

PIEVC Advisory Services

Resilience of Infrastructure Investments

Background

When infrastructure fails or underperforms there can be socioeconomic, environmental, and even political impacts that undermine overall development goals.

Infrastructures of all types, gray as well as natural are **vulnerable to the impacts of climate change**. Many of these impacts are already apparent and will become more frequent and severe over the decades to come.

Infrastructure systems must therefore be designed, built, operated, and managed in ways that help ensure their structural integrity, longevity, and effectiveness (in delivering services) under the already-changed climate and when faced with still more significant changes to come.

To safeguard infrastructure investments in the Global South (~\$5 trillion/year), it is **essential to systematically assess and manage climate vulnerabilities and risks** across the full lifecycle of infrastructure investments. It is essential to “climate proof.”

Advisory Services & Products

Through our advisory and training services, as well as companion products, The PIEVC Alliance International (Alliance) supports and delivers climate and infrastructure risk assessments and helps build the enabling environments required to sustain climate proofing over time, with partner countries across the Global South. Our offerings are grouped into **five (5) main Service Areas**.

Service Area 1: Climate and Infrastructure Risk Assessment

Box 1: PIEVC Alliance International



Our services support infrastructure stakeholders worldwide. The Alliance utilizes the expertise of our partner organizations CRI, GIZ, and ICLR – coordinators of the PIEVC Program – and an extensive network of Canadian and International PIEVC Associates to ensure timely access to cutting-edge climate risk assessment tools and tailored advisory services.

Infrastructure owners, operators, and regulators often struggle with how best to scope, approach, and coordinate climate change risk assessments. They may lack key knowledge and skills, be uncertain how to select among alternative methods and tools or have little experience facilitating multistakeholder assessment processes.

Our Services

We lead or guide delivery of ISO compliant infrastructure and climate change risk assessments in multi-stakeholder environments, in collaboration with host country authorities. We draw upon the PIEVC Strategic Alliance (Box 1), the PIEVC Family of Resources and Canadian and International subject matter experts and process facilitators with decades of experience.

The Alliance can:

- support or carry out the scoping and delivery of PIEVC-based climate and infrastructure risk assessments in partner countries, on gray, natural, and mixed classes of infrastructure;
- provide access to and coordinate highly experienced subject matter experts and risk assessment process facilitators;
- advise on the most suitable PIEVC-based climate risk assessment methodology considering the infrastructure investment context, type(s) and numbers of assets, and phase of the investment cycle;
- deliver PIEVC-related human capacity building, through hands-on as well as formal training, and peer-to-peer learning opportunities (see also Service Area 3).

Our Products

The PIEVC Protocol was developed and tested by the Canadian Public Infrastructure Engineering Vulnerability Committee (PIEVC), supported by Canada's national engineering organization (Engineers Canada) and the Canadian federal government (Natural Resources Canada). Since being developed, the PIEVC Protocol and companion products have supported many hundreds of climate change and infrastructure risk assessments across Canada, Latin America, the Nile River Basin, Lesotho, and Vietnam.

The full PIEVC Family of Resources is free for use (<https://pievc.ca/protocol/>). There is also a large and growing library of PIEVC-based assessments that can be accessed (<https://pievc.ca/assessments/>).

Service Area 2: Climate Information and Services

Challenge

Depending on the context, compiling, processing, and analyzing the historical and future-projected climate data for assessments

can demand a range of specific experience and expertise. Historical datasets frequently have missing data or short records to contend with. Future-projected climate scenarios data from Global Climate Models – increasingly available online via public climate hubs – can require further processing, including downscaling, depending on the assessment.

Our Services

We lead and guide development of tailored climate products and services to meet the requirements of engineers, planners and other practitioners involved in conducting climate and infrastructure risk assessments and managing climate resilient infrastructure.

Using in-house climate analytical tools and established processes for determining the specific climate information needs of each assessment, we deliver analyses tailored for the requisite climate indices and context(s).

We also work with partner country agencies to support their own development of climate services aligned with the needs of climate and infrastructure risk assessments.

Service Area 3: Institutionalization

Challenge

To build and sustain climate proofing activities in a country or region, the strategies, legal frameworks, policies, mandates, and supports of government need to align with the capacity and incentives required to foster wider-spread assessment and active management of climate risks.

Our Services

We advise on the development of regulatory and institutional frameworks to ensure systematic integration of climate risk in infrastructure investment and management decisions at the regional and national levels.

The Alliance can:

- help design and foster inter-agency partnerships and mechanisms (e.g., digital) that ensure timely provision, access, and tailoring of climate and infrastructure data for risk assessments and resiliency planning and adaptation;
- help shape alignment between National Adaptation Plans and Strategies and infrastructure investment planning frameworks and mechanisms;
- provide direction for:
 - integration of climate change considerations into key laws, regulations, and policies, including construction codes and standards
 - climate smart finance, certification, and procurement
- co-design adaptation competency frameworks for specific professions.

Service Area 4: Human Capacity Building

Challenge

More rapid progress on climate proofing will require considerably larger numbers of knowledgeable and experienced professionals working in the field. Human Capacity Development (HCD) must target technical and subject matter experts like design engineers and urban planners while also extending to the professionals responsible for regulatory, policy, investment, and procurement processes and decisions.

Our Services

HCD objectives and opportunities cut across all Alliance service areas. For example, mentorship-based and instructional approaches are frequently integrated into the scoping and delivery of risk assessments (Service Area 1) and the establishment of climate services (Service Area 2). We also offer formal, “stand-alone” training programs.

The Alliance can:

- offer self-paced, e-learning options for professionals and stakeholders to develop awareness and basic literacy related to various climate proofing topics;
- provide formal technical training, including “as is” or tailored offerings of Infrastructure Resiliency Professional (IRP) Credentialing Program courses (<https://climateriskinstitute.ca/irp-page/>), including a full course on the PIEVC Protocol;
- deliver workshops to raise awareness about and highlight next steps for establishing climate resilient infrastructure;
- coordinate mentoring and learning-by-doing opportunities through the conduct of in-country climate and infrastructure risk assessments;
- connect new groups or regions to the International PIEVC Practitioner Network (see Service Area 5).

Service Area 5: International PIEVC Community of Practice

Challenge

More rapid progress on climate proofing will also require better coordinated sharing of regional and international best practices and expertise, by fostering peer-to-peer knowledge exchange and marketplaces for key types of expertise.

Our Services

The International PIEVC Practitioners’ Network (PIEVC PN) is an online community dedicated to facilitating connections, engagement, and collaboration among practitioners and others working to enhance the resiliency of existing and planned infrastructure projects to the impacts of climate change. The network helps infrastructure practitioners, owners and operators build their practice, share their expertise and learn from others who are working

on climate change vulnerability and risk assessments for infrastructure. It also helps those requiring services and well-qualified providers to connect.

Membership in the PIEVC PN is free and open to anyone involved in the planning, procurement, design, operation, maintenance, management and regulation of infrastructure who needs to consider the changing climate. Members are encouraged to connect, ask questions, discuss and share resources and information around topics related to furthering climate-resilient infrastructure.

Members benefit from increasing their knowledge and use of the PIEVC Family of Resources, including the PIEVC Protocol. Members will also build relationships; engage in peer-to-peer learning; and access information, training, prospective clients and service providers, and other types of support for assessing and managing climate change risks and opportunities associated with infrastructure assets and portfolios.

Become a member by visiting:
<https://pievc-practitioners-network.earthnet.org>

Climate Risk Institute (CRI)



The Climate Risk Institute (CRI) is a Canadian not-for-profit organization committed to advancing practice and delivering services related to climate change risk assessment, adaptation planning, policy and program evaluation, and resiliency. CRI's extensive experience spans all levels of government, Indigenous communities, and private sector organizations, facilitating the integration of climate change considerations into various planning and management processes. CRI is dedicated to mobilizing knowledge, enhancing capacity, and achieving tangible results in climate resilience.

CRI facilitates access to a vast array of Canadian and international subject matter and PIEVC experts who offer comprehensive expertise in applied climate science, risk assessment, climate engineering, resilience planning, and capacity-building.

Point of contact for PIEVC Advisory Services:

Erik Sparling
Email: erik.sparling@climateriskinstitute.ca

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)



As a service provider in the field of international cooperation for sustainable development and international education work, GIZ is dedicated to shaping a future worth living around the world. We have over 50 years of experience in a wide variety of areas, including economic development and employment promotion, energy and the environment, and peace and security, as well as climate. The diverse expertise of our federal enterprise is in demand around the globe – from the German Government, European Union institutions, the United Nations, the private sector, and governments of other countries. We work with businesses, civil society actors and research institutions, fostering successful interaction between development policy and other policy fields and areas of activity. Our main commissioning party is the German Federal Ministry for Economic Cooperation and Development (BMZ).

Point of contact for PIEVC Advisory Services:

Niklas Baumert
Email: niklas.baumert@giz.de