

Green Cities and Infrastructure Programme



UK Expertise Offer: world-class capability for sustainable infrastructure

UKEO Handbook

February 2025



UK Government
Centres of Expertise

Green Cities and Infrastructure



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A construction worker wearing a white hard hat and a high-visibility yellow and orange safety vest is shown in profile, looking down at a large set of blueprints held in their hands. The background is a bright blue sky with scattered white clouds, and a construction crane is visible in the upper left corner. The scene is set on a construction site with various structures and scaffolding in the distance.

1. The Green Cities and Infrastructure Programme & UK Expertise Offer

Introduction and Overview

1.1. Introducing the Green Cities and Infrastructure Programme & UK Expertise Offer

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What is currently limiting the delivery of green and inclusive cities and infrastructure?

Cities house more than half of the world's population and create 80% of global GDP. Around 60% of global carbon emissions originate directly from infrastructure sectors. Managed well, cities can be drivers of national and global wealth and job creation and innovation. Managed poorly, unplanned expansion will increase the costs of city services, create deeper social inequalities and increase environment costs.

Low- and Middle-Income Countries (LMICs) are facing significant barriers in scaling up green cities and infrastructure. These challenges are not solely due to a lack of financial resources. Often, the core issues lie in the planning, management, and execution of projects, which can deter investors and contribute to an infrastructure funding gap. Challenges which are compounded by the urgent need to address climate change and meet ambitious sustainable urban development goals.

Key challenges faced by LMICs include:



Weak project preparation, and pipeline development, leading to poorly conceived projects that fail to attract financing or deliver intended outcomes.



Inability to secure sufficient private finance due to unfavourable investment climates and poorly structured projects.



Insufficient integration of sustainability, resilience, and inclusivity principles throughout the project lifecycle, resulting in infrastructure that falls short of long-term development goals.



Lack of standardised, internationally recognised approaches for infrastructure development, leading to inconsistent outcomes and missed opportunities for scaling successful solutions.



Inadequate capacity within government institutions to effectively plan, procure, and manage complex infrastructure projects, particularly those incorporating innovative green technologies.



Limited mechanisms for knowledge transfer and adaptation of international best practices to developing countries, hindering the global spread of effective methodologies.

How can we help via the Green Cities and Infrastructure Centre of Expertise?

To help LMICs address these multifaceted challenges and develop sustainable urban infrastructure that supports economic growth and poverty reduction, a coordinated and strategic approach is required. The UK Foreign, Commonwealth and Development Office (FCDO) has established the Green Cities and Infrastructure Centre of Expertise (GCI CoE). This Centre coordinates UK world-leading expertise in urban development and infrastructure.

The Green Cities and Infrastructure Programme (GCIP) is the main mechanism by which Growth Investment Partnership (GIP) and other priority countries can access this expertise. The UK Expertise Offer (UKEO) is located within GCIP.

What does the Green Cities and Infrastructure Programme do?

GCIP harnesses the UK's expertise in urban development and infrastructure to address poverty, increase economic growth and enhance climate resilience in developing countries. It does this by catalysing investment in sustainable infrastructure and improving municipal finance and public services - creating jobs and increasing productivity.

GCIP is managed by a PwC-led consortium of Alliance Partners including Mott MacDonald, Engineers Against Poverty, Adam Smith International, MDY Legal. Together, these organisations bring deep global networks, access to specialist subcontractors, and localised in-country expertise. They have longstanding experience designing and delivering infrastructure solutions for the built and natural environment, international development programmes, and deep expertise in climate, gender and social inclusion, trade and investment, and digital solutions.

1.1. Introducing the Green Cities and Infrastructure Programme & UK Expertise Offer

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UK Expertise Offer

The UK Expertise Offer (UKEO), within GCIP, identifies, develops, and promotes the UK's world-class infrastructure toolkits and methodologies through a bespoke problem-driven, and country-specific approach.

UKEO also promotes and integrates in GCIP programming, the GCI CoE's eight UK government Delivery Partners (DPs) which can provide specialist expertise and capabilities, including across geospatial data, international standards, digital construction, railway systems, infrastructure planning, regulatory frameworks and transport solutions.

These Delivery Partners are: British Geological Survey, BSI, Connected Places Catapult, Crossrail International, Infrastructure and Projects Authority, Ofgem, Ordnance Survey, Transport for London.



This UK Expertise Offer Handbook outlines the expertise and capabilities of the Delivery Partners, and the transformative tools and methodologies that are available for integration into FCDO and partners' programming.

How do I access these UK world-class expertise?

The UKEO tools, methodologies and DP capabilities, can be accessed through three key mechanisms:

- GCIP's 'target offers' (TO) initiatives:** short (<12 months, £300k), interventions focused on specific problems or opportunities. Working with the FCDO GCIP Team, Posts can identify GCIP Partners (Alliance and/or DPs) which have the capabilities most suited to meet the needs of their host country or region. GCIP Partners can co-deliver TO initiatives, for example, blending DP expertise and G2G benefits, with the GCIP Alliance's local presence and wider technical or programmatic capabilities.
- GCIP's 'deep offer country' (DOC) assistance programmes:** longer-term, multi-year, adaptive programming in focus countries - currently Ghana, Mozambique, Vietnam, Indonesia, and the Philippines. These programmes are Alliance-led with DPs involved in co-delivery, with the aim to further embed co-delivery in the future.
- Country buy-ins:** Posts can buy into the GCIP programme, including accessing the UKEO offer. Current buy-ins include the DRC, Tanzania, Ukraine, and Indonesia.

GCIP Programme Activities

GCIP draws upon UK expertise and undertakes work in the following areas:



Infrastructure planning, design, finance, governance, regulation and standards



Urban planning and design, municipal finance and governance including the use of data and technology



The development of new infrastructure and urban policies



Institutional support to partner governments



Early-stage project development or prioritisation



Cross-border trade infrastructure





Digital connectivity



Cross-sectoral work on economic infrastructure (water, waste, energy, transport) with some emphasis on low-carbon transport and mobility

Please reach out to gcip@fcdo.gov.uk for more details.

1.2. Introducing the GCIP Alliance

Organisation	Who are they?	Key Global specialisms	Contact
	PwC (UK and network firms)	<p>A multidisciplinary professional services firm consistently ranked as a top UK firm for social mobility, climate action, and diversity, equity and inclusion.</p>	<ul style="list-style-type: none"> • Strategy, economics and regulation, backed by economic hubs in UK, South Africa, Middle East, India and Australia. • Capital projects and infrastructure practice of more than 3,200 experts globally. • Sustainability and climate change team with more than 250 staff in the UK and more than 5,000 globally. <p>Zlatina Loudjeva Programme Director zlatina.d.loudjeva@pwc.com</p> <p>Dan Dowling Team Leader daniel.s.dowling@pwc.com</p>
	Mott MacDonald (UK and network firms)	<p>A multidisciplinary, multi-sector global engineering and development business with 17,000 staff and offices in more than 100 countries.</p>	<ul style="list-style-type: none"> • A key supplier across HMG and globally, designing and implementing climate smart, resilient, and socially impactful infrastructure that support the global goals. • Leaders in project preparation, leveraging diversity and experience to shape market standards and bankability factors . • Global leaders in digital transformation for the built environment. <p>Ciaran Willcocks Alliance Director ciaran.willcocks@mottmac.com</p>
Adam Smith International	Adam Smith International	<p>A small and medium-sized enterprise specialised in the design and management of demand-driven TA facilities and delivery in fragile and conflict-affected states.</p>	<ul style="list-style-type: none"> • Design, planning, financing, selection and delivery of urban infrastructure programmes. • Improving enabling environments for infrastructure service delivery in utilities, water, and transport sectors. • Mainstreaming climate, gender, poverty and social inclusion. <p>Matt Uzzell Alliance Director matt.uzzell@adamsmithinternational.com</p>
	Engineers Against Poverty	<p>A globally respected and UK-based NGO specialising in infrastructure governance, known for providing high-quality TA and undertaking pioneering research.</p>	<ul style="list-style-type: none"> • EAP has a strong record in providing quality expertise to improve infrastructure governance while enabling the participation of marginalised people. • EAP offers technical skills in anti-corruption, social value, political economy analysis, gender equality and social inclusion, and local engineering capacity building. <p>Petter Matthews Alliance Director p.matthews@infrastructuretransparency.org</p>
	MDY Legal	<p>A niche MSME specialising in legal and governance advisory services in the international development sector.</p>	<ul style="list-style-type: none"> • MDY experts have worked for and with many governments of ODA-eligible countries, including Ghana, Mozambique and Kenya. • MDY has an expansive network of experts affirmed over more than 30 years, including local lawyers and consultants close to decision makers. <p>Liam Davies Alliance Director liam.davies@mdy.co.uk</p>

1.3. Introducing GCI CoE Delivery Partners

Organisation	Who are they?	Key Global specialisms	Contact
 British Geological Survey	British Geological Survey A world-leading provider of geological data and knowledge empowering sustainable urban planning, natural hazard mitigation and adaptation, water and resource management.	<ul style="list-style-type: none"> • Geological data and models. • Urban land-use planning. • Natural hazard mitigation. • Access to drinking water. • Capacity building. 	Dr. Kathryn Goodenough <i>BGS International Lead (Regional Geoscience)</i> kmg0@bgs.ac.uk
	British Standards Institution The UK's national standards body and global leader in developing and using standards, to accelerate progress towards a fair society and a sustainable world.	<ul style="list-style-type: none"> • International standard setting. • Capacity building support. • Technical advisory support. • Strategic policy and institutional set-up support. 	Jennifer Bisset <i>Principal Consultant, International Projects</i> Jennifer.bisset@bsigroup.com
	Connected Places Catapult The UK's innovation accelerator for cities, transport, and place leadership, with a focus on digital construction.	<ul style="list-style-type: none"> • Built environment: Digital construction. • Transport connectivity. • Place leadership strategic advice. 	Adam Matthews <i>Head of Strategy and Engagement, Digital Construction International</i> Adam.Matthews@cp.catapult.org.uk
	Crossrail International Strategic advisers for the development and delivery of complex rail schemes around the world.	<ul style="list-style-type: none"> • Railway expertise. • Development & delivery advisory and capacity building. • Sustainable urban development. 	David Miller <i>Operations Director</i> davidmiller@crossrail-international.co.uk
	Infrastructure and Projects Authority The UK Government's leading expert in infrastructure and major projects, with a track record of providing world-class infrastructure policy, advisory and training support.	<ul style="list-style-type: none"> • 5CM infrastructure business case capacity building. • Project development technical advisory support. • Strategic policy and institutional set-up support. 	Javier Encinas <i>Head of International, project and structured finance division, IPA</i> Javier.encinas1@ipa.gov.uk
	Ofgem The UK's Office of Gas and Electricity Markets, an independent regulatory agency.	<ul style="list-style-type: none"> • Regulation of electricity and gas networks and markets. • Green technology expertise. • Cross-border infrastructure. 	Aidan Stringfellow <i>Head of International Relations</i> Aidan.Stringfellow@ofgem.gov.uk
	Ordnance Survey Enhancing location intelligence capabilities and enabling countries to better manage their natural resources and urban development.	<ul style="list-style-type: none"> • Mapping & location insights. • Evidence-based policy with location intelligence. • Location data infrastructure advisory and capability building. 	Juliet Ezechie <i>Head of International</i> Juliet.Ezechie@os.uk
	Transport for London Consulting A world leading integrated transport authority which provides specialist advisory services, based on experience of over 160 years of public transport delivery in London.	<ul style="list-style-type: none"> • Urban mobility advisory support. • Transport project implementation. • ITA capacity building. 	Helen Wrigley <i>Managing Consultant, TfL Consulting</i> TfLConsulting@tfl.gov.uk

1.4. Thematic Offers: Energy

Supporting beneficiaries in developing, de-risking, investing in, operating and delivery progressive energy assets

A just energy transition is a key priority for GCIP in the shift towards a sustainable urban future

Energy will be a vital part in delivery of a sustainable future and is a key element of achieving the aims of the Green Cities & Infrastructure Programme:

- Pivoting from reliance on polluting hydrocarbon-based generation towards lower-emission sources, including renewable energy
- Increasing move away from hydrocarbons as heat sources (both for process heat - e.g. agri-processing - and for homes) to electricity as part of this transition and a shift to electric transport (public and private) requires expansion of electric networks and generation to support this and improve living conditions and reduce ground-level pollution, particularly in city environments
- Growing use of distributed generation
- Extending access to affordable, reliable power.

These changes bring immense challenges in expanding electricity networks and planning and controlling networks that were traditionally based on large centralised power plants.

The GCIP Alliance, together with Ofgem, and UKEO tools such as the Whole Systems Approach can help the FCDO support partner countries to address these challenges at the system and project level, and at all stages of the planning and project lifecycle.

How we can support



ASSESS

The barriers: institutional, political, legal and/or physical



ENABLE

Identifying and addressing policy barriers to create the enabling environment for change



PLAN

Formulating context-specific solutions, including land use and master plan development



FINANCE

Engaging private sector and other funding routes as required to build the case for, and win, investment



IMPLEMENT

Delivering the energy project through project planning and/or structuring

GCIP can support FCDO posts at any stage of the energy project lifecycle

Mott MacDonald supported the **Inter Americas Development Bank** and **Government of Barbados** to develop and update the Barbados **Integrated Resource and Resilience Plan**, which guides the development of the electricity sector over the long term in the light of the climate challenge. This included **demand forecasting** including forecasting **uptake of EV** and use of electric shore power by visiting cruise liners; **renewable energy supply forecasts**; **detailed modelling of the grid system** to plan for **integration of variable renewable energy**.

Adam Smith International supported **GridCo (Ghana)** by delivering **training** in the use of **DigSILENT Power Factory software**. This was used to model the **impact** of the incorporation of **large quantities of Variable Renewable Energy** e.g. solar and wind generators on the electricity network.

Example areas of support

Demand forecasting

Institutional and legal reform

Network management and design

Energy master-planning / strategy development

Charging infrastructure design and development

Grid planning and detailed modelling to support variable renewable energy network integration

Capacity building in industry standard software (PLEXOS and ANTARES)

Contact



Peter Bedson

Energy Thematic Lead
Peter.Bedson@Mottmac.com



1.4. Thematic Offers: Transport

Using Transit-Oriented Development (TOD) to create more liveable cities and bring private finance to transport provision

Transport is a key priority for GCIP in the shift towards sustainable and inclusive cities

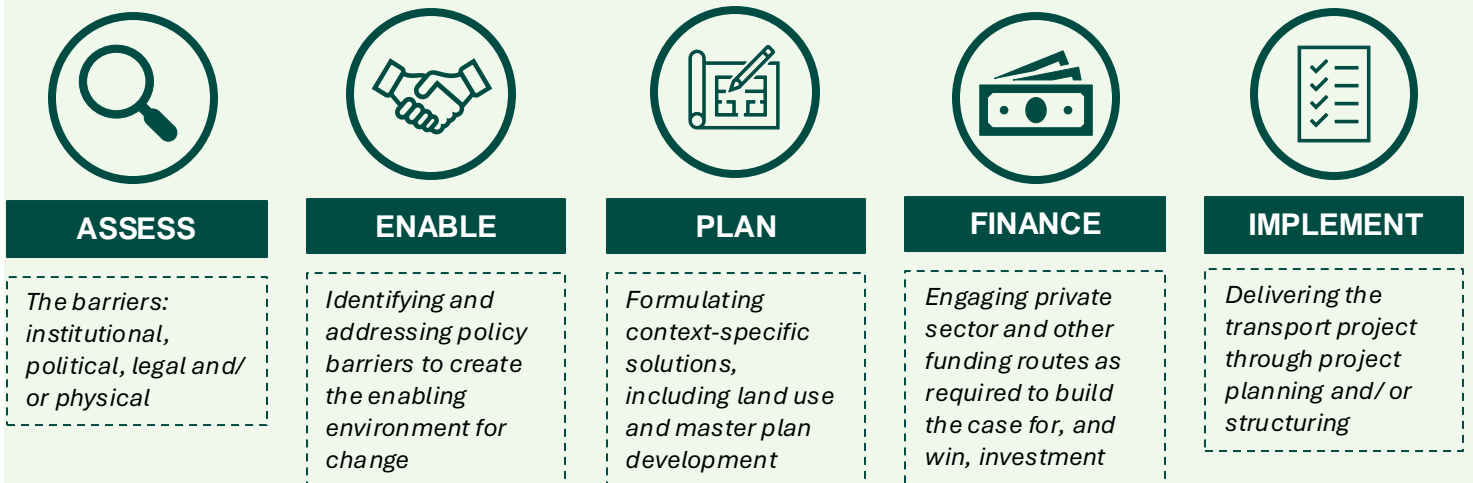
Transit-oriented development is an innovative urban planning approach that integrates people, services, and activities with high-quality public transport, complemented by walking and cycling infrastructure. This strategy facilitates shorter commutes, enhances lifestyles, and optimises the use of city resources. By creating a balanced mix of housing, employment opportunities, educational institutions, retail outlets, and essential services, along with access to green and open spaces, TOD supports businesses alongside both new and long-term residents across all income levels.

This holistic approach positively impacts all aspects of urban living leading to the following benefits:

- Increases city efficiency, raises retail value, and encourages efficient use of resources, productivity, and budgetary savings
- Reduces emissions and increases climate resilience by minimising the environmental impact of sprawling development
- Helps address socio-spatial inequity to better meet the needs of marginalised populations to access opportunities and strengthen social networks
- Improve people's health by reducing negative impacts of long commutes, enables active mobility, and fosters environments that improve mental, emotional, and physical well-being
- Improves road safety through reduced private transport reliance.

Applying the concept of integrated economic, transport, and land use planning is often complex, because different agencies do not understand it in the same way. The GCIP Alliance and its specialist sub-contractors, together with Crossrail International and Transport for London, can provide world-leading end to end capability.

How we can support



GCIP can support FCDO posts at any stage of the transport project lifecycle.

The GCIP Alliance, with Crossrail International supported the **Hanoi & Ho Chi Min City Metropolitan Rail Networks** and **National Rail Authority of Vietnam** to guide and assist in creating the **right regulatory and institutional environment and legislation** for the development of TOD around Metro Line stations in Hanoi and Ho Chi Minh City. This involved **bringing together multiple public institutions** with a role in development and delivery **alongside private sector development partners**.

Example areas of support

- Institutional and legal reform**
- Transport master-planning / strategy development**
- Convening public and private sector to collaborate**
- Project planning and structuring**
- Capacity building in regulatory and institutional standards**

Contact



Colin Brader
Transport Thematic Lead
colinbrader@station-station.co.uk



1.4. Thematic Offers: Urban

Making cities and human settlements inclusive, safe, resilient and sustainable

A green and just transition in the urban sector is of priority to GCIP in the shift towards sustainable and inclusive cities

GCIP's urban focused assistance has been designed to empower national and local stakeholders improve the climate resilience of the built environment and economy of cities, and in a way that is inclusive and creates decent and productive work opportunities. Three key themes characterise GCIP's urban programme:

Urban planning and Design

- Urban planning policies and strategies, and structure and masterplans
- Building Information Modelling (BIM) initiatives
- Maximising local economic benefits throughout the planning and development process by direct community engagement

Urban Management

- Strengthening urban governance and financial management systems
- Improving access to climate and sustainable finance for urban development
- Designing information collection and analysis systems to enhance climate resilience, such as climate hazard mapping and flood risk assessment modelling

Urban Development

- Feasibility studies for urban climate resilient infrastructure; e.g. Drainage and flood management infrastructure; Waste management and water security investments; Nature based solutions (NBSs)
- Climate resilient Urban Transit-Oriented Development (TOD) initiatives

Making cities green and inclusive is often complex with challenges including insufficient urban development strategies, limited government or fiscal capacity, immature project pipelines, or limited data on urban services and climate risks. The GCIP Alliance and Delivery Partners can provide integrated solutions to address all these challenges.

How we can support: GCIP can support FCDO posts at any stage of the urban project lifecycle



ASSESS

The barriers: institutional, political, legal and/or physical



ENABLE

Identifying and addressing policy barriers to create the enabling environment for change



PLAN

Formulating context-specific solutions, including land use and master plan development



FINANCE

Engaging private sector and other funding routes as required to build the case for, and win, investment



IMPLEMENT

Delivering the transport project through project planning and/or structuring

In **Ghana**, GCIP's target offer is focussing on **strengthening public private partnerships** and **improving access to climate finance**.

Interventions include:

- **Full feasibility studies** for water supply in the northern city of WA
- **Climate resilience infrastructure** for Sekondi-Takoradi
- **Climate hazard maps** for the northern regions

Example areas of support

Regulation, urban master-planning, urban development strategy and policy recommendations

Capacity building and training for ministries across provision, operation and maintenance of climate resilient infrastructure and initiatives

Strengthening city finances and governance through market landscape assessments to improve access to green and sustainable finance

Completing (Pre-) feasibility studies related to climate resilient infrastructure, buildings and urban transportation to improve urban governance, administrative capacity, and urban planning capability

Undertaking investment and financial planning through investor roundtables and technical assistance to create a pipeline of bankable projects supported by public and private investment

Contact



Dr Nicholas Miles

Urban Thematic Lead

njomiles@miles-strategic.co.uk



UK International Development

A close-up, profile view of a woman with dark skin and glasses, wearing a red cardigan over a white top. She is looking down at a document on a wooden desk. Her hands are visible, with one hand holding a pen and the other resting on the paper. The lighting is warm and focused on her face and hands.

2

GCIP Alliance

Expertise & impact

GCIP Alliance lead, and a top UK firm for social mobility, climate action, and diversity, equity & inclusion



PwC is a multidisciplinary professional services firm known for their financial, economic, sustainability and capital markets acumen. PwC has Network firms in 156 countries employing locally and serving local communities, and has led the successful delivery of ICED, GIP, GEC, CDKN & GGF, mobilising rapidly and delivering quality and strong results.



5,000+

Sustainability & climate change staff globally



3,200+

Capital projects & infrastructure practice of experts globally



740

Offices in 156 countries employing locally

PwC's key global specialisms

Climate finance and transport expertise

PwC has 800+ experts in climate mitigation, adaptation and resilience planning, as well as a dedicated transport division. PwC implements multi-country climate finance programmes, drives efficiency and excellence across multi-billion pound transport ecosystems, supports Global Climate Finance national readiness and accreditation, and provides strategic climate finance advisory services.

PwC implementation of a multi-country **BEIS Climate Finance Accelerator programme** supported 238 early-stage climate projects across 10 countries to identify the financial and climate benefits. PwC helped facilitate 50 deals totalling over \$410m of investment.

PwC created the **Climate Investment Playbook** for British International Investment in 2024, offering tools and strategies to inform **the identification, assessment, and management of climate investment opportunities**.

Successful delivery of ICED, GIP, GEC, CDKN & GGF, mobilising rapidly and delivering quality and strong results. Their structured approach ensured effective programme management and strong outcomes, significantly **enhancing infrastructure governance and climate resilience** across multiple countries.

Project management and delivery

PwC has a capital projects & infrastructure practice of 3,200+ experts globally, including in Africa and Asia. This ensures PwC excels in managing high-impact government programmes with a global remit through a structured Quality Assurance approach at Work Package, portfolio, and programme levels. Thematic Leads and Country Leads maintain Quality Assurance across packages, while the Programme Director and Team Lead provide overall technical oversight and risk management.

Business cases, financial modelling and analysis

PwC excels in strategy, economics and regulation that are critical to the successful planning and execution of infrastructure and climate projects. With a world-leading infrastructure advisory practice of 4,000+ experts, global economic hubs, and 200+ staff trained in the UK Five Case model, PwC is able to: develop business cases for climate and infrastructure projects, provide policy reviews, financial modelling, regulatory analysis and infrastructure finance advisory services to support project viability and investment decisions.

For **DFID CDKN**, PwC worked across **70 countries delivering 1,000+ projects** to help national and regional policymakers make **evidence-based, technically informed policy decisions** on climate-related issues.

For the **World Bank's City Resilience programme**, PwC provided economic, regulatory and investment analyses. This led to **improved urban planning, better regulatory compliance, and increased investment in resilient infrastructure projects**.

Contact



Zlatina Loudjeva
Programme Director
zlatina.d.loudjeva@pwc.com



Dan Dowling
Team Leader
daniel.s.dowling@pwc.com



Mott MacDonald

Global employee owned, engineering, management and development consultancy

UK headquartered, Mott MacDonald (MM) is a multidisciplinary, multi-sector global engineering and development consultancy with deep knowledge and connections to UK expertise. For 150 years, Mott MacDonald has been a key supplier across HMG and globally, with a particular focus on infrastructure and development, designing and implementing critical social infrastructure, and transforming the way major cities are planned.



Advised **9 Governments** globally to develop '2050 Calculators' that support low carbon development and reduced emissions

595 community climate infrastructure projects supported to enhance Nepal's resilience to climate change

13 infrastructure projects delivered in 9 cities across 6 countries under the Global Future Cities Programme, benefiting **27M** people

Mott MacDonald's key global specialisms

Digital transformation of the built environment

Mott MacDonald is a global leader in digital transformation for the built environment, including Building Information Management (BIM) and Digital Twin technology, and has advised the UK government and agencies, and the International Organisation for Standardisation (ISO) on codifying, regulating, and disseminating technology for the built environment. Mott MacDonald also support wider adoption of digital in infrastructure through initiatives such Project 13, under which Mott MacDonald lead the Digital Transformation Pillar.

Mott MacDonald develops and deploys **the latest digital innovations** such as BIM, Digital Twins, big data and cloud-enabled tools that create the potential for **partner countries to 'leapfrog' via non-traditional development pathways.**

Under the UK Government BIM Pathfinder Programme, Mott MacDonald **developed BIM strategy and trained over 2,000 government officials in BIM adoption** across 6 partner countries.

For the last 25 years Mott MacDonald have been at the leading edge of the carbon agenda. We **co-wrote the UK government's seminal Infrastructure Carbon Review** and we were **lead author for PAS 2080**, the international standard for managing infrastructure carbon. We are PAS 2080 certified globally, and help clients and partners to achieve certification too. We're also certified to PAS 2060, the international standard for carbon neutrality.

Shaping investable infrastructure projects

Leaders in infrastructure project preparation and finance for decades, MM leverages its diversity and experience to **shape market standards and bankability factors.** MM provide strategic advice on applying global best practice in a local context to drive infrastructure quality, cost-effectiveness and sustainability. To better **integrate decarbonisation, resilient infrastructure solutions (including PCRAM), and take adaptive planning decisions,** MM help governments, project proponents and businesses to enhance their ability to **unlock funding for net zero aligned projects.** MM work with communities in all project stages, ensuring GEDSI outcomes are mainstreamed.

Value-based and whole-systems approaches to planning, infrastructure design, investment and delivery

Mott MacDonald takes a **wholistic view of cities and infrastructure development,** recognising the interconnectedness and interdependency of the built and natural environments, and of economic, social and environmental outcomes. MM embed planning approaches such as **Systems Thinking, Transit Orientated Design, Project 13 and Whole-Life Costing,**

MM delivers global best practice, innovation and future-thinking into place-based approaches. MM **supports the UK Department for Transport to embed 'futures thinking' into its decision-making** at the strategic planning stage of projects. MM have applied **Systems Thinking** approaches globally in water, transport, and energy sectors to support projects that foster wider green growth, health, and social outcomes – including work with Transport for London to develop a **healthy cities best practice guide.**

Contact



Zlatina Loudjeva
Programme Director
zlatina.d.loudjeva@pwc.com



Dan Dowling
Team Leader
daniel.s.dowling@pwc.com

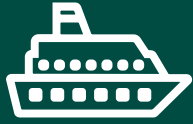


Adam Smith International

Specialist in the design and management of demand-driven technical assistance facilities and delivery in FCAS states

Adam Smith International (ASI) specialises in designing and managing technical assistance facilities in Fragile and Conflict-Affected States (FCAS). ASI's expertise is in urban infrastructure programmes, improving service delivery in the utilities, water, and transport sectors while mainstreaming climate, gender, poverty and social inclusion.

Adam Smith International



£2bn+ investment unlocked through support to Lagos Waterway Agency (LASWA)



146
Projects currently being delivered



49
Countries with project presence

ASI's key global specialisms

Design, management and delivery of technical assistance facilities

ASI specialises in demand-driven technical assistance, particularly in Fragile and Conflict Affected States (FCAS). They bring expertise in political economy analysis and facilitating cross-government collaborations. ASI has successfully led flagship facilities like NIAF, CRIDF, and East Africa Geothermal Energy Reform Facility.

Nigeria Infrastructure Advisory Facility (NIAF):

ASI led the NIAF, which provided technical assistance to improve infrastructure service delivery in Nigeria. ASI provided technical assistance, strategic planning, and political economy analysis. Outcomes included improved project planning, a prioritised capital spending programme and stabilised financial flows in the power sector, contributing to sustainable economic growth and poverty reduction.

DFID's Infrastructure Strategy in Somalia:

ASI successfully led DFID's infrastructure strategy in Somalia to address the country's critical infrastructure needs amidst ongoing conflict and instability. ASI focusing on the design, planning, financing, selection, and delivery of urban infrastructure programmes. This project improved enabling environments for infrastructure service delivery in utilities, water, and transport sectors.

Urban infrastructure programme expertise

ASI has strong technical expertise and proven credentials in the design, planning, financing, selection, and delivery of urban infrastructure programmes. They focus on improving enabling environments for infrastructure service delivery in the utilities, water, and transport sectors. ASI has delivered high-quality urban infrastructure programmes in Asia, Africa and MENA regions.

Mainstreaming climate, gender, poverty and social inclusion

ASI integrates climate resilience, gender equality, poverty reduction, and social inclusion into their projects. They have successfully led flagship facilities and programs such as NIAF, CRIDF, and the East Africa Geothermal Energy Reform Facility, demonstrating their capability to match demand with quality expertise at scale in complex environments.

ASI participated in the Cities and Infrastructure for Growth (CIG) program in Burma, Uganda, and Zambia. They mainstreamed gender equality, social inclusion, and climate change mitigation into the program. This resulted in improved policy, regulatory, and investment environments for infrastructure and urban planning, benefiting marginalized groups and enhancing climate resilience

Contact

Matt Uzzell

Alliance Director

matt.uzzell@adamsmithinternational.com



Engineers Against Poverty

Globally respected UK NGO specialising in infrastructure governance

Engineers Against Poverty (EAP) is a leading UK NGO focused on infrastructure and international development. It is known for providing high-quality technical assistance and pioneering research, with a strong record in improving infrastructure governance (policies, systems, procedures, and institutions) while enabling the participation of poor and marginalised people.



Support to Thailand's Ministry of Finance resulted in cost savings of \$720m



Provided high-quality technical assistance to 25 governments across three continents, resulting in better-quality infrastructure and services



Provided institutional strengthening support to 20 professional engineering institutions across Africa

EAP's key global specialisms

Quality expertise to improve infrastructure governance

EAP focuses on strengthening policies, systems, procedures, and institutions to improve the efficiency of infrastructure investments and the quality of infrastructure and services. Their work also ensures infrastructure projects are inclusive and equitable.

EAP worked with the Government of Uganda and private sector and civil society stakeholders, to **improve the governance of infrastructure investments**. It established systems to disclose data and supported stakeholders to subject it to scrutiny. The impacts included **better value for public money, better quality infrastructure and services, and an increase in market competition**. In 2023, these efforts earned an Anti-Corruption Collective Action Award for Southern Africa from the Basel Institute on Governance.

EAP provided technical assistance in the DFID ICED programme, partnering with PwC, ASI, and MDY.

They delivered **impactful results across 28 countries** by **integrating anti-corruption measures and building local engineering capacity**.

The programme **exceeded its KPIs, improving infrastructure governance significantly**.

Broad technical skillset from anti-corruption to local engineering capacity building

EAP hosts the CoST International Secretariat and is responsible for providing high-quality technical assistance to 20 member countries across three continents. Areas of support include anti-corruption, social value, political economy analysis, gender equality and social inclusion, and strengthening engineering capacity building. Their ability to mobilise experts rapidly and absorb lessons from previous experience ensures that they provide high-quality support to partner country governments and other stakeholders.

Pioneering research and development

EAP is renowned for its pioneering action research in infrastructure governance. It partners with academic institutions, multilateral development banks, UN bodies, and major companies to conduct research that results in new knowledge and tools and approaches with practical applications. Its empirical work on corruption in the construction of public infrastructure has been widely recognised and published, contributing to the international discourse on improving infrastructure governance.

EAP developed the **Open Contracting for Infrastructure Data Standard (OC4IDS)**, supported by the World Bank and the UK Government. **The OC4IDS and its antecedents have been applied in 25 countries and have resulted in the disclosure of data on more than 80,000 investments**. In 2024, the OC4IDS was integrated into the Blue Dot Network's Certification scheme, promoted by the OECD and the governments of the US, UK, Japan, Australia, and others.

Contact

Petter Matthews

Alliance Director

p.matthews@infrastructuretransparency.org



MDY Legal

Specialist in legal and governance advisory services in the international development sector

MDY Legal is a multidisciplinary law firm providing corporate and commercial legal & governance advisory services to its international development clients, including FCDO, BII, PIDG and others. Its expertise covers the private sector infrastructure financing themes of GCIP and sustainability.

 Supported PIDG in mobilising USD **37bn** in sustainable infrastructure investment, improving access to infrastructure for **220m** people



Supported IFFEd's commitment of **\$1.5 billion** for global education and skills in LMICs



Supported LDC Group's LIFE-AR program to direct **70%** of climate finance to local levels

MDY legal's key global specialisms

Legal and governance advisory services

MDY Legal has a robust track record in providing legal and governance, advisory services and monitoring and evaluation of development impact in the international development sector particularly in financial, corporate and fund structuring, risk management and developing "best in class" policies and procedures on climate, health and safety, environment and social issues, and supply chain risks. MDY Legal's core team is supported by an expansive network of consultants including local lawyers and consultants close to decision makers who have worked for and with many Governments of ODA-eligible countries including Ghana, Mozambique and Kenya.

MDY Legal led the **establishment and hosting of the Private Infrastructure Development Group (PIDG)** for over 15 years, ensuring institutional accountability, transparency, and governance oversight. This involvement **mobilised \$37 billion in investment**, delivering **sustainable infrastructure across 190 projects** and providing **220 million people with improved infrastructure access**. MDY Legal continues to work with PIDG on an ad-hoc basis.

MDY Legal played a pivotal role in structuring the financing for a **major infrastructure project in Southeast Asia**, leveraging **\$500 million in private sector investment through a blended finance model**. This project improved urban transport infrastructure, significantly reducing travel time and **enhancing economic productivity for over 2 million residents**.

Private sector infrastructure financing

MDY's expertise includes attracting private sector investment into infrastructure through the establishment of multi million and billion USD sustainable social impact vehicles that provide, for example, blended finance (often working with the public sector) debt financing, guarantees and/or equity investment.

Supply chain risk analysis and management

MDY's expertise also includes minimising value chain vulnerabilities, e.g. human rights abuses, reputational risks, financial risks, and cyber-security risks – all with a view to maximising sustainability.

MDY is a market-leader in the design and implementation of ethical investment policies, procedures, and contracts to mitigate value chain risks and maximise sustainability.

MDY Legal is helping countries develop and **manage supply chains for the UN Framework Convention on Climate Change** sponsored LIFE-AR, a USD 568 million vehicle to invest in a **climate-resilient future for local communities**. MDY oversees a supply chain risk policy addressing fiduciary, operational, and reputational risks for publicly funded infrastructure.

Contact



Diane Harris

Partner

diane.harris@mdy.co.uk



Liam Davies

Partner

liam.davies@mdy.co.uk





3

GCI CoE Delivery Partners

Expertise & Impact

British Geological Survey

A world-leading provider of geological data and knowledge, empowering sustainable urban planning, natural hazard mitigation and adaptation, water and resource management

The British Geological Survey (BGS) is a world-leading provider of geoscientific data, focused on public-good science to help society to use its natural resources responsibly, manage environmental change and be resilient to environmental hazards. BGS is impartial, and collaborates with its partners at local, regional, national and global scales, providing data, expertise and building local capacity in geological surveys to support decarbonisation, resource management, hazard mitigation and adaptation and reduce risks in the built environment.

Impact



200+

Projects delivered



160+

Countries engaged with



200+

Cities supported



2,100+

Free licenses granted over 5 years to use BGS digital technology and systems in LMICs

"BGS are doing excellent work in the international sphere [...] providing **leadership in digital data management** and **international cooperation**, by advancing digital technology and systems that are used in an international context to acquire, store, manage, and analyse geoscientific data."

- Independent Assessment panel

Contact



Dr. Kathryn Goodenough

BGS International Lead (Regional Geoscience)
kmg@bgs.ac.uk



Dr Keely Mills

BGS International Programme Coordinator
kmill@bgs.ac.uk



Ms. Jennifer Forster

BGS Head of Business Development
jforster@bgs.ac.uk

Priorities that can be supported

Using geoscience data and skills to support subsurface management and planning in urban areas

BGS works in collaboration with local partners to acquire and interpret geological data and knowledge to inform subsurface planning. BGS expertise can support the development of low-carbon energy sources, resource and waste management, and sustainable urban planning.

Natural hazard risk mitigation

BGS makes use of innovative technologies and tailored platforms, including satellite imagery, sensors, analytical tools, and risk assessment models, to map and monitor natural hazards including flooding, landslides, earthquakes and volcanic activity. BGS can then advise on strategies to reduce their potential impact on economic growth, infrastructure, and communities.

Improved water security

BGS works with in country partners to map and monitor groundwater resource availability and quality worldwide to support access to clean drinking water.

Training and capacity strengthening

Bespoke capacity strengthening programmes for the next generation of geoscientists and for counterpart geological surveys.

Why BGS?

Global Expertise

1

BGS is part of UK Research and Innovation with over 100 years of international collaboration, tackling global challenges across Africa, Southeast Asia, and Latin America. Having delivered over 200 projects across 160+ countries, BGS' extensive expertise ensures high-quality, impactful geological solutions worldwide.

Access to rich open-source data

2

BGS offers authoritative, accessible and reusable geological data, including maps, models, datasets, and reports. BGS develops platforms and applications that enable stakeholders to search, access, manipulate, and visualise data - driving informed decisions.

A collaborative approach

3

BGS employs a collaborative approach to address societal challenges through geological science. By partnering across sectors, disciplines and borders, BGS is able to meet the needs of governments, industry and the public. This includes work with the World Bank, the European Union, and various United Nations agencies.



“In Africa BGS is supporting mineral resource development, management of groundwater, agriculture and human health”



Africa Groundwater Atlas

BGS has developed the Africa Groundwater Atlas, a free, searchable online database providing detailed hydrogeological information for 51 African countries, including maps and data on groundwater status and management. Developed in collaboration with the International Association of Hydrogeologists (IAH) and over 50 African scientists, the Atlas provides accessibility to the knowledge required for a solid understanding of groundwater and hydrogeology. The maps and Atlas resources stimulate 20,000 and 2,500 annual downloads respectively from c.50 countries.

These resources are crucial for the **sustainable development of groundwater resources** in Africa and essential for **future safe water supplies, economic growth and food security**.

Sierra Leone hazard resilience

In August 2017, a landslide in Freetown, Sierra Leone, caused by heavy rainfall, led to around 500 deaths, 3000 homeless, and extensive property damage. BGS worked in partnership with the National Minerals Agency, UNITAR and UNOSAT to build geological capacity in the country, including improved understanding of vulnerability to natural hazards. BGS also analysed satellite imagery to **map the landslide and identified potential new risks**. This map was made widely available online and used to **inform decision making**, organise relief efforts and **prevent further casualties** as it was presented by FAO to Sierra Leone's Office for National Security, Cabinet and President.

Angola's Lobito Corridor

BGS is developing geological information to aid spatial and resource decision making to **deliver sustainable cities and infrastructure**. Working with the Angolan Institute of Geological Sciences (IGEO) and the British Embassy in Angola, BGS is supporting the development of the Lobito Corridor as key infrastructure in **securing supply of critical minerals for the EU and US**. This will underpin the **energy transition** and **open investment and trade opportunities** for UK business.

Nigeria and Kenya training and National Geodata Centre development

BGS has developed National Geodata Centres in Nigeria and Kenya. These are digital facilities aimed at collecting and delivering geoscientific data. Administered by the Directorate of Geological Surveys, NGDC organises and safeguards geological and mineral data in an open-source format. By providing a repository for current and legacy geological information, NGDC is **enhancing mineral exploration and research**.

“In Latin America and the Caribbean BGS is supporting the energy transition, responsible extraction, and disaster risk response”



Sustainable and responsible extraction in South America

A team from the British Geological Survey went to Argentina and Chile to support sustainable and responsible extraction of lithium in sensitive environments. Partnering with local institutions, BGS held workshops with government officials, researchers, operators, and indigenous communities. This dialogue will be used to **identify potential research projects**, and **support applications for funding** to scale lithium production responsibly.

Understanding and communicating hazards in the Caribbean

BGS is working in partnership with communities to understand and communicate hazard and risk in the Caribbean. This work is done in collaboration with the University of the West Indies Seismic Research Centre (SRC) and the National Emergency Management Organisation (NEMO) of St Vincent and the Grenadines. The project aims to characterise formal and informal flows of communication within and between communities to **improve natural hazard preparedness**, and prompt **risk-reducing action**.

“In Asia BGS is using geoscience data to support subsurface management, urban development, groundwater resource use and hazard mitigation”



Singapore subsurface geology

For the past decade, the British Geological Survey (BGS) has worked with Singapore’s Building and Construction Authority, and National Technical University to enhance subsurface geological understanding. BGS projects in Singapore have delivered an up-to-date interpretation of the geology, and a new International Commission on Stratigraphy-compliant framework, resulting in **better risk management, cost reduction in construction, sustainable land-use planning, and improved safety in urban development**.

Philippines National Hydrological model

The Philippines’ water resources are being impacted by climate change and urbanisation. In collaboration with local institutions, BGS developed the Philippine National Hydrological Model by integrating hydrological modelling software with a groundwater model to simulate the surface water and groundwater system. Calibrated with local data, it covers the entire country and provides **crucial insights for water management**, anticipating **climate impacts**, and **improving water security and flood management**.

The UK's national standards body and a leader in developing and using standards, to deliver sustainability outcomes

Standards are a knowledge sharing tool that can help partner countries implement international best practice. For over a century, BSI has worked around the world to build the understanding and capacity of governments and national standards bodies to help deliver sustainability outcomes, including in the construction and infrastructure sectors. Sustainability standards are expanding rapidly in response to demand in fields from procurement to smart cities to sustainable finance. BSI can help partner countries to identify relevant international standards that can improve the sustainability of infrastructure and advise on their use. BSI helps advise on the development of national standards where no relevant international standard exists.



Impact

“Standards can deliver transformational change in how business, civil society and governments operate. Standards are proven to make an important contribution to economic growth. They can inform or support regulation.”

- BSI



38%

Productivity growth since 2000 attributable to standards



77,500

Clients across a range of industry sectors benefitting from standards solutions



+180

Countries

30

Offices

“This impact is just the beginning, it can be truly transformational, to unleash the potential of Ghanaian industry and the Ghanaian people to create jobs, create wealth, and work together with the UK, as we build shared global prosperity, so there is one world, one prosperity, one standard, one trade.”

- Professor Alex Dadoo, Director General, Ghana Standards Authority, and President of ARSO

Contact



Jennifer Bisset

Principal Consultant, International Projects
Jennifer.bisset@bsigroup.com

Priorities that can be supported

Enhancing sustainable development, trade and prosperity through the use of international standards

BSI helps countries develop and implement international standards to support sustainable economic growth and remove barriers to trade. In the built environment, this helps to create a more efficient, sustainable and resilient urban environment, by implementing standards in digital construction, climate resilience, procurement, Building Information Modelling and Smart Cities. BSI helps businesses and governments translate UN Sustainable Development Goals into their own context.

Building capacity in national quality institutions

BSI enhances national quality ecosystems in countries, partnering with governments and other national standards bodies responsible for standardisation, testing, measurement, certification and accreditation. This includes strategic planning, research, capacity building, training and the promotion of cutting-edge technologies like IoT, AI and machine learning to improve risk management, good governance, and create smarter, more sustainable urban environments.

Regulatory advice

As the UK's leader in standards, BSI are experts in advising on how to find the right balance between regulation and standards. This includes stakeholder engagement, legislative reform, regulatory diplomacy, policy support and enabling effective collaboration between public and private sectors for sustainable urban development.

Why BSI?

Global reach and impact - your partner in progress

1

BSI exists to have a positive impact on society, partnering with clients, governments and development organizations globally to help them tackle significant and diverse issues. BSI's programmes deliver transformational change across eight sectors (Built Environment, Food & Retail, Healthcare, Manufacturing, Energy, Government, ICT and Transport & Mobility), driving efficiency and resource optimisation, sustainable development and climate resilience, and governance and risk management.

2

Accelerating progress towards a sustainable future

Sustainability is both a guiding principle and a central focus for BSI, upholding the Royal Charter. BSI supports businesses and countries in managing their environmental impact. Along with sustainability, BSI is accelerating digital trust and transformation, shaping society by developing a resilient digital future, that respects privacy, safety, security, and reliability.



“In Asia BSI is ...”



Setting sustainability criteria in China

As part of the FCDO Business Environment Programme in China, BSI ran pilot projects in four cities to support the promotion of international standards. Each city set themselves sustainability related objectives and implemented international standards to meet these.

“The international standard on *Sustainable development in communities* is highly suitable for a city such as Guangzhou with its scientific development zone and can serve as a model for similar-sized cities.”
Huanxue Wang, Representative of the Guangzhou Development District

Supporting climate resilient cities in India

BSI is providing expertise in capacity building and institutional development to help Indian city authorities become better governed and more responsible in organisational governance and asset management.

This work was initially started as a City Leadership Programme and now contributes to the FCDO Technical Assistance Programme on Climate Resilient Cities for Shared Prosperity (CReSP) in India.

Piloting BIM in China

BSI piloted the use of international standards for Building Information Modelling (BIM) processes in a construction company in China.

Working with local government, enterprises, and national and provincial standards bodies, BSI provided guidance and support in gaining the competencies to conform to the identified standards.

This led to a successfully run pilot, showing measurable material savings and a reduction of construction days.

Providing building regulatory support in Dubai

In collaboration with Dubai Municipality, the construction industry in Dubai, and officers across the Building Activities Control Department, BSI improved the effectiveness of building inspection across the building lifecycle.

This included the development of a risk-based model and building quality certificate checklist, alongside benchmarking of international jurisdictions. As a result, BSI strengthened Dubai’s ability to assess risks of building activities and provided access to tools and strategies for future Building Control activities.



“In Africa BSI is ...”



Supporting water efficiency in Egypt

In Egypt, BSI supported water resource efficiency through international water management best practices. BSI collaborated with the EU, government of Egypt, industry, and national standards bodies to undertake a water resource efficiency benchmarking exercise across priority Egyptian trade sectors.

This helped determine water resource ‘competitiveness’ and motivated high water utilisation sectors towards improved water management practices.

“In Latin America and the Caribbean BSI is ...”



Supporting the future of resilient infrastructure in the Caribbean

The Caribbean faces challenges in developing resilient infrastructure due to its vulnerability to natural disasters, climate change and economic constraints.

BSI in collaboration with the Caribbean Ministries of Infrastructure, National Standards Bodies, and infrastructure project managers supported the use of applicable international standards and best practice in the development of infrastructure and created a roadmap planning for climate resilient construction.

“Elsewhere BSI is ...”



Developing zero emission Heavy Goods Vehicles (HGVs) & infrastructure standards

In collaboration with Connected Places Catapult, UK Department for Transport. BSI is accelerating the commercialisation of battery electric and hydrogen fuel cell HGVs through standards.

BSI has engaged with international standardisation bodies (e.g. ISO, IEC, CEN, CENELEC) to develop standards of publicly accessible charging sites, and inspections and maintenance. These protocols are improving safety, operational efficiency and are helping the road freight industry to meet emission reduction targets.

Supporting the Net Zero transition

BSI is supporting major developing countries’ approach to carbon capture, use and storage. This involves developing hydrogen standards for use by heavy industry, to replace hydrocarbon use.

BSI has worked with DEFRA to develop standards that can increase confidence in investment in nature-based solutions to climate change. BSI are also spearheading the development of guidelines and an international standard that any organisation can use to guide its move to net zero.



Connected Places Catapult

The UK's innovation accelerator for cities, transport, and place leadership, with a focus on digital construction

Connected Places Catapult (CPC) is the UK's innovation accelerator for cities, transport and place leadership. CPC is the host of UK government's **Digital Construction International Programme (DCIP)**.

DCIP supports the adoption of Building Information Modelling (BIM) as a technique to improve the way infrastructure is delivered and operated across the world. DCIP delivers the UK's methodology for the digital transformation of infrastructure delivery to national and sub-national policy, infrastructure projects and organisations.



Impact



7:1

Return on Investment for infrastructure owners



45

Countries engaged with under DCIP



2200+

Overseas public officials completed BIM policy and/or procurement training

"[CPC] helped us to **connect** the city's BIM programme to our infrastructure development plan outcomes...and **advance our goal to be a 'Resilient City'**... on the path to becoming the first Digital City in Africa – setting the standard for South Africa and for the continent"

- Engineering Management Branch, City of Cape Town

"It is impossible to design and build a hospital of this magnitude in 23 months without **a collaborative BIM environment**"

- Sullana hospital project team, Peru



[UKDT BIM Technology in Peru Reconstruction](#)

Contact



Adam Matthews

Head of Strategy and Engagement, Digital Construction International
Adam.Matthews@cp.catapult.org.uk



Gavin Summerson

Built Environment Team Lead
Gavin.Summerson@cp.catapult.org.uk



Pauline Tzachrista

Programme Lead, Digital Construction International
Pauline.tzachrista@cp.catapult.org.uk

Priorities that can be supported

Policy & strategy guidance for local outcomes realisation

CPC's **UK Digital Construction methodology** enables governments and infrastructure owners to implement digital transformation in response to their own local challenges including climate resilience, transparency, and closing the infrastructure gap through efficient use of public infrastructure investment.

Advisory & guidance for BIM implementation & compliance

CPC offers strategic advisory and technical assistance to transformation teams, public clients, infrastructure owners/operators, and project teams on BIM implementation and information management aligned to ISO 19650.

Capability and capacity development of the public and private sector

CPC offers digital construction skills development at all levels of organisations from senior leadership teams understanding of concepts to delivery teams requiring detailed knowledge of information exchange processes.

Knowledge transfer and provision of knowledge products

CPC host knowledge transfer sessions and supports building coalitions in country, regionally and globally. Best practice BIM guidance and templates are also shared with countries.

Why CPC?

Extensive expertise and track record

1

CPC have an established track record in advising governments and public clients from over 20 countries across four geographic regions on the introduction of BIM and digital construction techniques.

Proven methodology globally recognised

2

CPC promotes the UK's Digital Construction methodology endorsed by the [Global BIM Network](#), the EU BIM Task Group, the LATAM BIM Network and institutions such as IDB, ADB and UNOPS.

International adaptation

3

CPC's methodology is open and flexible, responding to the context and needs of each country and each organisation. Materials used reference international best practice and are adapted to the local context.



“In Latin America and the Caribbean, CPC is driving region wide digital transformation”



Driving BIM adoption in Brazil

As part of the FCDO prosperity funded Global Infrastructure Programme (2019-2021), DCIP - with support from Mott MacDonald - offered policy guidance, BIM implementation assistance and capacity building support to the Ministry of Economy, Ministry of Infrastructure, InfraAero, and two port authorities (SPA, CDRJ).

As a result, BIM requirements were introduced in 2021 **public contracting law**, **BIM pilot projects initiated** within 4 public entities and the ISO 19650 Parts 1 & 2 were adopted in 2022. A joint statement as part of UK & Brazilian economic and financial dialogue (2020) recognised the impact of the programme in support of Brazil's efforts to **attract private investment** and **advance infrastructure development**.

National and organisational BIM implementation in Colombia

Following the UK MoU with the national Colombian investment bank (FDN) in 2018, DCIP and Mott MacDonald (under the FCDO prosperity funded Global Infrastructure Programme), engaged with FDN and public agencies to support BIM implementation at a national level, with line ministries and into projects. This resulted in the **training of 353 public officials in BIM practices** from FDN, INVIAS, Findeter, Enterritorio, ANI & UPIT.

Outcomes included, **publication of a national digital transformation policy** (Conpes) and a **BIM mandate** from the Ministry of Transport (2024); an **inter-ministerial MoU** for the adoption of the UK methodologies; initiation of the ISO 19650 adoption; and 9 pilot BIM projects started under the programme.

Supporting disaster recovery, resilient reconstruction and wider sector modernisation in Peru

In 2017, CPC (DCIP) partnered with Peru's Government to support a nation-wide modernisation of Peru's infrastructure delivery with the introduction of digital construction which has left a **lasting legacy of climate resilient building and a digital skilled workforce**.

This assistance supported disaster recovery, reconstruction of civil and social infrastructure, and sector modernisation in Peru following the devastating effects of El Niño.

Collaborating with the Ministry of Economy & Finance and the Reconstruction Authority (ARCC), the UK delivery team facilitated a standards-based approach for construction digitalisation, providing public sector capacity building, technical assistance, and strategic implementation support.

As a result:

- Over 800 public officials were trained in BIM implementation over the course of a 3 year engagement. Creating **skilled public and private sector staff**, **enhancing efficiency** and making ARCC the top-ranked public organisation for its public procurement efficiency.
- The programme successfully delivered **sustainable climate resilient infrastructure** for local communities.
- It also helped to significantly improve **transparency** and **reduce procurement timescales from 12 to 3 months**.



[Watch the video: UKDT BIM Technology in Peru Reconstruction](#)



“In Asia, CPC is supporting national and project level introduction of digital construction”



“In Africa, CPC is advancing digital construction at the city level”



Supporting digital transformation at scale across Vietnam

The Digital Construction International Programme supported the development of Vietnam’s national BIM programme resulting in new policies (National Decisions). This multi-year collaboration saw the Vietnam’s Prime Minister sign into law a mandate the progressive adoption of BIM into public infrastructure projects and public institutions. CPC supported the Institute of Construction Economics (ICE) with priority actions including scaling of the national programme, introduction of ISO19650 for **consistent BIM adoption** and the **introduction of BIM into the central design approval process**.

Capacity building and technical assistance for BIM integration in Vietnam public sector institutions

CPC provided BIM implementation support and technical guidance documentation for organisational practices and projects to Hanoi Civils Project Management Unit (PMU) and Metropolitan Railway Management Board (MRB). **Training sessions and workshops** were attended by over **200 public sector and 150 private sector representatives**.

Connecting the Asian public sector with other regions through the Global BIM Network

CPC continues to maintain the Global BIM Network of public sector representatives and multi-lateral organisations **accelerating and aligning digitalisation in infrastructure development around the world**.

Advancing digital construction in South Africa at the city level

CPC, through the Digital Construction International Programme, has partnered with the City of Cape Town Engineering Innovation Unit (EIU) to implement Building Information Modelling (BIM) into the City’s public infrastructure programme. This is supporting the City’s vision to become a **“Resilient City”**.

For the City of Cape Town, BIM implementation is a supporting mechanism to **create efficiencies in infrastructure delivery** and help solve the infrastructure gap created by the city’s **growing population and its ageing infrastructure**.

CPC’s early-stage collaboration with EIU included stakeholder engagement, current state analysis, BIM capacity building, and strategy workshops, resulting in a BIM adoption roadmap linked to the city’s Integrated Development Plan, advancing Cape Town’s ‘Resilient City’ goal and targeting organisational and project level adoption of BIM.

As a result of this partnership, the City of Cape Town has been able to **align its strategic positioning of BIM and identify opportunities for key stakeholders**. BIM is planned to be referenced within the next edition of the city’s **Integrated Development Plan**.

This first early-stage collaboration with DCIP also led to the reduction of the City’s BIM roadmap from ten years to six. A roadmap, that will create a platform for the **next phase of implementation focused technical assistance by the UK**.



Crossrail International

Strategic advisers for the development and delivery of complex rail schemes around the world

Crossrail International (CI) is a specialist advisory practice wholly owned by the UK government's Department for Transport (DfT). Since its founding in 2017, CI has been at the forefront of providing expert strategic advice to government agencies, public transport authorities and operators, and funding organisations worldwide, aiding in the development and delivery of complex rail schemes. With a portfolio that spans 63 commissions in 18 countries across five continents, CI leverages its extensive hands-on experience from UK megaprojects, including the Elizabeth line, HS1, the London 2012 Olympics, and HS2, to deliver transformative rail infrastructure solutions globally.



Impact

"CI has provided **excellent and timely professional advice and support**. The benefits of their work are **extending MRB's capability** as a client to manage our digital requirements, increase efficiency, and will enable us to capture the benefits of being a **digitally capable client** from our supply chain."

- Nguyen Ba Son, Deputy General Director, Hanoi Metropolitan Railway Board (MRB)



18
countries



\$403 billion
Of global transport infrastructure schemes supported



44
Specialist areas of subject matter expertise

I [...] extend our utmost appreciation for the **collaborative effort** from across the UK Government, with **leadership** from Crossrail International, that has provided an **in-depth, expert knowledge exchange** over the past year"

- Eng. Ezequiel A. Zielonka, Business Operative Director, Buenos Aires Metro (SBASE)

Contact



David Miller
Operations Director
davidmiller@crossrail-international.co.uk



Kate Myers
Director and Expert Adviser, Capacity Building
katemyers@crossrail-international.co.uk



Mark Lench
Development Director
marklench@crossrail-international.co.uk

Priorities that can be supported

Strategic advisory services

CI offers strategic advice for the development and delivery of complex rail schemes globally. Services cover project initiation, business case development, project assessment, programme assurance, gateway reviews, and business case reviews.

Digital transformation through Building Information Modelling

CI delivers innovative digital strategies that support the deployment of Building Information Modelling (BIM) and collaborative digital engineering to achieve sustainable, safe and cost-effective outcomes throughout the railway's lifecycle.

Transit-oriented development

CI implements clean technologies and energy-efficient practices in rail projects, reducing emissions and promoting sustainable urban mobility. CI's expertise in Transit Oriented Development (TOD) boosts accessibility and connectivity. By focusing on TOD, CI ensures transport systems are inclusive and serve all residents, including disadvantaged groups, fostering equitable, sustainable urban growth.

Rail sector capacity building and knowledge transfer

CI focuses on training and skill development to ensure sustainable operation and maintenance of rail systems. CI shares knowledge gained from UK megaprojects through training courses, capacity building initiatives, and skills development programmes.

Why Crossrail?

Expertise in rail infrastructure

1

CI's team of 70 experts provides specialised knowledge in a wide range of areas including: digital transformation, sustainability, capacity building, and systems engineering. They leverage experience from major UK projects like Crossrail (Elizabeth line), HS1, and HS2 to ensure effective rail infrastructure solutions

Client to client support

2

As a specialist advisory practice owned by the UK government's DfT, CI brings client expertise to support government ministries and client organizations in delivering projects. Our role ensures that projects benefit from public oversight and private innovation, leveraging investment and expertise for optimal outcomes.

Global engagement and impact

3

Since 2017, CI has undertaken 63 commissions in 18 countries across five continents, representing over USD 500 billion in transport infrastructure schemes. They have established MoUs with countries like Colombia, Indonesia, Israel, the Philippines, South Africa, and Vietnam to advance cooperation in rail technologies.



“In Asia CI is ...”



Capacity building for Indonesia’s rail sector

Crossrail International (CI) has been involved in capacity building initiatives for Indonesia's rail sector. This includes providing strategic advisory services and training to enhance the operational efficiency and sustainability of Indonesia's rail infrastructure. The collaboration aims to support Indonesia's ambitious rail development plans by leveraging CI's expertise in digital transformation and project management.

BIM implementation in Hanoi Railway

CI partnered with the Hanoi Metropolitan Railway Management Board (MRB) to implement BIM and digital technologies for Hanoi's metro system. Funded by the FCDO, the project included assessments, action plans, and training. CI's intervention enhanced MRB's digital capabilities, resulting in a comprehensive Information Specification/EIR document to guide future digital initiatives, ultimately improving efficiency and sustainability in managing Hanoi's metro infrastructure.

Public-Private Partnership (PPP) Workshop and Training in Laos

Commissioned by Green Cities and Infrastructure Programme (GCIP); CI worked with Lao Ministry of Public Works and Transport (MPWT) alongside IPA and TfL to deliver a workshop and training on the benefits of public-private partnerships in Vientiane Laos in June 2023.

Transit-Oriented Development Business Case Development in Philippines

CI partnered with Bases Conversion and Development Authority (BCDA) in New Clark City in the Philippines to develop a business case for transit-oriented development in New Clark City. This project, awarded in June 2023, aimed to integrate transit systems with urban development plans, enhancing the efficiency and sustainability of the city's infrastructure. The initiative focused on strategic planning and leveraging CI's expertise in transit-oriented development to support New Clark City's growth and development.

Technical Assistance on Structuring Transit-Oriented Development Projects in Vietnam

CI in partnership with Vietnam's Ministry of Transport is mobilising technical assistance for structuring transit-oriented development projects in Hanoi and Ho Chi Minh City. This includes offering strategic advice and expertise to enhance the integration of transit systems with urban development plans.

Support for implementation of National Comprehensive Transport Masterplan in Cambodia

CI, in partnership with Cambodia's Ministry of Public Works and Transport, is providing technical assistance to implement the National Comprehensive Transport Masterplan. This includes developing a capacity-building strategy to enhance institutional skills and support sustainable transport development, ensuring improved connectivity, reduced congestion, and better public transport services in Phnom Penh.



“In Africa CI is ...”



Enhancing regional rail systems in Southern Africa

CI collaborated with the Southern African Development Community (SADC) and the Southern Africa Railways Association (SARA) to develop a Capacity Building Strategy. This initiative aimed to enhance rail infrastructure across multiple countries, including Angola, Botswana, Democratic Republic of the Congo, Eswatini, Malawi, Mozambique, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe. The project helped improve regional rail systems through strategic planning and capacity building.

Digital Transformation of Morocco’s Railways

Crossrail International (CI) is partnering with the Office National des Chemins de Fer (ONCF) in Morocco to develop a Rail Project Delivery Digital Transformation Strategy. This initiative aims to modernise and enhance the efficiency of Morocco's rail infrastructure through digital technologies. The project, approved and mobilising as of August 2024, focuses on leveraging digital tools to improve project delivery and operational performance.

“In Latin America CI is”



Infrastructure and Projects Authority (IPA) Routemap - Colombia Pilot: La Dorada-Chiriguaná Freight Corridor

In February 2020 through the UK Prosperity fund; CI collaborated with Colombia’s Ministry of Transport and the Infrastructure and Projects Authority (IPA) to enhance the La Dorada-Chiriguana Freight Corridor in Bogotá, Colombia. The project aimed to improve freight transport efficiency and infrastructure, with CI providing strategic advisory services to boost the corridor's operational capabilities.

National Rail Development Strategy Tri-Partite Rail Agreement in Peru

As part of GCIP’s Target Offer Concepts; CI is mobilising a National Rail Development Strategy in Lima, Peru. This initiative is to create a Tri-Partite Rail Agreement with the aim of developing and enhancing Peru's national rail infrastructure through strategic planning and international collaboration, leveraging CI's expertise to support the country's rail development goals.

Buenos Aires Metro System Upgrade and Modernisation Prioritisation Programme in Argentina

Through the UK Partnering for Accelerated Climate Transitions (UK PACT); CI collaborated with the Subterráneos de Buenos Aires S.E. (SBASE) and Transport for London (TfL). to upgrade and modernise Buenos Aires’ to enhance its operational efficiency and service quality, addressing critical infrastructure needs, implementing advanced technologies, and improve overall passenger experience.



Infrastructure and Projects Authority

The UK Government's leading expert in infrastructure and major projects, with a track record of providing world-class infrastructure policy, advisory and training support



Domestically, the Infrastructure and Projects Authority (IPA) provides expert delivery advice, support, assurance and guidance to the wider UK Government and industry for the delivery of the £300 billion Government Major Projects Portfolio. Internationally, the IPA is recognised as a trusted partner for governments, regional development banks and international financial institutions for the set-up of infrastructure and PPP units, implementation of policies, development of programmes and delivery of projects. The IPA will be merging its delivery capability with the National Infrastructure Commission (NIC)'s strategic capability from April 2025 to create the National Infrastructure and Service Transformation Authority (NISTA).



Infrastructure and Projects Authority

Impact



£300 billion

Value of the UK Government Major Projects Portfolio supported by IPA



1000s

Of Overseas senior officials trained and certified



60+

Countries engaged with since 2007



50+

Overseas delegations hosted by IPA in London every year

"The IPA international unit has been a **valuable part of the UK Government's work in Morocco**..., as we design a World Cup partnerships offer including UK Plc, UK Export Finance, DBT and FCDO."

- Simon Martin CMG, HM Ambassador to Morocco

"The IPA's work and reputation have been **critical in enabling the UK to become Peru's key strategic partner on infrastructure planning and delivery**. At the heart of delivery, knowledge transfer and capacity building, they have made the difference"

- Gavin Cook, HM Ambassador to Peru

Contact



Javier Encinas

Head, International Team, IPA
Javier.encinas1@ipa.gov.uk



James Ballingall

Commercial Specialist, International Team, IPA
James.ballingall@ipa.gov.uk



Brendan Sherry

Commercial Specialist, International Team, IPA
Brendan.sherry@ipa.gov.uk

Priorities that can be supported

Our engagement with overseas Governments typically starts with capacity building support and can lead to medium-term technical advisory support or longer-term policy and institutional support.

Capacity building support

Our capacity building support can be sector-wide, e.g. through our [Infrastructure Foundation Masterclass](#), or tailor-made and focused on particular sectors (education, transport, etc) or themes (PPPs, legal, finance, etc.), and can be delivered in London or overseas.

Technical Advisory support

The IPA offers targeted advisory support to deal with specific challenges faced by a partner government, such as the selection of appropriate PPP pilot projects, appraisal of business cases, review of operational projects and development of the guidance and methodologies that the public authorities need to prepare and manage projects. This can be carried out through desk-based activities, distance support, and inbound and outbound missions.

Strategic Policy & Institutional Set-up support

The institutional and policy framework for infrastructure development in the UK has been used by several governments as a blueprint for good governance. The IPA can advise on how countries can design and implement their infrastructure-related policies or set up their own infrastructure units.

Why IPA?

Extensive experience and successful track record

1

The IPA has captured international best practice from advising the UK Government on its £300bn portfolio, helping deliver some of the most complex projects in the world, and attracting private sector capacity and expertise into public infrastructure through PPPs.

Proven methodologies and global recognition

2

The IPA has developed globally recognised methodologies, like the Five Case Model and the Project Development Routemap, which are endorsed by institutions such as the G20 and the World Bank. These methodologies – which the IPA helps adapt, adopt and roll out internationally – ensure projects are well-structured, transparent and aligned with international best practice.

Cutting edge knowledge and effective adaptation

3

The IPA is at the forefront of innovation, and its unique blend of skills, sectoral expertise and public sector perspective make it an ideal partner for countries looking to adapt international best practice, standards and tools.



“In Africa IPA is ...”



Helping Morocco get ready for the World Cup

The IPA is providing **institutional support** to the Government of Morocco in the set-up of a new World Cup delivery and legacy authority.

*“The IPA international unit has been a valuable part of the UK Government’s work in Morocco. The excellent workshops IPA delivered in Rabat and London have **helped us engage key decision makers**, whilst highlighting UK and HMG capability in infrastructure development. This has **paved the way for a programme to support the Government of Morocco** in the set-up of a dedicated World Cup delivery authority. The IPA’s involvement is central to this work, as we design a World Cup partnerships offer including UK Plc, UK Export Finance, DBT and FCDO.”* - Simon Martin CMG, HM Ambassador to Morocco

Building institutional capacity in South Africa

Since 2020 the IPA has worked closely with the Government to support the establishment of Infrastructure South Africa (ISA). We hold regular dialogue and capacity building engagements to **share lessons learned** from the UK’s experience and **international best practice approaches**. We have trained over 150 public officials on infrastructure methodologies, and ISA has **adopted the 5 Case Model as their standardised project preparation tool**.

Strengthening project development in Egypt

Egypt needs to obtain investment and institutional buy-in for sustainable housing projects to meet its National Strategy for Green Urbanism. IPA, in collaboration with GCIP, successfully conducted **5 Case Model training** for officials at the Ministry of Housing, Utilities and Urban Communities (MHUUC). A key step in helping MHUUC develop a business case for the Green Sustainable Neighbourhood programme. This initiative aims to build **300,000 environmentally sustainable homes**, leveraging **green financing** and **PPPs** to ensure **long-term societal and environmental benefits**.

“In Latin America IPA is”



Driving transformation in Brazil

Since 2007, the IPA has been working in Brazil providing **policy, guidance, advisory and training support**. We have helped Federal and State-level authorities establish infrastructure/PPP Units, develop PPP laws, policies and guidance, and deliver infrastructure programmes.

By working closely with government and industry, the IPA has played an integral role in driving **improvement in the infrastructure system** in Brazil - **promoting the economic prosperity** of Brazil, **trade opportunities** for the UK, and opening pathways to drive forward the **green growth agenda** in the country.

Improving Colombia’s delivery capability

Through the Global Infrastructure programme, the IPA helped the Government of Colombia strengthen its infrastructure delivery capability by creating adapted versions of the 5 Case Model framework, training over 250 officials, and creating a project development facility with FDN, Colombia’s Development Bank, and the IADB.

Pathfinder projects supported by the IPA/FDN/IADB facility demonstrated that, by using UK methodologies, **projects can be delivered on time and budget**, and follow principles of **technical excellence, gender equality, social inclusion and environmental protection**.

Developing G2G approaches to rebuild Peru

The IPA collaborated with DBT, FCDO and the British Embassy in Lima on a Government-to-Government partnership agreement with Peru, helping to rebuild Peru’s infrastructure after the 2017 El Niño floods.

IPA led on Assurance reviews to assist programme governance and trained officials on infrastructure planning and delivery in collaboration with the IADB. This has led to more **resilient and sustainable infrastructure**, and the establishment of a UK-Peru Taskforce to facilitate **public and private collaboration**.



“In Asia IPA is ...”



Enhancing Indonesia’s infrastructure system

The IPA has been working with Indonesia since 2018 under the Global Infrastructure Programme to help improve their infrastructure system by introducing the Five Case Model (5CM) and Project Development Routemap (PDR). 17 '5CM' training courses and 6 'PDR' courses were delivered over 18 months to over 300 public officials. A transport PPP project in South Sumatra piloted the PDR methodology for project set-up, and the 5CM was piloted on a regional mass transit feasibility study in partnership with the World Bank. This has led to key elements of the **5CM being integrated into government policy**, and the PDR is being used to help **early-stage planning for major projects**.

Supporting sustainable development in South-East Asia through partnerships

The IPA has been delivering technical assistance programmes across South East Asia in close partnership with the FCDO and DBT network in the region. Our partners also include the Governments of Cambodia, Lao PDR, Indonesia, the Philippines and Vietnam, and multilateral organisations such as the Asian Development Bank and the ASEAN Secretariat. Our programmes have resulted in the **adoption of higher technical, social and environmental standards**, and in **stronger relationships** with governments, industry and multilateral institutions in South East Asia.

*“We have been working with the IPA across South East Asia for 5 years. Their knowledge and experience is in high demand in the region. The tools, models and frameworks they share **make a real difference in delivering better infrastructure and outcomes.**”* - Mike Collins, Head of Infrastructure APAC, DBT Singapore.

*“IPA adds great value and help **unlock projects** by bringing impartial and trusted best practice, which creates the conditions for UK Plc. to take the projects forward.”* - Andy Hodgson, Global Advisory Services Leader, ARUP.

“Elsewhere IPA is ...”



Training Ukrainian officials in the 5CM

The scale of Ukraine’s emergency and long-term recovery efforts requires increased capacity and capability across the public sector. In 2023-24 the IPA has trained over 150 officials in the 5CM methodology, alongside general infrastructure capacity building. We will continue to roll-out training at scale with the support of PwC through the GCIP. The government has started to use the 5CM to **accelerate project preparation and prioritisation**.

This bilateral collaboration has *“greatly contributed to our efforts in **rebuilding and restoring Ukraine**”* shaping *“our **project strategies and decision-making processes**”* – Roman Komendant, Acting Head Ukraine Agency for Restoration.

Infrastructure Foundation Masterclass

The IPA’s Infrastructure Foundation Masterclass is a 5-day course that combines learning sessions, practical case studies, sector specific workshops and site visits to operational projects in London. During this week-long programme, delegates hear directly from subject matter experts from across the IPA, wider UK Government and industry on best practices, lessons learned and cutting-edge initiatives in the UK infrastructure sector.

The course covers major challenges facing all governments: **setting infrastructure strategies; preparing, appraising and approving projects;** developing **project funding** and financing instruments; harnessing digital tools for **infrastructure transformation;** adopting UN SDGs to **accelerate decarbonisation;** and applying the lessons learnt on Public Private Partnerships.

5 Case Model accredited training

The IPA is an accredited trainer of the international version of the 5 Case Model development framework. Our training will provide recipients with an **AMPG-accredited Foundation and Practitioner level qualification** that is internationally recognised, and is **considered best practice** by the G20.



Ofgem

Electricity and gas regulation and market insights to support the development of sustainable and inclusive energy systems



Ofgem, the Office of Gas and Electricity Markets, is the UK's independent regulatory agency responsible for overseeing the electricity and gas markets. Their expertise spans a wide range of areas, including the regulation of energy networks and markets, regulating data and cybersecurity, and emerging technologies such as hydrogen, nuclear, carbon capture, and heat networks. By offering support through knowledge sharing, bilateral dialogue, and long-term partnerships, Ofgem helps countries develop robust, sustainable, and inclusive energy systems that align with global sustainability goals.

Impact

UK domestic impact that Ofgem seeks to replicate in partner countries:



£1 billion

Saved for UK customers in 2023



£500 million

Planned investment in infrastructure and green energy projects over the next 5 years



2.5 million

Tonnes of CO2 emissions reduced through UK energy efficiency programmes

Ofgem has a “duty to protect the interests of all customers through the current crisis, to have particular concerns for the vulnerable, and to bridge to a future energy market that is both greener and less subject to volatile international energy prices. [...] helping deliver a **cheaper, greener, and more secure energy system in the long term.**”

– Martin Cave, Chair

Contact



Aidan Stringfellow

Head of International Relations

Aidan.Stringfellow@ofgem.gov.uk



InternationalRelations@ofgem.gov.uk

Priorities that can be supported

Regulation of electricity and gas networks and markets

Ofgem has expertise in the regulation of electricity and gas networks, retail, wholesale markets, and data and digitisation. Helping countries answer: How to achieve cost-effective decarbonisation? How to improve cyber resilience? What frameworks can be used to manage network regulation uncertainty?

International working to improve security and efficiency

Ofgem has a key role with cross-border infrastructure which is crucial for integrating energy systems with neighbouring countries. Helping answer: how to establish interconnector regulatory frameworks?

Sustainability and social welfare

Ofgem specialises in delivering environmental and social schemes and a process to appoint offshore transmission owners. Helping answer: How best to administer schemes to support consumers?

Addressing regulatory challenges in emerging technologies

Ofgem helps identify and address regulatory challenges in emerging technologies such as hydrogen, nuclear, carbon capture usage and storage, and heat networks, supporting clean energy adoption. Answering: How can innovation be stimulated for decarbonisation?

Clean energy regulation development

Ofgem has cutting edge research, tools and techniques to develop regulation, such as behavioural insights and data. Answering questions such as: How can consumers' behaviours and attitudes be incorporated within evidence-based policy design?

Why Ofgem?

Expertise in regulation and market oversight

1

Ofgem has extensive experience in regulating electricity and gas networks and markets particularly in the context of the path to net zero. Their expertise extends to emerging areas like hydrogen, and carbon capture. making Ofgem well-equipped to advise on evolving energy landscapes.

Focus on a greener, fairer energy system

2

Ofgem's primary objective is to protect the interests of current and future consumers. Their work aligns with SDG 7 (Affordable and Clean Energy) and international agreements like the Paris Agreement.

Enhanced investment opportunities

3

Ofgem fosters competition and innovation by creating regulatory frameworks that ensure infrastructure readiness and attract investment in renewable energy.



“In Africa Ofgem is...”



Delivering a green certificates framework in Egypt

As part of the UK-Egypt Green Partnership, which aims to support the reform of Egypt’s renewable energy regulations. Ofgem and consultants who are part of the Green Cities and Infrastructure Programme (GCIP) collaborated to deliver recommendations for key regulations to EgyptERA, the Egyptian energy regulator. Ofgem provided strategic insight and review from an energy regulator perspective to support the national clean energy transition. Recommendations have since been incorporated in for example the consideration for new Peer-to-Peer and green energy certificate regulations. These regulations bring Egypt a step closer towards **more equitable, affordable and sustainable energy**.

“In Oceania Ofgem is...”



Establishing an Independent Energy Regulator in the Solomon Islands

Ofgem is currently assisting the Solomon Islands in establishing an Independent Energy Regulator to address energy sector issues. They are providing high-level recommendations and sharing materials as part of this long-term support. The initiative aims to **improve energy access**, ensure **fair pricing**, promote **sustainable practices**, and help **unlock investment in renewable energy**, aligning with **global sustainability goals**.

“In Asia Ofgem is...”



Interconnecting with Malaysia

Through the FCDO’s UK PACT programme, Ofgem worked with Malaysia’s Energy Department, energy commission and national utility company on the best ways to connect electricity systems through interconnectors. Malaysia is advancing its energy infrastructure by developing electricity interconnectors with neighbouring countries such as underwater interconnectors with Indonesia and upgraded connections with Singapore. These projects aim to **enhance regional energy security and support renewable energy integration**. Ofgem policy experts have shared their experience of being connected to other European countries.

“In Latin America Ofgem is...”



Powering Progress: Ofgem and ANEEL’s Joint Efforts in Energy Regulation

Ofgem and the energy regulator of Brazil, ANEEL, have worked together for the last two years on energy knowledge exchanges - from transmission connections to wholesale market design and network regulation. One of the larger exchanges is the staff secondment programme – a member of ANEEL’s policy team spent three months in London learning more about the UK’s approach to smart meters. Sharing knowledge between countries is a great way to **optimise policy design** and the relationship between Ofgem and ANEEL has proved that time and time again.



Ordnance Survey

Enhancing location intelligence capabilities and enabling countries to better manage their natural resources and urban development.



Ordnance Survey (OS) is the national mapping agency for Great Britain, globally renowned for its expertise in geospatial data and location intelligence. Enabling local stakeholders to make evidence-based policy making, improve infrastructure planning and sustainable urban development. Our services help you to create location intelligence that is tailored to the specific needs of your stakeholders. We include local stakeholders to ensure sustainability through capacity building and leveraging local expertise.

Impact

"A world leader in delivering government digitisation and automation for citizen centric services and processes, Ordnance Survey has a reputation for setting international standards for data and cities to achieve sustainable urban and smart city outcomes. This team includes experts in organisational transformation, capability building, location and planning data provision and technology adoption and building control."

- Eng. Maryam Obaid Al Muhairi, CEO - Buildings Regulation & Permits Agency, Dubai Municipality.



63

Projects delivered



28

Countries engaged with



34

Cities supported

"Geospatial tools when applied, allow us to gain insight into data, reveal patterns and relationships which help us to make better decisions and chart the way to a more sustainable world."

- *United Nations*

Priorities that can be supported

Using location intelligence to inform urban development

OS produces location intelligence using machine learning to provide faster results than traditional manual methods. OS advises on architecting secure information sharing, making fundamental location data available to the right stakeholders, informing infrastructure planning and urban development.

Evidence-based policy underpinned by location intelligence

OS will help you create a national vision, set objectives and define fundamental location data that will support evidence-based policy to grow the economy, protect the environment and improve resilience.

Using location insights to reduce cost and drive investment

The provision of accurate, digitised, location intelligence generated using artificial intelligence (AI) is rapid and cost-effective, reducing the cost of investment; making the case for socio economic growth. For example, accurate information about land boundaries and ownership can also attract overseas investment.

Building Capability and understanding of location data

To adapt location intelligence to the specific needs of the local area, OS involves local stakeholders to ensure sustainability through capacity building and leveraging local expertise. Experts first build and operate with local counterparts shadowing, then have a gradual handover and transfer of service responsibility to local counterparts to deliver their own location services.

Why OS?

Trusted part of UK Government with unmatched location expertise

1

Inaugurated in 1791, Ordnance Survey (OS) has over two centuries of experience in geospatial data and location intelligence. Part of the UK government, OS provides national mapping services, and unparalleled expertise.

Innovative, tailored services

2

OS leverages advanced technologies such as Artificial Intelligence and machine learning to provide rapid, cost-effective mapping services. They cover mapping, land management, urban planning, and infrastructure development, using AI tailored to meet the specific needs of both public and private sector clients.

Long term partnership and collaboration ethos

3

OS has a proven track record of delivering successful projects in 28 countries and 34 cities, supporting sustainable development goals and improving public services worldwide. They work with a long-term partnership ethos to projects - focusing on sustainable outcomes delivered together with local stakeholders.

Contact



Juliet Ezechie

Head of International
Juliet.Ezechie@os.uk



Clive Boocock

Principal Consultant
Clive.Boocock@os.uk



“In Africa OS is using AI and machine learning to enhance urban planning and improve public services”



“In Asia OS is supporting agencies and their stakeholders to improve evidence-based policies”



Providing specialist knowledge to support economic growth in Ethiopia

With a population set to double with 25 years, effective land use in Ethiopia is essential. OS led an interactive workshop for African Ministries, funded by IFUSE, to demonstrate geospatial information benefits for the mining industry. Delegates learned about the **economic and societal benefits** of a national location strategy.

Improving urban planning & construction in Dubai

Dubai had the initiative to become the world’s safest city through the establishment of the Building Regulation & Permits Agency (BRPA) that unified departments responsible for planning, permitting, and construction control. OS collaborated with BSI to develop a sustainable operating model for the agency with innovative risk identification and 24h patrols. This generated **new revenue streams**, and ensured a **safer built environment**.

Driving targeted investment through informal settlement mapping in Zambia

With informal settlements for vulnerable residents in Zambia in need of improvement; OS, in partnership with the International Growth Centre and Commonwealth Association of Architects, used AI to create a detailed digital map (in 10% of the time) designed to include future census data, land tenure, ownership and administration. This provided critical information to plan for **urban expansion, reduce the cost of infrastructure investment**, track informal settlement, and enable **more resilient and sustainable urban futures**.

Improving mapping capability in the Philippines

The National Mapping and Resource Information Authority (NAMRIA) collaborated with Ordnance Survey (OS) to modernise and optimise the Philippine Active Geodetic Network (PageNET). OS, alongside Newcastle University and Leica, updated the CORS infrastructure and provided training and workshops on geodynamics. This enhanced the **accuracy and performance of the geospatial infrastructure**, supporting government departments and various sectors. “[OS’] world-class expertise has helped us review our GPS active network.” - NAMRIA

Accelerating sustainable economic growth in Namibia

Ordnance Survey conducted a feasibility study to help Namibia improve its land management processes, aiming to accelerate sustainable economic growth through better land administration, including title transactions and registration. The study provided the Ministry of Land Reform with the necessary information and tasks to advance their land reform programme, supporting **efficient management and sustainable use of land resources**.

Developing a 3D data model in Singapore

Singapore has a dense, mid-rise urban area with complex building shapes as well as a significant transport infrastructure. GovTech wanted to better understand and assess CityGML as a 3D information model to develop a **sustainable and resilient urban environment**. OS provided expert advice on creating data specifications, and a product flowline and process to generate data. The specifications developed “helped pave the way for the creation of a comprehensive, standards-based 3D data model for geospatial 3D data in Singapore” -GovTech.



“In Latin America and the Caribbean OS is supporting sustainability goals development, deforestation, land administration and economic growth ”



“Elsewhere OS is improving access to greenspaces, increasing safety of street works and supporting sustainable transport networks”



Sustainable land management in Guyana

OS collaborated with Guyana Lands and Survey Commission (GLSC) to revitalise Guyana's geodetic infrastructure. This included updating the eight-site Continuously Operating Reference Stations (CORS) network and the Network Operations Centre (NOC), connecting them to the SIRGAS reference system. OS provided training to GLSC staff, enabling efficient, sustainable use and expansion of the network. This project enhanced **land administration, resource management, and infrastructure planning**, supporting Guyana's **Sustainable Development Goals**.

Improving access to new urban green spaces in the UK

The Department for Levelling Up Housing and Communities (DLUHC) collaborated with OS to optimise green space access in deprived areas of the UK. OS used geospatial data to identify these regions and potential sites for new parks. This evidence supported the allocation of £9 million to create or refurbish 100 urban green spaces. "OS **supported our policy thinking** both practically and professionally, helping us **target areas most in need of green spaces**." - DLUHC

Improving community resilience in Salvador

By integrating location and demographic data, the city optimised the placement of street lighting and outdoor gyms, fostering community cohesion and safety. OS involvement emphasised the importance of common data standards and infrastructure, enabling **effective data-driven decision-making and policy development** to support Salvador's **urban resilience** initiatives.

National underground asset register

The Geospatial Commission has appointed Ordnance Survey as the operator of the National Underground Asset Register (NUAR). NUAR provides instant access to underground asset data, **improving efficiency, safety, and reducing disruptions**. "Being trusted to operate a critical national asset, such as NUAR, is recognition of our enduring capabilities." - Nick Bolton, CEO, Ordnance Survey

Digitisation of land records in Anguilla

The Department of Lands and Surveys (DLS) in Anguilla modernised its land administration system with the support of Ordnance Survey. The new Land Information System (LIS) replaced manual, paper-based processes with a digital platform, enhancing data accuracy, security, and efficiency. This transformation **streamlined operations, reduced costs, and improved data sharing** across government agencies and for Anguilla's citizens, thereby **maximising the value and reliability of land information**.

Building a world-class transport network in the UK's West Midlands

Transport for West Midlands aims to build a world-class transport network with 20 key projects by 2026. Collaborating with Ordnance Survey, they utilised OS map data products to improve decision-making and reduce site visits. "OS expertise allowed us to unlock the power of the data, **saving time and money and significantly improving decision-making**." - Transport for West Midlands



Transport for London Consulting

A world leading integrated transport authority which provides specialist advisory services, based on experience of over 160 years of public transport delivery in London.

TfL Consulting partners with cities, regions and transport operators worldwide to tackle complex transport challenges with sustainable and inclusive solutions, including through 10 Green City and Infrastructure Projects.

Across Asia, TfL Consulting are supporting six countries with integrated transport solutions, transit-oriented development and transport operations. Across Africa, TfL are working with four countries on rail and bus operations and operational readiness projects.



Impact



50+

Projects delivered



25+

Countries engaged with



40+

Cities supported

“Thanks to the TfL workshops, we now have confidence that there are positive, feasible changes we can make to our road network.”
- *Superintending Engineer, Dhaka North City Corporation, Bangladesh.*

“[TfL provided] invaluable guidance ... In shaping our design standards here at the Department of Transportation. Your insights have been instrumental in establishing a robust foundation for our standards development journey.”
- *Philippines Department of Transport*

Contact



Ben Johnson
Head of TfL Consulting
TfLConsulting@tfl.gov.uk



Helen Wrigley
Managing Consultant
helenwrigley@tfl.gov.uk

Priorities that can be supported

TfL shares specialist knowledge and best practice to build institutional capacity and support transport networks globally. Methods of delivery include knowledge-sharing masterclasses, capacity-building workshops, customisable advisory support and licensing of commercial tools. Three priority sectors are identified below:

Integrating sustainable transport solutions

TfL builds institutional capacity in transport integration by sharing its 20+ year experience as an integrated transport authority. This includes supporting partners to understand integrated design standards and how to run a successful Integrated Transport Authority (ITA), ensuring that local authorities can maintain and adapt these standards independently in the future to their own local context.

Sustainable urban development

Alongside transport planning, TfL supports partners to optimise their land-use and integration with public transport through land-value capture and transit-oriented development, to ensure transport networks are seamlessly integrated into sustainable cities.

Improving transport operations

TfL supports the implementation of specific projects, as well as providing guidance on how to improve transport networks, from network management and operational readiness, to specific modal support including buses and rail.

Why TfL Consulting?

World's largest integrated transport authority

1

TfL has over 20 years of experience as the world's largest integrated transport authority. Having completed over 50 projects in 25 countries and 40 cities. Their proven methodologies have been successfully implemented across Asia, Africa, and Latin America.

Flexible and collaborative approach

2

TfL prioritises collaboration with local stakeholders, flexing to work either virtually or in person depending on your needs, and ensuring that projects are tailored to the specific contexts of the regions they serve.

Access to innovative tools and resources

3

TfL has developed tools, systems and solutions that can be tailored and shared with our partners to continuously improve transport systems. These resources include frameworks for transit-oriented development and strategies for improving network management and safety, enabling partners to enhance their transport systems effectively.



“In Africa, TfL is...”



Supporting the Lagos Metropolitan Area Transport Authority (LAMATA), Nigeria, with transport integration, connectivity and rail and bus operations.

TfL collaborated with the Lagos Metropolitan Area Transport Authority (LAMATA) to provide technical advice and guidance required for their rapidly expanding responsibilities as the transport authority for one of the world’s largest cities. Over 60 delegates from 15 organisations attended workshops, and this resulted in the identification of a range of initiatives to **improve the performance of public transport** in Lagos.

Working with local authorities in Cairo, Egypt on capacity building workshops on integration, bus, rail and asset strategy.

TfL is currently delivering three **capacity building workshops** to the Egyptian Ministry of Transport, to support identified rail operation challenges. The courses focus on bus and rail operations (including procurement of operators), and asset strategy and maintenance. The workshops were designed after engaging with various stakeholders in the Egyptian transport sector. Engagement include site visits and interactive sessions to understand the local context and challenges and provide **meaningful impact** which leads to **improvements within railway and bus operations**.

“In Asia, TfL is...”



Developing a National Bus Strategy for India

India faced the challenge of accommodating urbanisation-led growth with an outdated bus operating model. As part of a World Bank-led project, TfL developed a new Public Transport Strategy enabled by contract improvements and state-of-the-art intelligent Transport Systems. This has **helped India transition from direct bus operations to a customer-centric contracting model**. The success of the project led to significant **profile-raising of the potential for buses** and supported the Government of India’s **proposal for a National Bus Rejuvenation Programme**.

Building capacity for network management in Dhaka, Bangladesh.

Working with the Dhaka North City Corporation (DNCC), TfL has delivered knowledge sharing workshops to support **network management and bus operations in-country**. TfL shared a range of junction design and signalling techniques, to **improve conditions for pedestrians in Dhaka**. DNCC plan on taking forward some of these techniques to pilot on their road network in the coming years, ahead of a wider roll-out of **signalised junctions and road network upgrades**.

“In Latin America, TfL is...”



Advising Buenos Aires’ metro operator SBASE.

TfL provided capacity building and advisory support to Buenos Aires’ metro operator, SBASE, alongside Crossrail International to support the operator’s **investment and improvement programmes** and enable a **city-wide modal shift towards sustainable transport**. Areas of support included operational readiness, maintenance, safety and accessibility.

Delivering skill shares with authorities in Bogotá, Colombia on transport integration and intelligent transport systems.

TfL supported Bogotá’s Empresa Metro with knowledge sharing workshops to **develop skills and capacity across** a various topics including transport integration, land value capture, **integrated ticketing and communication strategies**. This was followed by in-depth advice to support the transport department to **pilot a new intelligent transport system** including the prioritisation of buses using smart traffic lights.

“Elsewhere TfL is ...”



Conducting a comprehensive advisory review of Sydney Metro’s operational readiness.

TfL delivered an **operational readiness review** ahead of the opening of Sydney Metro’s newest City line. This included in-depth assessments to identify the critical path to achieving first class passenger service, and providing practical, tried-and-tested advice and a methodology for successfully reaching this milestone.

The new line successfully opened in August 2024.

Advising Transport Ireland Infrastructure on implementation of a high-capacity rail line.

Transport Ireland Infrastructure (TII) requested TfL’s support in planning MetroLink, Ireland’s first metro line and largest and most complex public transport infrastructure project to date. TII sought TfL’s expertise due to their **extensive experience in delivering large-scale, complex infrastructure projects** and track record in planning, developing, and operating metro systems, such as the Elizabeth Line. TFL provided insights, best practices and lessons learnt that can be applied to MetroLink, on topics e.g. operational property, funding and financing, design, and business case development. The scheme is currently awaiting planning consent with an **aim to have the service operational in the next ten years.**












A woman with dark hair, wearing a dark blue dress, stands in a factory or industrial setting. She is holding a large white blueprint or architectural drawing in front of her. The background shows industrial machinery, metal structures, and bright lights, creating a blurred industrial environment. A dark green rectangular box is overlaid on the left side of the image, containing the number '4'. A black rectangular box is overlaid across the middle of the image, containing the text 'Toolkits and Methodologies' in white serif font.

4

Toolkits and Methodologies

Toolkits and Methodologies Available

Transformative tools and methodologies are available for integration into programming. These UK-owned and tools have been selected to meet demand and solve systemic sustainable urban development challenges across GCIP priority countries supporting all aspects of the project life cycle and helping ensure infrastructure projects and systems are green, resilient, integrated and inclusive. As well as project preparation and bankable projects, the tools support countries to improve infrastructure governance including planning, prioritisation, transparency, inclusivity, and decision-making. These tools help to meet FCDO ODA objectives including increasing socio-economic impact, and climate resilience, which also supporting UK growth through levelling the playing field for UK companies and enhancing the UK's brand as an infrastructure partner of choice.

Methodology/ tool	Custodian		Impact
5 Case Model		IPA	Gives project developers, approvers and funders confidence that projects are likely to be robust and viable.
Project Route-map		IPA	Helps sponsors and clients understand the capabilities needed to set projects up for success, leading to improved delivery model selection, clearer governance and faster decision-making.
Digital transformation through Building Information Modelling	   	CPC, Mott MacDonald, CI, BSI	Highly efficient and collaborative planning, design, and construction of buildings. Leading to better environmental outcomes, and reduction in cost over-runs, and overall construction time.
The Infrastructure Transparency Initiative		CoST	Maximises public infrastructure investments through open data and improved governance
Cities Spatial Model		IGC	Helps policymakers make better-informed decisions regarding urban policy and infrastructure investments by understanding how interventions affect city characteristics like amenities, productivity and land development density.
Reference Class Forecasting		Oxford Global Projects	Helps decision makers guide their appraisal of infrastructure investment options, giving financiers greater confidence to invest.
GEDSI Lens Toolkit for Infrastructure Project Developers		FCDO	Helps increase the number of investible infrastructure projects developed to support inclusive economic growth, and access to climate finance and investment. Developed, seeking pilots.
Whole Systems Approach to Energy		FCDO	Improved 'step-by-step' approach for non-sector experts to apply a Whole Systems Approach to energy projects.

Five Case Model

A global standard for developing and delivering high-quality, robust infrastructure business cases



Infrastructure and Projects Authority

What is the Five Case Model?

The Five Case Model (5CM) is recognised by the G20 as an international standard for Infrastructure Business Cases. Delivered by the Infrastructure and Projects Authority (IPA) in partnership with the GCIP Alliance, the 5CM provides a proven framework for developing, approving, procuring, and delivering infrastructure projects. The training is adaptable to any country's legal or governmental system, starting with pilot sessions and scaling up to train more officials. By the end of the training, a network of proficient officials is established. The methodology is embedded through more advanced training, support for demonstrator projects, and embedding the approach in government policies and processes.

Why use the Five Case Model?

The 5 Case Model is considered a gold standard infrastructure project preparation and evaluation. It will help partner countries improve project planning, prioritisation, and delivery. It will give confidence to project developers, approvers, and funders, ensuring that projects are well-researched, evidence-based, and will achieve their intended impact.

Systematic approach to infrastructure planning and investment in line with international standards	Enhanced decision-making by facilitating evidence-based prioritisation, helping to select the most impactful projects	Capacity building of officials in project planning and preparation
Consistent quality of infrastructure projects aiding sustainable and effective reconstruction	Increased investor confidence in a country's infrastructure	Ongoing support to embed the 5CM in government policies and procedures from IPA and the GCIP Alliance

Previous implementation

The model is in strong demand internationally. Through the FCDO Global Infrastructure Programme, the IPA and PwC supported its adoption in Brazil, Indonesia and Colombia, training over 500 delegates. It is already being rolled out through GCIP in Ukraine, Egypt, South Africa, and Indonesia.

How will this work in your context?

The international version of the 5CM is suitable for use in all countries, with local adaptation as required.

Outline of 5CM 5-day training course:

Day 1	Day 2	Day 3	Day 4	Day 5
<p>Overview of the five case model: What is a business case, and why is it important?</p> <p>Explaining the three-stage approach: Early (EBC), Intermediate (IBC), and Full Business Case (FBC).</p> <p>Managing business case process: When to use the five case model; recommended workshops; complementary tools and methodologies</p>	<p>Business case assurance and approval: Planning for Gateway reviews.</p> <p>EBC Strategic Case: Gap analysis on strategic need; investment objectives; categorising benefits and risks.</p> <p>EBC Economic Case: Options framework; economic and social impact assessment; gender inclusion; sustainable development goals.</p>	<p>EBC Commercial Case: Market sounding; procurement processes; contractual structures.</p> <p>EBC Financial and Management Cases: Estimate affordability; stakeholder engagement strategies</p> <p>IBC Strategic and Economic Case: Cost benefit analysis (CBA); social time preference; optimism bias; qualitative benefits and risks.</p>	<p>IBC Commercial Case: Payment and KPIs; contingency planning; procurement plans.</p> <p>IBC Financial and Management Cases: Financial models; benefits realisation plan; risk management.</p> <p>Full Business Case and common pitfalls: Finalising contracts; benefits and risk monitoring; reflections on the IBC process.</p>	<p>Revision and any final questions: Chance to revise key concepts before the exam.</p> <p>Foundation Exam: 45 minute closed-book exam. Results available immediately for IPA-accredited exam.</p> <p>Wrap up: Run through exam answers; feedback; wrap up discussion</p>

What do 5CM users say?

In Ukraine, 150 Government officials have been trained in the 5CM since October 2023, with a further 150+ officials to be trained by August 2025. The success of the 5CM in Ukraine has led to a Cabinet decree mandating its use.

The Five Case Model has “greatly contributed to our efforts in rebuilding and restoring Ukraine” shaping “our project strategies and decision-making processes”

– Roman Komendant, Former Acting Head of the Agency for Restoration of Ukraine.



Project Routemap

Helping stakeholders address challenging problems during the early stages of development, setting projects up for success.



Infrastructure and Projects Authority

What is Project Routemap?

The Project Routemap, developed by the UK Government's Infrastructure and Projects Authority (IPA), is a structured methodology designed to set up novel or complex projects for success. It captures best practices and lessons learned from over £300 billion of capital programmes, ensuring the right questions are asked upfront and key risks and opportunities are identified. The Routemap fosters a collaborative environment where stakeholders work together to address gaps in project capability, making it particularly valuable for teams lacking routine experience in similar projects.

Why use Project Routemap?

Project Routemap is essential to address common project development and management challenges which often lead to cost overruns, delays and suboptimal performance. The benefits of range from improved delivery model selection to clearer governance and faster decision-making. Ultimately, the application of Routemap provides confidence to project teams, approvers, and investors, supporting more effective project delivery across diverse contexts. The methodology is flexible, applicable to portfolios, programmes, and projects of any size, and can be used with support or as part of a self-assessment.

Time Savings: Avoids unnecessary meetings and discussions.

Improved Project Delivery: Enhances timelines and milestones tracking.

Risk Reduction: Identifies potential risks early and plans for them.

Cost Efficiency: Better resource allocation and optimised budget use.

Increased Productivity: Provides clear direction and priorities.

Strategic Alignment: Ensures activities align with broader goals.

Previous implementation

Since its 2014 introduction, Routemap has been well-tested and applied to many of the UK's largest and most complex projects, and has been successfully implemented in various international projects. In Indonesia, it helped clarify issues in a Mass Transit Project that could have delayed implementation. In Africa, the IPA supported Morocco's World Cup delivery authority and provided training in Egypt and South Africa. In Peru, the IPA collaborated on a Government-to-Government partnership to rebuild infrastructure post-2017 El Niño floods, resulting in more resilient and sustainable infrastructure.

How will this work in your context?

Project Routemap is suitable for all countries, especially complex projects. You can use it with support, or as part of a self-assessment. The GCIP Alliance has capacity and experience to deliver Project Routemap in collaboration with IPA, and is applying it in South Africa through GCIP.

Example Project Routemap training course:

Stage 1: Setup

Determine the scope and timing of the Routemap, which can be project wide or targeted to specific capabilities.

Modules include:

Requirements: Delivering strategic project outcomes and realising the benefits

Governance: Establishing clear accountability and empowering effective decision-making.

Organisational Design & Development: Organising the project team to deliver successfully

Stage 2: Diagnosis

Gather information and identify where capabilities need to be enhanced:

Modules include:

Asset management: balancing costs and risks to maximise whole benefits.

Risk management: Managing uncertainties and opportunities

Stage 3: Action planning

Collaborative development of practical solutions to enhance capability

Modules include:

Delivery planning: Ready the project for transition into delivery.

Procurement: Understanding how the project will buy goods and services.

What do Routemap users say?

“Applying Routemap helps to identify and start to resolve big questions, decisions and issues for their projects sooner than is otherwise the case”

“It provides an excellent support tool when preparing stage business cases”

“The modules provide tangible learning points from previous projects and programmes”

“Routemap stimulates collaboration between stakeholders and helps them better understand each other's expectations and success criteria”



UK International Development

Partnership | Progress | Prosperity

Digital Transformation through BIM

Empowering better decisions in the design, construction and operations of the built environment

What is Building Information Modelling (BIM)?

Building Information Modelling, or digital construction, is an internationally recognised digital innovation used to improve the decisions made in the delivery and operation of the world's infrastructure. BIM combines new workflows, technology, international standards and data into a shared digital representation of a built asset to improve how information is specified, managed and exchanged throughout the entire lifecycle of the built environment, from design and construction, to operation and maintenance.

Why use BIM?

BIM, and wider digital transformation, enhance decision making for new assets, and maximise the potential of existing assets. Adoption can help address traditional project management challenges and achieve better economic growth, social development, and climate outcomes.

<p>Enhanced planning: Better business case development and option selection, and environmental impact assessments</p>	<p>Improved delivery: BIM helps to de-risk projects through a reduction in wasted effort, and better control over cost, quality, and project timelines</p>	<p>Increased investor confidence: Greater certainty on project timelines builds investor confidence. BIM has been shown to have a 7 to 1 return on investment</p>
<p>Improved cost efficiency: BIM reduces maintenance costs through more accurate predictive maintenance. As a result of BIM, the UK now builds 7 schools for the old price of 5</p>	<p>Capacity building: development of digital skills and knowledge, creating jobs and reskilling workers for the digital economy</p>	<p>Climate resilience: BIM provides data transparency, enabling the optimisation of carbon consumption and energy efficiency</p>

Previous implementation

BIM is a well-tested methodology. Through the Global Infrastructure Programme, the CPC and PwC supported its adoption in Peru, Brazil, Colombia, and Vietnam, training over 1000 delegates. Through GCIP, it is being applied as a transport intervention, led by CPC and Crossrail.

How will this work in your context?

BIM, and wider digital transformation, is best delivered as an integrated approach across the supply chain and can be tailored to national, regional and local governments. BIM is suitable for countries with sufficient capability, as well as countries prepared to focus on building capacity and developing the necessary digital skills. This can include lower income countries. As well as the CPC and the Alliance, Crossrail and BSI have expertise and a strong track record in using BIM for rail and standards projects respectively.

What impact has BIM had?

“BIM has proven to deliver strategic national and infrastructure project benefits in support of closing the infrastructure gap and sustainable development across a wide range of countries and contexts.” – Adam Matthews OBE, Digital Construction International, CPC

Delivering: 7 to 1 return on investment for infrastructure owners

40% reduction in unbudgeted change

A 15% reduction in public construction costs (HMG)

7% reduction in overall project delivery time

Enabling energy efficient building and climate resilient assets through a digitally skilled workforce.

Example BIM project - potential project phases and entry points:

Phase 1 (1-3 months)	Phase 2 (3-9 months)	Phase 3 (9-18 months)	Phase 4
Making the case for change	Developing standards and guides	Implementation, skill building	Scaling, monitoring, evaluation
<p>Purpose: Build understanding between partner and UK teams, identify infrastructure development goals, assess current state, and resource needs for strategy.</p> <p>Activities: Engagement meetings with key public officials and stakeholders, current state analysis of skills, technical standards and ongoing projects.</p> <p>Outputs: Stakeholder mapping and engagement, digital construction roadmap, high-level plan for implementation.</p>	<p>Purpose: Mobilise the digital construction programme with UK support and gain local resourcing support for the implementation phase.</p> <p>Activities: UK knowledge transfer training sessions, define technology needs, design solutions and develop roadmap.</p> <p>Outputs: Short-term action plan and mobilisation support, standards specification, training materials, pilot projects initiated</p>	<p>Purpose: Execute planned solutions, support adoption and build necessary skills within the workforce.</p> <p>Activities: Action roadmap, deploy digital ways of working, train staff, integrate into existing procedures and wider ecosystem.</p> <p>Outputs: Pilot, trained staff in public client organisations, project documentation and workflows aligned with global standards.</p>	<p>Purpose: Longer term BIM implementation support and integration into organisations, processes and major projects.</p> <p>Activities: Scale solutions, set up monitoring procedure, evaluate performance and gather feedback, provide ongoing technical assistance.</p> <p>Outputs: Scaled solutions; benefits and risk monitoring; reflections and opportunities for continual development.</p>



Maximising public infrastructure investments through open data and improved governance

Introduction to CoST

CoST works with governments and other stakeholders to strengthen infrastructure governance. It was launched by the UK Government in 2008 as a pilot project and it became an independent non-profit organisation in 2012. Since then, it has helped save hundreds of millions of dollars of public money, increased market competition, and strengthened institutions in 25 countries worldwide.

When referring to quality controls introduced on the recommendation of CoST, which resulted in US\$8.3 million in cost savings, **Yama Yari** (Former Minister of Public Works, Afghanistan) stated the following:

“ If we had these sort of safeguards in place in 2003, then we would have saved hundreds of millions of dollars on public infrastructure ”

Problems the Infrastructure Transparency Initiative solves

Weak governance is a major barrier to infrastructure investment. It gives rise to corruption, mismanagement, and inefficiency and wastes vast public resources. The IMF for example estimates that on average, 30 per cent of investment is lost in this way. This figure rises to around 50 per cent in low-income countries. Weak governance also results in a lack of bankable projects. From the perspective of private investors, this means that there are fewer projects that are financially viable for them from a risk/return perspective. The Global Infrastructure Hub is right therefore when it urges: ‘get the governance aspects right, the finance will follow. Get it wrong, and the investment will dry up.’

Overview of tools

The following tools and resources are available through the UKEO to support governments.

<p>1 Infrastructure Transparency Index (ITI)</p>	<p>2 Infrastructure Data Standard (IDS) & Open Contracting for Infrastructure Data Standard (OC4IDS)</p>
<p>The ITI provides the first proper mechanism enabling governments to routinely measure and report on their performance in relation to transparency and other open government indicators. It does so based on four dimensions - (1) enabling environment, (2) capacities and processes, (3) citizen participation, (4) data publication. The results provide the evidence base for investor confidence by allowing prospective investors to see the performance of procuring entities. This sends a positive “open for business” signal to investors and can improve performance on global benchmarks such as the World Bank’s Ease of Doing Business Index.</p>	<p>The IDS operates at the project-specific level. It comprises 40 project and contract data points to be published at key stages of the project lifecycle, plus an additional 26 that can be disclosed reactively, or on request. The OC4IDS builds on this by reviewing the data landscape that already exists around a project: seeking to solve the problem of scattered and disconnected infrastructure data at the project and contracting level, enabling the disclosure of joined-up, open data. Together, these standards provide an easy-to-use guide to capture and communicate the correct data points across the project lifecycle.</p>
<p>3 Disclosure & Data Analytic Platforms</p>	<p>4 Independent Assurance Review & Analysis</p>
<p>Identifying which indicators to publish data on is only the first step – to effectively communicate to investors, data must be good quality, easily accessible and understandable. CoST’s disclosure platforms guarantee this by providing digital data at no cost to the user, are custom-designed and developed using open-source code – making them a cost-effective way of enabling government to deliver on their transparency commitments, build trust, and inform and empower stakeholders. They can include bespoke data analytics to enable citizens & business to monitor performance.</p>	<p>CoST can also support with an independent assurance process to review “as is” data requirements and disclosure processes, identify common performance challenges and recommendations.</p> <p>The assurance reports produced are seen as independent, legitimate reports by external stakeholders and can be the crucial first step on the journey to improve data collection and reporting processes.</p>

[Click Here to Watch the CoST International Film \(2018\)](#)

Impact So Far

CoST supported the disclosure of data on over 60,000 infrastructure investments across 18 countries in the last five years.

Over 100 significant sector reforms and project improvements introduced by governments across Asia, Africa, Europe and Latin America in response to independent of analysis of disclosed data.

In 2022, the Thai Ministry of Finance confirmed a cost saving of US\$720 million resulting from it adopting the CoST approach.

CoST Uganda, with support from the UK Government’s Business Integrity Initiative, worked with the government and the private sector to build trust and improve competition. As a result of the measures introduced, the number of bids per tender for infrastructure projects increased from 1.6 in 2019 to 12.5 in 2020.

Contact 

Melina San Martin
CoST Senior Programme Manager
m.sanmartin@infrastructuretransparency.org



Cities Spatial Model

Empowering urban development through data-driven insights on the potential economic impacts and benefits of urban policy and infrastructure investments

Overview of tool

The Cities Spatial Model is an analytical tool designed to help policymakers make better-informed decisions regarding urban policy and infrastructure investments. Using factual data inputs including land area, number of residents, floorspace prices, wages etc. along with parameters such as share of income spent on housing and commuting sensitivity. The model evaluates the relative economic impact and benefits, including impact on welfare, of planned urban interventions on living areas and business locations.

Why use the Cities Spatial Model?

The model examines the relative economic impact of planned urban interventions on living areas and business locations. With the right data inputs, policymakers can apply the model to a range of urban interventions and evaluate relative costs and benefits, including impact on welfare. Examples of interventions include new roads, bus rapid transit systems, or planning regulations.

Informed decision making on urban policy and infrastructure investments by analysing the economic impact of planned interventions on living areas and business locations.

Understanding of urban dynamics using factual data inputs and parameters to derive key city characteristics such as level of amenities, productivity, and density of land development.

Scalability and adaptability: The IGC CSM package is publicly available and can be expanded with additional datasets, making it adaptable to various urban contexts and scalable for broader applications.

Evaluation of social inclusion through understanding of distributional impacts of interventions between different groups of workers.

Previous implementation

The model has been implemented across new roads, bus rapid transport systems and planning regulations, and can be expanded with support from the IGC CSM team to include additional datasets.

How will this work in your context?

The IGC Cities Spatial Model (CSM) package is publicly available in an open-source programming language and requires basic programming skills, such as familiarity with GIS/R. A user manual is also available on the IGC's website. Applicability in DOC contexts is evaluated through desirability, feasibility, visibility, strategic fit and adaptability. Key minimum data inputs include land area, residents, workers, floorspace prices, wages, and commuting times.

Overview of the model:

The model is set up with **factual data inputs** and a **standard set of parameters**. The model combines this data to derive **three city characteristics**, which can be manipulated to evaluate the **potential impact of different interventions**.

Factual Data Inputs >>>

These inputs include **total land area**, the **number of residents and workers**, and **average floorspace prices, wages and commuting times**. These are sourced through public data or acquired.

Standard Parameters >>>

The standard set of parameters include the **share of income spent on housing**, the **sensitivity of people to commuting costs**, and the **relative importance of land and capital in constructing floorspace**, amongst others. Parameters are often used to help improve accuracy.

Data is combined to derive three city characteristics:

Potential interventions (e.g., policy decisions or infrastructure options) can be reflected in the model through by manipulating the characteristics.

- > **Productivity:** The efficiency of companies, derived from the number of workers, floorspace prices and wages.
- > **Level of amenities:** non-monetary factors that contribute to the desirability of a location. These are based on people's choices of living areas related to floorspace prices and wages.
- > **Density of land development:** measured from data for total available land, floorspace prices, number of workers, residents, and wages.

Real-World Application: Enabling infrastructure investment decision-making in Cape Town

The City of Cape Town partnered with the IGC to determine where Bus Rapid Transit (BRT) infrastructure would be most beneficial. This collaboration led to the development of the CSM R Package.

The model revealed that property prices increased most in areas near the BRT, with welfare gains of 1.52% (US\$103 per resident) due to proximity.

The CSM tool is now used by the City for cost-benefit analyses and is available to other cities worldwide seeking similar insights.



Empowering decision makers and boosting investor confidence through evidence-based infrastructure investment risk assessments

What is Reference Class Forecasting?

Reference Class Forecasting (RCF) is a data-driven approach used to predict future outcomes by examining similar past situations and their results. This gives more accurate forecasts because the best predictor of a planned project's performance is the actual performance of a class of completed comparable projects. RCF can be used to benchmark a project's cost, schedule, and benefits, and determine the risk of overrun simply by comparing past project estimates to their actual performance and adjusting for statistical differences. This makes RCF particularly valuable at early planning stages when there is too little information for other estimating and forecasting methods.

Why use RCF?

Most infrastructure projects overrun their budgets and schedule and deliver fewer benefits than planned. This is true regardless of location because all projects are subject to planning biases that cause estimates to be overly optimistic. RCF is an established risk forecasting method that bypasses optimism and planning biases by taking an outside view using real-world data. By providing realistic cost, time and resource estimates RCF helps decision makers with their appraisal of infrastructure investment options and gives financiers greater confidence to invest.

Accurate forecasts: more realistic cost, time, and resource estimates, including ranges for uncertainties improves decision-making.

Financial performance: accurate budgeting, cost and benefits control increases confidence from financiers and returns on investment.

Better risk management: quantifies risks and shows how much contingency is needed to prevent overruns.

Mitigation of planning biases: reduces optimism bias, lowers strategic misrepresentation, challenges underestimation.

Resource optimisation: better planning and allocation of resources, reducing waste and increasing productivity.

Previous implementation

RCF is recommended practice in the UK, Switzerland, Denmark, the Netherlands, and Australia. It has been implemented on all kinds of projects across the world ranging from road and rail projects in Brazil, to energy in South Africa, and public works in Hong Kong. GCIP has supported development of a reference class for Bus Rapid Transport (BRT), alongside existing datasets in rail, light rail etc.

How will this work in your context?

The scale of the project will depend on the availability of existing data for that project type, contact Sam.Franzen@oxfordglobalprojects.com for more information and training on RCF.

Reference Class Forecasting stages: Work is typically completed over 10-14 weeks in four steps:

Benchmarking	Define the Reference Class	Establish probability distribution	Make the Reference Class Forecast
<p>Purpose: Determine whether the project costs and schedule estimates are realistic</p> <p>Activities: Compare the base cost and schedule estimates for the project to completed similar projects. SME meetings to agree RCF parameters</p> <p>Outcome: Provides real-world benchmarks to quality assure planning estimates</p>	<p>Purpose: Identify relevant reference class of past, similar projects</p> <p>Activities: Data collection & research on past similar projects. If necessary, build reference class of past, similar, projects based on statistical testing</p> <p>Outcome: A validated reference class of the performance of past similar projects</p>	<p>Purpose: Establish the overrun risk distribution for the selected reference class</p> <p>Activities: Generate project & tailored RCFs for cost & schedule, review of high-impact risks, likelihood of overrun and causes of overrun</p> <p>Outcome: Establish size and probability of potential overruns for the reference class</p>	<p>Purpose: Establish the most likely outcome for the planned project, and contingency needed to reduce the risk of overrun</p> <p>Activities: Compare the inside view estimate with the outside view RCF, select the level of certainty based on risk appetite, draft report, review & agree edits, final submission & debrief</p> <p>Outcome: Establish cost or schedule uplifts required to prevent an overrun at preferred level of certainty</p>

What do RCF users say?

“Over-optimistic estimates can lock in undeliverable targets and it is therefore critical to make adjustments for this. The Green Book recommends applying specific adjustments for optimism bias.”
Her Majesty's Treasury Green Book

“The single most important piece of advice regarding how to increase accuracy in forecasting through improved methods” – Daniel Kahneman author Thinking Fast and Slow

“The APA encourages planners to use RCF” - American Planners Association News Release, April 2005



GEDSI Lens Toolkit for Infrastructure Project Developers



Foreign, Commonwealth & Development Office

Integrating GEDSI criteria in planning and development to increase the number of investible infrastructure projects and unlock capital

Overview of tool

Following landscape analysis, and facilitated by 2X Global, GCIP's Gender, Disability and Social Inclusion (GEDSI) Team has designed criteria and a toolkit to integrate GEDSI into infrastructure project development – helping to create opportunities for women, disabled people and project-affected people to act as entrepreneurs, leaders, employees and end-users.

Why use GEDSI?

Infrastructure projects, from public transport routes that bypass schools to energy projects that fail to consider GEDSI, can have unintended negative consequences for the independence and safety of women, disabled people and local communities. Studies show companies with gender diversity and disability support also see significant profit and revenue increases. To harness these benefits, GCIP's GEDSI Capability Team has created criteria to integrate GEDSI into project development.

Enhanced Targeting of Social Issues:

GEDSI-lens criteria aims to address high poverty levels, gender inequality, disability, and wider social exclusion in GCIP countries of operation, ensuring that projects are inclusive and equitable

Development of Bankable Projects and Pipelines:

Initiatives to increase gender diversity have a strong correlation with profit increases of between 5-20 percent

Increased access to wider finance sources including Climate Finance:

GEDSI-lens criteria leverages global standards and best practices, ensuring projects meet international climate fund criteria, unlocking finance for infrastructure projects in partner countries

Institutional Strengthening for investors:

GEDSI supports the set-up or strengthening of institutions, such as climate finance units, ensuring they have the necessary capacity, processes, and policies across the project lifecycle

Improved Stakeholder Engagement:

GEDSI integration ensures all community voices, including marginalised groups, are considered in project planning and implementation

Enhanced viability of projects:

Data-led monitoring and analysis of GEDSI-disaggregated data to assess progress, identify adjustments, and manage risks leads to positive project outcomes

GEDSI Implementation

The criteria have been peer reviewed positively by key capital providers in the infrastructure sector, including the Asian Development Bank, FCDO and the World Bank, with unanimous acknowledgment that the proposed GEDSI criteria will help infrastructure project developers and sponsors create inclusive, accessible infrastructure. The GEDSI criteria is being piloted in Mozambique and Ghana in the context of structuring and strengthening Climate Finance units, and will be made available for public use.

How will this work in your context?

The model works across the project lifecycle, and is suitable for all countries with minor adaptation. The GEDSI toolkit is ready to be piloted in GCIP priority countries with further roll-out across GCIP and across the wider FCDO portfolio.

How GEDSI works in practice:



Impact of GEDSI

80% of the people displaced by climate change are women.

15-20% of the world's population have some form of disability, 80% of whom live in developing countries creating barriers to accessing infrastructure and services.

A study of 13,000 enterprises in 70 countries by the International Labour Organization found that companies with initiatives to increase gender diversity in management reported profit increases from 5 percent to 20 percent.

A study by Accenture, has found that companies that embraced best practices for employing and supporting people with disabilities achieved 28 percent higher revenue.



UK International Development

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Whole Systems Approach to Energy

A framework for identifying priorities in the energy sector and help advisors ask the right questions



Overview of tool

The Whole Systems Approach (WSA) is a tool produced by the FCDO funded Infrastructure and Cities for Economic Development (ICED) facility. It provides a 'step-by-step approach' to help advisers analyse and understand the range of issues within the energy (and associated) sectors, to allow them to take a holistic view on the energy sector. The WSA aims to provide guidance that covers a wide range of activities across the energy sector. It helps to avoid common pitfalls, and identifies new opportunities by considering the entire system and its interrelated components.

Why use Whole Systems Approach?

The tool is particularly useful in the context of the energy transition, ensuring that policy and planning drive reliability, affordability and sustainability within the energy sector:

Strengthening policy formulation and planning:

WSA considers the entire energy system, its components, processes and impacts to ensure policy and planning encompass the broader political and social context

Spotting opportunities:

Taking a wider view of the systems and processes can help spot opportunities for policy and operational interventions that may be less obvious.

Tracking impacts:

Looking at impacts across all the systems and processes will help the design of interventions. This is especially important in the less direct impacts of some systems e.g. gender, social inclusion, health and land use.

Preventing silo thinking:

WSA encourages cross-sectoral thinking, avoiding a narrow focus on single issues. This policy can lead to a renewed need for unbudgeted subsidies from government.

Identifying unintended consequences:

WSA helps foresee and mitigate risks that may arise in different parts of the energy system. An example could be the obligations and risks in power purchase agreements that cannot be met by the buyers of the electricity and then lead to unbudgeted fiscal burdens on governments.

Previous implementation

WSA has been applied in various contexts such as:

- **Ghana:** Recognising the potential for local solar power projects that were previously overlooked
- **Zambia:** Identifying local solar opportunities in the Integrated Resource Plan
- **Philippines:** Providing greater focus on distributed renewable generation in the Power System Plan

How to use the WSA tool

GCIP plans to pilot a practitioner guide in energy sector interventions. The WSA can be tailored to address your specific challenges and opportunities. For instance, if your region is planning to increase its generating capacity, the WSA can help integrate renewable energy sources like solar PV, consider the impacts on gender and social inclusion, and ensure that policies are aligned with emissions reduction targets. This approach will help in making informed decisions that balance reliability, affordability, and sustainability.

Introducing the four components of the WSA tool:

Physical infrastructure	Market and commercial	Governance and regulation	Demand-side
<ul style="list-style-type: none"> • Renewable and non-renewable energy resources • Centralised and decentralised conversion of energy resources • Infrastructure to deliver energy services • Flexibility of supply to balance demand and supply 	<ul style="list-style-type: none"> • Procurement of power and energy infrastructure • Market arrangements for producers, wholesalers, retailers, consumers • Short-term forecasting and dispatch • Tariffs and wholesale prices • Financing opportunities and barriers 	<ul style="list-style-type: none"> • Energy and wider policy objectives • Regulation, license to operate, tariffs and cost recovery • Planning and forecasting • Defining markets to manage risks and obligations • Incentive structures to achieve efficiency and policy goals 	<ul style="list-style-type: none"> • Needs of end-users of energy • Composition of energy demand • Efficiency of energy consumption • Direct and incentivised management of demand • Flexibility of demand

Case study on WSA:

Ghana's Energy Transition Plan, developed in 2023, aimed to increase generating capacity to 6300 MW by 2030 from the current 3700 MW.

The Whole Systems Approach (WSA) was applied to ensure comprehensive energy planning. It identified opportunities for renewable energy integration, particularly solar power, and addressed issues such as transmission integration and the roles of existing gas-fired and hydro generation.

This resulted in **significant growth in renewable energy capacity**, better alignment of **policy, planning and implementation**, and **improved social inclusion** through the incorporation of Gender, Equity, Diversity, and Social Inclusion (GEDSI) principles.



