



Good Practice Document for CAT-I

Capacity Assessment Tool for Infrastructure

2018

THIS DOCUMENT IS CURRENTLY BEING UPDATED. IF YOU HAVE ANY CASE STUDIES OR EXAMPLES THAT YOU WOULD LIKE TO INCLUDE PLEASE CONTACT CATI@UNOPS.ORG

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Preface

The Capacity Assessment Tool for Infrastructure (CAT-I) is a tool developed by UNOPS to help countries facilitate better infrastructure development. The tool is designed to help governments identify gaps in the capacity of their enabling environment to plan, deliver and manage their infrastructure systems.

The purpose of the Good Practice Document for CAT-I is to provide guidance to assessors and governments on infrastructure system good practice. The compilation includes examples of policies, governance, legal structures, and other initiatives existing at the national level, covering the three stages that represent the lifecycle of infrastructure, namely infrastructure planning, infrastructure delivery and infrastructure management. The case studies, spanning 37 countries, provide a reference for the assessors and national governments to answer questions on the 3 stages, 11 indicators and 93 sub-indicators while carrying out an assessment using the CAT-I framework.

1 Planning

This stage captures how a country creates its National Vision, Strategy, and Plans. It looks at the governance around the creation, implementation, and monitoring of these strategies and how the government identifies infrastructure solutions to support achievement of the development targets.

1.1 National Visioning

This indicator is used to understand how the National Development Vision was created and will be implemented. A vision provides the direction for a government's development strategy. Without a vision, it is difficult for a country to establish objectives and a strategy for success.

Sub-indicator	Sub-indicator description	Examples of good practice
1.1.1 Governance	This sub-indicator is used to understand whether an organization exists and is effective in the creation, implementation, and monitoring of the National Vision. Clear ownership of the National Vision in addition to having sufficient resources will support its achievement	<p>Singapore</p> <p>In Singapore, the Ministry of National Development along with its agencies is responsible for the development of the national vision, principles, and development plan. The ministry has previously established several national visions:</p> <ul style="list-style-type: none"> - Singapore a garden city 1963 - Sustainable Singapore 2015: Lively and Liveable Singapore, one that Singaporeans love and are proud to call home <p>Details on the current vision are available on their website - HERE</p> <p>Saudi Arabia</p> <p>The government of Saudi Arabia established the Council of Economic and Development Affairs to create the Saudi Vision 2030. The council is also responsible for monitoring the progress of the national vision 2030. More details: HERE</p> <p>Malaysia</p> <p>In Malaysia, the Economic Planning Unit, under the Ministry of Economic Affairs, is the government agency responsible for the preparation of development plans for the country, including the establishment of the National Vision 2020. The unit was established in 1961</p>

with the objective of managing the country's socio-economic development in a strategic manner. Details on the Economic Planning Unit are available on their website - [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.

1.1.2 Legal

This sub-indicator is used to understand whether the required legal mechanisms (policies, legislation, regulations and codes) are in place to support the development and implementation of the national vision. It will also be used to understand the legal process and status for approval of the vision. This will also cover delegations of authority and responsibility which support the achievement of the vision

Ireland

Statutory process for the making of the Ireland vision 2040 and its implementation are put in place under the Planning and Development (Amendment) Bill 2016. Details [HERE](#) (page 125, sec. 9.2)

Singapore

In Singapore, the legal process for the development and implementation of the national vision is established within the Planning Act (Chapter 232) (Original Enactment: Act 3 of 1998). It is compulsory for all infrastructure ministries within Singapore to adopt the Singaporean Vision and Development Plan based on the 1959 Housing Development Act and the 1959 Development Fund Act. Details on the 1998 National Planning Act are available [HERE](#)

Malaysia

According to the development planning system, defined in the Town and Country Planning Act 1976 (Act 172), the national strategic planning process includes the establishment of the national vision. The Prime Minister, with the Deputy Prime Minister as the deputy chairman, chair the process. Details on the act are available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.

1.1.3 Financial

This sub-indicator is used to understand if funding is allocated to initiatives, programmes, and projects which specifically support achievement of the National Vision.

Ireland

Ireland vision 2040 funding initiatives:

Example: [HERE](#) (pg. 130-131 sec. 9.3)

The government established the ten year National Investment Plan 2018-2027 to support the implementation of the Ireland vision 2040. The National Investment Plan builds on the review of the existing Capital Plan, and aims to improve the utilization of public investment.

Saudi Arabia

To achieve the National Vision 2030, the government of Saudi Arabia established the Public Investment Fund (PIF) programme. The programme outlined the national and international investment strategies to ensure sufficient resources are available to achieve the national development target and growth in 2030. Some of the objectives of the programme is to:

- Ensure economic diversity in the Kingdom by developing strategic sectors
- Grow PIF into one of the largest sovereign wealth funds in the world
- Build strong economic partnerships to enhance the impact and role of Saudi Arabia internationally

Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.4 Creation Process

This sub-indicator is used to understand the creation process of the National Vision and what information was used. A well informed and evidence based creation process will improve the effectiveness of the National Vision.

Ireland

In Ireland, the Ireland 2040 vision was developed based on from the detailed assessments and research done by government agencies, academic and professional consultants. One of the key steps in the creation of Ireland vision 2040 was the analysis and modelling exercise undertaken by the Ireland Economic and Social Research Institute (ESRI) which projected likely future development scenarios to 2040. This analysis and few other assessments provide strong evidence in the establishment Ireland vision 2040, including Strategic Environmental Assessment (SEA), Appropriate Assessment (AA) and Strategic Flood Risk Assessment (SFRA). Public consultation was carried out at different stages of the creation process to amend and update the

vision document accordingly. Details: [HERE](#) (Chapter 2 pg. 28 and pg. 10)

Kenya

The Kenya Vision 2020 was created from a comprehensive consultative and inclusive stakeholders engagement with international and local experts, Kenyan citizens from different part of the country and background. The development process also include consultations in all provinces in Kenya before the vision 2030 was established formally by the government.

Details : [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.5 Implementation

This sub-indicator is used to understand if there are formal national planning mechanisms, which supports the implementation of the National Vision to supports its achievement.

Jamaica

The government established a series of three year medium term socio-economic policy framework to support the implementation of the national vision 2030. The framework will include key performance indicators and target for each year to measure and track the vision implementation. The government also established 31 sector plans to support the implementation of the vision at the sectoral level. The sectoral plans will be implemented and monitored by government ministries, departments and agencies as well as NGOs, private sector and international development partners.

Details: [HERE](#)

Malaysia

In 2010, the government launched twin programmes to support the implementation of the Malaysian National Vision 2020 – the Government Transformation Programme (GTP) and the Economic Transformation Programme (ETP). The Performance and Management Delivery Unit (PEMANDU) was set up as a special-purpose vehicle in 2009 at the Prime Minister’s Department to design and implement the GTP (and after that the ETP as well). PEMANDU orchestrated the entire process of the GTP and ETP, from the design to monitoring implementation and reporting. Details on the implementation strategy for the National vision are available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.6 Alignment

This sub-indicator is used to understand if there are mechanisms to ensure alignment between the National Vision and the supporting plans to ensure achievement.

Malaysia

In Malaysia, there are mechanisms in place which ensure consistency and the alignment of plans from long-term to medium-term and to short-term. The long-term vision informs the long-term plans which then inform the strategic targets and direction of the short-term plans. This, in turn, determines which projects are to receive funding as part of annual budgets. This hierarchy of vision to long and then short-term plans helps to ensure that the short-term targets and projects support the long-term national vision. Details on the alignment of the vision with the long and short-term plans are available [HERE](#) (pg. 2)

Qatar

In Qatar, the national vision was developed using input from different ministries and sector strategies to ensure it will be accepted and implemented successfully at each level of government through their corresponding sector plans. The figure shows Qatar integrated national development strategy. Details on the alignment of the Qatar National Vision 2030 are available [HERE](#) (pg. 3-4)

Latvia

The Law on the Development Planning System states that the Latvian Government needs to establish long term development plan (25 years), medium term development plan (up to seven years) and short term plan (up to three years). The long-term development plan (Latvia 2030) established by the government must align with medium term plan (National Development Plan of Latvia 2014-2020) which is a compilation of sector guidelines and plan, and short term plan (Government Action Plan and Declaration). Figure below shows the national development planning in Latvia. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.7 Monitoring

This sub-indicator is used to understand how

Trinidad and Tobago

achievement of the National Vision is monitored so that progress can be tracked.

The Ministry of Planning and Development established the National Performance Framework (NPF) based on targets in the Trinidad and Tobago National Development Goals and the UN SDGs. To ensure the success of the national vision 2030, all ministries and department in the countries need to establish ministry-level performance framework based on NPF. Details: [HERE](#)

Malaysia

The Malaysian Plans (implementation plan for national vision and national plan) is comprised of six “strategic thrusts”. Each strategic thrust has several focus areas which have clear targets with specific indicators to measure whether the strategies employed are achieving their objectives. The use of the targets in the strategic thrusts allows monitoring and evaluation to be built into the planning process. To assist in the evaluations, in 2005 the government approved guidelines for conducting program evaluations to create a methodology for evaluating outcomes rather than outputs of programs. Its aim is to improve the quality of future development plans, which can take into account information about the impact of previous programs. Details on the Malaysian monitoring and evaluation program are available [HERE](#) (pg. 4, ‘Rigorous monitoring and evaluation’)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.8 Reporting

This sub-indicator is used to understand how information about the National Vision and its progress is communicated to stakeholders to ensure buy-in and transparency.

Malaysia

In Malaysia, the Economic Planning Unit is the principal government agency responsible for the preparation of development plans for the nation including the establishment of the National Vision. The unit is also responsible for publishing a report on national vision progress annually. The Performance Management and Delivery Unit (PEMANDU) has been set up to monitor and report on the Key Performance Indicators of the National Vision. Details on how progress will be reported are available [HERE](#) and an example progress report is available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.1.9 Stakeholder management

This sub-indicator is used to understand how stakeholders were consulted during the creation and roll out of the National Vision to ensure that it is representative of their aspirations.

Qatar

Qatar’s planning process strives to be highly participatory and inclusive across the society. The Vision was developed based on the engagement with the public, government organization and private sector in creating a sense of awareness, voluntary preservation, and progressive action towards dealing with development issues. Details: [HERE](#) (page 4)

The Bahamas

The government engaged with different stakeholders in the process of creating national vision 2040. The government organised workshops, community engagement and sector meetings, online surveys, the arts, and essay submissions. The Bahamas government also includes promotion of Vision 2040 through a website and social media channel. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.2 National Development Planning

This indicator is used to understand how the national development planning process is completed and implemented. The planning process provides the strategy for how to achieve the National Vision. Without specific plans, the National Vision is simply a dream. Ideally, the national development planning process should include important elements such as sources of funding, implementation strategy, reporting strategy, etc. The final product of the national development planning process, the National Development Plan, needs to be developed in consultation with the private sector, NGOs, IGO’s, interest groups, government ministries, and the public.

Sub-indicator	Sub-indicator description	Examples of good practice
1.2.1 Governance	This sub-indicator is used to understand whether an organisation exists and is effective in the creation, implementation, and	South Africa The government established the National Planning Commission of South Africa which is responsible for strategic planning for the country including producing the national development plan. The head of the commission reports to the President, and works with various ministries to establish the national development

	<p>monitoring of a National Development Plan. Clear ownership of the National Development Plan in addition to having sufficient resources will support its achievement.</p>	<p>plan. Details on South Africa National Planning commission HERE</p> <p>Latvia The Cross Sectoral Coordination Centre (CSCC), Republic of Latvia is the main institution responsible for the national development planning and coordination in Latvia. The centre reports directly to the Prime Minister’s Office. The centre is responsible for overseeing the national development planning process, making changes when needed and supporting different ministries in development planning and implementation of national development plan. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>1.2.2 Legal</p>	<p>This sub-indicator is used to understand whether the required legal mechanisms (policies and legislation) are in place to support the development and implementation of the national development plan.</p>	<p>Namibia The National Planning Commission Act 2 of 2013 provides the legal basis for the National Planning Commission of Namibia to establish the National Development Plan for the country. Details: HERE</p> <p>Uganda The National Planning Authority (NPA) in Uganda was established by the Article 125 of the Constitution of the Republic of Uganda (1995) and the subsequent Act of Parliament (Act No. 15 of 2002) to produce the national development plan. The act also awards the responsibility of monitoring the medium term and short term planning to the NPA. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>1.2.3 Financial</p>	<p>This sub-indicator is used to understand if funding is allocated to initiatives, programmes, and projects which specifically support achievement of the National Development Plan.</p>	<p>Latvia The government has made provisions for the medium-term national development financing to support the implementation of the National development Plan 2020. The funding is expected to come from:</p> <ul style="list-style-type: none"> • The state and local government budgets; • The European Union policy instruments: the Cohesion Fund, the Common Agricultural Policy and Common Fisheries Policy funds and other European Union funds; • Private funding. Social partners, other government partners and members of the

general public (who contribute considerably to the national development at the micro-level).

- Public private partnerships have also one been identified as a potential source of finance.

Details: [HERE](#) (pg. 67)

Ireland

The government of Ireland established a well-defined a funding model for the National Development Plan to drive the delivery of specific core priorities detailed in the National Planning Framework. The government are allocating resources amounting to an estimated €4 billion over the 10-year period of the National Department Plan. The four funds set up as per the model are:

- Rural Regeneration and Development Fund
- Urban Regeneration and Development Fund
- Disruptive Technologies Innovation Fund
- Climate Action Fund

Details: [HERE](#) (pg. 17)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.2.4 Creation Process This sub-indicator is used to understand the creation process of the National Development Plan and what information was used. A well informed and evidence based creation process will improve the effectiveness of the National Development Process and support it in achieving the aims and objectives of the National Vision.

Ireland

The starting point for the implementation of the National Development Plan is the identification of infrastructure and investment priorities. To ensure the success of new national development plan, the Irish government also created the national planning strategy to collect evidence as a basis in creating the new national development plan. The strategy to produce the National Development Plan undertaken by the Irish government includes:

- Review of Existing Capital Plan
- Undertaken infrastructure demand and capital analysis
- IMF public investment management assessment
- Public partnership review

Combination of the analysis and review above with the prioritisation by different sectors provide a comprehensive national picture of critical infrastructural needs which can guide and inform the preparation of the national development plan.

Details: [HERE](#) (pg. 13 Chapter 2)

To see guidance on where to look for information to help answer questions for the current assessment

please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.2.5 Implementation This sub-indicator is used to understand if there are formal mechanisms which support the implementation of the National Development Plan.

Uganda

The government of Uganda produced the implementation strategy for Uganda National Development. The strategy include:

- The legal and policy framework
- Planning and budgeting strategy
- The role of sectors, ministries, departments, agencies and local governments in the implementation of national development plan.
- Communication strategy

Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.2.6 Compliance This sub-indicator is used to understand if there are compliance mechanisms to support the implementation of the National Development Plan. By making the implementation of the National Development Plan enforceable there is an improved chance of it being implemented.

Uganda

The Comprehensive National Development Planning Framework (CNDPF), 316 (CT 2007) outlined the need to design and regularly monitor the implementation of the national vision and the national development plan of Uganda. The CNFPF, 316 (CT 2007) is one of the legal instruments developed by the government to ensure the preparation of an implementation strategy for the alignment of the national development initiatives, plan and budgets with clearly defined roles for the Ministries, government departments, government agencies. The CNDPF is also aligned with the Uganda National Constitution that places the responsibility of implementation of the national development plan on Uganda’s Cabinet Ministers and permanent secretaries. Details: [HERE](#) (page 10)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.2.7 Monitoring This sub-indicator is used to understand how achievement of the

Vanuatu

The Department of Strategic Policy, Planning and Aid Coordination, Government of the Republic of Vanuatu

	<p>National Development Plan is monitored so that progress can be tracked.</p>	<p>formulated the National Sustainable Development Plan 2030 Monitoring and Evaluation Framework to ensure the effective implementation of the national development plan. The monitoring and evaluation framework specifies the process needed to ensure that the targets and policy objectives are embedded across every part of the government and its partnership with the local citizen, private sector and international development agencies. The figure shows the National Sustainable Development Plan monitoring and evaluation flow process diagram for Vanuatu. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>1.2.8 Reporting</p>	<p>This sub-indicator is used to understand how information about the National Development Plan, its implementation, and progress is communicated to stakeholders to ensure buy-in and transparency.</p>	<p>Uganda</p> <p>In Uganda, the National Planning Authority is responsible for preparation, co-ordination and evaluation of the country’s development plans. The unit are also responsible to publish a report on national development plan progress annually. Details on the Ugandan development reporting strategy are available on page 252 of the National Development Plan HERE</p> <p>Vanuatu</p> <p>The National Sustainable Development Plan 2030 Monitoring and Evaluation Framework developed by the Department of Strategic Policy, Planning and Aid Coordination, Government of the Republic of Vanuatu states that every ministry is responsible for regular tracking and reporting on the implementation of National Development Plan. The ministry reports are compiled into a broad, high level Annual Development Report. Details: HERE (pg. 6 Section 4)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>1.2.9 Stakeholder Management</p>	<p>This sub-indicator is used to understand how stakeholders were consulted during the establishment and the implementation of the</p>	<p>Zambia</p> <p>Different stakeholders were consulted during the development of national development plan. The stakeholder engagement process used the top-down approach to get the information on common development challenges and opportunities that can be</p>

National Development Plan to ensure that their needs were being met.

addressed at all levels. The stakeholder engagement provided the opportunity for the government to incorporate best practice and promote ownership among different ministries in the country on the national development process. The stakeholder engagement strategy also used the bottom-up approach comprising of collecting data and information from cities, districts and provincial levels to ensure that issues among the local community will be addressed in the new national development plan. Different community groups such as government personnel, academics, the private sector, the youth organisation, women organisation, disable community and local citizens were invited to provide input in the development process of Zambia's national development plan. The government engaged different stakeholders through a series of workshops, meetings, interviews, surveys, round table discussion and solicited written submissions. Details: [HERE](#)

South Africa

The South African National Planning Commission implemented a stakeholder engagement strategy in order to gather information from different stakeholders in the process of the establishment of the national development plan. One of the initiatives was to communicate the establishment of the national development plan in the media and social media platform to ensure that all stakeholders are aware about the establishment of the new national development plan. The commission visited all the south African provinces to reach community leaders, senior government officials, mayors, municipalities' managers, minority groups' leaders and private sectors to gather information on what can be done to improve the development in south Africa. The commission also established Facebook and twitter accounts in order to provide platform for all citizen to raise issues and suggestions on the national development plan. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.

1.3 National Infrastructure Planning

This indicator is used to understand the national infrastructure planning process. The planning process should provide the implementation strategy through specific infrastructure programmes and projects for how to achieve the aims and objectives of the National Vision. Ideally, national infrastructure planning should include important elements such as sources of funding, implementation strategy, and reporting strategy in addition to specific infrastructure sectors for investment. The national infrastructure planning process needs to be completed in consultation with the private sector, NGOs, IGO's, interest groups, government ministries, and the public.

Sub-indicator	Sub-indicator description	Examples of good practice
1.3.1 Governance	This sub-indicator is used to understand whether an organisation exists and is effective in the creation, implementation, and monitoring of the national infrastructure planning process. Clear ownership of the national infrastructure planning process in addition to having sufficient resources will support its achievement.	<p>Australia Infrastructure Australia (IA) is an independent statutory body established by the government of Australia to support the government in the establishment of the national infrastructure plan. The organisation also provides advice to government bodies, sector ministries, private sectors and investors on the projects and Australia needs to fill the infrastructure gap. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>
1.3.2 Legal	This sub-indicator is used to understand whether the required legal mechanisms (policies and legislation) are in place to support the national infrastructure planning process.	<p>Australia Under the Australian Infrastructure Act 2008, Infrastructure Australia (IA) has the responsibility to strategically audit Australia's nationally significant infrastructure, and to develop 15-year rolling Infrastructure Plans that specify national and state level priorities. Details about the Infrastructure Australia Act 2008 : HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>

1.3.3 Financial

This sub-indicator is used to understand if funding is allocated to initiatives, programmes, and projects which specifically support achievement of the recommendations made as part of the national infrastructure planning process.

United Kingdom

The Infrastructure and Projects Authority (IPA) in the UK has developed the Funding and Finance Supplement to support the implementation of the National Infrastructure Delivery Plan (NIDP) for the infrastructure sectors including energy, communications, transport, water and waste. The Supplement outlines the details of the expected planned investment and the sources of finance, including public sector finance, corporate finance and project finance. Details on the fund for the rail sector are available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.4 Creation Process

This sub-indicator is used to understand the national infrastructure planning process and what information was used. A well informed evidence-based creation process will improve the effectiveness of the national infrastructure planning process to achieve the aims and objectives of the National Vision.

Australia

The Australian Infrastructure Plan is Australia's 15-year rolling infrastructure plan developed by Infrastructure Australia (AI). The plan was developed following consultation on the Australian Infrastructure Audit in different sub-sectors. The Plan was developed through a process of research and consultation over a period of 18-months. The Northern Australia Audit and Australian Infrastructure Audit were released in 2015 provided the primary evidence base for the Plan. The Northern Australia Audit identified a program of investments and reforms to transform the north of Australia, and the Australian Infrastructure Audit comprehensively examined the nation's infrastructure across the energy, telecommunications, water and transport sectors. Based on the two audits, for the Infrastructure Plan was developed with the aim of enhancing the quality, capacity and efficiency of infrastructure and overhauling the way infrastructure is planned, funded, constructed, operated and maintained.

Details: [HERE](#) (pg. 4-5)

New Zealand

The national government of New Zealand developed the New Zealand Infrastructure Plan through a comprehensive process with different stakeholders including the national government, local government, academics and private sector. A series of engagement initiatives with different stakeholders established by the government in order for the government to collect evidence for future infrastructure planning. For example the government organised New Zealand

Infrastructure Forum and regional workshops, established written feedback initiatives to ensure citizen can provide input to the establishment of the national infrastructure plan, and a significant number of individual discussions with key stakeholders, businesses, local authorities and individuals. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.5 Implementation This sub-indicator is used to understand if there are formal mechanisms which support the implementation of the recommendations made as part of the national infrastructure planning process.

New Zealand

In the New Zealand’s Infrastructure Plan 2016, the government determined a number of actions that will be implemented to ensure the success of the plan. Some of the initiatives are:

- Strengthening asset management practices to ensure consistent base to build evidence, undertake forecasting and build capability. Under this initiative, the government will also establish regional centres of excellence or similar arrangements for collating and making available the data obtained through shared metadata standard.
- Optimising decision making by creating changes to the resource management act to improve the national planning framework and enable more responsive and efficient infrastructure and housing supply. This initiative will also strengthen the transparency and quality of infrastructure delivery data through the annual production of capital intentions plan and enhance the procurement methodology,

Details: [HERE](#) (page 51)

Australia

The government of Australia established a three-tier approach to ensure the successful implementation of the national infrastructure plan:

1. National government principles – the principle will outline best practice planning and decision making to guide infrastructure practitioners in infrastructure project implementation. The Australian government through their agencies in every states and territories will ensure the compliance with the principles. The government will also make project funding contingent on adherence to the principles.
2. Project specific conditions – project funding is based on government evaluation of the outcomes of the national infrastructure projects. The evaluation will ensure that the benefits to the local community will be maximised. Some examples of the evaluation criteria may include the delivery of the wider land-use outcomes or project that will meet sustainability outcomes.
3. Infrastructure reform incentive – the government of Australia will provide additional infrastructure investment above project allocation for projects that meet the reform agenda as outlined in the national infrastructure plan.

On top of that, the Australian government supported the state governments and territories in terms of financial resources to ensure the success of the national infrastructure plan. Details [HERE](#) (pg. 12)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.6 Compliance

This sub-indicator is used to understand if the recommendations made by the national infrastructure planning process are enforceable and are enforced. By making the implementation of the recommendations made by the national infrastructure planning process enforceable there is an improved

New Zealand

To ensure the success of the national infrastructure plan and efficient delivery, the New Zealand government recognises that effective regulation is critical for the implementation of the national infrastructure plan. For the new National Infrastructure Plan published in 2016, the government moved from stewardship approach to regulation approach. The regulatory reviews to ensure the success of the national infrastructure plan include:

1. Competition law provisions relating to the market power (MBIE) review
2. Resource Management Act Review to improve decision making

chance of them being implemented.

3. Review of the regulatory arrangements for private land access

Details: [HERE](#) (page 57)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.7 Monitoring

This sub-indicator is used to understand how achievement of the recommendations made by the national infrastructure planning process are monitored so that progress can be tracked.

United Kingdom

The Major Infrastructure Tracking team within the Infrastructure and Projects Authority (IPA) is responsible for monitoring progress on the National Infrastructure Delivery Plan. The monitoring and reporting is carried out annually for the major infrastructure projects of national significance in each of the infrastructure sectors. The information of the progress of projects is reported back to the relevant ministers, the IPA, and other government bodies, and used to ensure appropriate interventions, as necessary.

Details: [HERE](#) (pg. 107, Chapter 15)

New Zealand

The government of New Zealand established the National Infrastructure Unit (NIU) to monitor the plan implementation and report on progress of the delivery and outcomes through an annual infrastructure report which will be made available to public and stakeholders.

Details: [HERE](#) (pg. 065)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.8 Reporting

This sub-indicator is used to understand how information about the national infrastructure planning process, the implementation of its recommendations, and progress made is communicated to stakeholders to ensure buy-in and transparency.

New Zealand

The government of New Zealand, through the National Infrastructure Unit (NIU), produces the annual National State of Infrastructure report to highlight the progress of the 30-year national infrastructure plan. The report contains key achievements and challenges on each infrastructure sector. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.9 Stakeholder Management

This sub-indicator is used to understand how stakeholders were consulted during the national infrastructure planning process to ensure that it is inclusive of their aspirations.

Australia

The Australian Infrastructure Plan was developed through a process of collaborative research and stakeholder consultation. The national government reached out to stakeholders for formal feedback on the two Audits, which provided evidence for the Plan and outlined a program of investments and reforms in Australia. Inputs from a wide range of stakeholders from every state and territory has been received and incorporated in the Plan making process. The consultation was carried out by the government with stakeholders including representatives from all levels of government, businesses, industry, public interest groups and the wider community. Details on the stakeholder management strategy are available [HERE](#) (pg. 5)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.10 Land Acquisition

This sub-indicator is used to understand the legal framework for land management in support of infrastructure planning. This indicator will evaluate whether the process of land acquisition for the development of essential infrastructural facilities ensuring the least disturbance to the owners of the land and other affected entities.

Singapore

In Singapore, the 1985 Land Acquisition Act provided the legal framework for the acquisition of land for public use, the assessment of compensation to be made on account of such acquisition, and for the purposes connected therewith. According to the Act, the private landowners whose lands are acquired for public infrastructure development are to paid compensation as per the market value of the land. The responsibility of enforcement of the Land Acquisition Act, and ensuring fair acquisition and compensation lies with the Singapore Land Authority. Details on the 1985 Land Acquisition Act are available [HERE](#) and additional information about the impact and use of the act is available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.3.11 Private Infrastructure Development

This sub-indicator is used to understand the ability of the private sector to lead initiatives for

Australia

In Australia, the government has developed a Public Private Partnerships (PPP) framework to support private

infrastructure development.

investment opportunities for the development of infrastructure assets. Through the PPP framework, the private sector is engaged by the public sector agencies for the building, operating, financing and maintaining the infrastructure assets over the long term. Details on the government supported programme to attract private investment in infrastructure are available [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4 National Infrastructure Sector Strategy

This indicator is used to understand how ministries have created their sector plans to support the national infrastructure planning process to help achieve the National Vision. It will assess the alignment of plans to be mutually supporting and the coherence across plans. It will also be used to understand the extent that infrastructure was included as critical parts of those plans to ensure the development targets are achieved.

Sub-indicator	Sub-indicator description	Examples of good practice
1.4.1 Governance	This sub-indicator is used to understand whether an organisation exists and is effective in the creation, implementation, and monitoring of a Infrastructure Sector Delivery Strategy (Sector Plan). Clear ownership of the infrastructure delivery strategy, in addition to having sufficient resources, will support its achievement.	<p>Example from Transport Sector:</p> <p>Canada Transport Canada is the department in the government of Canada that is responsible for the planning, management and delivery of Canada’s integrated transport infrastructure development to achieve sustainable transport solutions for road, rail, air and sea. Transport Canada is responsible for the creation of Canada’s transport sector plan called Transportation 2030: A Strategic Plan for the Future of Transportation in Canada. The aim of the plan is to develop Canada’s transportation system that supports the economic growth, job creation and the mobility of Canada’s citizens. Details: HERE</p> <p>Singapore In Singapore, the development of the public transport infrastructure plan is the responsibility of the Land Transport Authority (LTA), a statutory body under the Ministry of Transport. The LTA has published the Land</p>

Transport Master Plan 2013 that sets out the vision for land transport in Singapore for the next 20 years.

Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.2 Legal

This sub-indicator is used to understand whether the required legal mechanisms (policies and legislation) are in place to support the development and implementation of the Infrastructure Sector Plan.

Singapore

The Singaporean government established the Land Transport Authority Act for Singapore to clearly define the roles and responsibilities of the Land Transport Authority. Clause 6 (1)(a) states that the authority is responsible to plan, design, construct, maintain and improve the roads, railway and bus services for the country. Details: [HERE](#)

Lithuania

The government of Lithuania approved the Resolution of the Government of the Republic of Lithuania No 244 of 12 March 2014, which provides the ministry of Transport and communication the responsibility to plan and deliver transport and communication programme in the country. The programme focuses on the planning of transport and communications including integrated urban transport, application of intelligent transport systems to all modes of transport, traffic safety and security, increase in energy efficiency in the transport sector, and development of environmentally-friendly transport. Details about the programme is [HERE](#) and details about the resolution are [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.3 Financial

This sub-indicator is used to understand if funding is allocated to initiatives, programmes, and projects which specifically support achievement of the Infrastructure Sector Plan.

Malawi

The implementation of the projects in the Malawi National Transport Master Plan is supported by several potential funding sources such as:

- Funding from international developing partners for example, World Bank (WB), the African Development Bank (AfDB), European Commission (EC), Japan International Cooperation Agency (JICA), Republic of India, People's Republic of China, Kuwait Fund, Arab Bank of Economic Development in Africa (BADEA) and Organisation of the Petroleum Exporting Countries (OPEC) Fund.
- Public sector funding from crosscutting programmes of other sectors such as mining and agricultural
- Issuance of bonds to raise capital for project funding
- Private sector participation can be arranged through PPP or different transfer options such as Build Operate Transfer (BOT), Build Own Operate Transfer (BOOT), concession and privatisation.

Details: [HERE](#) (page 15)

To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.

1.4.4 Creation Process

This sub-indicator is used to understand the creation process of Infrastructure Sector Plan and what information was used. A well informed an evidence based creation process will improve the effectiveness of the Infrastructure Sector Plan and its ability to support the country achieve the aims and objectives of the National Vision.

Uganda

The Uganda's national transport masterplan was developed by taking into account of the needs of both local community and providers of transport services, the roles of the different modes, and the implications of regional integration. The plan was also developed based on analysis done by academic institutions and government agencies. The analysis include:

- National policies and strategies for transport development
- Demographic and economic forecast
- Current and future transport demands
- Coordination and competition between modes of transportations

- Land and environmental issues

Details: [HERE](#) (demographic, page 8; current and future demand, page 12; land issues and environmental issues, page 93)

Singapore

While developing the Land Transport Plan for Singapore, the government gathered information from various sources to establish the transport sector plan:

- The results of the 2012 Household Interview Travel
- Survey to collect information on land transportation from Singaporean
- Review existing infrastructure condition and function
- Working with academic to come out with the right solutions for the future
- Working with the private sector to find innovative solutions to improved land transportation system in Singapore

Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.5 Implementation This sub-indicator is used to understand if there are formal mechanisms which support the implementation of the Infrastructure Sector Plan.

Australia

The government of Australia runs one to four year programs for the implementation of the transport sector plan based on the complexity of the projects. All the programmes and projects are determined by the government to deliver the highest benefits to the nation. The majority of these projects and programs have firm funding commitments by the national government or private sector through public private participation (PPP) mode. Details : [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment

please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.6 Compliance

This sub-indicator is used to understand if the implementation process of the Infrastructure Sector Plan is enforceable and is enforced. By making the implementation of the Infrastructure Sector Plan enforceable there is an improved chance of it being implemented.

Australia

The Coordinator-General has the authority to plan, deliver and coordinate large-scale infrastructure projects, under the Development and Public Works Organisation Act 1971. The Coordinator-General also has the responsibility to for ensuring compliance with the development conditions and that the environmental impacts of infrastructure projects are properly managed. These powers could therefore be used to improve project delivery certainty and reduce delivery timeframes. The local authority in every state such as municipalities, city council, etc. is responsible for ensuring that the infrastructure assets are built according to the standards and codes, and are based on the recommendations in the transport development plan. Details : [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.7 Monitoring

This sub-indicator is used to understand how achievement of the Infrastructure Sector Plan is monitored so that progress can be tracked.

Uganda

The Ministry of Works and Transport (MoWT) has the responsibility to develop the national transport infrastructure plan, formulate the transport policy, manage transport database and monitor the implementation of transport sector plan. A Transport Master Plan Unit (TMPU) within the ministry will work with other ministries and government department at different levels to ensure the success of the transport infrastructure plan. It would be employed experts in transport sector planning, monitoring and evaluation to ensure the success of the plan. Details: [HERE](#) (pg. 72, section 12.2.3)

Samoa

The government of Samoa established the performance monitoring framework for the implementation of the water and sanitation sector plan. It includes a set

targets for every four years, and comprises 61 performance indicators that guide the formulation of the annual budget. Every two years of the implementation of water and sanitation sector plan, an independent evaluation will be carried out by third party to ensure the success of the sector plan. Specific terms of reference will be developed by the government which contains assessment criteria. The criteria include delivery efficiency, impacts, outcomes and sustainability issues. Details: [HERE](#) (pg. 55)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.8 Reporting

This sub-indicator is used to understand how information about the Infrastructure Sector Plan, its implementation, and progress is communicated to stakeholders to ensure buy-in and transparency.

Uganda

The Ministry of Water and Environment produced a sector specific management framework to ensure the successful implementation of the water and environment sector plan. The ministry will prepare and disseminate the quarterly and annual reports to the sector working group and top policy management team for appropriate action and adjustment to the implementation or budget. The budget monitoring and accountability unit will also publish a report every year on the effectiveness of utilization of funds allocated to the sector for service delivery including the progress of the implementation of the sector plan. Details: [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

1.4.9 Stakeholder Management

This sub-indicator is used to understand how stakeholders were consulted during the creation and roll out of the Infrastructure Sector Plan to ensure that it is

Singapore

The Land Transport Authority (LTA) set up its Community Partnership division to actively engage the community. Dedicated teams are assigned to each Group Representation Constituency and Single Member Constituency to work with community leaders to resolve day-to-day local road and traffic issues and to reach out to the community. The authority has interacted with

representative of their aspirations.

many in the community about transport issues in the last five years before the establishment of transport sector plan. The LTA has also conducted a number of public consultations in the last few years before the establishment of sector plan in which members of the public have been invited to participate, whether through surveys or focus group discussions. Members of the public have also been invited to participate in other activities, such as visits to rail construction sites, to gain more insight into the work that LTA is doing to expand the transport network. The widest reach of LTA engagement occurs every day through our calls and emails with the public. Members of the public are welcome to call and write in to them with their questions and suggestions, especially to highlight needed actions. In 2012, LTA answered nearly 200,000 email queries and took over one million calls at our 24/7 call centre. They also engage the public through our Facebook page “We Keep Your World Moving” and on Twitter. Details: [HERE](#) and [HERE](#)

To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.

2 Delivery

This stage captures the capacity to deliver the infrastructure projects as identified in the National Infrastructure and Sector Plans.

2.1 Infrastructure Delivery Management

This indicator is used to understand how the specific line ministries manage the delivery of their Infrastructure Sector Plan.

Sub-indicator	Sub-indicator description	Examples of good practice
2.1.1 Governance	This sub-indicator is used to understand if there is a body within the ministry to ensure that the portfolio of infrastructure projects are managed to ensure successful delivery.	<p>South Africa</p> <p>The Passenger Rail Agency of South Africa (PRASA), under the Rail Branch of the Ministry of Transport, is the organization that is responsible for the implementation and delivery of rail sector projects in the country. Long-term funding has been allocated for the delivery of projects and programmes such as Station Modernization, Signalling Programme, Fleet Renewal Programme and Moloto Rail Corridor. Details HERE</p> <p>The various divisions of PRASA are well equipped with staff to manage its operations; PRASA Rail, for instance, employs 15,000 people (details here). The organizational structure of PRASA and its divisions can be found HERE.</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.1.2 Programme Management	This sub-indicator is used to understand the tools and processes that the ministry has at its disposal to effectively manage a portfolio of projects to ensure the projects are delivered on time and at the expected cost.	<p>United Kingdom</p> <p>Each government department in the UK maintains a Government Major Projects Portfolio (GMPP) to manage and monitor progress of the most complex and strategically significant projects. The standards, guidance and best practice for the management and monitoring of the portfolio of infrastructure projects have been developed by the Infrastructure and Project Authority (IPA) to the project delivery by government departments. The project and standard team under the IPA has built standards and tool to ensure the</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>successful delivery of government infrastructure projects, such as the Government Functional Project Delivery Standard, Guide for effective benefits management in major projects and Guide on assurance of benefits realisation in major projects. The IPA has also established a network of over 10,000 government professionals government who are involved with the delivery of projects, programme and portfolios called the Project Delivery Profession. Details HERE, HERE and HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.1.3 Project Planning	This sub-indicator is used to understand the processes which are used in project planning to ensure the delivery of quality projects.	<p>Australia</p> <p>The Department of Infrastructure, Regional Development and Cities is responsible for developing the National Guidelines for Infrastructure Project Delivery to promote collaboration between different ministries in the country and to ensure the use of best practices. The government established guidelines and frameworks to ensure project success, such as guideline and framework for traditional contracting projects, alliance contracting projects, and PPP planning and guidelines strategy. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

Sub-indicator	Sub-indicator description	Examples of good practice
2.1.4 Financial	This sub-indicator is used to understand how funding is allocated and used to deliver infrastructure projects.	<p>Singapore</p> <p>In Singapore the government established the Centre for Public Project Management (CP2M) under the Ministry of Finance to develop process and standard of project planning. The centre established process for all the national infrastructure assets development in the country. The centre will guide the built environment practitioners on</p> <ol style="list-style-type: none"> 1. Design and value management 2. Evaluation and cost management 3. Governance and risk management 4. Corporate and knowledge management <p>Details: HERE and HERE</p> <p>Ireland</p> <p>The Department of Public Expenditure and Reform, published the Capital Plan to support the implementation of the infrastructure projects in the country from 2016 to 2021. The Capital Plan outlines the framework for EUR42 billion worth of infrastructure investment; including direct investment by the government of EUR27 billion, PPP investment of about EUR500 million and state owned sector investment of EUR14.5 billion. The plan includes funding allocation for the implementation of new infrastructure projects as well as for the maintenance of existing infrastructure stock to in order to meet the target in the national development plan and the Ireland vision 2040.</p> <p>Details: HERE (pg. 5)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

2.2 Design

This indicator is used to understand the design process for infrastructure assets to ensure they are built to deliver safe and functional services to their beneficiaries.

Sub-indicator	Sub-indicator description	Examples of good practice
2.2.1 Design Stages	<p>This sub-indicator is used to understand what is the design process for national infrastructure assets. Design stage has a major influence on other consequent processes. Poor design has a very strong impact on the level of efficiency of the infrastructure assets during operation stage.</p>	<p>Singapore Infrastructure sector department, divisions or statutory bodies produced a set of guidance, code of practice and design process for infrastructure practitioners in the country. This guidance and processed need to be followed for infrastructure design work in Singapore. For example:</p> <ul style="list-style-type: none"> • The Land Transport Authority (LTA) has produced guidance for transport infrastructure design and development. Example: HERE • The Building and Construction Authority (BCA) has produced the guidebook for the design of buildings in Singapore. Example HERE • The design review for building plans is done by the BCA on the submission of the design package as per the defined format. Example HERE <p>United Kingdom The Ministry of Housing, Communities and Local Government has established the design process guidance for building development in the country. The design guidance provides minimum requirements for the key elements that need to be considered by designers when developing designs of buildings in the UK. Details: HERE</p> <p>Malaysia The Ministry of Public Works Malaysia has established the design process guidance and standard specifications for road works that provides the basic explanation to designers on how to design roads in Malaysia. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.2.2 Design Codes	<p>This sub-indicator is used to understand whether the required design codes are in place to ensure quality in addition to the protection of public health, safety, and the general welfare of the population during construction and use of the asset.</p>	<p>Singapore In Singapore, the Building and Construction Authority (BCA) is responsible for working with the industry, private sector, academic and infrastructure experts to establish the building and construction Codes, Acts and Regulations. Some of the codes and regulations are listed HERE</p> <p>Canada The Canadian Commission on Building and Fire Codes (CCBFC) is responsible for developing codes for the building design and construction sector in the country. The codes developed by the CCBFC set out technical</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>provisions for the design and construction of new infrastructure assets in the country and are updated approximately every five years including information from the regulators, private sector, developers, designers and other relevant stakeholders. Some of the code and standards developed by the commission can be found: HERE</p> <p>New Zealand The Building System Performance (BSP) branch of the Ministry of Business, Innovation and Employment in New Zealand is responsible for providing oversight to the Building Code and standards for the building construction sector. The Building Code sets the performance standards for new building assets, including aspects such as stability, protection from fire, access, moisture, safety of users, services and facilities, and energy efficiency. The New Zealand Building Code Handbook can be found HERE and details are HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.2.3 Code Enforcement / Permitting</p>	<p>This sub-indicator is used to understand the code enforcement mechanism used during the design stage to ensure infrastructure is designed to meet the required quality standard.</p>	<p>Singapore Under the Building Control Act 1989, the Building and Construction Authority (BCA) in Singapore is responsible for the enforcement of the building construction codes during the building design and planning stage. The building plans of all new construction works need to be submitted to the BCA for the design review and approval from the Commissioner of Building Control (CBC) before the construction can start. Details HERE</p> <p>United Kingdom Under the Town and Country Planning Act 1990, a local planning authority (county, district, metropolitan district or metropolitan county or special greater London authority) has a general duty to enforce and monitor the building regulations and construction codes. The local planning authority (LPA) has the responsibility of providing ‘planning permissions’ or consent for the development of new infrastructure in the UK after reviewing the documents and design package submitted by the asset owner, Details: HERE</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.2.4 Health and Safety</p>	<p>This sub-indicator is used to understand how health and safety elements are included in the design process to reduce health and safety risks during construction and operation.</p>	<p>United Kingdom</p> <p>The Construction (Design and Management) Regulations 2015 are the regulations governing the health, safety and welfare aspects in the planning of construction projects in the UK. The Health and Safety Executive (HSE) is the public body that is responsible for the enforcement of the regulations and for ensuring that risks are managed in the construction projects from the planning to completion stage. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.2.5 End user needs</p>	<p>This sub-indicator is used to understand how gender and diversity elements are included in the design process to ensure their needs are met.</p>	<p>The Philippines</p> <p>The Department of Public Works and Highways, Republic of the Philippines has developed guidelines, strategy and manuals on gender mainstreaming in the infrastructure industry. The department has also planned community level infrastructure development projects and programmes to ensure that the needs of minorities are taken into consideration in the development of infrastructure and during the maintenance of infrastructure assets. Details: HERE</p> <p>Malta</p> <p>The National Commission for the Promotion of Equality (NCPE), an independent government-funded body, has the responsibility of promoting gender equality in Malta. The NCPE published the checklist on gender mainstreaming in infrastructure projects that act as a guidance to infrastructure practitioners for incorporating gender needs in infrastructure projects during the design, planning and implementation stages. The checklist can be found HERE.</p> <p>Sweden</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>In Sweden, a research team from developed a manual titled, 'Transportplanering i förändring' (changing transport planning) to guide infrastructure practitioners in the country to include gender consideration in the design of public transportation. The manual provides the tools and guidance for the gender equality impact assessment for the transport sector. The guidance developed can be used for examining the current state of transport infrastructure as well as for implementing and following up of the gender equality goals in infrastructure planning. Details: HERE (in Swedish) and HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>
<p>2.2.6 Private Sector</p>	<p>This sub-indicator is used to understand the capacity of the private sector to design infrastructure assets for this sector.</p>	<p>Australia</p> <p>The private sector in Australia is engaged in the design, delivery, operation and management of the infrastructure projects in the country via the Public Private Partnerships (PPP) mode, under the National PPP Policy Framework.. Infrastructure projects with a capital cost of more than \$A50 million are to be considered for implementation by the private sector using the PPP method. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>
<p>2.2.7 Academia</p>	<p>This sub-indicator is used to understand the capacity of academia to support infrastructure design. The sub-indicator will also be used to understand how academia and research institutions are able to support the update of</p>	<p>Singapore</p> <p>The Building and Construction Authority (BCA), Singapore has collaborated with the National University of Singapore (NUS) and other research institutions in the country to develop and update the building design codes and regulations, and guide infrastructure practitioners and government.. The academic institutions are also constantly doing research on how to improve the regulations and enforcement in the country. Examples of the research with academic institutions in the country are: HERE, HERE and HERE</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	codes and standards based on new research.	To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.
2.2.8 Professional Institutions	This sub-indicator is used to understand the existence of professional institution (e.g. Institution of Civil Engineers, Professional Institute of Architects) and their capacity to recognize and validate skills of built environment professionals in the country.	<p>Singapore Board of Architects (BOA)</p> <ul style="list-style-type: none"> The Board of Architects is established as the statutory authority to administer the Architects Act in Singapore which sets out provisions for the registration of architects, the regulation of architectural qualifications, the practice of architecture by registered individuals, and the supply of architectural services by corporations. Details: HERE <p>Professional Engineers Board (PEB)</p> <ul style="list-style-type: none"> The Professional Engineers Board is the statutory body that sets and maintains high standards for registering professional engineers, and regulates and advances the practice of professional engineering, under the Professional Engineers Act. Details: HERE <p>Australia In Australia, the registration of architects is the responsibility of the state and territory Architects Registration Boards, which are affiliated to the Architects Accreditation Council of Australia (AACA). The AACA maintains and promotes the National Standard of Competency for Architects, which includes the assessment processes such as the accreditation of architecture programs leading to registration as an architect in Australia. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.2.9 Risk and Impact Assessments	This indicator is used to understand how risk and impact assessments (environmental, social, etc.) are completed to	<p>Singapore</p> <p>During the design review process or Building Plan approval process done by certified checker (detail of the checker or reviewers are explained in the Building Control Act 1989), the design package submitted needs</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>improve the outcomes of infrastructure development on environmental, social, and economic parameters.</p>	<p>to include all the requirements in the Legislation on Environmental Sustainability for Buildings. Details HERE</p> <ul style="list-style-type: none"> Regulatory Requirements for New Buildings and Existing Buildings undergoing major additions and alterations (A&A) - Details HERE Regulatory Requirements for Existing Buildings - Details HERE <p>The checkers or reviewers are required to review the design based on the requirements above to ensure there is no negative environmental impact due to the development of the infrastructure assets.</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.2.10 Stakeholder Management</p>	<p>This sub-indicator is used to understand how stakeholders are consulted during the design process to ensure that their needs are being met.</p>	<p>Australia</p> <p>The Australian Building Codes Board (ABCA) has a process in place for undertaking formal stakeholder consultation for the development of the National Construction Codes (NCC). The ABCB seeks input from the local governments, industry stakeholders, research community and other relevant stakeholders to update the NCC. A change to the NCC can be proposed through Proposal for Change (PFC) process, under which the proposals are submitted to the Committee for their review and approval. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

2.3 Procurement

This indicator is used to understand how services, labour, and materials are procured for the design and delivery of infrastructure. Procurement can positively and negatively influence a project through impacts on quality, time, and cost.

Sub-indicator	Sub-indicator description	Examples of good practice
2.3.1 Contracts	<p>This sub-indicator is used to understand contractual procedures which are used to proactively manage risk in the infrastructure delivery process</p>	<p>Singapore The Singaporean government, through the Building and Construction Authority (BCA), established the Public Sector Standard Conditions of Contract (PSSCOC) to enable a common contract form to be used in all public sector construction projects. The standardization has been introduced by the Singaporean government with the aim of increasing familiarity among users, reducing tendering efforts and promoting greater efficiency in contract administration. The PSSCOC is a set of guidance for all built environment professionals who are interested in tendering for public sector construction projects. Details: HERE and HERE</p> <p>Australia – an example of a different type of contract developed by Australian government The Australian Institute of Architects and Master Builders Australia jointly published The Australian Building Industry Contracts (ABIC) in 2018 with the aim of making the contract administration clear and less prone to dispute or time-consuming negotiation, representing the most contemporary version of the most widely used building contract in Australia. The ABIC contracts were released as a result of a comprehensive review, and are intended for use in building projects where an architect administers the contract. . Details on ABIC 2018 : HERE Details on Standard Forms of Contract in the Australian Construction Industry : HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.3.2 Transparency	<p>This sub-indicator is used to determine how transparency is integrated in the procurement process. Transparency in public procurement is critical in order to increase market competition and encourage the construction market to create high quality products with better value for goods, services,</p>	<p>Australia The government of Australia established initiatives to enhance transparency and accountability in public procurement processes. Some of initiatives are listed below: Aus Tender</p> <ul style="list-style-type: none"> • Government procurement information system, • Publishes a range of information, including relevant entities’ planned procurements, open tenders and contracts awarded. • Supports secure electronic tendering to deliver integrity and efficiency for relevant entities and potential suppliers. • Enables relevant entities to monitor and review their AusTender-based procurements,

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>and construction materials.</p>	<p>including approaches to market, publication of contracts and amendments to contracts.</p> <p>Annual procurement plans</p> <ul style="list-style-type: none"> • It is compulsory for all ministries that build and operate infrastructure assets to establish annual procurement plans. • The plan will consist of a short strategic procurement outlook to ensure bidders can plan and participate in the procurement process. <p>Providing information</p> <ul style="list-style-type: none"> • Government agencies that are involved in the public procurement process need to ensure they provide prompt details and information to all eligible potential suppliers in order to ensure that the suppliers or bidder can prepare and lodge submissions accordingly. • Following the rejection of a submission or the award of a contract, officials must promptly inform affected tenderers of the decision. <p>Subcontractors</p> <ul style="list-style-type: none"> • Details of the subcontractor hired in construction projects must be made available to governments and public to ensure the quality of work • The subcontractor’s participation in fulfilling a contract may be publicly disclosed. <p>Details: HERE and HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.3.3 Supply Chain</p>	<p>The sub-indicator is used to understand the availability of materials to be able to deliver infrastructure assets.</p>	<p>Singapore</p> <p>The Building and Construction Authority (BCA) of Singapore established guidance and list of materials available for Singapore construction industry such as sustainable construction materials guidance for industry. Detail HERE</p> <p>The Building and Construction Authority (BCA) of Singapore also established the Importers’ Licensing Scheme to issue license for any person who is engaged in the business of importing essential construction materials in order to ensure secure, reliable and high quality supply in Singapore. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

Sub-indicator	Sub-indicator description	Examples of good practice
2.3.4 Proposal Selection	This sub-indicator is used to understand the process and criteria used to select the proposal with the best vendor value.	<p>Australia</p> <p>The government of Australia through Australasian Procurement and Construction Council has developed Building and Construction Procurement Guide for infrastructure practitioners involved in the procurement and contracting of civil (road and bridge) and non-residential building works and services. The guide outlines the procurement process to be followed by project owners when developing procurement strategies and reviewing the procurement options. The project owners are also required to comply with the local requirements and procurement regulations. The guide can be found HERE (pg. 3-7)</p> <p>For selection of proposals for PPP projects, the project owners are required to follow the <i>National public private partnership policy and guidelines</i> and the <i>National alliance contracting policy and guidelines</i>. Details HERE</p> <p>Singapore</p> <p>The Ministry of Finance has established the framework and guidance for the procurement process and proposal selection for government procurement and Public Private Partnerships in Singapore established the Public Private Partnership Handbook to guide different stakeholders in the industry. The handbook also includes the process and criteria for proposal selection for building and construction projects in Singapore: Details HERE (pg. 41-56) and HERE</p> <p>The procurement framework adopted by the Building and Construction Authority (BCA) includes the evaluation methods for the engagement of contractors and consultancy services for public sector building and construction projects.</p> <ul style="list-style-type: none"> • Quality Fee Method (QFM) for consultancy services. Details HERE • Price Quality Method (PQM) for construction services. Details HERE • Productivity Indices for evaluation purposes in QFM and PQM. Details HERE <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.3.5 Gender and Diversity	This sub-indicator is used to understand how gender and diversity mainstreaming elements are included in the procurement process.	<p>Chile</p> <p>The public agency, ChileCompra, under the Ministry of Finance, implemented an action plan to make public procurement more accessible to women-led SMEs. The gender-sensitive procurement strategy included the creation of a supportive ecosystem of training, women’s certification scheme and formation of women’s</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>associations with the aim of increasing women's businesses in the supply chain of state agencies. The regulatory reform of the Public Procurement Law (No 19.886) by the inclusion of gender criteria in all public agencies' purchases further improved the participation of women in public procurement in Chile. In the Municipality of Contulmo, for instance, a tender for a construction project included a higher score for businesses employing a greater share of women as the evaluation criteria. Details: HERE (pg. 32-36)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>
<p>2.3.6 Compliance</p>	<p>This sub-indicator is used to understand how procurement regulation is enforced to improve transparency and overall outcomes of infrastructure delivery</p>	<p>Rwanda</p> <p>The Rwanda Public Procurement Authority (RPPA) is the entity setup in 2008 by the Government of Rwanda (GoR) that is responsible for monitoring and auditing of the activities of public contract award and execution by public procuring agencies in the country. The RPPA has the authority to suspend or approve the suspension and debarment of bidders in public procurement. It can also provide advice on legal problems from different cases related to public procurement. Details: HERE and HERE (pg. 14-21)</p> <p>Greece</p> <p>The Public Procurement Monitoring Unit (PPMU) is the organization responsible for providing specialized and prompt legal advisory to the public contracting authorities in Greece on matters relating to the procurement for public works and services falling within the scope of EU Law on Public Procurement. The PPMU provides support to the Greek contracting authorities with preventive legality monitoring, problems during the award of public contracts and complaints concerning infringements of community or national transposition law. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the "Sub-Indicator Guidance" box on the sub-indicator page.</p>
<p>2.3.7 Human Resources</p>	<p>This sub-indicator is used to understand whether the government has sufficient skilled human resources to support the procurement process of</p>	<p>Australia</p> <p>The Department of Finance offers formal training in procurement and contract management to government officials involved in public procurement activities through a number of Registered Training Organisations (RTOs) in Australia. Example of certification for procurement practitioners include:</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>infrastructure assets. Human resources with the right skills is important to ensure the efficiency and effectiveness of infrastructure procurement.</p>	<ul style="list-style-type: none"> • Vocational Education and Training qualification of the Certificate IV in Government (Procurement and Contracting). • The Diploma of Government (Procurement and Contracting), • The Advanced Diploma in Government (Procurement and Contracting) or • The Vocational Graduate Certificate in Strategic Procurement. <p>Details of the training: HERE and HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

2.4 Construction

This indicator is used to understand how infrastructure assets are constructed to ensure quality.

Sub-indicator	Sub-indicator description	Examples of good practice
<p>2.4.1 Construction Codes and Standards</p>	<p>This sub-indicator is used to understand whether the required construction standards are in place to ensure quality.</p>	<p>Australia</p> <p>The Australian Building Codes Board (ABCB) publishes and maintains the National Construction Code of Australia (NCC) that contains technical provisions for the design, construction and performance of buildings across the country. The NCC includes the minimum necessary requirements for the aspects of safety, health and sustainability in the design and construction of buildings. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.4.2 Code Enforcement</p>	<p>This sub-indicator is used to understand the code enforcement mechanism during the construction stage. The enforcement mechanism is important to ensure that infrastructure is built safely and meets the required standard for the</p>	<p>United Kingdom</p> <p>The responsibility of enforcing compliance with the Building Regulations rests with the local authority in the UK, either through informal or formal means. Non-compliance of the building construction work with the Building Regulations can lead to prosecution against the person implementing the construction work in the court as per the Building Act 1984. An approved inspector may engaged by the project owner or builder to ensure compliance with the Building Regulations. Details: HERE</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	asset to function as designed.	To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.
2.4.3 Private Sector	This sub-indicator is used to understand the capacity of the private sector to construct infrastructure assets for this sector.	<p>South Korea</p> <p>South Korean government established the guidance for the involvement of private sector in the construction of infrastructure assets. The private sector in Korea have been supporting the development of infrastructure assets to reduce the burden of national government on developing new infrastructure for the country. More details HERE and Case Studies HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.4.4 Academia and Vocational Schools	This sub-indicator is used to understand the capacity of academia to support infrastructure construction. The sub-indicator will also be used to understand collaboration between academic institutions, private sectors and government bodies to establish training programmes and curriculum for local construction workers.	<p>Australia</p> <p>The vocational education and training (VET) courses are offered by the Registered Training Organisations (RTOs), which are the training providers of accredited VET courses in Australia, The RTOs are registered by the Australian Skills Quality Authority (ASQA), the national regulator for the VET sector and offer courses that focus on technical skills for building and construction industry. Details HERE. The RTOs can include Technical and Further Education (TAFE) institutes and colleges in every state, and private colleges. Some universities may also offer VET courses in addition to higher education courses. Details: HERE</p> <p>New Zealand</p> <p>The government of New Zealand established the Building and Construction Industry Training Organisation (BCITO) to develop professional qualifications and arrange training in order to ensure that talented and skilled workforce remains available for the construction industry in the country. . The BCITO manages apprenticeships and develops qualifications in construction management, architectural technology and quantity surveying. Details HERE</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.4.5 Health, Safety and Welfare	<p>This sub-indicator is used to understand how health and safety is included in the construction process to reduce health and safety risks.</p>	<p>Australia</p> <p>The Work Health and Safety Act (the WHS Act) provides a framework for achieving high standards of health, safety and welfare for workers. In the Australian Work Health and Safety Strategy 2012–2022 developed by Safe Work Australia, an Australian government statutory body, the construction sector has been identified as a priority sector. The model Code of Practice for Construction Work further provides practical guidance for mitigation of the health and safety risks of people involved in construction work. Details: HERE and HERE</p> <p>United Kingdom</p> <p>The government of the United Kingdom developed the Construction (Design and Management) Regulations 2015 for the construction industry, that govern the overall health, safety and welfare of those working in the construction sector and on construction sites. The regulations outline the requirements for those involved in construction work to ensure safe and healthy workplace for workers in the construction sector. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
2.4.6 Professional Institutions	<p>This sub-indicator is used to understand the existence of professional institution (e.g. Institution of Civil Engineers, Professional Institute of Architects) and their capacity to recognize and validate skills of contractors and skilled</p>	<p>Australia</p> <p>The Engineers Australia and the Australian Institute of Architects are the professional institutions governing the accreditation of engineering and architecture professionals respectively. . Both institutes evaluate engineering and architecture programs in the country at the levels of Professional Engineer and Architect, Engineering/Architecture Technologist and Engineering Associate. Accreditation ensures academic institutions in Australia consistently meet national and international benchmarks. Engineering graduates of accredited</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>professionals in the country.</p>	<p>programs are assured membership with Engineers Australia in the relevant membership grade and occupational category. Details: Engineering HERE and Architecture HERE</p> <p>Singapore The major engineering and architecture institutes in Singapore are accredited by the Institute of Engineers Singapore (IES) and Board of Architects respectively. The IES and the Board of Architects support the national government in delivering better infrastructure development by accrediting educational programs and institutes to ensure the country has competent human resources in the infrastructure sector. The professional committees are also established to administer the Architects, Engineering and Surveying Act in Singapore. The Architects, Engineering and Strata Acts sets out provisions for the registration of built environment professionals, the regulation of architectural qualifications, the practice of architecture by registered individuals and the supply of architectural services by corporations. Details: Architecture HERE, Engineering HERE and Surveying HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.4.7 Risk Mitigation</p>	<p>This sub-indicator is used to understand how the recommendations from the risk and impact assessments are carried out during infrastructure delivery</p>	<p>South Africa The Department of Planning, Transport and Infrastructure (DPTI) has published the Environmental Audit Guidelines for Construction – Road, Rail and Marine Facilities to assist in the auditing of the environmental impact associated with a construction project. The guidelines, which include managing, planning and conducting the audit; audit checklist; and reporting and acting on the audit findings, provide a mechanism to monitor compliance with the environmental regulations and achieve environmental goals. The DPTI can initiate the audit by engaging an independent auditor. The guidance can be found HERE</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>2.4.8 Stakeholder Management</p>	<p>This sub-indicator is used to understand the existence of the mechanism for stakeholders to provide feedback on the delivery of large-scale infrastructure projects.</p>	<p>United Kingdom</p> <p>Under the Environmental Protection Act 1990, the councils can address the complaints about noise from construction works under the statutory nuisance regime and issue notices to those carrying out construction work for controlling the noise levels. Details HERE</p> <p>The local authorities or councils can also serve a notice as per the provisions of the Sections 60 and 61 of the Control of Pollution Act 1974 to those carrying out construction work specifying the permissible noise and vibration levels from construction sites. Details HERE</p> <p>The complaints about the noise nuisance can be reported by anyone on the government managed reporting system: HERE.</p> <p>The complaints regarding the health and safety of workers at construction sites and non-compliance with the Construction (Design and Management) Regulations 2015 can be reported to the Health and Safety Executive (HSE). Details: HERE</p> <p>The construction industry has taken the initiative to establish the Considerate Constructors Scheme, which is a non-profit-making organization for construction sites and companies to register with, Under the scheme, the Code of Considerate Practice has been developed to address the concerns of the public, workforce health and safety, and environmental impact of construction works. Details HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

3 Management

This stage captures the capacity of government to manage its infrastructure (operate, maintain, and decommission) to ensure maximum benefit from its investment. It also looks for how information on the condition and performance of current infrastructure systems inform infrastructure planning, thus closing the loop in the infrastructure development process.

3.1 Operational Performance Regulation

This indicator is used to understand how operational performance is regulated for this infrastructure sector to ensure infrastructure assets are meeting performance requirements.

Sub-indicator	Sub-indicator description	Examples of good Practice
3.1.1 Governance	This sub-indicator is used to understand whether there is a regulatory body responsible for the monitoring and enforcement of operational performance regulations. Clear ownership of environmental, economic, health & safety, and functional performance regulations and audits would ensure the management and performance improvement of assets in a systematic way.	<p>Malaysia</p> <p>The Ministry of Energy, Green Technology and Water Malaysia (KeTTHA) implemented the legal and regulatory framework reforms of the water services sector by introducing two legislations. The Suruhanjaya Perkhidmatan Air Negara Act (SPANAN) or National Water Services Commission Act 2006 established an independent regulatory body, National Water Services Commission (NWSC), to assess the performance of service providers in the water supply sector. The Water Services Industry Act (WSIA) 2006 established a licensing and regulatory framework to uphold the national policy objectives for water supply (and sewerage) services. Details here</p> <p>The environmental performance of the water sector in Malaysia is monitored by the Department of Environment of the KeTTHA in compliance with the Environmental Quality Act 1974. Details here</p> <p>The Department of Occupational Safety and Health (DOSH), under the Ministry of Human Resources, is responsible for ensuring the safety, health and welfare of people at work as well as protecting other people from the safety and health hazards arising from the activities under various infrastructure sectors as per the Occupational Safety and Health Act 1994 (OSHA 1994). Details here</p> <p>Uganda</p>

Sub-indicator	Sub-indicator description	Examples of good Practice
		<p>The Water Utility Regulation Department (WURD) of the Ministry of Water and Environment (MWE) is responsible for regulating water authorities managing piped water systems by contract, as mandated by Cap 152 of the Water Act. The WURD is responsible for an annual performance assessment report, Uganda Water and Environment Sector Performance Report (SPR), for assessing the performance of the water and environment sector against the performance indicators. Details here</p> <p>United States of America</p> <p>The Federal Highway Administration (FHWA) is an organization under U.S. Department of Transportation that provides funding and technical support to local governments for road construction, maintenance and development. One of the key strategic goals of FHWA is System Performance to ensure improved safety and performance of the nation's highway systems and provide local and natural environmental protection adjacent to expressways to ensure. Details here</p> <p>The Office of Safety within the FHWA is further responsible for road safety audits, training of audit teams, highways safety improvement programs, safety performance measures, etc. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.1.2 Legal	This sub-indicator is used to understand whether the required legal mechanisms are in place for the enforcement of the operating standards.	<p>United Kingdom</p> <p>The Department for Environment, Food and Rural Affairs (DEFRA) is the government department which sets the overall policy framework, prepares water legislation and sets the legal framework for which the regulators enforce in England and Wales.</p> <p>The water industry in England and Wales is regulated by the following independent regulators:</p> <ul style="list-style-type: none"> • Office of Water Services (Ofwat) the economic regulator, monitors the information on performance under the Company Monitoring Framework.

Sub-indicator	Sub-indicator description	Examples of good Practice
		<ul style="list-style-type: none"> The Environment Agency is the environmental regulator that undertakes annual inspection and reports on the environmental performance of the industry under the Environment Act 1995. Details here The Drinking Water Inspectorate, the water quality regulator, can carry out technical audit of water companies under the Water Industry Act 1991. <p>Details here (pg. 47)</p> <p>United States of America</p> <p>In the US, Moving Ahead for Progress in the 21st Century Act (MAP-21), enacted in 2012, creates a performance-based program for the U.S. transportation system for improving safety, maintaining infrastructure standards and condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery. Details here and here (Sec. 1106, 1201-3)</p> <ol style="list-style-type: none"> To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.
3.1.3 Regulation	This sub-indicator is used to understand the existence of regulation to govern the performance of infrastructure in the sector.	<p>South Africa</p> <p>The Department of Water Affairs has pro-actively assumed the role of sector regulator for the water sector, and the legislations that govern the management and performance of water services include the Municipal Finance Management Act, Occupational Health and Safety Act, the National Environmental Management Act, the Environmental Conservation Act, National Health Act, and the Disaster Management Act. Details here (pg. 32-33)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment</p>

Sub-indicator	Sub-indicator description	Examples of good Practice
		<p>please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.1.4 Compliance	<p>This sub-indicator is used to understand the capacity of regulators to ensure the implementation of performance regulations of infrastructure in the sector.</p>	<p>Malaysia</p> <p>The Department of Environment (DOE) of the Ministry of Energy, Science, Technology, Environment & Climate Change is responsible for enforcing the Environmental Quality Act 1974 for environmental protection and pollution control regulations. Details here</p> <p>The Department of Occupational Safety and Health of the Ministry of Human Resources carries out enforcement activities as required under the Occupational Safety and Health Act 1994. Details here</p> <p>United Kingdom</p> <p>The Environment Agency, the environmental regulator for the water industry in England, can take enforcement action or impose a sanction in case of non-compliance. Details here (pg. 11-12)</p> <p>Ofwat, the economic regulator, has enforcement powers and can obtain legally binding undertakings under the Water Industry Act 1991 where companies fail to meet their obligations. Details here</p> <p>The Drinking Water Inspectorate, the water quality regulator, has enforcement powers and exercises them as per its Enforcement Policy. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.1.5 Reporting	<p>This sub-indicator is used to understand the existence of mechanism for reporting on the operational performance of infrastructure assets in the sector.</p>	<p>Uganda</p> <p>The performance of the water and environment sector is assessed and reported against performance indicators in the Uganda Water and Environment Sector Performance Report (SPR). The SPR is an annual performance assessment report produced by the Water Utility Regulation Department (WURD) of the Ministry of Water and Environment (MWE). Details here and here</p> <p>United Kingdom</p> <p>The environmental performance of the water and sewerage sector in England is reported annually by the</p>

Sub-indicator	Sub-indicator description	Examples of good Practice
		<p>Environment Agency, the environmental regulator for the water industry in England. The parameters assessed in the report include pollution incidents, compliance with permits and sewage management. The details of the reports can be found here and here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

3.2 Operation & Maintenance

This indicator is used to understand how infrastructure assets are operated and maintained for this sector to ensure they are delivering the required level of service.

Sub-indicator	Sub-indicator description	Examples of good practice
3.2.1 Governance	<p>This sub-indicator is used to understand if there is a body within the ministry which has the responsibility to operate and maintain the infrastructure assets.</p>	<p>South Africa</p> <p>The South African National Road Agency (SANRAL), the public agency with the Ministry of Transport as the sole shareholder, has been established by means of the South African National Roads Agency Limited and National Roads Act (Act No. 7, 1998). Its mandate is to finance, improve, manage and maintain the national road network. Details here and here (pg. 20)</p> <p>Senegal</p> <p>For the road sector, the Agency of Works and Management of Roads (AGEROUTE) is the entity under the Ministry of Infrastructure and Land Transport (MILT) that is responsible for the implementation of construction, rehabilitation and maintenance of roads, bridges and other structures in Senegal. The AGEROUTE is also responsible for the development of the annual Road Maintenance Program (PERA) and the financing strategy for the maintenance and development of the road sector. Details here (in French)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.2.2 Financial	<p>This sub-indicator is used to understand if there are financial resources secure for routine maintenance of all infrastructure assets in the sector.</p>	<p>Germany</p> <p>All federal transport infrastructure investment projects are included in the Federal Infrastructure Plan (Bundesverkehrswegeplan), prepared by the Federal Ministry of Transport and Digital Infrastructure, which ensures a coordinated approach to the building of new infrastructure as well as maintenance and upgrading/renewal. The FTIP 2030 allocated around 69% of the total funding for structural maintenance, upgrading and replacement of roads, railway and waterways infrastructure assets over the period from 2016 to 2030. Details here (pg. 14-15, 26-32) and here (pg. 12-13)</p> <p>Senegal</p> <p>The Fund for Autonomous Road Maintenance, “Fonds d’Entretien Routier Autonome (FERA)”, is the entity under the Ministry of Infrastructure and Land Transport (MILT) that is responsible for sustainable financing of the maintenance of the road network in Senegal. The FERA created in 2007 under the law decree no. 2007-1277 has a legal basis and has been guaranteed financial autonomy. The mission of FERA is to mobilize sufficient resources for financing the maintenance and operation of the road network. Sources of revenue have been identified as a mix of annual budgetary allocation, road use tax and additional subsidies. Details here (pg. 72-73) and here (in French)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.2.3 Legal	<p>This sub-indicator is used to understand the existence of legal mechanisms for monitoring of infrastructure condition and functionality for the assets in the sector.</p>	<p>Korea</p> <p>Under the Special Act on the Safety Management of Infrastructure (SASMI), the Korea Infrastructure Safety & Technology Corporation (KISTEC) is mandated to ensure safety management and maintenance of major national infrastructure assets by taking charge of the routine inspections, providing a database on the maintenance history of facilities, classification of facilities, and</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>training technical professionals with the utilization of ICT applications. Details here (pg. 3-18)</p> <p>South Africa Under the South African National Roads Agency Limited and National Roads Act, Act 7 of 1998, the maintenance and rehabilitation of the national roads system is the responsibility of the South African National Roads Agency Limited (SANRAL). The SANRAL has the mandate of undertaking routine maintenance and ad-hoc maintenance of the road network in order to keep the road network functioning properly. Detail here</p> <p>Brazil The National Roads Department in Brazil (Departamento Nacional de Estradas de Rodagem - DNER), adopted the system of performance based contract to engage private sector firms for achieving efficiency in the management of road maintenance and rehabilitation. The CREMA (contratos de rehabilitacao e manutencao – Rehabilitation and Maintenance Contracts) contracts included scheduled initial deferred maintenance, routine maintenance, rehabilitation and limited improvement works to be carried out by the contractors. Details here and here</p> <p>Argentina The National Directorate of Roads of Argentina (DNV), the entity under the Ministry of Transport, adopted performance-based maintenance contracts, comprising both rehabilitation and routine maintenance, called labeled “CREMA” (Contrato de Recuperacion y Mantenimiento) in 1996. The contracts require the contractor to rehabilitate and then maintain a network of roads over a period of five years for a lump sum amount. They specify required road service outputs and use incentive-based payments to ensure the quality of the rehabilitation and routine maintenance works. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.4 Data Collection</p>	<p>This sub-indicator is used to understand the existence of policies, procedures and capacity in place to collect the necessary data to plan the operation and maintenance of the assets in the sector.</p>	<p>South Africa</p> <p>The South African National Roads Agency Limited (SANRAL) introduced Pavement Management System (PMS), which is a computerized data collection sub-system of the overall Asset Management System. It accesses a centralized road network database for inventory, condition and utilization data; and uses the data for life cycle predictions of road deterioration, maintenance needs, agency costs and user costs for optimizing operation and maintenance procedures and expenditures. Technology is utilized for data capture and monitoring of national roads to enable data-driven decision-making. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.5 Data Analysis</p>	<p>This sub-indicator is used to understand the existence of systems to perform analyses to identify assets for refurbishment, and to plan the operation and maintenance of the assets in the sector.</p>	<p>Malaysia</p> <p>The Public Works Department (PWD), under the Ministry of Works Malaysia (MOW), has applied Road Asset Management System that utilizes the Highway Development and Management (HDM-4) System as an analysis tool to conduct technical and economic analysis for generating annual routine work programs for road maintenance. The HDM-4 is used to identify the location and length of the road to be repaired and establish the priorities for rehabilitation works in order to determine the allocation of funds. Details here (pg. 83, sec 335-339)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.6 Reporting</p>	<p>This sub-indicator is used to understand how information about the sector’s performance is communicated to</p>	<p>Uganda: The performance of the transport sector is assessed and reported against pre-determined targets and performance indicators in the Annual Sector Performance Report (ASPR). The ASPR is an annual performance assessment report produced by the</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>stakeholders to ensure buy-in and transparency.</p>	<p>Ministry of Works & Transport in Uganda that covers the progress made in implementation of works to achieve results-based management of the sector. Details here and here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.7 Health, Safety, and Welfare</p>	<p>This sub-indicator is used to provide an understanding of how health, safety, and welfare is implemented during the operation and maintenance of assets to reduce the risks to property and improve the health, safety, and welfare of individuals, including adequate labor and working conditions.</p>	<p>United Kingdom</p> <p>The health and safety aspects of the workers involved in all stages of the construction projects are covered in the Construction (Design and Management) Regulations 1994 (CDM). The regulations require that health and safety should be taken into consideration and managed throughout the lifecycle of the project, including the maintenance and repair phase of the structure. Details here</p> <p>United States</p> <p>The Federal Highway Administration (FHWA) under the U.S. Department of Transportation has established programs, practices, and procedures for addressing safety and health concerns of workers during the maintenance and repair of bridges. The regulations produced by the Occupational Safety and Health Administration (OSHA) outline the requirements to ensure safeguard against hazards at the project site. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.8 Maintenance Procedures</p>	<p>This sub-indicator is used to understand the capacity and procedures of routine maintenance and rehabilitation works of the assets in the sector.</p>	<p>Japan</p> <p>The amendment of Road Law, approved in Japan in 2013, provides the legal requirement and standards for periodic road bridge inspection by road administrators with consideration of preventive maintenance. It empowers Minister for Land, Infrastructure, Land, Transport and Tourism (MLIT) to investigate road administrators’ statuses for highway maintenance for</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>the sake of technology development. National Guidelines for periodic road structure inspections have also been produced. Details here (pg. 17-23), here and here (pg. 24-25)</p> <p>South Africa</p> <p>The National Infrastructure Maintenance Strategy (NIMS) has been developed by the Department of Public Works as a program of actions to ensure the maintenance of existing infrastructure. The NIMS lays down the overarching national policy framework and action plan for sector based initiatives to promote sound maintenance of infrastructure assets across government agencies. Details here (pg. 13-17)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.9 Private Sector</p>	<p>This sub-indicator is used to understand the existence and capability of private sector entities to complete routine maintenance for infrastructure assets in the sector.</p>	<p>Senegal</p> <p>Private sector participation was leveraged in Senegal through a strictly regulated affermage contract for the urban water sector, which includes a performance contract between asset holding public company, Société Nationale des Eaux du Sénégal (SONES) and the private operator, Sénégalaise des Eaux (SDE). The government has played a strong regulatory and co-ordination role. The private firm, SDE, has an incentive to upgrade the supply network as greater revenue derives from increased water consumption. The performance is assessed every 6 months against previously agreed benchmarks. The achievement of main targets is rewarded and failure to achieve targets incurs fines. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

3.2.10 Vocational Training

This sub-indicator is used to understand the role of vocational schools in training professionals to support the operation and maintenance of infrastructure assets in the sector.

Singapore

The Land Transport Authority (LTA), the statutory board under the Ministry of Transport of the Government of Singapore, has set up three academies, to build up and deepen local engineering and research capabilities by offering enhanced training to the professionals in the transport sector. The academies aim to serve as knowledge hub for sharing best practices, research, training, and cooperation with international and local universities. The academies are: the LTA Academy, the Singapore Rail Academy (SGRA) and the Singapore Bus Academy (SGBA) Details [here](#)

South Korea

K-water HRD Institute has been established under the Korea Water Resources Corporation or K-water, the governmental agency for water resource management in South Korea. It has been tasked with the provision of training courses and education programs for water related government officials, corporate staff and international water specialists. The training programs are conducted by faculty comprising of full-time professors, researchers, government officials and academic experts to provide vivid/ practical training through a combination of theoretic lectures and hands-on practice. Details [here](#)

South Africa

The Department of Water Affairs and Forestry (DWAF), South Africa developed innovative contracts, called 'Build Operate Train Transfer' (BoTT) contracts for management of water services. BoTT contracts were signed between provincial governments and private consortia (comprising of private operators, construction companies and local NGOs) for four provinces. The consortia were in charge of initial investments, operating the systems for an interim period, building the capacity of municipal governments to operate the systems and then transferring them to municipal governments. Incentives were built into BoTT contracts to ensure the capacity building, the involvement of previously disadvantaged people and small businesses, and the training of local people and local authority personnel. Details [here](#) (pg. 22, Box 2.1) and [here](#) (pg. 2-6)

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.11 Emergency Procedures/ Service Continuity</p>	<p>This sub-indicator is used to understand the procedures and resources for to address asset failure in an emergency context and the capacity to ensure service continuity.</p>	<p>Mexico</p> <p>Mexico’s Fund for Natural Disasters (FONDEN) was established in the late 1990s as a mechanism to support the rapid rehabilitation of federal and state infrastructure affected by adverse natural events. Funded through the Federal Expenditure Budget, FONDEN provides funds not only for the reconstruction of public infrastructure assets, but also for advance efforts to reduce disaster risks. Details here (pg. 9, ch. 2) and here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.2.12 Stakeholder Management</p>	<p>This sub-indicator is used to understand the existence and efficiency of mechanisms for the inclusion of stakeholders in the operation and maintenance of assets in the sector, such as the provision of feedback on the level of service received.</p>	<p>Zambia</p> <p>In Zambia, consumers participate in the regulatory board through a Water Watch Group (WWG), established by National Water Supply and Sanitation Council’s (NWASCO), the economic regulator of water supply and sanitation services in Zambia. The WWG has been set up to ensure accountability to the consumers, speedy complaint resolution and enhancement of service delivery. The Water Watch Groups are voluntary community based groups comprising 6 to 8 customers from a particular service area. Their role is informing their communities about their rights and obligations regarding water supply and sanitation services so that they can demand the service they are entitled to and also assist in resolving pending complaints. They operate within the delegated powers of NWASCO and receive limited financial support to cater for their transport, communication and sensitization expenses. Details here</p> <p>United Kingdom</p> <p>The commercial airports in the UK are required by law (Civil Aviation Act 1982) to have facilities for</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>consultation, that is, an Airport Consultative Committees to openly and effectively communicate about the impact of their operations with their stakeholders including operators, passengers and local residents. Details here</p> <p>Under the Water Act 203, the Consumer Council for Water (CCWater) has been setup to represent water and sewerage consumers in England and Wales, and take up unresolved complaints. CCWater is an executive non-departmental public body, sponsored by the Department for Environment, Food & Rural Affairs (DEFRA). Details here</p> <p>Singapore: The Public Transport Council (PTC), an independent body under the Ministry of Transport that regulates public transport fares and ticket payment services, has the responsibility for conducting two customer satisfaction surveys annually: the Public Transport Customer Satisfaction Survey and the Point-To-Point Customer Satisfaction Survey. The results from these surveys are used to advise the Minister for Transport on public transport matters and for developing recommendations to enhance the public transport system for the commuters. Details: HERE</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

3.3 Decommissioning

This indicator is used to understand the process that organizations or line ministries complete to decommission their infrastructure assets.

Sub-indicator	Sub-indicator description	Examples of good practice
3.3.1 Governance	This sub-indicator is used to understand if there is an organization that has the responsibility for the	<p>United States The U.S. Department of Housing and Urban Development (HUD) is responsible for formulation of policy and guidelines, and providing approval for the</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	decommissioning of the infrastructure assets in the sector.	<p>decommissioning and demolition of assets in the public housing sector. Details here</p> <p>The Office for Environmental Management under the US Department of Energy (DOE) has the responsibility of developing the policy and guidelines for deactivation and decommissioning of surplus DOE facilities. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
3.3.2 Legal	This sub-indicator is used to understand the existence of the legal process, supported by regulation and policies, for the decommissioning of the infrastructure assets in the sector.	<p>United States</p> <p>The demolition of the public housing assets in the US is undertaken in accordance with the Section 18(f) of the U.S. Housing Act of 1937. The regulation, 24 CFR part 970, promulgated by the US Department of Housing and Urban Development (HUD) governs the demolition and disposition procedures. HUD reviews and approves the demolition and disposition applications in accordance with the guidance in PIH Notice 2018-04, which includes the regulation, 24 CFR Part 50 or Part 58, stating the requirement of an environmental review. The local government agencies, such as public housing agencies (PHAs), planning to demolish residential buildings must comply with the environmental regulations of the US Environmental Agency and state or local regulations, as applicable. Details here</p> <p>The US Department of Energy (DOE) has developed a Decommissioning policy in collaboration with the Environmental Protection Agency (EPA) for decommissioning surplus DOE facilities in compliance with:</p> <ul style="list-style-type: none"> • DOE O 430.1A, Life-Cycle Asset Management (LCAM); • DOE P 450.4, Safety Management System Policy; and • Policy on Decommissioning of DoE Facilities Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (or the 1995 Decommissioning Policy) <p>Details here and here (pg. 4)</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.3 Financial</p>	<p>This sub-indicator is used to understand the availability of financial resources for the decommissioning of the infrastructure assets in the sector.</p>	<p>United States</p> <p>The US Department of Housing and Urban Development (HUD) developed the HOPE VI program in 2010 to provide funding to local authorities for the demolition and construction or rehabilitation of public housing units across the US. Details here</p> <p>The government has made deconstruction, the planned disassembly of buildings with the purpose of harvesting materials for reuse, a major component of various grant programs. These include the Sustainable Communities Planning Grant Program of HUD; the green economic development grants of the U.S. Department of Labor; and the grants of Department of Health and Human Services provides for start-up deconstruction enterprises in the non-profit sector. The Environment Protection Agency awarded an innovation grant to the Institute for Local Self-Reliance (ILSR) for development of an innovative and cost effective deconstruction technique. Details here</p> <p>The details of some government programs that have funded demolition projects in the past can be found here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.4 Decommissioning Planning</p>	<p>This sub-indicator is used to understand the mechanism for the development of decommissioning plans for infrastructure assets in the sector.</p>	<p>United Kingdom</p> <p>The British Standards Code of Practice for Demolition (BS6187) outlines the decommission planning process covering the various aspects of demolition work, including legal requirements, structural stability, environmental management, occupational health and safety of the workforce, etc. Details here (pg. 14-26) and here</p> <p>United States</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>The U.S. Department of Energy (DOE) established guidelines for the decommissioning planning of the surplus DOE facilities. The various aspects of the decommissioning planning have been grouped into the six stages: Pre-decision, Determination of Action, Choosing the Decommissioning Alternative, Engineering and Planning, Decommissioning Operations and Post-decommissioning Action.</p> <p>Details here (pg. 9-11)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.5 Codes and Standards</p>	<p>This sub-indicator is used to understand the existence of efficient codes and standards for the decommissioning of the infrastructure assets in the sector.</p>	<p>United Kingdom</p> <p>The British Standards Code of Practice for Demolition (BS6187), published by the British Standards Institute (BSI), is concerned with the process of demolition, including demolition as part of structural refurbishment, from initial considerations, through planning and design to the execution stages.</p> <p>Details here and here</p> <p>Australia</p> <p>The Australian standard, <i>AS 2601-2001 The demolition of structures in Australia</i>, published by Standards Australia provides guidance on a range of controlled demolition methods for use by planners, owners, engineers, contractors and other interested parties for the planning and execution of demolition of structures. If the work is not covered by or included in AS 2601, the work must be done in a manner acceptable to the WorkSafe Western Australia Commissioner. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.6 Health and Safety</p>	<p>This sub-indicator is used to understand the existence of efficient safety procedures for the</p>	<p>United States</p> <p>The Occupational Safety and Health Administration (OSHA), under the Department of Labor has developed standards for compliance during the demolition work. Under the Occupational Safety and Health Act (OSH</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>decommissioning of the infrastructure assets in the sector.</p>	<p>Act), Public Law 91-596, employers have the responsibility to provide a safe workplace for the employees. Details here</p> <p>Since demolition work involves many of the hazards associated with construction, all of <i>29 CFR Part 1926 – Construction Standards</i> apply at a demolition site. Additionally, the OSHA has created the <i>Subpart T – Demolition standards</i> for these operations to address the additional unknown hazards that make demolition works particularly dangerous. Details here</p> <p>Australia</p> <p>The health and safety risks associated with demolition work is covered under section 274 of the Work Health and Safety (WHS) Act. The ‘Demolition Work Code of Practice’ developed by Safe Work Australia for managing health and safety risks associated with demolition work. Details here (pg. 3-5)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.7 Enforcement</p>	<p>This sub-indicator is used to understand the enforcement practice of the existing codes and standards for the decommissioning of the infrastructure assets in the sector.</p>	<p>Mauritius</p> <p>The Environment and Sustainable Development Division under the Ministry of Social Security, National Solidarity, and Environment and Sustainable Development in Mauritius has prepared environmental guidelines for the demolition of buildings to ensure that stakeholders duly consider all environmental issues. Under Section 13 of the Environment Protection Act 2002, the following enforcing agencies have been identified for monitoring compliance with the different environmental medium or pollutants during demolition works:</p> <ul style="list-style-type: none"> • Ministry of Health and Quality of Life for noise levels • Ministry of Local Government for solid wastes and hazardous wastes levels • Ministry of Environment for air pollution <p>Non-compliance with any regulations/ standards can lead to a financial liability and imprisonment. Details here (pg. 3)</p> <p>Australia</p>

Sub-indicator	Sub-indicator description	Examples of good practice
		<p>The ‘Demolition Work Code of Practice’ developed by Safe Work Australia is admissible in court proceedings under the Work Health and Safety (WHS) Act. The code of practice may be regarded as evidence by the courts to determine what is the reasonably practicable in the circumstances to which the code relates. The code of practice can be used by an inspector when issuing an improvement or prohibition notice. Details here (pg. 2)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.8 Private Sector</p>	<p>This sub-indicator is used to determine the capacity of the private sector for the decommissioning of the infrastructure assets in the sector.</p>	<p>United Kingdom</p> <p>Majority of the decommissioning projects in UK are undertaken by private sector firms, which either totally demolish a building or perform selective demolition where the shell of the structure is preserved. The demolition industry in the UK is in the mature stage of its life cycle, with a well-established industry federation National Federation of Demolition Contractors (NFDC). The British Standards Code of Practice for Demolition (BS6187) outlines that the procurement and tendering for demolition works should follow the procedures used in good construction industry practice. Professional advice should be sought to assist the building owner in the preparation of tender documentation and the selection of private contractors to undertake the work. Details here (pg. 26-28)</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>
<p>3.3.9 Stakeholder Management</p>	<p>This sub-indicator is used to understand the mechanism for managing stakeholders to ensure that their needs are considered during the decommissioning of the</p>	<p>United States</p> <p>The US Environmental Protection Agency (EPA) has taken positive measures to promote Environmental Justice to ensure fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The</p>

Sub-indicator	Sub-indicator description	Examples of good practice
	<p>infrastructure assets in the sector.</p>	<p>Public Participation Guide developed by EPA, which provides tools for public participation and public outreach in environmental decision-making can be used for stakeholder engagement while planning demolition works. Details here</p> <p>To see guidance on where to look for information to help answer questions for the current assessment please click on the “Sub-Indicator Guidance” box on the sub-indicator page.</p>

Appendices

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