

Chapter 23:

Sector Guidelines for Countries Proposing Infrastructure



REDUCING POVERTY THROUGH GROWTH

Sector Guidance for Countries Proposing Infrastructure

MCC Due Diligence Requirements for Proposed Infrastructure Components

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This document is intended to provide an overview of the way MCC conducts due diligence on a variety of possible infrastructure sectors..

Certain information and data allow MCC to determine whether the proposed project is **sufficiently well developed**, (see Project Development Guidance) and if so, whether MCC Due Diligence should commence.

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Infrastructure Due Diligence Guidance

A Standardized Guide for Assessing Individual Infrastructure Projects by MCC

Millennium Challenge Corporation (MCC) Compact Assessment and Approvals Guidelines¹ provides the framework for overall assessment of a country's proposal (Proposal) to determine whether the Program is sufficiently developed and qualified to advance to the Compact negotiation stage. Infrastructure projects included in the Proposal will be assessed by the MCC Infrastructure Division for relevance, suitability, technical viability and sustainability. This Guidance provides an overview of the principal assessments that MCC undertakes in order to make that determination. In addition to the steps outlined in this document, all infrastructure projects will also be reviewed for compliance with other applicable guidelines, in particular the MCC Environmental Guidelines and MCC Guidelines for Economic Analysis.

MCC typically does not commence Due Diligence on a proposed infrastructure project until the country submitting a proposal provides data and information in sufficient detail and of acceptable quality. If such data and information are not available, the country should explore other applicable means of developing the data, including MCC's Section 609(g) funding, to prepare the project.

In general terms, Infrastructure Due Diligence can commence if all of the following information are provided by the country:

- *Project justification* within a national development context (or sector strategy) and clearly defined targets for poverty reduction
- *Project description* with sufficient detail regarding exact project site, the geographic areas to be served, preliminary identification of targeted beneficiaries, intended outcomes, products or services to be delivered, and methods of delivery
- *Pre-feasibility study* (see items 1-9 below) with preliminary detailed cost estimates, using unit costs that are suitable for International Competitive Bidding, no older than 4 years
- *Concept designs* and, if possible, adopted design criteria and standards
- *Institutional arrangement* for project implementation

1 See www.mcc.gov/guidance

- *Preliminary economic and financial analysis*, with an indication of economic and financial impact.

When a Pre-feasibility Study is absent and if the country is able to provide, and demonstrates that it can provide, similar information that is usually contained in a pre-feasibility study, then MCC may consider it to be sufficient to commence its Due Diligence.

The infrastructure Due Diligence process includes the following:

1. Qualitative Analysis of Alternative Project Selection and Design

The MCC proposal should include a clear justification for the proposed activities, including analysis of project alternatives, quantified wherever possible. This should include the following: (i) what would happen without a project, which would help determine whether or not the project is necessary; (ii) a discussion on the chosen operation being the least cost alternative; (iii) justification for public funding, such as an effort to provide public goods or address a market failure; and (iv) consideration of alternatives in terms of choice of project, technology, design, construction, location, choice of target group, public-private provision, and public-private financing.

Based on available data and evidence, MCC Infrastructure Due Diligence is intended to:

- Establish evidence that alternatives were considered during the selection and design of the project
- Establish evidence that the project being appraised is the least-cost or the optimal Net Present Value (NPV) alternative
- Identify clearly the “with” and “without” project situations, and specify clearly and transparently their respective costs and (especially) income and other benefits.

2. Project Design and Engineering Costs

Based on available data and evidence, MCC Infrastructure Due Diligence is intended to:

- Confirm that results of stakeholder consultations have been considered adequately in designing the project
- Examine the appropriateness of engineering standards and codes used in the project design
- Confirm quantitatively that the design parameters meet the objective of alleviating stated key constraints to sustainable growth
- Confirm that proposed project design will deliver expected benefits
- Examine the methodology for cost estimation. Ensure that costs reflect current industry contractor prices, material availability due to world demand, and inflation factors. Recheck country-specific unit costs employed in standard costing methods
- Evaluate physical and price contingencies (for local and foreign components separately), and foreign exchange rates for foreign components of the project cost and recommend adjustments as necessary
- Evaluate land development costs including any requisite land acquisition needs
- Provide evidence of local construction capacity (where appropriate) and availability of local materials, equipment, and labor and identify situations where off-shore procurement or importation is required
- Determine contracting method for civil works and reexamine project costs based on the likely method of contracting

3. Fiscal Impact and Cost Recovery

The *public* and *private* affordability of the proposed operation must be analyzed. This is especially relevant in terms of the project's impact on the current public investment program or finances of the responsible public sector entity (e.g., Operations and Maintenance costs). The potential for sustaining the operation during and after implementation should be determined. MCC Due Diligence must analyze recurrent cost funding or identify cost recovery issues.

Based on available data and evidence, MCC Infrastructure Due Diligence is intended to:

- Assess adequacy of recurrent cost funding analysis or cost recovery analysis, including the underlying assumptions and assumed values
- Analyze and justify any subsidies for operating or recurrent costs, including the ability to target or limit subsidies (e.g., via means-testing) to poor beneficiaries
- Ensure adequate measures to permit project financial sustainability (during and after implementation) are included whether from public or private sources
- Ensure tariff and recovery requirements are clearly specified to achieve project objectives

5. Economic Analysis

All infrastructure projects will be subject to economic evaluation by MCC's Economic Analysis Division in accordance with the MCC Guidelines for Economic Analysis, available at www.mcc.gov. Such evaluation is based on projections of net incomes and other benefits *with* and *without* a proposed MCA intervention.

Based on available data and evidence, MCC Infrastructure Due Diligence is intended to:

- Identify realistic benefit streams and assess their magnitude and sensitivity to changing conditions
- Establish quantitatively the link between economic contribution and poverty reduction
- Estimate impact on poverty reduction
- Identify key constraints that may hinder the realization of assumed benefits, whether public or private

6. Sensitivity / Risk Analysis

Assessment of impact that changes in different underlying parameters of the operation will have on the anticipated outcome. Switching values can also be used to help arrive at realistic expectations of the potential benefits of an operation.

Based on available data and evidence, MCC Infrastructure Due Diligence is intended to:

- Identify the underlying or causal factors that introduce risk and their likelihood of occurrence, and that would have an adverse impact on cost, quality, or timeliness
- Calculate switching values
- Ensure sensitivity analysis that reflects the risks
- Determine whether variations in key underlying variables have an important impact on Financial Internal Rate of Return (FIRR) or other benefits.

7. Institutional Capacity and Risk Analysis

Assessment of the capacity and effectiveness of relevant government agencies and implementing agencies. Realistic actions to reduce risks must also be assessed. The risks identified should be used as parameters for the sensitivity analysis.

Based on available data and evidence, MCC Infrastructure Due Diligence will:

- Adequately assess institutional capacity to implement the proposed project
- Identify actions and their associated costs that may reduce identified ex-ante institutional capacity risks
- Develop realistic set of actions to include reduction of institutional risks during implementation
- Develop operational alternatives if identified institutional capacity constraints indicate material risks to meeting project outcome(s).

8. Poverty and Gender Analysis

All infrastructure projects will be subject to Poverty and Gender analysis by the responsible groups of MCC to ensure that the proposed projects are designed in accordance with the MCC Gender Policies and the MCC Guidelines for Economic Analysis, available at www.mcc.gov.

9. Environmental and Social Impact Analysis

MCC Compacts are required to comply with MCC Environmental Guidelines (www.mcc.gov). The MCC Environmental and Social Assessment (ESA) Division is responsible for Due Diligence activities relating to environment and social matters in infrastructure projects. ESA will lead for safeguard issues, while Infrastructure will lead for programmatic issues.

Infrastructure Guidance – Major Roads

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is sufficiently well developed, and if so, whether MCC Due Diligence should commence; (ii) an early indication that the project is technically viable; (iii) an early indication that the project can be implemented within the compact term (maximum of 5 years); and (iv) whether activities requiring long execution times (e.g., land acquisition, resettlements) are underway.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of rationale, including nature and measure of benefits, and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated benefits
- Identification of the role of the project in the national road strategy and investment plan.
- Information on whether the proposed rural roads provide links within the context of the overall road network.
- Available technical data, with particular emphasis on surveys, cadastral data establishing road alignments (if any exists), legal status of existing road alignments and road reserves.
- Data on road-making material, in particular pavement materials and water (availability, location, action taken by applicant on approvals needed to extract gravel or water), as well as aggregate if a paved road is proposed.
- Available data for drainage design including catchment mapping, rainfall records, rainfall frequency/ intensity curves.
- A preliminary description of the institutional arrangements in place to manage and maintain public roads, the responsible organization, funding arrangements, maintenance history, and general capability.

- Identification of areas which require obtaining more detailed, current or reliable information. If a new road (or realignment of an existing road) is proposed, obtaining approvals from all relevant parties for land may be a significant and time consuming issue; identify the party responsible, process, who has to sign off and a timeline at commencement of the Due Diligence phase.

Once MCC has made the determination to commence due diligence on a project, the Infrastructure Division will commence with the following Due Diligence.

Technical Assessment: Engineering

- Review all aspects of preliminary technical designs and proposed standards and confirm appropriateness for design criteria, demand requirements and environmental factors.
- Review geological, seismic, survey, traffic, mapping and rainfall data available and identify the need for further data.
- Assemble cost data and prepare detailed cost estimates for materials (gravel, bitumen, aggregate, concrete, bridge materials) and construction equipment.
- Assemble data for drainage design and confirm completeness of rainfall intensity/ frequency/ duration data.
- Review traffic volume data and traffic design; identify any traffic counts needed to confirm assumptions. Evaluate traffic volume projections used in the economic analysis and estimate their accuracy.
- Prepare a road safety report on the proposed road, identify potential issues, and confirm design and construction standards.
- Prepare and assess economically justified alternative design options including vertical and horizontal alignments, pavement (balance of unbound, deep lift asphalt, concrete), drainage structures, location and arrangements for intersections.
- Prepare preliminary designs and plans for drainage structures, options, materials, and design standards.

- Prepare preliminary designs for bridges, including approximate level, spans, and materials, and review special measures required for major floods and earthquakes. Prepare concept designs of standardized minor creek crossings, floodways and culverts. Relate the proposed level of service to proposed benefits. Describe the basis for estimating flood flows.
- Assess secondary impact of the proposed project on other transport infrastructure, including proposed intersections on local road networks, and identify any need for a more detailed assessment.
- Review maintenance requirements and costs, and compare against current maintenance arrangements (see Sustainability below).

Technical Assessment: Economic and Financial

The economic analysis of the projects will be performed by the MCC Economists in accordance with the MCC Guidelines for Economic Analysis. Infrastructure input to this analysis may include the following:

- Providing a description of the economy of the catchment area and wider region, and the impact of road conditions. Quantifying recent trends in economic activity for the catchment based on best available data and consultation with local organizations.
- Identifying benefits including road user costs and increased economic activity (by sector) expected to flow from upgraded or new roads, focusing where possible on increases in incomes for workers, firms, and households. Identifying the beneficiaries, to the extent possible. Comparing projected incomes and other benefits with and without the proposed project, and assessing the capacity of the local and wider region to absorb the increased level of economic activity.
- Summarizing the design standards, design life and cost estimates (capital and maintenance) and confirming these are consistent with the assumed benefits and duration of the benefit stream.
- Confirming that costs and project life are consistent with the engineering design.

- Completing a financial analysis and FIRR for income generating subprojects (to the extent benefits contribute to EIRR of road project).

Technical Assessment: Environment and Social

The Environmental and Social Assessment (ESA) group will work to ensure that proposed infrastructure projects comply with MCC Environmental Guidelines (www.mcc.gov), which include, inter-alia, an expectation of compliance with host-country laws, regulations and standards, as well as requirements by which the host country is bound under international agreements. Particular attention must be paid to issues which generally arise including, but not limited to, land ownership and right of way, incursion into sensitive areas (reserves, parks, wetlands, etc.), drainage and erosion control (especially in hilly or mountainous situations). Close coordination with ESA is required throughout the Due Diligence process.

MCC Infrastructure Division will also conduct sustainability, risk management and implementation assessments which will involve the following activities:

Sustainability Assessment

- A review of a detailed description of current arrangements for ownership, management and maintenance of rural roads, including details of the legislative framework, administrative framework, funding arrangements and maintenance responsibilities.
- A review of existing performance with respect to clarity and acceptance of arrangements and responsibilities, acceptance of road reserves, road maintenance. Identifying causes of inadequate performance including legislative or administrative arrangements, resources, technical capability and capacity, and funding.
- Review of road maintenance programs to ensure that such plans are suitable for the new road and wider road network including responsibilities, resources, funding. Identifying shortfalls with current arrangements and providing details of a program to strengthen road management and maintenance arrangements.

- A review of details of alternative road maintenance funding options. Including details of income derived from road users and potential for increased cost recovery.
- Prepare a summary of actions needed to maintain the road network to an acceptable level, including institutional strengthening, funding (responsibility and funding levels) and additional resources needed.

Risk Management Assessment

- Identifying significant risks to the project in particular construction cost increases, delays, sustainability of the road, local acceptance and take up of benefits, and other factors affecting economic performance and distribution of benefits.
- Identifying and assessing significant risks relating to durability, and confirm that design criteria adopted shall mitigate these risks within acceptable tolerance levels.
- Preparing a risk management plan to minimize the negative impact of the risks.

Implementation Assessment

- Providing a summary of the technical and construction resources available in country, and experience with projects of similar size, nature and type.
- Providing details of implementation options available.
- Identifying local factors that may affect the timely completion of the works, including transport to/from the location for the contractor's equipment, fuel and other materials, seasonal weather patterns such as avoiding the wet season.
- Preparing an implementation program including contract awards, any approvals and permits needed, construction times, cash flow, government commitments and other hold points as appropriate.

- Recommend an appropriate procurement procedure, sequencing, and packaging.
- Recommend suitable supervision and management arrangements.

Infrastructure Guidance – Ports

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is **sufficiently well developed**, and if so, whether MCC due diligence should commence; (ii) an early indication that the project is **technically viable**; (iii) an early indication that the project **can be implemented within the compact term** (maximum of 5 years); and (iv) whether **activities requiring long execution times (e.g., land acquisition, resettlements) are underway**.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of the rationale for MCC interventions, including nature and measure of benefits and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated benefits
- Information on market demand which justifies the project financially, economically and operationally. The information should take into account competition, total costs of operations, and forecast the future growth of demand.
- Identification of alternatives to accomplish the objective, such as expansion of an existing port or construction of a new port or other transport modes, where applicable, including environmental considerations related to each alternative.
- Identification of the facilities' throughput and operating statistics, including current vessel service and cargo handling characteristics in comparison with international norms and definition of performance targets for operations after completion of the project. Data should include current trends and forecasts of future throughput parameters; current and expected vessel service capabilities and efficiencies; cargo discharge/load and take away rates; efficiencies and capabilities of cargo processing systems such as container yards, warehouses, and container freight station (CFS) operations, on the terminal and overall

port performance capabilities, including total throughput and growth rates, average vessel waiting and service times, average cargo dwell times; and overall cargo processing costs.

- Data on terminal congestion indicators to identify the need for off-terminal service facilities.
- Data on port operations and overall cargo distribution costs to identify the potential economic impact of the project on the local and regional economy.
- Information on whether project components, engineering design, and associated technologies are considered appropriate for the port in relation to its international shipping network.
- A preliminary description of the institutional arrangements in place to manage and maintain road networks inside and outside of the port; organization responsible, funding arrangements, maintenance history, and general capability.
- Identification of the current and projected land uses to define and evaluate the existing utilization of land, options for changing land uses to maximize operating efficiencies for existing and future systems, and land resources for long term development.
- Identification of areas which require obtaining more detailed, current or reliable information. If a new port (or expansion of an existing port) is proposed, obtaining approvals from all relevant parties for land may be a significant and time consuming issue that requires additional risk assessment. Identify the party responsible for acquiring or developing the information, the process to acquire that information, the party responsible for approval, and a timeline for information acquisition at commencement of the due diligence phase.

Once MCC has made the determination to commence due diligence on a project, the Infrastructure Division will commence with the following Due Diligence.

Technical Assessment: Engineering

- Review all aspects of preliminary technical designs and proposed standards and confirm appropriateness for criteria, demand requirements and environmental factors.
- Survey and assess channel and navigational characteristics (including draft, width, turning radiuses, shoaling areas, navigational aids, and anchorages) and environmental factors which may affect the safe navigation of the channel to define the maximum size, operating characteristics of water access, and assist requirements for vessels to safely access and operate within the port harbor.
- Survey and assess existing piers, wharfs, or other vessel mooring and discharge/load facilities to define their physical condition, operating characteristics and constraints, and to assess safety issues, accessibility to storage and cargo processing areas and any obstructions or impediments to efficient work flow.
- Confirm that project design is based on internationally accepted engineering standards for port civil works.
- Assess capital operating equipment including rail-mounted or mobile shore cranes, container handling and/or specialized cargo discharge/load systems, or other capital equipment to define their capacities and capabilities, service life expectancy, maintenance and repair needs, and long-term replacement requirements.
- Survey and assess warehouses, container yards, bulk storage facilities, and specialized operations areas to define their physical condition, functions, operational capacities, environmental and safety concerns, and impediments to work organization and traffic flow.
- Assess accessibility of the port to land transportation and to terminal storage and cargo processing areas to define system capacities, operational limitations, bottlenecks and impediments to traffic flow, associated transport and distribution costs, and environmental and safety concerns.
- Survey and assess security systems including perimeter fencing and surveillance systems, gate and access control systems, and emergency

response systems and capabilities to determine if they meet International Maritime Organization (IMO) standards, International Ship and Port Security (ISPS) codes and International convention for Prevention of Pollution from Ships (MARPOL) requirements.

- Review topographic map of the project area.
- If projects are to be constructed within the marine environment, conduct a bathymetric survey of the project site to measure water depths, define the topographic features of the bathymetric landscape, identify potential impediments to construction, and identify archaeological remains or environmentally sensitive areas.
- Complete a geotechnical investigation of the subsurface strata of the project area to determine the characteristics of the sub-surface material and its potential impact on the engineering design.

Technical Assessment: Economic and Financial

The economic analysis of the projects will be performed by the MCC Economists in accordance with MCC Guidelines for Economic Analysis. Infrastructure input to this analysis may include the following:

- Identifying benefits expected to flow from project, focusing on increases in incomes for workers, firms, and households. Identifying the beneficiaries, to the extent possible. Comparing projected incomes and other benefits with and without the proposed project, and assessing the capacity of the local and wider region to absorb the increased level of economic activity.
- Making an assessment of how benefits resulting from increased efficiencies (e.g., reduction in wait and queue time) would impact poverty reduction.
- Summarizing the design standards, design life and cost estimates (capital and maintenance) and confirming these are consistent with the assumed benefits and duration of the benefit stream.
- Confirming that the costs and project life are consistent with the engineering design.

- Completing a financial analysis.
- Confirming that the technologies that are proposed in the project and the engineering design will allow fulfillment of operational performance, financial, and economic objectives.
- Assessing regional port activities, specifically addressing demand and growth.

Technical Assessment: Environment and Social

The Environmental and Social Assessment (ESA) group will work to ensure that proposed infrastructure projects comply with MCC Environmental Guidelines (www.mcc.gov), which include, an expectation of compliance with host-country laws, regulations and standards, as well as requirements by which the host country is bound under international agreements. Particular attention must be paid to issues which generally arise including, but not limited to, the toxic nature of dredged material and disposal of dredged sediment, and degradation of the marine ecology.

The MCC Infrastructure Division will also conduct sustainability, risk management and implementation assessments which will involve the following activities:

Sustainability Assessment

- A review of a detailed description of current arrangements for ownership, management and maintenance of ports, including details of the legislative framework, administrative framework, funding arrangements and maintenance responsibilities.
- A review of existing performance with respect to clarity and level of acceptance of arrangements and responsibilities, and acceptance of reserves for maintenance. Identifying causes of inadequate performance including legislative or administrative arrangements, resources, technical capability and capacity, and funding.
- A review of maintenance programs to ensure that such plans are suitable for the new or improved port, including responsibilities, resources and funding.

Identifying shortfalls with current arrangements and providing details of a program to strengthen port management and maintenance arrangements.

- A review of details of alternative maintenance funding options. Including details of income derived from users and potential for increased cost recovery.
- Prepare a summary of actions needed to maintain the port to an acceptable level, including institutional strengthening, funding (responsibility and funding levels) and additional resources needed.

Risk Management Assessment

- Identifying significant risks to the project, with particular respect to construction cost increases, delays, sustainability of the port, trade union issues, local acceptance and take up of benefits, and other factors affecting economic performance and distribution of benefits.
- Identifying and assessing significant risks relating to durability and confirming that design criteria adopted shall mitigate these risks within acceptable tolerance levels.
- Preparing a risk management plan to minimize the negative impact of the risks.

Implementation Assessment

- Providing a summary of the technical and construction resources available in country, and experience with projects of similar size, nature and type.
- Identifying local factors that may affect the timely completion of the works, including transport to/from the location for the contractor's equipment, fuel and other materials, seasonal weather patterns among others.
- Preparing an implementation program including contract awards, any approvals and permits needed, construction times, cash flow, government commitments and other hold points as appropriate.
- Recommend an appropriate procurement procedure, sequencing, and packaging.

- Recommend suitable supervision and management arrangements.

Infrastructure Guidance – Rural Roads

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is **sufficiently well developed**, and if so, whether MCC Due Diligence should commence; (ii) an early indication that the project is **technically viable**; (iii) an early indication that the project **can be implemented within the compact term** (maximum of 5 years); and (iv) whether **activities requiring long execution times (e.g., land acquisition, resettlements) are underway**.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of rationale based on application including nature and measure of benefits, and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated benefits
- Identification of the role of the project in the national road strategy and investment plan.
- Information on whether the proposed rural roads provide links within the context of the overall road network.
- Available technical data, with particular emphasis on surveys, cadastral data establishing road alignments (if any exists), legal status of existing road alignments and road reserves.
- Data on road-making material, in particular pavement materials and water (availability, location, action taken by applicant on approvals needed to extract gravel or water), as well as aggregate if a sealed or paved road is proposed.
- Available data for drainage design including catchment mapping, rainfall records, rainfall frequency/ intensity curves.

- A preliminary description of the institutional arrangements in place to manage and maintain public roads, the responsible organization, funding arrangements, maintenance history, and general capability.
- Identification of areas which require obtaining more detailed, current or reliable information. If a new road (or realignment of an existing road) is proposed, obtaining approvals from all relevant parties for land may be a significant and time consuming issue; identify the party responsible, process, who has to sign off and a timeline at commencement of the Due Diligence phase.

Once MCC has made the determination to commence due diligence on a project, the Infrastructure Division will commence with the following Due Diligence.

Technical Assessment: Engineering

- Review all aspects of preliminary technical designs and proposed standards and confirm appropriateness for criteria, demand requirements and environmental factors.
- Prepare preliminary design (20%) sufficient to confirm the road alignment, standard, constructability, estimated cost, maintenance requirements and to identify all issues to be addressed for the road to be constructed and maintained, such as such as land clearance.
- Confirm details of design and construction standards applicable in the location, where such standards exist. Establish and justify proposed standards for horizontal and vertical geometry, design speed, design vehicle, road design life.
- Review traffic counts or other sources of information about traffic volumes. Evaluate traffic volume projections used in the economic analysis and estimate their accuracy. Where existing data is inadequate, arrange minimum seven day traffic counts for suitable locations to be completed by the end of the economic assessment.

- In conjunction with the economic and financial assessment, assess levels of service that are economically justified based on traffic, economic growth potential and social factors.
- Establish level of drainage serviceability and compare to similar roads and other segments of the proposed road, where appropriate. Prepare preliminary designs for bridges, including approximate level, spans, and materials, and review special measures required for major floods, and earthquakes. Prepare concept designs of standardized minor creek crossings; floodways, culverts. Relate the proposed level of serviceability to proposed benefits. Describe the basis of estimating flood flows.
- Confirm availability of and identify sources for road making materials including expected quality based on previous experience of using material from the sources.
- Prepare preliminary designs including horizontal alignment, typical cross section, major drainage structures, and location of minor drainage. Identify locations of all drainage outlets. Identify any locations where steep gradients may cause problems, extent of earthworks to reduce gradient and/ or drainage design to minimize erosion. Identify if earthworks can be contained in the road reserve. For upgrades to an existing road, identify any locations where the horizontal alignment will need to be changed to achieve an acceptable design standard.

Technical Assessment: Economic and Financial

The economic analysis of the projects will be performed by the MCC Economists in accordance with MCC Guidelines for Economic Analysis. Infrastructure input to this analysis may include the following:

- Providing a description of the economy of the catchment area and wider region and the impact of road conditions. Quantifying recent trends in economic activity for the catchment based on best available data and consultation with local organizations.
- Identifying benefits including road user costs and increased economic activity (by sector) expected to flow from upgraded or new roads, focusing

where possible on increases in incomes for workers, firms, and households. Identifying the beneficiaries, to the extent possible. Comparing projected incomes and other benefits with and without the proposed project and assessing the capacity of the local and wider region to absorb the increased level of economic activity.

- Summarizing the design standards, design life and capital and maintenance cost estimates and confirming that these are consistent with the assumed benefits and duration of the benefit stream.
- Confirming that the costs and project life are consistent with the engineering design.
- Completing a financial analysis.

Technical Assessment: Environment and Social

The Environmental and Social Assessment (ESA) group will work to ensure that proposed infrastructure projects comply with MCC Environmental Guidelines (www.mcc.gov), which include, an expectation of compliance with host-country laws, regulations and standards, as well as requirements by which the host country is bound under international agreements. Particular attention must be paid to issues which generally arise including, but not limited to, land ownership and right of way, incursion into sensitive areas (reserves, parks, wetlands, etc.), drainage and erosion control (especially in hilly or mountainous situations).

The MCC Infrastructure Division will also conduct sustainability, risk management and implementation assessments which will involve the following activities:

Sustainability Assessment

- A review of a detailed description of current arrangements for ownership, management and maintenance of rural roads, including details of the legislative framework, administrative framework, funding arrangements and maintenance responsibilities.
- A review of existing performance with respect to clarity and acceptance of arrangements and responsibilities, acceptance of road reserves, road

maintenance. Identifying causes of inadequate performance including legislative or administrative arrangements, resources, technical capability and capacity, and funding.

- Review of road maintenance programs to ensure that such plans are suitable for the new road and wider road network including responsibilities, resources, funding. Identifying shortfalls with current arrangements and providing details of a program to strengthen road management and maintenance arrangements.
- A review of details of alternative road maintenance funding options. Including details of income derived from road users and potential for increased cost recovery.
- Prepare a summary of actions needed to maintain the road network to an acceptable level, including institutional strengthening, funding (responsibility and funding levels) and additional resources needed.

Risk Management Assessment

- Identifying significant risks to the project in particular construction cost increases, delays, sustainability of the road, local acceptance and take up of benefits, and other factors affecting economic performance and distribution of benefits.
- Identifying and assessing significant risks relating to durability, and confirm that design criteria adopted shall mitigate these risks within acceptable tolerance levels.
- Preparing a risk management plan to minimize the negative impact of the risks.

Implementation Assessment

- Providing a summary of the technical and construction resources available in country, and experience with projects of similar size, nature and type.
- Providing details of implementation options available.

- Identifying local factors that may affect the timely completion of the works, including transport to/from the location for the contractor's equipment, fuel and other materials, seasonal weather patterns such as avoiding the wet season.
- Preparing an implementation program including contract awards, any approvals and permits needed, construction times, cash flow, government commitments and other hold points as appropriate.
- Recommend an appropriate procurement procedure, sequencing, and packaging.
- Recommend suitable supervision and management arrangements.

Infrastructure Guidance – Irrigation Systems

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is **sufficiently well developed**, and if so, whether MCC Due Diligence should commence; (ii) an early indication that the project is **technically viable**; (iii) an early indication that the project **can be implemented within the compact term** (maximum of 5 years); and (iv) whether **activities requiring long execution times (e.g., land acquisition, resettlements) are underway**.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of rationale, including nature and measure of benefits, and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated agricultural benefits.
- Definition, assessment, and evaluation of current and projected land uses in the proposed irrigated and/or flood areas. Identification of options for changing land uses to maximize operating efficiencies for existing and future systems, and identification of land resources for long term development.
- Assessment of market demand for increased agricultural production and water use to financially, economically and operationally justify the project. The assessment should take into account total costs of operations, and forecast the future growth of demand for water use.
- Confirmation that sufficient reliable hydrology information has been provided in feasibility reports on issues such as riverstage and discharge or borehole yield and drawdown, total solids in suspension, total dissolved solids, and specific substances in suspension and solution.
- Determination that satisfactory soil survey techniques (i.e., auger holes, trial pits) have been used or survey results have been tested for validity.
- Confirmation that crop water requirements (including studies of evaporation ratios of open water surfaces) have been estimated sufficiently using climatologic data from adequate and reliable records [NB – an error of 20% in

crop water use estimates can make a considerable difference to the economic analysis, especially if water cost is a major constraint].

- Confirmation that there are no constraining hydrological issues related to capacity of water sources and conveyance structures by examining actual data (preferably climatologic data over 25 years), identification of competing water uses (households and industry), and confirmation that there are no constraining contamination impacts on water availability.
- Identification of related policy, legal, regulatory, and institutional frameworks, and general evaluation of their potential impacts and implications on project implementation.
- Identification of data gaps and areas that require more detailed, current or confident information.

Once MCC has made the determination to commence Due Diligence on a project, the Infrastructure Division will commence with the following Due Diligence.

Technical Assessment: Engineering

- Review all aspects of preliminary technical designs and proposed standards and confirm appropriateness for criteria, demand requirements and environmental factors.
- Conduct soil surveys (soil structure, vertical and horizontal disposition, permeability, pH value, salinity, soil depth and topography) to define soil types, drainage characteristics, and agricultural potential.
- Conduct a hydrological survey and assess water resource availability using long-term records of river flows and water quality. In the absence of historical data, conduct estimates and create simulation models using rainfall records for the catchment or stream flow of neighboring rivers. An MCC hydrological consultant must validate the yield studies (including instream flow requirements and considering catchment erosion and sedimentation).
- Conduct a hydrological evaluation of the proposed project impact on the appropriate watershed, as needed.

- Conduct topographical surveys of irrigable areas and locations of canals, buildings, roads and hydraulic structures.
- Conduct site exploration, including exploration of such sub-surface conditions that may affect the design and construction of a proposed substructure such as the mechanical properties of the subsoil at foundation levels and the corrosiveness of the groundwater. Confirm the strength of underlying soils.
- MCC structural engineering consultant must analyze proposed dam structures (including mapping of the bedding planes to confirm shear strength parameters) and proposed appropriate detailed modifications.
- Prepare preliminary specifications for pumping plants/stations (including any power extensions) to provide sufficient pre-bid cost information with an accuracy of +/- 20%.
- Complete preliminary engineering designs MCC Engineering consultant should confirm that these designs provide sufficient pre-bid cost estimation to an accuracy of +/- 20%.
- Evaluate design standards and propose alternatives when existing standards are not acceptable to MCC.
- Confirm availability of local materials and required plant and machinery.
- Confirm that storage facilities take into account crop water use, domestic and livestock requirements, conveyance losses, and corresponding flow rates.
- Confirm preliminary estimates of on-farm works as the basis for estimating total costs for economic analysis.
- Confirm assessments of drainage requirements for different categories of land use applied to typical soil profiles and verify that that the drainage system (from field drain to outfall) is adequately coordinated with the canal system.
- Identify other factors that can affect cost or scheduling including site preparation, access roads for construction, utility provision (including possible encroachment and relocation), construction camps, environmental clean-up, and equipment mobilization and de-mobilization.

- If the dam is classified as “large” by the International Commission of Large Dams (ICOLD), ensure that all appropriate environmental evaluations and engineering design and safety criteria are met.

Technical Assessment: Economic and Financial

The economic analysis of the projects will be performed by the MCC Economists in accordance with the MCC Guidelines for Economic Analysis. Infrastructure Division’s input to this analysis may include the following:

- Identifying benefits expected to flow from project, focusing on increases in incomes for workers, firms, and households. Identifying the beneficiaries, to the extent possible. Comparing projected incomes and other benefits with and without the proposed project, and assess the capacity of the local and wider region to absorb the increased level of economic activity.
- Summarizing the design standards, design life and cost estimates (capital and maintenance) and confirm these are consistent with the assumed benefits and duration of the benefit stream.
- Confirming that the costs and project life are consistent with the engineering design.
- Completing a financial analysis for income generating subprojects.
- Confirming that the technologies that are proposed in the project and the engineering design will allow fulfillment of operational performance, financial, and economic objectives.

Technical Assessment: Environment and Social

The Environmental and Social Assessment (ESA) group will work to ensure that proposed infrastructure projects comply with MCC Environmental Guidelines (www.mcc.gov), which include, an expectation of compliance with host-country laws, regulations and standards, as well as requirements by which the host country is bound under international agreements. Particular attention must be paid to issues which generally arise including, but not limited to, land ownership and right of way, incursion into sensitive areas (reserves, parks, wetlands, etc.), drainage and erosion control (especially in hilly or mountainous situations).

The MCC Infrastructure Division will also conduct sustainability, risk management and implementation assessments which will involve the following activities:

Sustainability Assessment

- A review of a detailed description of current arrangements for ownership, management and maintenance of irrigation systems, including details of the legislative framework, administrative framework, funding arrangements and maintenance responsibilities.
- A review of existing performance with respect to clarity and acceptance of arrangements and responsibilities, acceptance of irrigation funding reserves for maintenance. Identifying causes of inadequate performance including legislative or administrative arrangements, resources, technical capability and capacity, and funding.
- Review of a maintenance programs to ensure that such plans are suitable for the new irrigation systems including responsibilities, resources, funding. Identifying shortfalls with current arrangements and providing details of a program to strengthen irrigation system management and maintenance arrangements.
- A review of details of alternative maintenance funding options. Including details of income derived from water users and potential for increased cost recovery.
- Prepare a summary of actions needed to maintain the dam and water management to acceptable level, including institutional strengthening, funding (responsibility and funding levels) and additional resources needed.

Risk Management

- Identifying significant risks to the project, with particular respect to construction cost increases, delays, sustainability of the scheme, local acceptance and take-up of benefits, and other factors affecting economic performance and distribution of benefits.

- Identifying and assessing significant risks relating to durability, and confirm that design criteria adopted shall mitigate these risks within acceptable tolerance levels.
- Prepare a risk management plan to minimize the negative impact of the risks.

Implementation Assessment

- Providing a summary of the technical and construction resources available in country, and experience with projects of similar size, nature and type.
- Providing details of implementation options available.
- Identifying local factors that may affect the timely completion of the works, including transport to/from the location for the contractor's equipment, fuel and other materials, seasonal weather patterns such as avoiding the wet season.
- Preparing an implementation program including contract awards, any approvals and permits needed, construction times, cash flow, government commitments and other hold points as appropriate.
- Recommend an appropriate procurement procedure, sequencing, and packaging.
- Recommend suitable supervision and management arrangements.

Infrastructure Guidance – Airports

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is **sufficiently well developed**, and if so, whether MCC Due Diligence should commence; (ii) an early indication that the project is **technically viable**; (iii) an early indication that the project **can be implemented within the compact term** (maximum of 5 years); and (iv) whether **activities requiring long execution times (e.g., land acquisition, resettlements) are underway**.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of rationale, including nature and measure of benefits, and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated benefits.
- Identification of the need and principal driver(s) for a new airport or airport expansion, such as capacity restriction, failure to meet ICAO standards, failure to meet security standards, change in aircraft mix, establishment of economic hub, etc.
- Identification of the range of alternatives – expansion, new airport, site and size options, including any environmental considerations related to each alternative.
- Confirmation supported by appropriate data, that commercial or private financing is not available for the project, and the reasons for its unavailability.
- Confirmation supported by appropriate data, that privatization – including concession contracts with EPC arrangements – is not possible, and the reasons why.
- Identification of areas which require obtaining more detailed, current or reliable information. If a new airport (or expansion of an existing airport) is proposed, obtaining approvals from all relevant parties for land may be a significant and time consuming issue; identify the party responsible, process, identify party responsible for providing approval, and a timeline at commencement of the Due Diligence phase.

Once MCC has made the determination to commence due diligence on a project, the Infrastructure Division will commence with the following Due Diligence.

Market Assessment

- Determine airport's potential and growth prospects through thorough market assessment and traffic forecast for major market segments (e.g., domestic passengers, international passengers, transit passengers, cargo, mail, etc.). The analysis should be based on comprehensive compilation of a statistical database on aviation, tourism and economic data from the OAG schedules data, immigration or T-100 data or equivalent, ICAO and IATA traffic data, ACI airport traffic data, regional tourism association annual reports, and aviation forecasts from Boeing, Airbus, Bombardier, Embraer and other aviation organizations.
- Compare the growth prospects and traffic forecast against the country's demographic and economic trends, a 10-year airline service history in the country and the country's relative competitive position to determine conformance.
- Check whether a route development plan has been developed, and assess whether the plan provides a competitive advantage relative to nearby airports. Determine the realistic potential (supported by numbers) for route diversification to address under-supplied or no-service markets.

Logistics and Cargo Distribution

- Assess the potential of the airport to exploit cargo market in order to develop its logistics and distribution activities in the region. Evaluate the likelihood of freighter carriers locating or expanding at the airport.
- Determine the prospects for logistics and distribution activities by examining indigenous environment for consolidators, freight forwarders, consignees, shippers and cargo agents.
- Assess multi-modal transportation and distribution potential, especially with sea port, if applicable.

- Project the potential for transshipment volume, clearly assessing market dynamics by sources of origin and destination.
- Determine capacity requirements for airfreight terminals, cargo agent buildings, freighter aircraft parking bays, freight forwarders' facilities and free trade zone facilities.

Airport Commercial Property Development

- Assess the potential of the airport land use as Business Park for aviation-related industries such as engine overhaul centers and aircraft component manufacturing, as well as non-aviation industries that benefit from close proximity to the airport, such as medical evacuation services.

Commercial Plan

- Assess the airport's commercial plan for aeronautical and non-aeronautical revenues, as well as aviation-related and commercial businesses.
- Evaluate additional job creation potential based on vetted business and commercial plan.

Financial Plan

- *Aeronautical:* Determine the sustainable values for aeronautical charges for landing and parking, passenger service charges and security charges. Ensure that the fee structure can be optimized to recover the costs, and yet remain sufficiently competitive to promote traffic growth and support marketing strategies of the airport.
- *Aeronautical:* Benchmark these charges against other airports in the region to assess viability and impact on demand.
- *Non-Aeronautical:* Non-aeronautical revenues of successful airports often represent on the order of 60% of revenues. Assess existing retail contracts. Determine potential for increase in patronage and passenger-spend at the new or modernized terminal. Calculate the returns on airport space (\$ per m²).

- *Non-Aeronautical:* Construct realistic projections for other commercial opportunities within passenger terminal, including food and beverage retailers, office rentals, car rentals, business lounges, taxi permits, fueling, car parking, counter rentals and banks.
- Calculate FIRR for the airport with a distribution profile with demand as the key driver.

Technical Assessment: Engineering

- Review all aspects of preliminary technical designs and proposed standards and confirm appropriateness of design criteria, demand requirements and environmental factors.
- Compare the proposed design criteria to the standards (ICAO, IATA) to which the airport terminal is designed.
- *Landside Facility Capacities:* Identify the capacity of the existing landside facilities including, but not limited to aviation facilities such as hangars, aircraft parking and fuel facilities, compatible non-aviation facilities such as industrial parks, and common facilities such as automobile parking and access roads.
- *Landside Facility Requirements:* Evaluate existing landside facilities and compliance with applicable safety and design requirements. Based on the safety and capacity computations as well as the forecasts of aviation demand for the airport, identify the needed improvements for the landside facilities (i.e., hangars, aircraft parking, automobile parking and access, and aircraft fueling facilities).
- *Airside Facility Capacities:* Identify the capacity of the existing airside facilities including, but not limited to such aviation facilities as runways, taxiways, aprons, clearways, stopways, holding bays, obstacle free zones, and rescue and firefighting access.
- *Airside Facility Requirements:* Evaluate existing airside facilities and compliance with applicable safety and design requirements. Based on the safety and capacity computations as well as the forecasts of aviation demand for the airport, identify the needed improvements for airside facilities such as

runways, taxiways, aprons, clearways, stopways, holding bays, obstacle free zones, and rescue and firefighting access.

- Confirm acceptability of surface gradient standards and line of sight standards.
- Assess existing condition and capability, as well as future requirements for Navaid and ATC facilities, including microwave landing systems, instrument landing systems, nondirectional beacons, approach lighting systems, lead-in lighting systems, traffic control towers, surveillance radars, surface detection equipment, and Automatic Weather Observation Stations, among others.
- For new airports, ensure all appropriate tests have been carried out, including a thorough wind and weather analysis, including an analysis of crosswinds, coverage and orientation of runways.
- Evaluate local conditions, including local material suppliers, sources, and capabilities; and evaluate drainage alternatives.
- Review electrical lighting layouts and determine system relocation capacities.
- Review and evaluate project layout, including verifying master plan dimensions and data.
- Ensure that soils investigation are complete, including field exploration with test pit explorations (with a rubber-tired backhoe at various locations) and laboratory testings (e.g., compacted CBR test, sieve analysis, Atterberg limit determinations)
- Ensure completeness and quality of the preliminary design report, including geotechnical investigation, topographical survey, pavement section design and analysis, drainage design analysis.
- Conduct an initial cost analysis and life-cycle cost analysis.
- Strategize bidding procedures and pavement section alternatives to provide a basis for competitive bidding.
- Ensure completeness and quality of preliminary plan and profile design for the runway, taxiway, and apron area.

- Ensure completeness and quality of preliminary runway lighting, signing, and system circuitry layout.
- Complete estimates of probable construction costs for the recommended alternatives.

Technical Assessment: Economic and Financial

The economic analysis of the projects will be performed by MCC Economists in accordance with MCC Guidelines for Economic Analysis. Infrastructure input to this analysis may include the following:

- Identifying benefits expected to flow from the project, focusing on increases in incomes for workers, firms, and households. Identifying the beneficiaries, to the extent possible. Comparing projected incomes and other benefits *with* and *without* the proposed project, and assessing the capacity of the local and wider region to absorb the increased level of economic activity.
- Making an assessment of how benefits resulting from increased efficiencies (e.g., reduction in wait and queue time) would impact poverty reduction.
- Summarizing the design standards, design life and cost estimates (capital and maintenance) and confirming that these are consistent with the assumed benefits and duration of the benefit stream.
- Confirming that the costs and project life are consistent with the engineering design.
- Completing a financial analysis.
- Confirming that the technologies that are proposed in the project and the engineering design will allow fulfillment of operational performance, financial, and economic objectives.

Technical Assessment: Environment and Social

The Environmental and Social Assessment (ESA) group will work to ensure that proposed infrastructure projects comply with MCC Environmental Guidelines (www.mcc.gov), which include, an expectation of compliance with host-country

laws, regulations and standards, as well as requirements by which the host country is bound under international agreements. Particular attention must be paid to issues which generally arise including, but not limited to, siting related to adjacent land use (particularly concerning noise), the management and storage of fuel and aircraft fueling.

The MCC Infrastructure Division will also conduct sustainability, risk management and implementation assessments which will involve the following activities:

Sustainability Assessment

- A review of a detailed description of current arrangements for ownership, management and maintenance of airport, including details of the legislative framework, administrative framework, funding arrangements and maintenance responsibilities.
- A review of compliance with applicable security standards (e.g., FAA) that are necessary to sustain and grow demand levels.
- A review of existing performance with respect to clarity and acceptance of arrangements and responsibilities, and acceptance of reserves for maintenance. Identifying causes of inadequate performance including legislative or administrative arrangements, resources, technical capability and capacity, and funding.
- A review of maintenance programs to ensure that such plans are suitable for the new or improved airport, including responsibilities, resources, funding. Identifying shortfalls with current arrangements and providing details of a program to strengthen airport management and maintenance arrangements.
- A review of details of alternative maintenance funding options. Include details of income derived from users and potential for increased cost recovery.
- Prepare a summary of actions needed to maintain the airport to an acceptable level, including institutional strengthening, funding (responsibility and funding levels) and additional resources needed.

Risk Management Assessment

- Identifying significant risks to the project, in particular construction cost increases, delays, sustainability of the airport, trade union issues, local acceptance and take-up of benefits, and other factors affecting economic performance and distribution of benefits.
- Identifying and assessing significant risks relating to durability, and confirming that design criteria adopted shall mitigate these risks within acceptable tolerance levels.
- Preparing a risk management plan to minimize the negative impact of the risks.

Implementation Assessment

- Providing a summary of the technical and construction resources available in country and previous experience with projects of similar size, nature and type.
- Identifying local factors that may affect the timely completion of the works, including transport to/from the location for the contractor's equipment, fuel and other materials, seasonal weather patterns such as avoiding the wet season.
- Preparing an implementation program including contract awards, any approvals and permits needed, construction times, cash flow, government commitments and other hold points as appropriate.
- Recommend an appropriate procurement procedure, sequencing, and packaging.
- Recommend suitable supervision and management arrangements.

Infrastructure Guidance – Water and Sanitation

Certain information and data allow MCC to decide on the following: (i) whether the proposed project is **sufficiently well developed**, and if so, whether MCC Due Diligence should commence; (ii) an early indication that the project is **technically viable**; (iii) an early indication that the project **can be implemented within the compact term** (maximum of 5 years); and (iv) whether **activities requiring long execution times (e.g., land acquisition, resettlements) are underway**.

The eligible country should provide the following data, analysis and assessments in order to allow the MCC Infrastructure Division to make this determination:

- A preliminary description of rationale, including nature and measure of benefits, and beneficiaries.
- Confirmation supported by appropriate data, that the proposed project is likely to deliver the stated benefits.
- Assessment of demand to assure that it can justify the project financially, economically and operationally. The assessment should take into account total installation costs of main lines (including environmental and social mitigation costs), hook-up costs for lateral connections into households (water and sewer), operational and maintenance (O&M) costs, and forecast the future demand growth.
- Assessment of whether the source of water supply targeted by the proposed program contributes to a transboundary water body and ensure that appropriate operational policies and procedures are in place. If such procedures are lacking, the World Bank OP 7.50 on international waterways shall apply.
- Assessment of existing master plans for water supply and wastewater treatment to evaluate capacity available in the water supply system, and respectively, in the wastewater treatment collection and treatment systems, and water reuse schemes, with respect to the projected demand. In cases where there is no water supply master plan available, identify (in preliminary pre-feasibility evaluation) water supply sources to meet the projected demand.

- Confirmation that sufficient reliable hydrology information has been provided in feasibility reports on issues such as riverstage and discharge or borehole yield and drawdown, total solids in suspension, total dissolved solids, and specific substances in suspension and solution, as appropriate.
- Preliminary impact assessment of the proposed water supply and sanitation systems on the appropriate watershed/s.
- Identification of options to meet water supply demand and their respective capital and O&M costs to maximize operating efficiencies for existing and future systems.
- Confirmation that sufficient reliable information has been provided about alternative sanitary sewer systems (other than fully piped collection system and conventional WWTPs) that have been operating effectively in the country, and proven new technologies, from the simplest household latrine to a community wastewater treatment plant, and verify their installation and O&M costs.
- For planned water systems with groundwater supply sources, confirmation that there is no fatal flow in aquifer characteristics, or related environmental issues such as contamination.
- Confirmation that there are no constraining hydrological issues related to capacity of water sources by examining actual data (preferably climatologic data over 25 years), identification of competing water uses (households and industry), and confirmation that there are no constraining contamination impacts on water availability.
- Identification of related policy, legal, regulatory, and institutional frameworks, and evaluation of their potential key impacts and implications on project implementation.
- Preliminary evaluation of capacity for the utility or other agency responsible for the oversight of the water supply and sanitation systems at the local, sub-national, and/or national levels.
- A preliminary evaluation of the financial sustainability and/or rate impact of the proposed investment. A preliminary review of the tariff structure and the

potential barriers to serving the poor/promoting economic growth – including but not limited to lifeline tariffs, connection charges, and fixed charges.

- Identification of data gaps and areas that require more detailed, current or confident information.