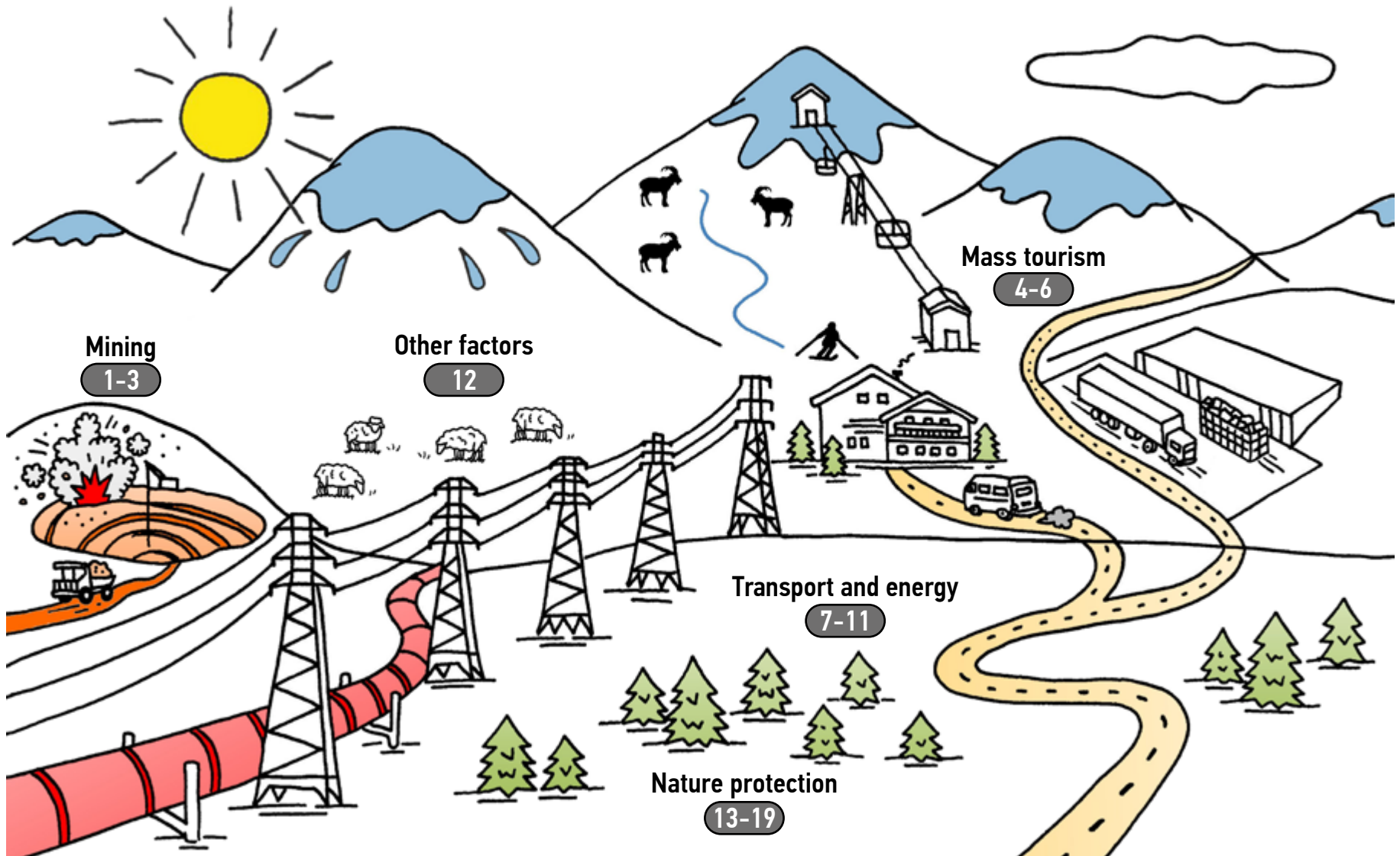
Under his leadership, Tajikistan's key environmental action plans were developed, the National Center for Biodiversity and Biosafety (NBBC) was created, large-scale efforts were taken to map natural resources and key biodiversity areas of Tajikistan, create environmental databases, develop a network of protected areas, and preserve rare and endangered species of animals and plants. He initiated major international biodiversity projects.

He established and maintained good and warm relationships with colleagues – scientists, politicians and public figures – across Central Asia and at global knowledge hubs. His scientific impact and human touch will remain with us and be continued by his students, colleagues and those who were close to him.

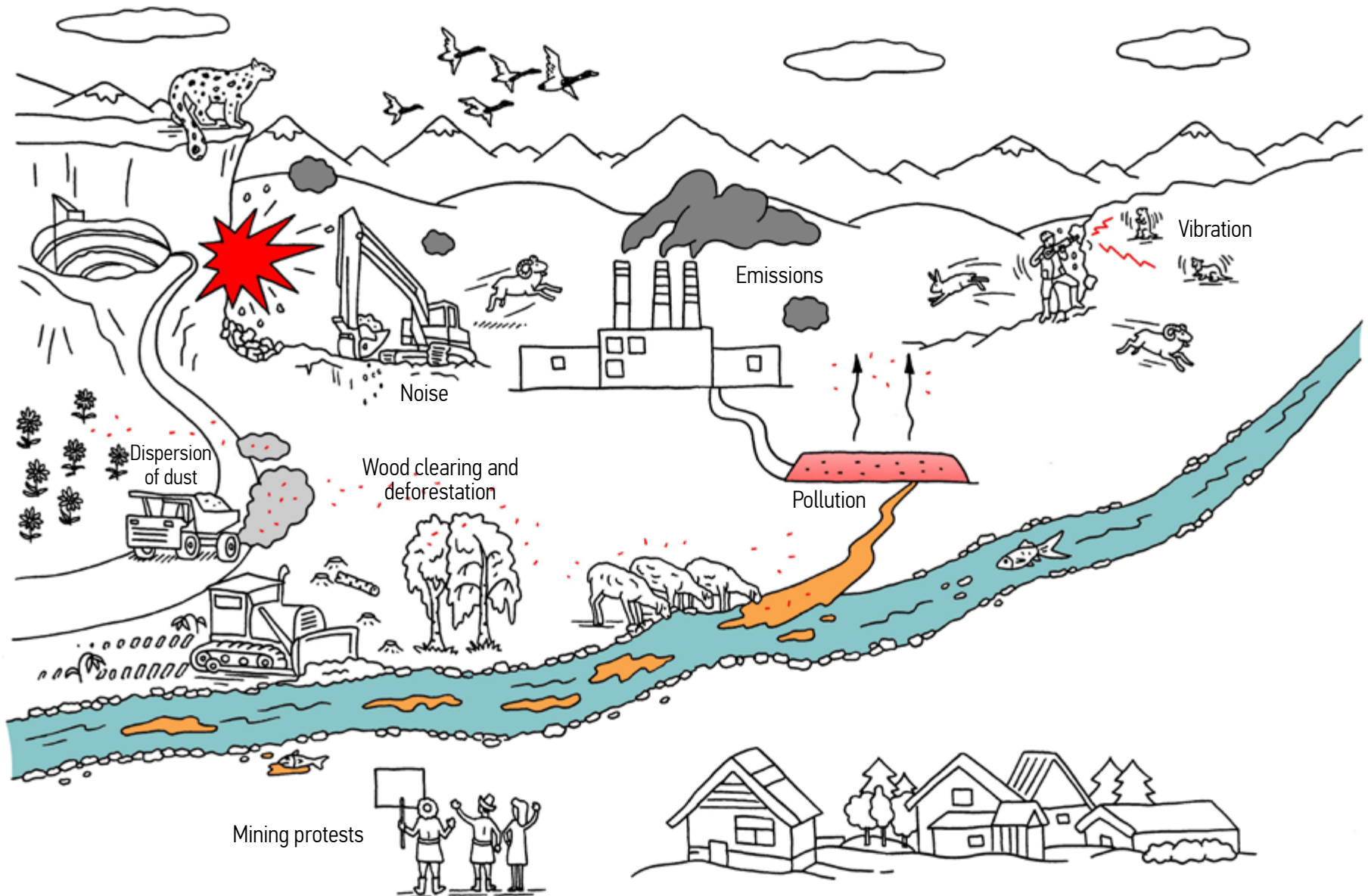
Rest in peace and blessed memory!

Preservation of the Mountains of Central Asia

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Mining industry and nature: Major challenges



Mining industry: Environmental impacts and their effects



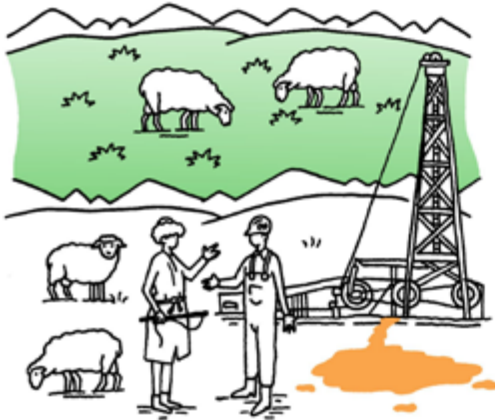
Explosions and vibrations



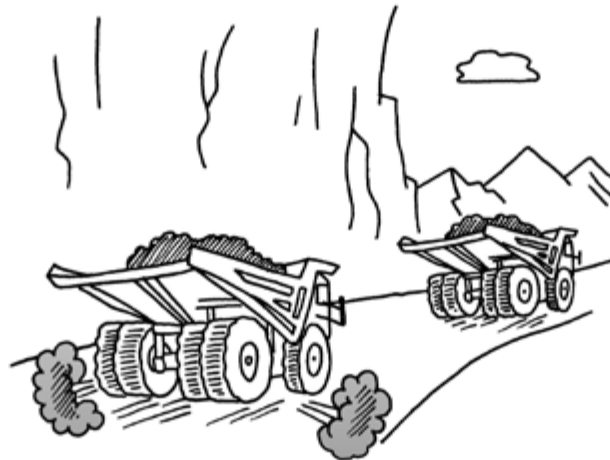
Industrial waste and waste rock



Fume emissions, polluted water



Damage to and pollution of pastures



Dust and noise from machinery



Impact of climate change and natural disasters on the safety of tailings

Mining industry and nature: Solutions



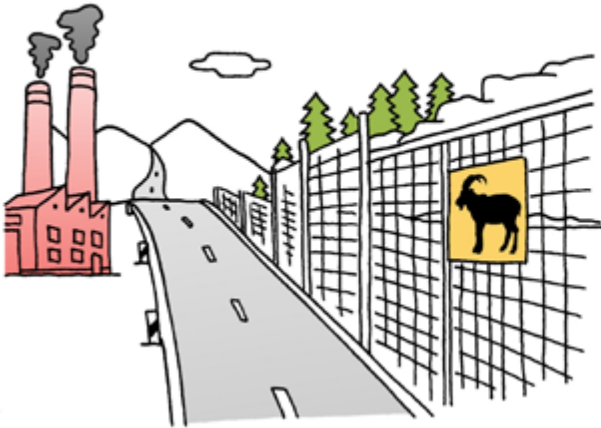
Involving companies in wildlife monitoring and conservation efforts.



Regular environmental monitoring at industrial sites.



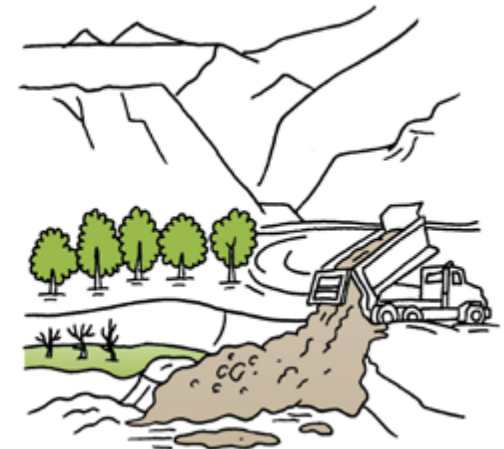
Factoring in opinions of the locals and the proposals of public nature conservation groups.



Fencing off industrial sites and preventing the use of protected areas for mining and exploration.



Funding local efforts and projects aimed at environmental improvement and species conservation.



Nature restoration (reclamation) upon completion of industrial activities.

Mass tourism and nature: Major challenges



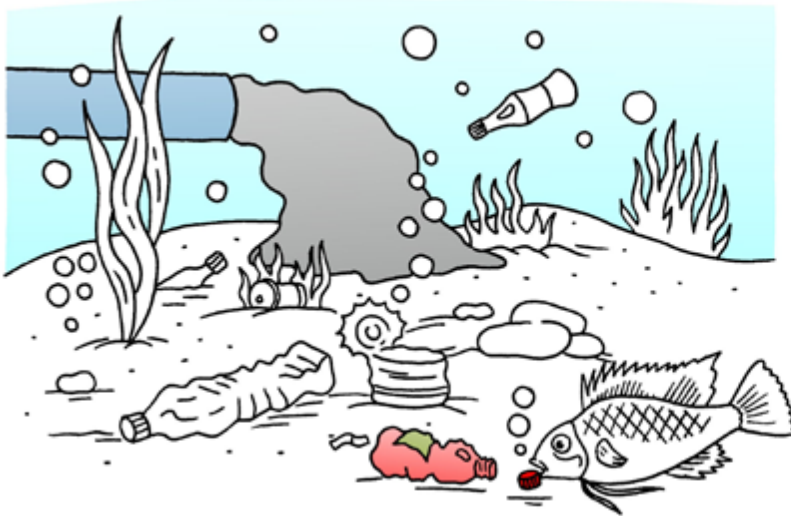
Mass tourism: Environmental impacts and their effects



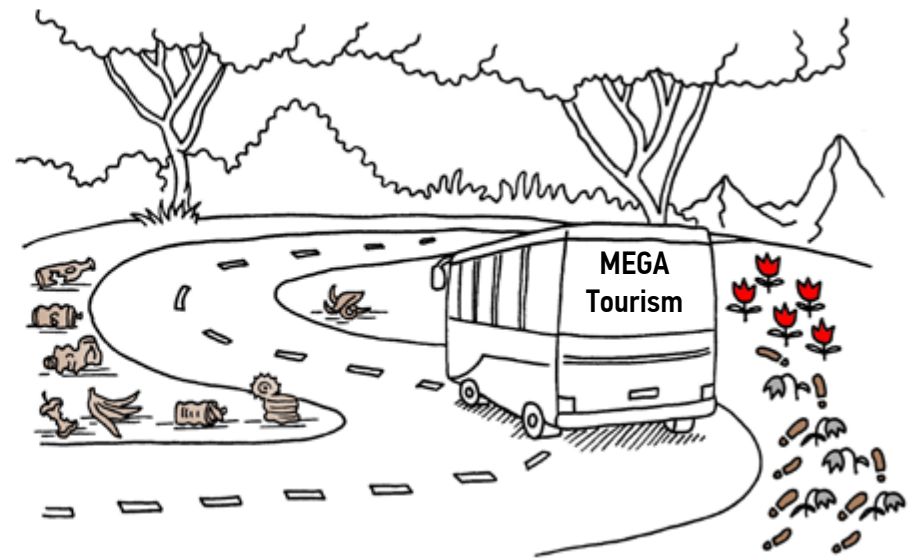
Risk of forest fires.
Cave damage.



Poaching, reckless and unchecked hunting.
Uncontrolled gathering of unique plants.

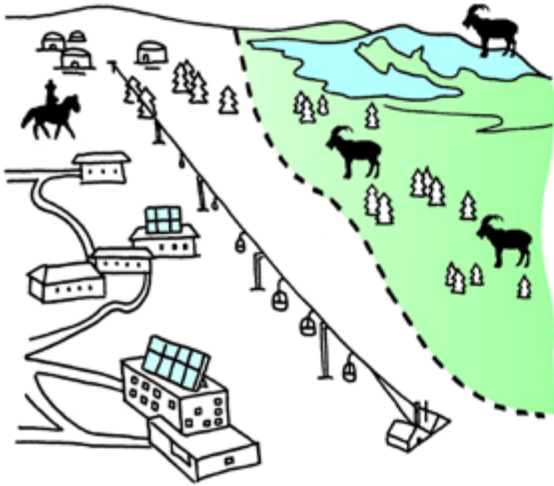


Waste buildup and pollution in areas
of mass tourism.



Excessive tourism load on natural parks and picnic areas.

Mass tourism and nature: Solutions



Prevention of tourism in strictly protected areas.



Sound planning for tourism sites, factoring in the potential impacts on rare and vulnerable species of flora and fauna.



Setting limits for the gathering of rare plants by tourists and residents.



Maintaining high environmental standards, using advanced waste collection systems, and promoting renewable energy at tourism sites.

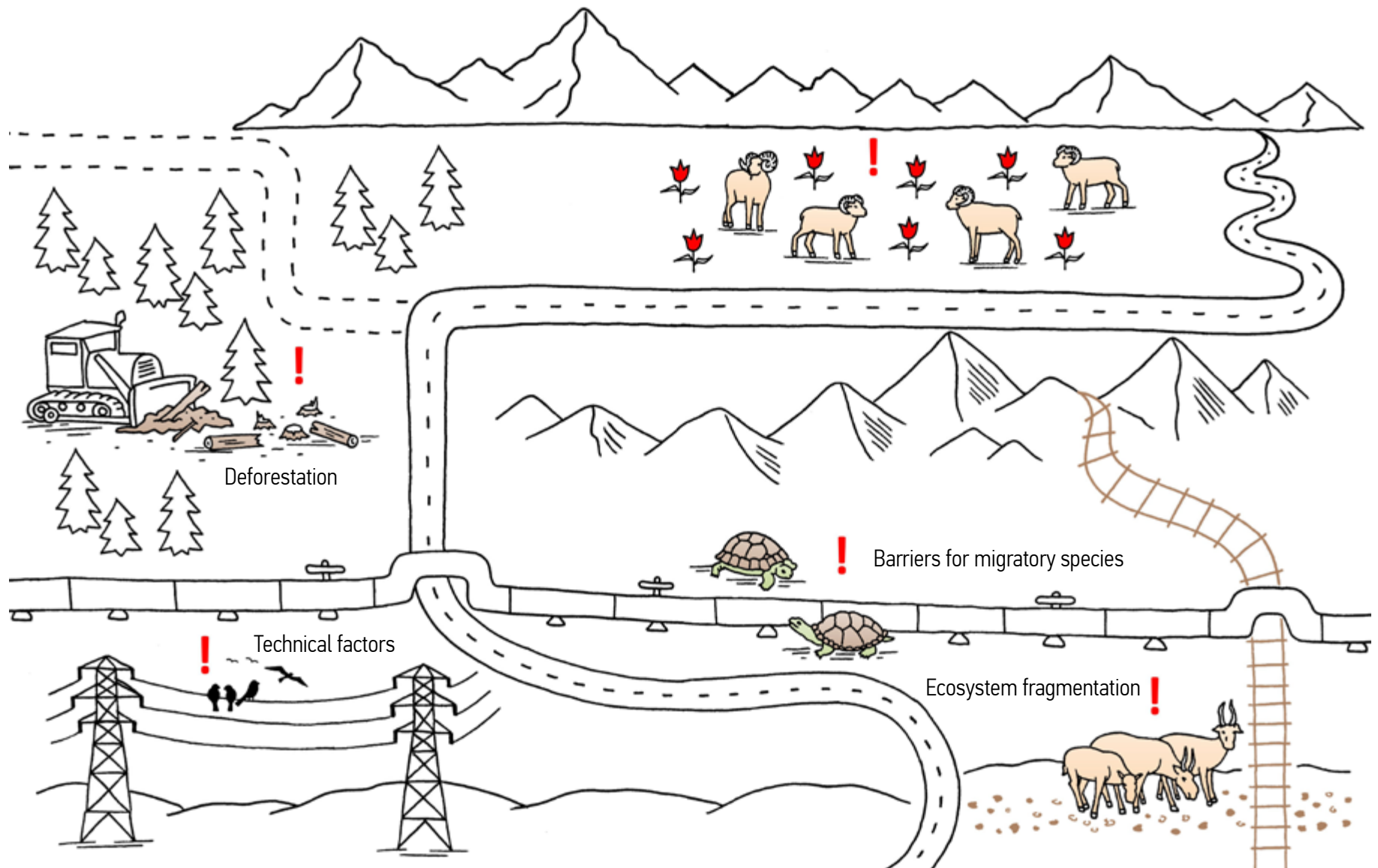


Conducting regular environmental assessments in areas with mass tourism.

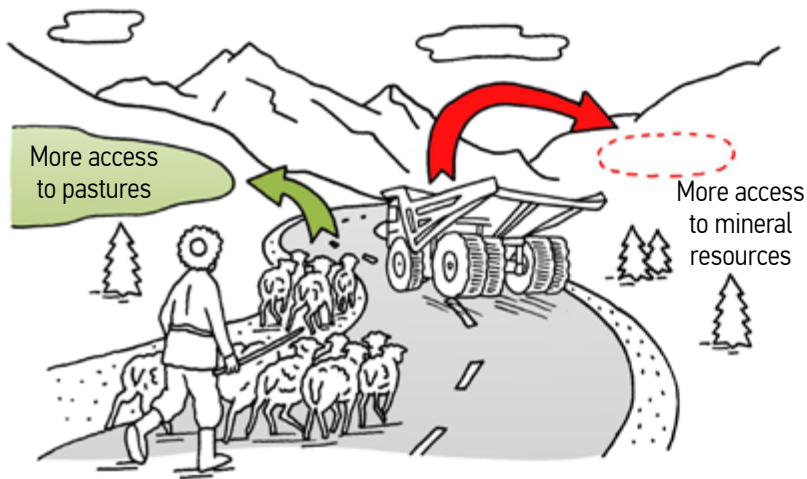


Banning the clearance of high-value forests and imposing restrictions on the development of wilderness for tourism.

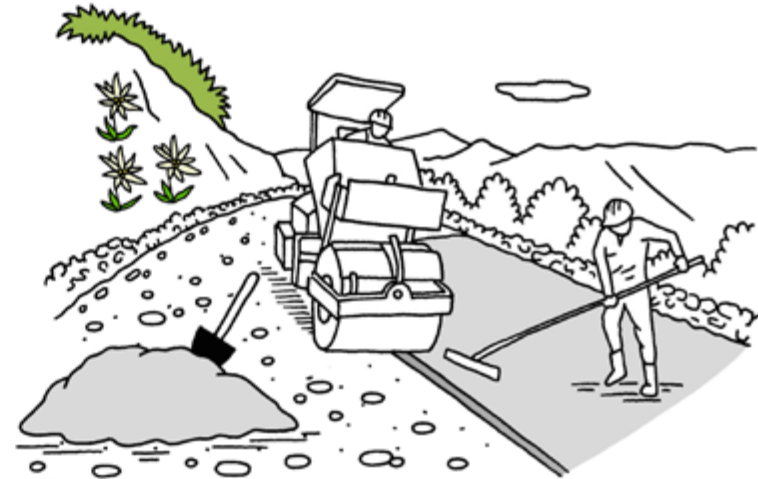
Transport and energy infrastructure and nature: Major challenges



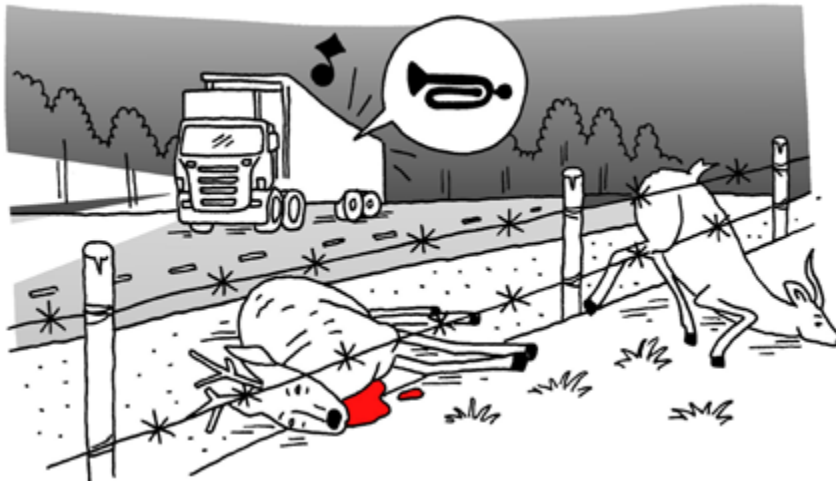
Roads: Environmental impacts and their effects



The development of roads is of great social and economic significance. They facilitate access to natural resources for people and companies.



Road construction may affect rare and vulnerable flora and fauna species.

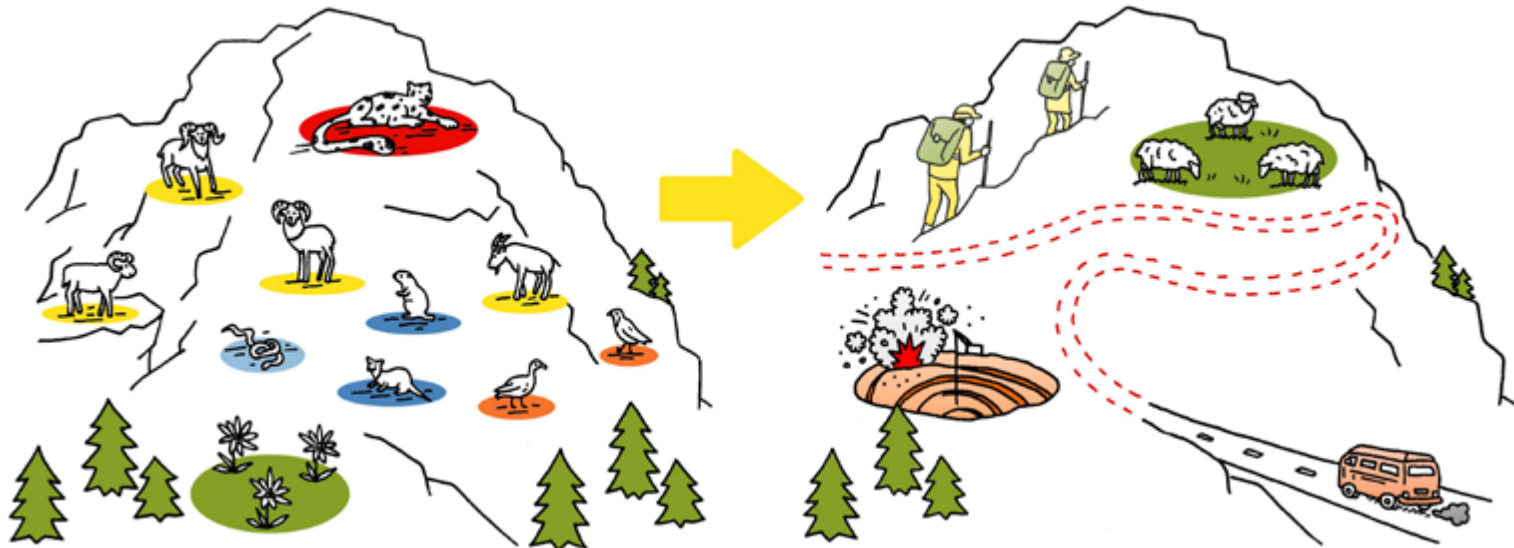


High-traffic roads and roadside fences have negative impacts on migratory species.



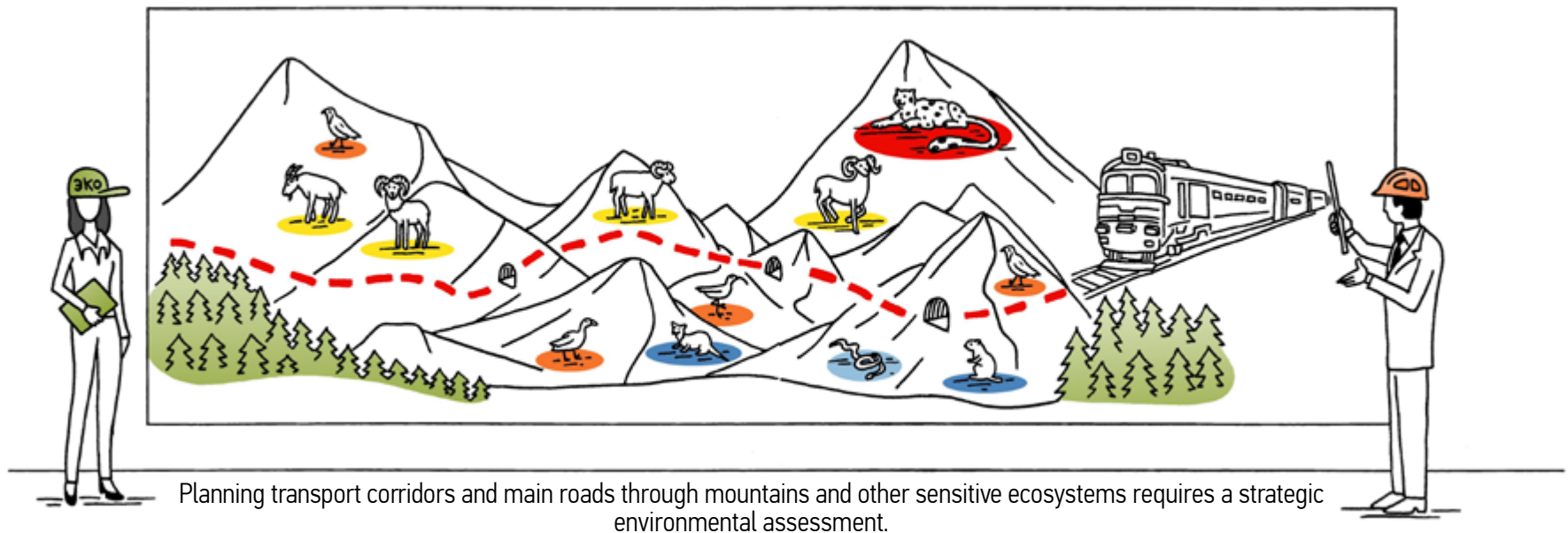
The construction and expansion of railways and transport corridors with little regard to the environment leads to fragmentation and shrinking of the habitats of migratory species.

Strategic environmental assessment



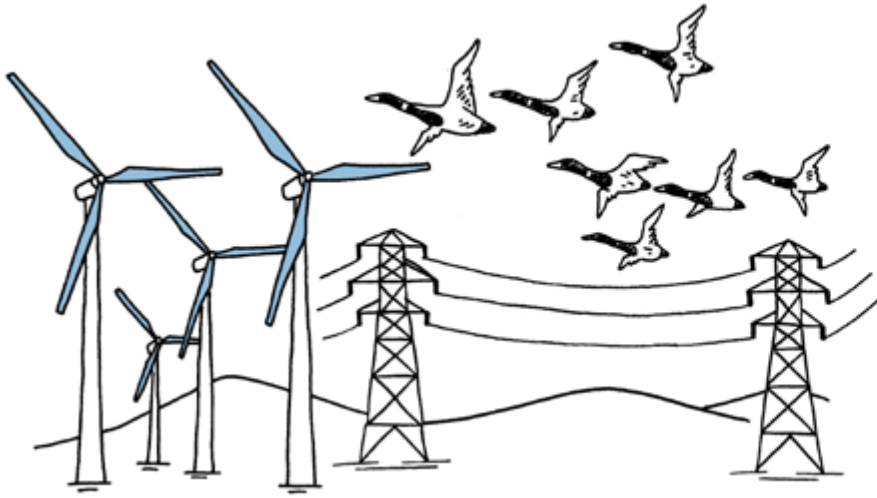
Nature before the development of main roads...

...and after their construction.

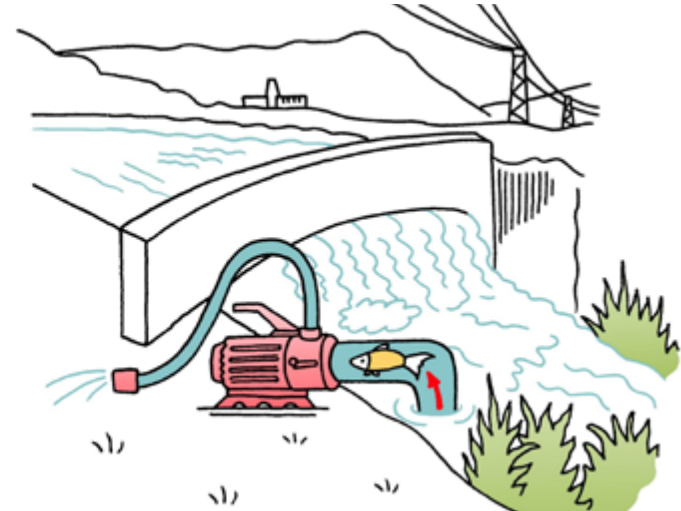


Planning transport corridors and main roads through mountains and other sensitive ecosystems requires a strategic environmental assessment.

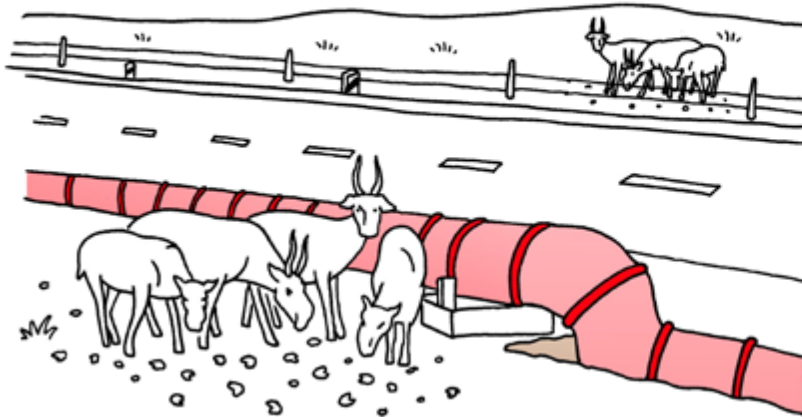
Energy: Environmental impacts and their effects



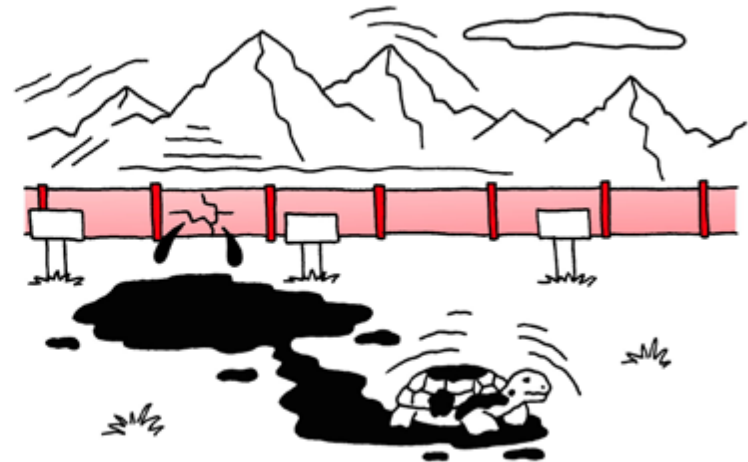
Large-scale renewable energy projects may affect the environment and require an environmental impact assessment (EIA).



The development of water-and-energy infrastructure may affect unique and vulnerable species and habitats.

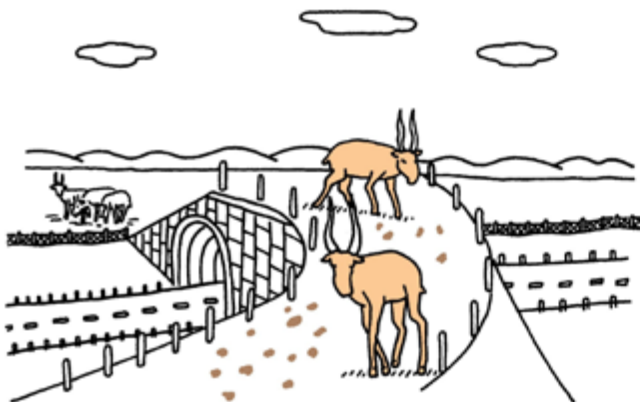


Pipelines, roads and fences may restrict species' migration routes.

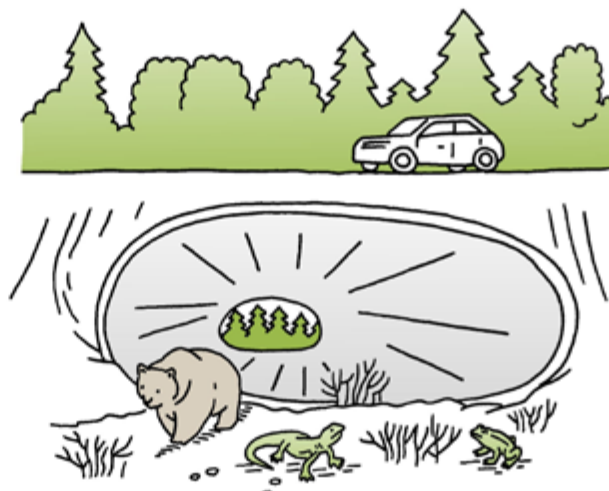


Industrial accidents and leaks may damage ecosystems and vulnerable species.

Transport, energy and nature: Solutions



Passages for migratory species over main roads and other infrastructure.



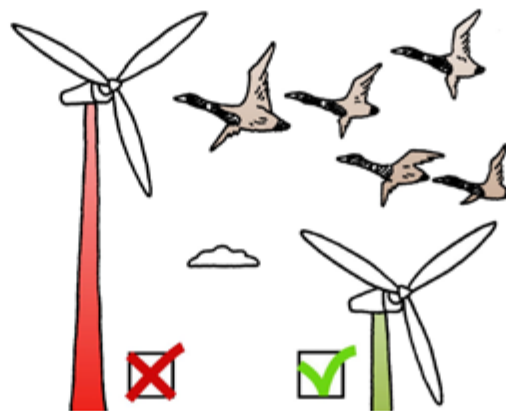
Passages for migratory species under main roads and other infrastructure.



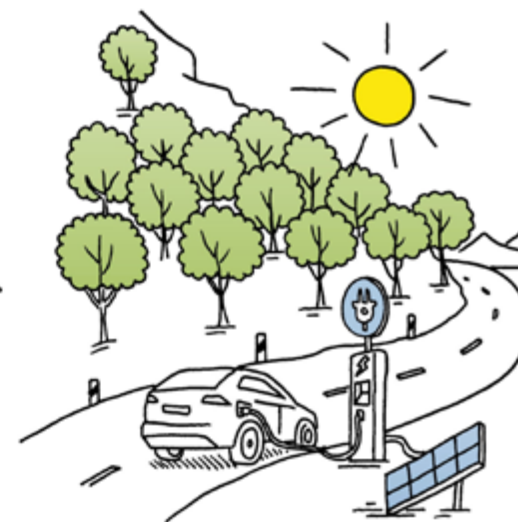
Warnings for drivers and the reduction of night traffic.



Consideration of the ecological characteristics of species and their habitats when building infrastructure.



Mitigation solutions: varying dimensions, structures and designs.



Nature-based solutions and greening the transport and energy sectors.

Other factors affecting biodiversity



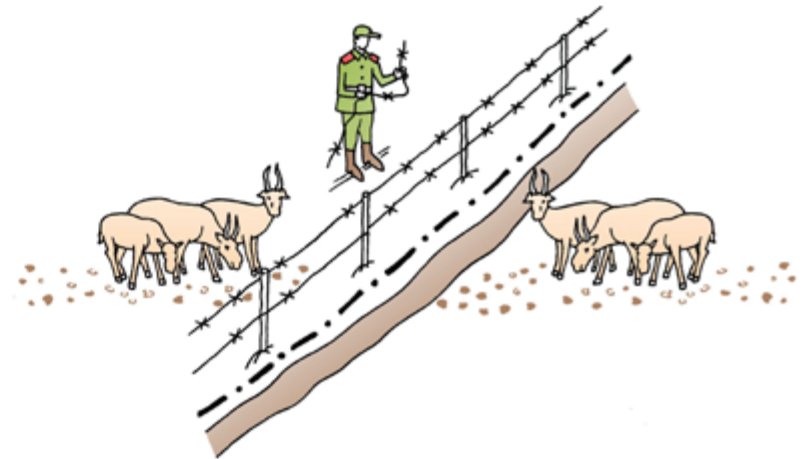
High domestic pressures on natural resources: intensive grazing, unsustainable walnut harvesting and forest management.



Invasive alien species constrain and replace native species: creating risks to the urban and aquatic environment.

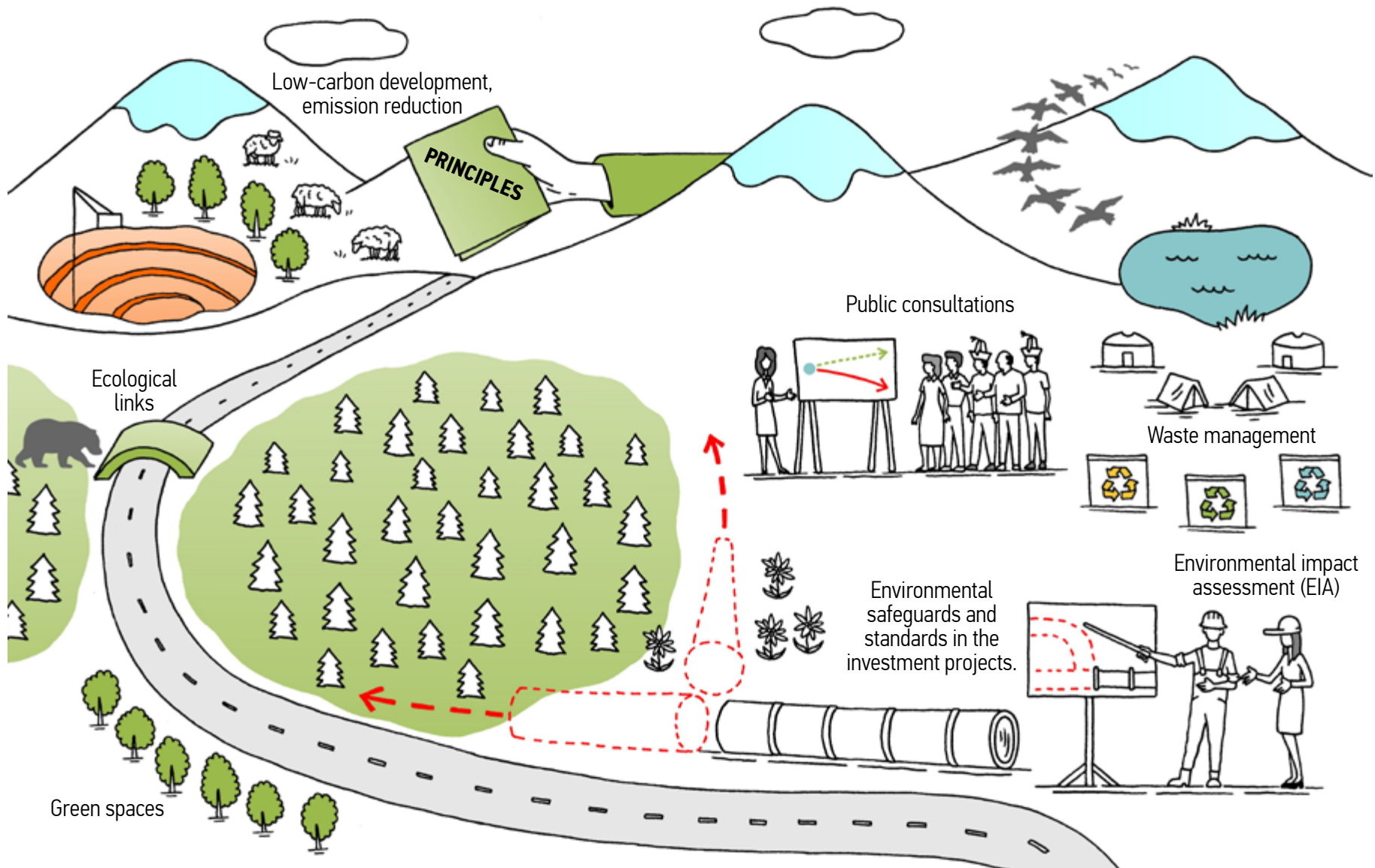


Climate change affects sensitive species, ecosystems and biological processes, such as seasonal migration, vegetation phases, etc.



Fencing along the border disrupts species' migration.

Safeguards for biodiversity in the development of infrastructure



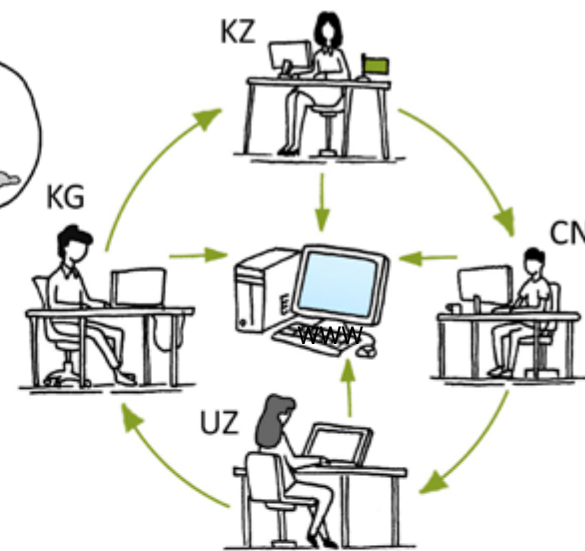
Public participation



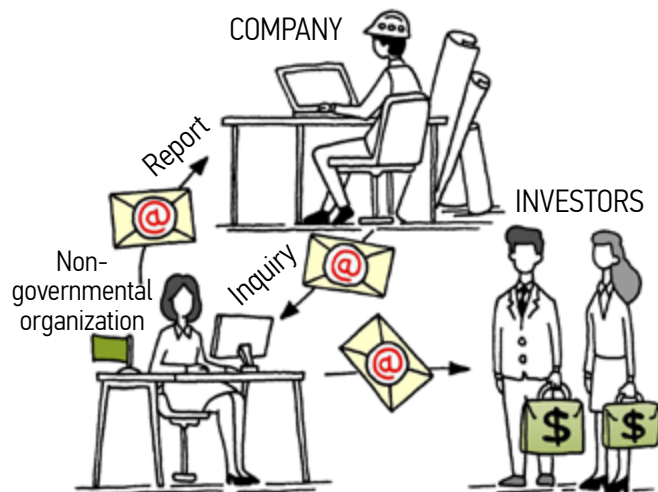
Conducting public environmental examinations and sending their results to public authorities.



Getting media coverage, investigative journalism.



Development of regional networks for broader environmental engagement.



Filing inquiries and complaints to the company and its funding organizations.



Review of projects, plans and official documents on the websites of competent governmental authorities and companies.



Seeking advice from reputable scientists and independent experts.

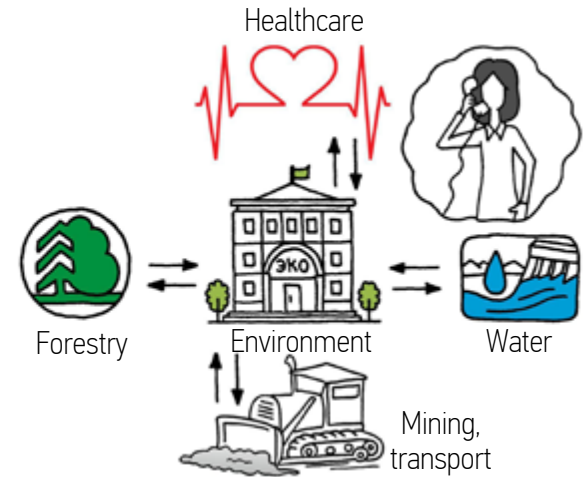
Public participation



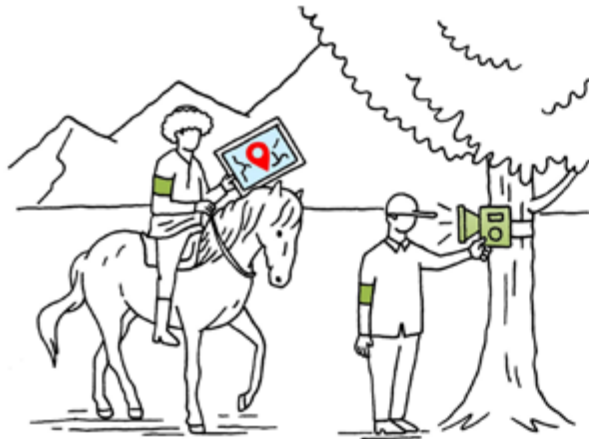
Collection of signatures for petitions on environmental matters.



Organization of round tables on the environmental impacts of infrastructure projects.



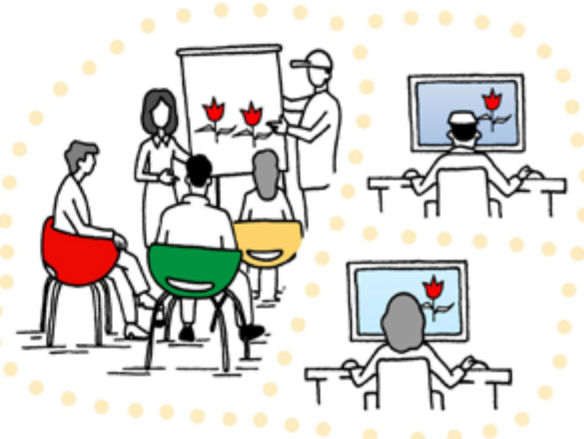
Appeal to the governmental authorities in charge of monitoring or issuing permits for projects.



Spatial Monitoring and Reporting Tool (SMART) patrolling and public nature protection teams.



Joint environmental inspections with governmental and local authorities.

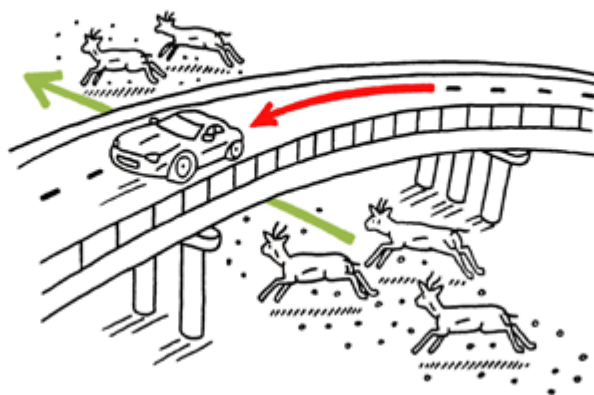


Appeal to international organizations for external assessment.

International conventions, tools and practices



Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters



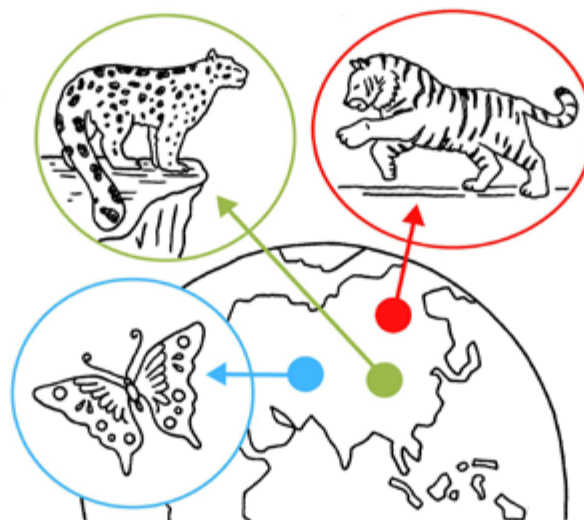
Bonn Convention on the Conservation of Migratory Species of Wild Animals



Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)



Ramsar Convention on Wetlands of International Importance

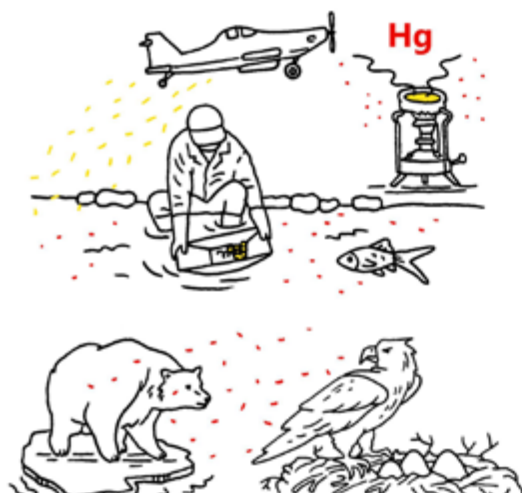


Convention on Biological Diversity



International Decade on Ecosystem Restoration (2021–2030), national action plans for biodiversity conservation

International conventions, tools and practices



Conventions on toxic substances and waste:
Minamata, Stockholm, Basel.



Prevention of industrial accidents, other
standards and requirements.



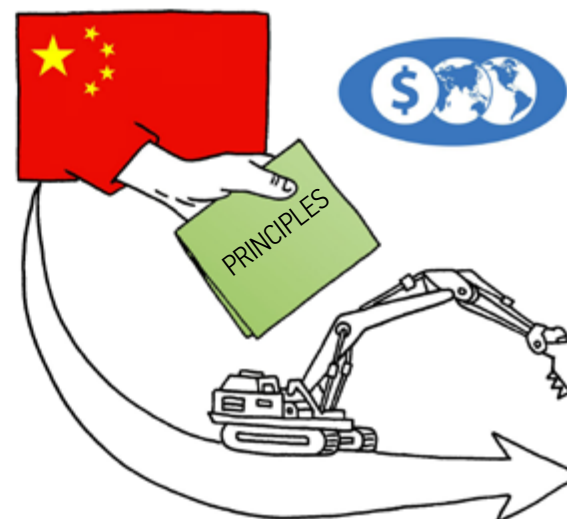
Convention on Environmental Impact
Assessment (Espoo) and its basic principles.



Environmental standards and certificates:
ISO 14000, etc.

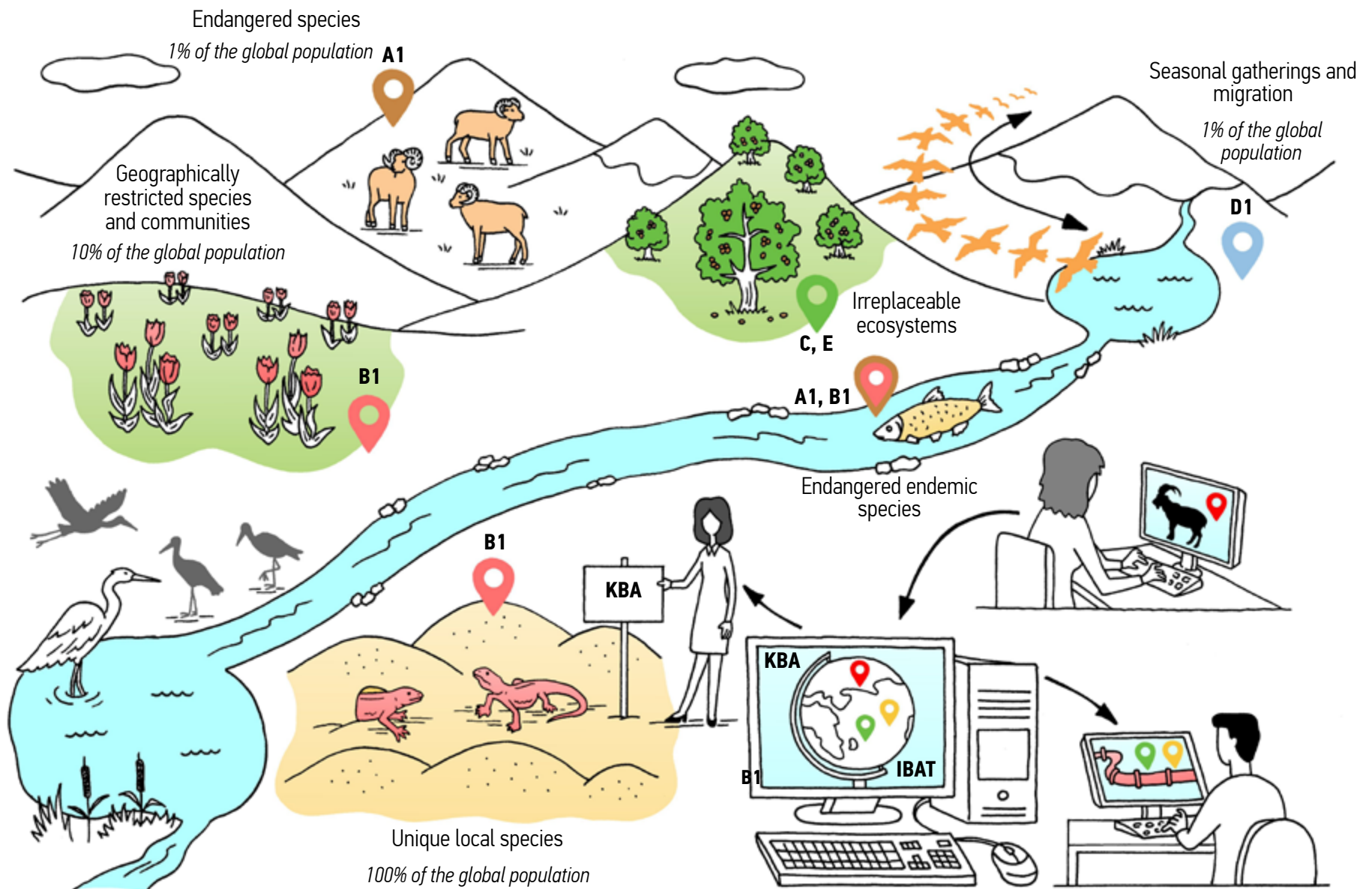


Environmental and social governance
(ESG) of companies,
transparency of reporting.



Environmental standards and requirements of
the major investors: Belt and Road Initiative,
international development banks.

A Global Standard for the Identification of Key Biodiversity Areas (KBA) of the International Union for Conservation of Nature (IUCN)



Main categories of protected natural areas in Central Asia



Strict nature reserves (IUCN I)

Strictly protected nature conservation sites, where no economic activity is allowed and visitation is limited, except for scientific purposes.



National parks (IUCN II)

Natural areas where no economic activity is allowed, but which are open for tourists and residents.



Habitat or species management areas (IUCN IV)

Natural areas of local significance, where human activities are limited. Visits by tourists, local residents and certain types of projects are allowed.



Hunting reserves

Area allocated for wildlife conservation and regulated hunting. Open for tourists, local residents and infrastructure projects.



Water protection zones

Areas where pollution and river bed development, including sand and gravel mining, are not allowed.



Natural monuments

Natural sites with unique properties and high historical and social significance.

