PISA Capacity Needs Assessment
Ghana

Programme for International Student Assessment

OECD
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PISA CAPACITY NEEDS ASSESSMENT: GHANA

This report has been authorised by Andreas Schleicher, Director of the Directorate for Education and Skills, OECD.

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List of acronyms

ACER	Australian Council for Educational Research
AfC	Associates for Change
BECE	Basic Education Certificate Examinations
CBA	Computer-based assessment
CBIS	Capacity Building and Implementation Support
CBP	Capacity Building Plan
CENDLOS	Centre for National Distance Learning and Open Schooling
CNA	Capacity Needs Assessment
C-TVET	Commission for Technical and Vocational Education and Training
EGMA	Early Grade Mathematics Assessment
EGRA	Early Grade Reading Assessment
EMIS	Educational Management and Information System
ESP	Education Strategic Plan 2018 – 2030
FSHS	Free Senior High Schools
GALOP	Ghana Accountability for Learning Outcomes Project
GES	Ghana Education Service
GNAPS	Ghana National Association of Private Schools
IPA	Innovations for Poverty Action
MoE	Ministry of Education
NaCCA	National Centre for Curriculum and Assessment
NaSIA	National School Inspectorate Authority
NC	National Centre
NEA	National Education Assessment
NPECF	National Pre-tertiary Education Curriculum Framework
NPLAF	National Pre-tertiary Learning Assessment Framework
NPM	National Project Manager
NST	National Standardized Test
NTC	National Teaching Council
OECD	Organisation for Economic Co-operation and Development
PBA	Paper-based assessment
PBME	Planning Budgeting Monitoring and Evaluation
PEC	Private Education Coalition
PIP	Project Implementation Plan
PISA	Programme for International Student Assessment
PISA-D	PISA for Development
SRIM	Statistics, Research and Information Management
TIMSS	Trends in International Mathematics and Science Study
TVET	Technical Vocational Education and Training
TVETS	Technical Vocational Education and Training Service
USAID	United States Agency for International Development
UIS	UNESCO Institute for Statistics
WAEC	West African Examinations Council
WASSCE	West African Senior Secondary Certificate Examinations

Executive summary

The Organisation for Economic Co-operation and Development (OECD)'s Programme for International Student Assessment (PISA) measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges.

Based on the experiences of the support programmes provided in PISA previously, PISA 2025 offers new participants the Capacity Building and Implementation Support (CBIS) option. CBIS aims to provide new participants with specific and targeted support for their successful implementation of PISA 2025.

At the outset of CBIS, a Capacity Needs Assessment (CNA) is carried out to assess CBIS participants' capacity to implement PISA. The assessment focuses on the CBIS National Project Managers (NPM) and key National Centre (NC) roles to gain information about their capacity assets and needs in relation to what is required to implement PISA successfully.

The capacity assets and needs to successfully implement PISA 2025 are structured into three dimensions:

1. The enabling environment
2. The organisation level
3. The individual level.

For each dimension, a number of capacity indicators are defined and rated according to the extent of capacity assets and needs a participant has. The ratings are as follows:

- Latent: There is little or no capacity [in this indicator area] – significant capacity building required.

- Emerging: There is some capacity [in this indicator area] – capacity building required.

- Established: There is sufficient capacity [in this indicator area] – capacity building optional.

This report presents detailed findings of the CNA for Ghana. Table 1 summarises the CNA ratings for Ghana in each of the dimensions and indicators.

Table 1. Rating of the Capacity Needs Assessment for Ghana

Indicator area	Rating		
	Established	Emerging	Latent
Enabling Environment dimension			
E1 Assessment system structure		✓	
E2 Legislation or policy		✓	
E3 Leadership		✓	
E4 Institutional arrangements		✓	
E5a Funding			✓
E5b Funding from donors			✓
E6 Use of assessment data		✓	
E7 Educational Management Information System		✓	
Organisational Level dimension			
O1 Assessment team			✓
O2 Mobilisation of funding			✓
O3 Temporary staff			✓
O4 Physical infrastructure		✓	
O5 IT infrastructure and support		✓ (PBA)	✓ (CBA)
O6 Security policies and procedures		✓	
O7 Instrument development		✓	
O8 Translation and linguistic quality control		✓	
O9 Target population and sampling		✓	
O10 Survey operations and logistics		✓ (PBA)	✓ (CBA)
O11 Data management		✓	
O12 Data analysis and reporting		✓	
O13 Dissemination and communication		✓	
Individual Level dimension			
I1 National Project Manager		✓	
I2 Assessment instruments co-ordinator*			
I3 Sampling manager*		✓	
I4 Survey operations and logistics manager*		✓(PBA)	✓(CBA)
I5 Data manager*			
I6 Data analyst*		✓	
I7 Information Technology co-ordinator*	✓(PBA)	✓(CBA)	
I8 Communication in English	✓		

Note: PBA = paper-based assessment; CBA = computer-based assessment. NC roles with * indicates that the role was yet to be filled at the time of undertaking the CNA and, therefore, the rating of some NC roles is an assumption based on the country visit and the available documents.

In conclusion, the CNA for Ghana indicates that the capacity to implement PISA 2025 is still largely developing. While a number of Ministry of Education (MoE) and external agencies have significant experience in delivering national large-scale assessments, the CNA for Ghana indicates a number of areas in which capacity must be developed in order for successful implementation of PISA 2025.

At the enabling environment level, Ghana has policies to support national assessment systems. However, Ghana has not engaged in international large-scale assessments for 11 years. This time period, combined with issues identified relating to funding, organisational structure, and the Educational Management Information System (EMIS), point to the need for ongoing capacity building.

The PISA NC has not yet been established in Ghana, which indicates significant capacity building needs at the organisational level, including the assessment team, mobilisation of funding, and recruitment of temporary staff. The methods and procedures required of PISA are different and more complex than Ghana's previous and current large-scale assessment programmes. Development in physical and IT infrastructure, security policies, instrument development, sampling, survey operations, and data analysis and reporting is required.

Ghana has also indicated a preference for participating in the computer-based assessment (CBA) option for PISA 2025, adding a number of difficulties and raising issues that Ghana's NC will need to address.

At the individual level, all key NC roles, except for the NPM, were yet to be filled at the time of undertaking the CNA, and therefore it was not possible to assess the capacity of these roles. On the basis of the experience and evidence from the organisational level, many of these roles are likely to be rated as "emerging".

As part of Ghana's participation in CBIS, a formal Capacity Building Plan (CBP) will be provided to the Ghanaian team during the next phase. It will list the capacity building opportunities that will be available for Ghana's NC to participate in during PISA 2025. Once established, it is strongly recommended that the Ghana NC makes the best use of these capacity building opportunities.

1. Introduction and background

The Organisation for Economic Co-operation and Development (OECD)'s Programme for International Student Assessment (PISA) is the world's largest international learning assessment. PISA measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges. PISA provides an international benchmark of learning outcomes that inform evidence-based decision-making in education policy over time.

PISA 2025 is the 9th cycle of PISA, which has been conducted every three years since 2000.[1] The focus of PISA 2025 is science, and the assessment also includes the innovative domain of Learning in the Digital World. The innovative domain aims to measure students' ability to engage in self-regulated learning while using digital tools.[2] The overall management of contractors, the implementation of PISA 2025, as well as the instrument development for the innovative domain, is carried out by the Australian Council for Educational Research (ACER). Other contractors include Oxford University Press for the science framework development and Westat for sampling.

1.1. PISA 2025 Capacity Building and Implementation Support

Implementing a large-scale assessment that delivers high-quality data and using the data for evidence-based decision making are demanding tasks for any education system. While participating in PISA offers a range of capacity-building opportunities to participants, it can be particularly challenging for new participants. Therefore, capacity development has been an integral part of every PISA cycle.

Based on the experiences of the support programme provided in PISA for Development (PISA-D)[3] and PISA 2022 through the Country Preparation and Implementation Support partnership option, PISA 2025 offers new participants the Capacity Building and Implementation Support (CBIS) option. CBIS aims at providing new participants with specific and targeted support for their successful implementation of PISA 2025. The CBIS option is implemented by ACER.

CBIS consists of the following five components:

- Planning and preparation support
- Support through a CBIS Liaison Officer
- In-country visit
- Peer learning
- Implementation support.

The planning and preparation support includes resources, tools and activities that are designed to assist participants with their planning and preparation for PISA 2025. The main features of the component are a Capacity Needs Assessment, Capacity Building Plan and Project Implementation Plan (see Figure 1).

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[1] With the exception of PISA 2022, which was implemented four years after PISA 2018 due to the COVID-19 pandemic.

[2] www.oecd.org/pisa/innovation/learning-digital-world/

[3] www.oecd.org/pisa/pisa-for-development/

Figure 1: CBIS planning and preparation support for participants starting in 2022
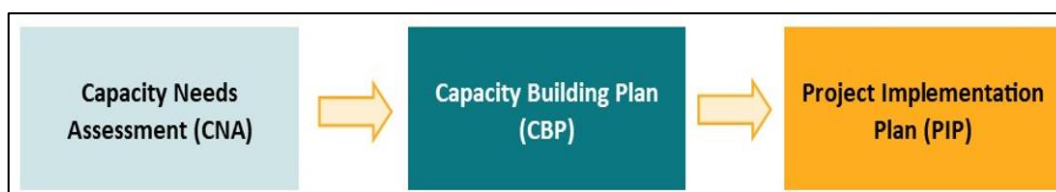
1.1.1. Capacity Needs Assessment (CNA)

At the start of CBIS, a CNA is carried out to assess CBIS participants' capacity to implement PISA. The assessment focuses on the CBIS National Project Managers (NPMs) and key National Centre (NC) roles to gain information about their capacity assets and needs in relation to what is required to implement PISA successfully. Findings from the CNA are summarised in a report to highlight areas for capacity strengthening, which in turn will help the NC to allocate resources appropriately and focus on building capacity where needed.

1.1.2. Capacity Building Plan (CBP)

A CBP is prepared for CBIS participants to assist with planning for strengthening their capacity to implement PISA. The CBP lists all the capacity building opportunities offered to PISA participants throughout the PISA 2025 project as well as those catered specifically for CBIS participants according to the needs identified in the CNA. The CBP includes details of the PISA meetings and trainings and CBIS-specific activities.

1.1.3. Project Implementation Plan (PIP)

The PIP is a set of resources and tools designed to assist CBIS participants with the preparation for and implementation of PISA 2025. The PIP Schedule – the main feature of the PIP – is a tool that lists all the PISA tasks that PISA NCs are required to complete according to agreed timeline. CBIS participants will be supported to adapt the PIP Schedule to suit their national requirements and context. The PIP Schedule is updated continuously throughout the PISA 2025 implementation period and used as a comprehensive planning and monitoring tool.

This report presents the CNA for Ghana. The report describes the framework, methodology and findings of the CNA.

2. Framework

The PISA 2025 CNA aims to identify capacity assets and needs of CBIS participants to implement PISA 2025 successfully. The framework for the PISA 2025 CBIS CNA was developed based on the PISA-D Capacity Needs Analysis[4] and the PISA 2022 Capacity Needs Analysis Framework (unpublished). In addition, specific PISA materials were consulted to identify capacity required for the successful implementation of PISA 2025. These include drafts of the PISA 2025 Technical Standards, PISA 2025 NPM Manual, and the PISA 2025 NPM and NC Roles and Responsibilities document.[5]

Focusing on the preparation and implementation of PISA 2025, capacity is defined as:

the ability of the individuals and institutions responsible for the project in each country to carry out the different tasks associated with the multiple steps of the PISA implementation and the options selected by the country (e.g. computer-based or paper-based assessment), to solve problems that may arise during implementation, adhere to project timelines, set and achieve project objectives in a sustainable manner and conduct national analysis and reporting.

This definition is operationalised in the three framework dimensions and their capacity indicators.

2.1. Dimensions

The capacity assets and needs to successfully implement PISA 2025 are structured into three dimensions:

1. The enabling environment: Focuses on the context of large-scale assessments in the country at the system level. This dimension addresses more general aspects of the assessment system, such as policies and regulations, institutional arrangements and funding.

2. The organisational level: Focuses on capacity assets and needs to implement large-scale assessments at the national level. Organisational aspects of managing, designing, implementing and analysing data from large-scale assessments are covered, with a focus on the implementation of PISA.

3. The individual level: Focuses on the key roles and responsibilities and the knowledge, skills and experience required to successfully complete the diverse PISA tasks. Through these three dimensions, the CNA covers capacity assets and needs that are required to successfully implement PISA within the broader context of current and desired future capacities of a sustained assessment system.

2.2. Indicators

For each dimension, several capacity indicators are defined. The following areas are covered:

- **Enabling environment**: E1 Assessment system structure, E2 Legislation or policy, E3 Leadership, E4 Institutional arrangements, E5a Funding, E5b Funding from

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[4] PISA-D Capacity Needs Analysis reports were produced for the eight participating countries. For more information see: www.oecd.org/pisa/pisa-for-development/pisa-for-development-documentation.htm

[5] All documents are forthcoming.

donors, E6 Use of assessment data, E7 Educational Management Information System.

- **Organisational level**: O1 Assessment team, O2 Mobilisation of funding, O3 Temporary staff, O4 Physical infrastructure, O5 IT infrastructure and support, O6 Security policies and procedures, O7 Instrument development, O8 Translation and linguistic quality control, O9 Target population and sampling, O10 Survey operations and logistics, O11 Data management, O12 Data Analysis and reporting, O13 Dissemination and communication.

- **Individual level**: I1 National Project Manager, I2 Assessment instruments co-ordinator, I3 Sampling manager, I4 Survey operations and logistics manager, I5 Data manager, I6 Data analyst, I7 Information Technology co-ordinator, I8 Communication in English.

A complete description of capacity indicators is included in Annex A.

Rating criteria

Rating criteria are defined for each indicator area to support the assessment and to identify capacity assets and needs. Three ratings are differentiated:

- **Latent:** There is little or no capacity [in this indicator area] -- significant capacity building required.

- **Emerging**: There is some capacity [in this indicator area] -- capacity building required.

- **Established**: There is sufficient capacity [in this indicator area] -- capacity building optional.

3. Methods

The CNA for CBIS participants is essentially qualitative in nature. Three major qualitative data collection methods are used to gain information on the capacity assets and needs:

- **Online questionnaires**: The capacity indicators for each dimension are operationalised into the CBIS CNA questionnaires, which include a questionnaire for officials and a questionnaire for individuals (Annex D). The former is designed to identify capacity assets and needs at the system and organisational levels while the latter does so at the individual level. Participants in the questionnaires are identified by the NPM, which, for Ghana, included senior government officials from relevant divisions of the Ministry of Education, senior representatives in education or assessment institutions, organisations, agencies, development partners and donors, the Ghana PISA working group and the PISA NPM. To assist with the identification of key stakeholders, a stakeholder mapping exercise is carried out.

- **Stakeholder consultations**: Stakeholder consultations are undertaken by a CBIS Liaison Officer during a one-week in-country visit to collect further information that could not be obtained through the online questionnaires. The Ghana PISA working group and the NPM assisted the consultations by co-ordinating and scheduling the consultations and sourcing an interpreter where needed.

- **Document analysis**: Relevant documents that indicate capabilities in large-scale assessments are also analysed (e.g. policy documents, strategy documents). The Ghana PISA working group was asked to identify and source relevant documents based on a document mapping exercise.

To analyse capacity assets and needs in the CBIS participant, the data obtained from the CBIS CNA questionnaires, stakeholder consultations and documents are consolidated and assessed as they relate to each dimension and capacity indicator. Each capacity indicator is then given:

- A rating using the defined rating criteria.

- A justification for the rating.

- A description of the identified capacity assets and needs.

This report was prepared to present the findings of the assessment for Ghana. To ensure accuracy and completeness of the findings presented, and to gain broad stakeholder agreement and engagement, the NPM for Ghana was encouraged to invite key stakeholders to review the report.

4. Capacity Needs Assessment for Ghana

The CNA activities for Ghana and a summary of key findings are presented in this chapter.

4.1. CNA activities for Ghana

The CNA stakeholder and document mapping tables were prepared in consultation with the representatives from the Ministry of Education (MoE) during four online meetings in June, August and September 2022. (These meetings included a variety of participants and key stakeholders with the MoE and relevant MoE agencies.) The mapping exercise assisted the subsequent CNA activities. The stakeholder and document mapping tables are included in 0.

The CNA questionnaires were then administered to the key stakeholders that were nominated by the representatives from the MoE. Valid responses were received from eight respondents for the questionnaire for officials, and from 10 respondents for the questionnaire for individuals over a period of approximately 3 weeks in September and October 2022.

Stakeholder consultations were carried out during the in-country visit undertaken by Andrew Mannion, the CBIS Liaison Officer from ACER for Ghana, and Sophie Vayssettes from the OECD from 5 to 12 October 2022 to obtain further information that was unable to be collected through the online questionnaires. The consultations took place in Accra, Ghana with senior officials of the MoE and representatives of a number of education agencies. These included the Centre for National Distance Learning and Open Schooling (CENDLOS), the Commission for Technical and Vocational Education and Training (C-TVET), Free Senior High Schools (FSHS), the Ghana Accountability for Learning Project, the Ghana Education Service (GES), the Ghana National Council of Private Schools, the National Centre for Curriculum and Assessment, the National Schools Inspectorate Authority, the National Teaching Council (NTC), the Planning, Budgeting, Monitoring and Evaluation Division (MoE), the Pre-Tertiary Directorate (MoE), the Private Education Coalition (PEC), the Schools and Instruction Division (GES), the Technical and Vocational Education and Training Service (TVETS), and the West African Examinations Council. Consultations were also carried out with representatives from key development partners. These included Associates for Change (AfC), Innovations for Poverty Action (IPA), UNESCO, UNICEF and the World Bank. Annex C includes a complete list of participants in the stakeholder consultations.

The consultations were very well organised with detailed planning and a comprehensive itinerary for each day, a full schedule over the course of the six days, ongoing support for the ACER and OECD representatives, and positive engagement in the PISA fact finding process.

The information collected through the above activities was collated and analysed along with the relevant documents obtained through the document mapping exercise.

4.2. Summary of key findings

For each indicator area, a rating is provided together with a brief rationale and identified capacity needs. The details of the assessment are provided in Annex A.

4.2.1. Enabling environment

Assessment system structure (E1) – Emerging

Ghana has a long history of involvement in large-scale assessment programmes. The development of the *National Pre-tertiary Learning Assessment Framework* (NPLAF) in 2020 codified assessment programmes in Ghana and formalised the development and implementation of several national large-scale assessment programmes, including the National Standardized Test (NST), the Basic Education Certificate Examinations (BECE) and the West African Senior Secondary Certificate Examinations (WASSCE). The phased implementation of the NST began in 2021 and aims to provide national indicators for educational achievement in English and mathematics and identify individual and school-level learning gaps. Ghana also has some experience in international large-scale assessment through their involvement in the Trends in International Mathematics and Science Study (TIMSS) programme, although the last TIMSS participation was in 2011.

Given the length of time since Ghana's previous participation in an international large-scale assessment, capacity is needed to develop and promote the inclusion of international large-scale assessments into Ghana's assessment structure and framework.

Legislation or policy (E2) – Emerging

Ghana's large-scale assessment programmes are organised through both legislation and a number of specific policy documents. The *Education Act 2008* establishes the authority and function of the National Council for Curriculum and Assessment (NaCCA). The MoE's *Education Strategic Plan 2018 - 2030* (ESP) includes goals at the basic and secondary education levels specifically related to enacting and improving learning assessment in Ghana. Finally, NaCCA's *National Pre-tertiary Education Curriculum Framework* (NPECF) and NPLAF specify the scope and implementation of assessment programmes across Ghana. International large-scale assessment is identified in NPLAF, but there are, as yet no specific policy documents relating to the implementation of PISA.

Leadership (E3) – Emerging

Political will in support of large-scale assessment has been demonstrated through the development of several policy documents and the Minister's announcement of Ghana's involvement in PISA 2025 during National Education Week in October 2022. The participation in PISA 2025 is well received by representatives of agencies and other key stakeholders.

The Ghana PISA working group includes representatives from Ghana Education Service (GES), Ghana Accountability for Learning Outcomes Project (GALOP), NaCCA, Technical Vocational Education and Training (TVET), West African Examinations Council (WAEC), Planning Budgeting Monitoring and Evaluation (PBME), National School Inspectorate Authority (NaSIA), Free Senior High Schools (FSHS) and other MoE agencies. The group has been meeting regularly since August 2022.

Currently, there is no strategy in place to either promote participation in and implementation of PISA, or dissemination of PISA results, and capacity is needed to develop such a strategy.

Institutional arrangements (E4) – Emerging

NaCCA is well established and responsible for the development and implementation of national large-scale assessments in Ghana, with the support of other MoE agencies and

external organisations, including WAEC. The PISA working group will also be an important element of the institutional arrangements.

However, the organisation and accountability of individuals and agencies, with respect to international large-scale assessments and PISA is not clear. Capacity is needed to clarify the organisational structure of NaCCA within the MoE and alongside other agencies, and at the same time its role in relation to the establishment of the PISA NC.

Funding (E5a) – Latent

While the government of Ghana has committed to implementation of PISA 2025, funding sources for the project are not clear. Given the ambitious NST national large-scale assessment programme which began rolling out in December 2021, funding for PISA 2025 is not yet identified.

Funding from donors (E5b) – Latent

Funding of previous international large-scale assessment programmes was contingent on donor assistance, and it is likely that this will be the case for PISA 2025. At present, funding from donors is not identified.

Use of assessment data (E6) – Emerging

MoE agencies and other key stakeholders (e.g. WAEC) have demonstrated capacity to produce, analyse and use data from large-scale assessments. The NPECF identifies the current broad changes to the curriculum in pre-tertiary Ghanaian schools as a direct result of data use from national large-scale assessments and identifies international benchmarking of the national curriculum as a specific priority.

As with previous indicators, given the length of time since Ghana's previous participation in a large-scale international assessment, capacity is needed to develop evidence-based policy and planning initiatives stemming from PISA data.

Educational Management and Information System (E6) – Emerging

The Educational Management and Information System (EMIS), a unit under Statistics, Research and Information Management (SRIM) is one of Ghana's main national data sets for education. It is through the EMIS annual census that the MoE collects, analyses and disseminates school-level data about all pre-tertiary level schools (public and private). The EMIS operates in digitised form for timely and real time processing of data from the school level, including student enrolment, teachers, physical infrastructure and school finances.

The ESP identifies inaccurate and unreliable EMIS data, including the underreporting of student data as an ongoing problem with EMIS. The coverage of private schools within EMIS has also been identified as problematic. Capacity is needed to continue the current efforts to strengthen the EMIS system and ensure system-wide coverage of EMIS in both public and private schools across Ghana.

4.2.2. Organisational level

Assessment team (O1) – Latent

There is significant experience within both NaCCA and WAEC in the implementation of large-scale assessments in Ghana. Individuals within both agencies have experience in management, instrument development, test design, sampling, survey operations and logistics, data management, data analysis, reporting and dissemination. The PISA working

group, comprising members across several other agencies, is also providing advice on the implementation of PISA 2025. However, a PISA NC has not yet been established.

Capacity is needed in the development of a dedicated PISA NC. The Director General of NaCCA has been named as the NPM, and it would seem suitable and appropriate that the PISA NC be developed around the structures of NaCCA. The accountability and organisational structure of this NC needs to be established.

Capacity is also needed to identify and allocate a suitable budget for the establishment and development of the NC. At present NaCCA, WAEC and other agency individuals have work commitments additional to PISA. These potential conflicts need to be allowed for in the establishment of the NC.

Mobilisation of funding (O2) – Latent

Funds have been allocated and mobilised to complete the diverse tasks associated with large-scale assessments, including the implementation of the NST, but funds for PISA are yet to be identified or budgeted. There is a lack of long-standing agreements to cover funding of international large-scale assessments. Funding for previous cycles of large-scale international studies has largely been sourced from international donor organisations.

Securing funding for capacity building of NC staff members may further increase the chance of successfully implementing PISA 2025. The Project Implementation Plan (PIP) will assist Ghana to budget for PISA 2025.

Temporary staff (O3) – Latent

Currently, WAEC recruits temporary staff for item writing, test development, moderation and marking as needed. The need for recruitment of temporary staff within MoE agencies, and the procedures for doing so, are not clear at this stage.

Capacity is needed to develop a strategy to identify and recruit external, additional staff and experts on a needs basis according to the PISA timelines. The development of clear and transparent terms of reference for staff recruitment is also needed.

Physical infrastructure (O4) – Emerging

The PISA NC will likely be established at NaCCA although that is yet to be determined. NaCCA, WAEC and other relevant agencies have well-equipped facilities with necessary physical infrastructure for implementing large-scale assessments. WAEC also has well-established security procedures and protocols for printing, storage, transport and delivery of test and exam materials used in NST, BECE and WASSCE.

IT infrastructure and support (O5) – Emerging for PBA; Latent for CBA

The IT infrastructure at both NaCCA and WAEC is well established and used for item writing and test development, test delivery and logistics, test marking and data analysis to deliver the current national large-scale assessments.

The Centre for National Distance Learning and Open Schooling (CENDLOS) has significant IT infrastructure and expertise, and ongoing plans to develop, deliver and implement online assessments.

Capacity needs include maintaining and developing the stability and security of internet connections, data storage and server access, as well as assistance with specific software, student delivery, coding system and assessment team support for implementation of PISA

2025. Additional IT infrastructure support to implement the computer-based assessment (CBA) delivery will also be needed if the CBA option is chosen for Ghana.

Security policies and procedures (O6) – Emerging

Both NaCCA and WAEC have significant experience at securely delivering national large-scale assessments and have well-developed security protocols. Confidentiality agreements around the security of materials are used in MoE agencies.

As with other indicators at the organisational level, with the PISA NC not yet established, capacity is needed to ensure these security policies and procedures are established in accordance with PISA technical standards.

Instrument development (O7) – Emerging

WAEC have detailed item development, test construction and quality assurance mechanisms and procedures. A team of subject specialists, some with psychometric experience, is supplemented by outside experts as needed for the development of national tests and examinations. Training in Item Response Theory for test developers is ongoing. MoE agencies include experts in adaptation, translation and contextualisation of test items and survey questions, however, there is limited experience in following the quality assurance procedures of international large-scale assessment programmes.

Once a PISA NC is established, a strategy will be needed to build capacity for both improved assessment design to enable analysis and comparability across time and cohorts and to interpret item statistics resulting from psychometric analysis.

Translation and linguistic quality control (O8) – Emerging

For PISA in Ghana, cognitive items and contextual questionnaires will be adapted from the English source version to the Ghanaian context following the PISA translation and adaptation guidelines. As noted for indicator O7, MoE and external agencies in Ghana have experience in item development, adaptation and translation along with well-developed quality assurance processes, but PISA adaptation procedures will be new to the PISA NC when established.

Given that the ability to interpret item statistics is important to identify translation and adaptation errors in Field Trial and Main Survey data (e.g. Differential Item Functioning), an extensive capacity building opportunity in the area of translation and linguistic quality control will be beneficial to the PISA NC in Ghana.

Target population and sampling (O9) – Emerging

There is significant experience across multiple agencies in delivering sample-based large-scale assessments in Ghana, including the Early Grade Reading Assessment (EGRA), the Early Grade Mathematics Assessment (EGMA), the National Education Assessment (NEA), and the initial trial of the NST. All of these assessments have been, and are, grade-based rather than age-based. The EMIS contains a database of all public schools but does not yet include all private schools. While work is ongoing within the EMIS unit to enhance and improve coverage, some concerns remain about reliability of data.

Capacity may be required by the PISA NC, when established, to create a sample frame that provides complete coverage of the age-based target population with exclusions being clearly defined and documented. Additional capacity needs include the identification of a suitable testing window according to the PISA technical standards, measures to ensure response rates, and ensuring access to sampled students in remote areas.

Survey operations and logistics (O10) – Emerging for PBA; Latent for CBA

WAEC has well-developed quality assurance processes for survey operations relating to national large-scale assessments. NaCCA has significant experience in delivering a number of these assessments, including in remote areas. The experience of these, and other agencies will need to be utilised when the PISA NC is established.

If Ghana chooses the option of CBA delivery, which has been favoured in recent discussions, capacity will be needed for planning quality assurance mechanisms to ensure survey operations for the CBA are standardised, monitored and documented. Further capacity will be required of the NC staff to understand and adhere to the PISA Technical Standards on quality assurance; plan independent quality monitoring measures to ensure the quality of test administration; and develop a strategy for regularly monitoring participation during data collection.

Data management (O11) – Emerging

Both NaCCA and WAEC have significant data management experience from implementation of national large-scale assessments. While not specifically focusing on large-scale assessment, the recent surveys focusing on the fidelity of implementation of the standards-based curriculum also point to significant experience across MoE agencies in data collection and analysis of schools across all regions of Ghana. The EMIS provides a centralised, interactive means of monitoring, measuring, analysing and extracting a wealth of insights from relevant datasets and capturing key indicators from schools.

When the PISA NC is established, capacity will be needed to develop a comprehensive data management plan according to PISA timelines and technical standards, and national quality assurance measures for data management.

Data analysis and reporting (O12) – Emerging

Individuals within NaCCA, WAEC and other agencies in the MoE have experience in national-level data analysis.

However, producing a national report based on PISA international analytical results will be a new experience for the data analysts in the PISA NC when it is established. Some delays in the data analysis and dissemination of results from the NST have been noted and capacity will be needed to build on existing experience, strengthen reporting and analysis skills, analyse and interpret PISA data, and use the findings from PISA results in the national context.

Dissemination and communication (O13) – Emerging

Results from large-scale assessments are widely disseminated through relevant websites and via published reports. The annual National Education Week is also used as a venue to discuss, distribute and more widely disseminate information on national large-scale assessments to a variety of stakeholder groups.

However, tailoring of assessment results to different stakeholders is not apparent and capacity is needed to establish a detailed dissemination and communications plan to assist with the dissemination and application of the PISA findings, in particular, to identify different types of reports and products targeting different stakeholder needs.

4.2.3. Individual level

National Project Manager (I1) – Emerging

The Director General of NaCCA has been appointed to the role of PISA NPM. He will have full decision-making authority within the PISA NC, once established, to lead the assessment team and oversee all assessment activities. The NPM has high-level work commitments within NaCCA in addition to the PISA NPM role, so it is essential to ensure the availability of the NPM for the duration of the PISA 2025 cycle. Given these other commitments it is also important that support mechanisms are put in place to ensure the NPM can fully pay attention to the PISA tasks and that the NPM, as well as all NC staff who have major responsibility for different PISA task areas, are familiar with the PISA technical standards.

Given the responsibilities of the NPM outside of PISA, it would be advisable to quickly identify a deputy NPM to be able to work on PISA on a daily basis and respond quickly to requests from contractors or the OECD.

Assessment instruments co-ordinator (I2) – Not yet appointed

The national-level tasks related to the assessment instruments will be overseen by an appropriately skilled and experienced assessment instruments co-ordinator. However, the role has not been filled at the time of the CNA.

Capacity needs of the assessment instruments co-ordinator should be identified in light of the role's responsibilities once a co-ordinator has been appointed.

Sampling manager (I3) – Not yet appointed (likely Emerging for a first participation, based on the experience at the organisation level)

The national-level tasks related to sampling will be overseen by an appropriately skilled and experienced sampling manager. However, the role has not been filled at the time of the CNA.

Capacity needs of the sampling manager should be identified in light of the role's responsibilities once a manager has been appointed. Given previous sample-based national large-scale assessments in Ghana have been focused on grade levels and not student age, this indicator is likely to be Emerging when a manager is appointed.

Survey operations and logistics manager (I4) – Not yet appointed (likely Emerging for PBA and Latent for CBA, based on the experience at the organisation level)

The national-level tasks related to survey operations and logistics will be overseen by an appropriately skilled and experienced manager. However, the role has not been filled at the time of the CNA.

Capacity needs of the survey operations and logistics manager should be identified in light of the role's responsibilities once a manager has been appointed.

Data manager (I5) – Not yet appointed

The national-level tasks related to data management will be overseen by an appropriately skilled and experienced data manager. However, the role has not been filled at the time of the CNA.

Capacity needs of the data manager should be identified in light of the role's responsibilities once a manager has been appointed.

Data analyst (I6) – Not yet appointed (likely Emerging, based on the experience at the organisation level)

The national-level tasks related to data analysis will be overseen by an appropriately skilled and experienced data analyst. However, the role has not been filled at the time of the CNA.

Capacity needs of the data analyst should be identified in light of the role's responsibilities once an analyst has been appointed.

Information Technology co-ordinator (I7) – Not yet appointed (likely Established for PBA and Emerging for CBA, based on the experience at the organisation level)

The national-level tasks related to IT will be overseen by an appropriately skilled and experienced IT co-ordinator. However, the role has not been filled at the time of the CNA.

Capacity needs of the IT co-ordinator should be identified in light of the role's responsibilities once a co-ordinator has been appointed.

Communication in English (I8) – Established

All staff working across the agencies from which the PISA NC will be established are fluent in English communication.

5. Conclusions

While a number of MoE and external agencies have significant experience in delivering national large-scale assessments, the CNA for Ghana indicates a number of areas in which capacity must be developed for a successful implementation of PISA 2025.

At the enabling environment level, Ghana has national assessment systems and policies to support these. However, Ghana has not engaged in international large-scale assessment for a significant period of time, and this, combined with issues identified with funding, organisational structure and the EMIS, point to the need for ongoing capacity building.

The PISA NC has not yet been established in Ghana, and this points to significant capacity building needs at the organisational level, including the assessment team, mobilisation of funding, and recruitment of temporary staff. The methods and procedures that form PISA are different and more complex than Ghana's previous and current large-scale assessment programmes, requiring development in physical and IT infrastructure, security policies, instrument development, sampling, survey operations and data analysis.

Ghana has also indicated a preference for participating in the CBA for PISA 2025, and this adds difficulties and raises issues that the Ghana NC will need to address.

At the individual level, all key NC roles, except for the NPM, were yet to be filled at the time of undertaking the CNA, and therefore it was not possible to assess with certainty the capacity of these roles. On the basis of the experience and evidence from the organisational level, many of these roles are likely to be rated as "emerging".

As part of Ghana's participation in CBIS, a formal CBP will be provided to the Ghanaian team during the next phase. It will list the capacity building opportunities be available for Ghana's NC team to participate in during PISA 2025. Once established, it is strongly recommended that the Ghana NC makes the best use of these capacity building opportunities.

Annex A. Detailed findings of the CNA

Annex A presents the detailed findings of the CNA for Ghana for each dimension:

- Table A A.1 Enabling environment
- Table A A.2 Organisational level
- Table A A.3 Individual level

For each capacity indicator a rating is provided and the justification with a description of the capacity assets and needs. The identified capacity needs are stated in the last column.

Table A A.1. Enabling environment

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
E1 Assessment system structure	Large-scale assessment programmes form part of the assessment system to provide performance data in key learning domains and relevant context data at key stages of primary and secondary school education at relevant levels of the education system.	Emerging	• Ghana education system – Document source: Ghana Accountability for Learning Outcomes Project (GALOP) Project Information Document (The World Bank, 2018). • 2 years Kindergarten; 6 years Primary; 3 years Junior High; 3 years second cycle (Senior High or technical/vocational). • Entry to Senior High School (SHS) contingent on passing Basic Education Certificate Examination (BECE) in grade 9 (Junior High School 3 (JHS3)). • Grade 12 (SHS3) students take the West African Senior Secondary Certificate Examination (WASSCE) – also taken by students from The Gambia, Liberia, Nigeria and Sierra Leone. • Large-scale assessment in Ghana – Document sources: Ghana 2016 National Education Assessment – Report of findings; National Pre-tertiary Learning Assessment Framework (NPLAF) (2020). • National Education Assessment (NEA): Carried out by NEA Unit (NEAU) in Ghana Education Service (GES); Biennial measure of competency in mathematics and English in primary classes 4 and 6 (P3 and P5 before 2016); Classroom based, multiple choice test (P4: 40 items each for mathematics and English; P6: 45 items each for mathematics and English); Content based on national curricula; conducted in 2005, 2007, 2009, 2011, 2013, 2016, 2018; 2016 sampling: 55 schools sampled in each of 10 regions – 18 915 P4 students, 17 081 P6 students. • Early Grade Reading Assessment (EGRA)/Early Grade Mathematics Assessment (EGMA): conducted in 2013, 2015; Grade 2; Competency based. • Primary 4 National Standardized Test (NST) administered in December 2021: Test of English and mathematics delivered to all public-school students; Will be administered in 2022 at P2 and P4; Will be administered in 2023 to all public and private school students at P2, P4 and P6; Longer-term plans to include science domain and administer at JHS2 and SHS2. • TIMSS; Grade 8 only; conducted in 2003, 2007, 2011.	Given the length of time since Ghana's previous participation in a large-scale international assessment, capacity is needed to develop and promote the inclusion of international large-scale assessments into Ghana's assessment structure and framework.

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
			Ghana has a long history of involvement in large-scale assessment programmes. The development of the NPLAF in 2020 codified assessment programmes in Ghana and formalised the development and implementation of several national large-scale assessment programmes, including the NST, the BECE and WASSCE. The phased implementation of the NST began in 2021 and aims to provide national indicators for educational achievement in English as well as mathematics, and identify individual and school-level learning gaps. Ghana also has some experience in international large-scale assessment through their involvement in the Trends in International Mathematics and Science Study (TIMSS) programme, although the last TIMSS participation was in 2011.	
E2 Legislation or policy	The large-scale assessment programmes that form part of the assessment system are guided by legislation or policy.	Emerging	• Document sources: National Pre-tertiary Education Curriculum Framework (2018); Education Strategic Plan 2018-2030 (MoE); Education Act 2008. • National Pre-tertiary Education Curriculum Framework (NPECF) – includes specification of assessment programmes in Ghana. • Education Strategic Plan (ESP) 2018-2030 – includes goals related to improving learning assessment (BE2.2, SE2.3). • Education Act 2008 – establishes authority and functions of National Council for Curriculum and Assessment (NaCCA). Ghana's large-scale assessment programmes are organised through both legislation and a number of specific policy documents. The Education Act 2008 establishes the authority and function of the NaCCA. The MoE's ESP 2018-2030 includes a number of goals at the basic and secondary education levels specifically related to enacting and improving learning assessment in Ghana. Finally, NaCCA's NPECF and NPLAF specify the scope and implementation of assessment programmes across Ghana. International large-scale assessment is identified in NPLAF, but there are, as yet no specific policy documents relating to the implementation of PISA.	Capacity is needed to formalise the establishment of large-scale international assessments, including PISA, into Ghana's legislative and policy framework.
E3 Leadership	The government demonstrates senior leadership and political will in support of large-scale assessments. A strategy is in place to promote participation, effective implementation, and dissemination of results amongst all relevant national stakeholders.	Emerging	Supporting evidence from in-country visit meetings and consultations: Political will in support of large-scale assessment has been demonstrated through the development of several policy documents and the Minister's announcement of Ghana's involvement in PISA 2025 during National Education Week in October 2022. The participation in PISA 2025 is well received by representatives of agencies and other key stakeholders. The Ghana PISA working group includes representatives from GES, GALOP, NaCCA, Technical Vocational Education and Training (TVET), West African Examinations Council (WAEC), Planning Budgeting Monitoring and Evaluation (PBME), National School Inspectorate Authority (NaSIA), Free Senior High Schools (FSHS) and other MoE agencies. The group has been meeting regularly since August 2022.	There is currently no strategy in place to either promote participation in and implementation of PISA 2025, or dissemination of PISA results, and capacity is needed to develop such a strategy.

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
E4 Institutional arrangements	The government has well-established institutional arrangements for large-scale assessments with clear accountability mechanisms.	Emerging	Supporting evidence from in-country visit meetings and consultations: NaCCA is well established and responsible for the development and implementation of national large-scale assessments in Ghana, with the support of other MoE agencies and external organisations including WAEC. The PISA working group will also be an important element of the institutional arrangements.	
E5a Funding	The government provides sufficient and stable funding for large-scale assessments.	Latent	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: While the government of Ghana has committed to implementation of PISA 2025, funding sources for the project are not clear. Given the ambitious NST national large-scale assessment programme which began rolling out in December 2021, funding for PISA 2025 is not yet sufficient or stable. Without stable government funding, participation in large-scale international assessments will be dependent on external donors, undermining the sustainability of their participation and the ability to use these assessments to drive reforms and make data-driven decisions through indicator monitoring.	Capacity is needed to encourage ongoing government funding of PISA to ensure the sustainability of the programme in the long term.
E5b Funding from donors	The government receives funding from donors for large-scale assessments.	Latent	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Funding of previous international large-scale assessment programmes was contingent on donor assistance, and it is likely that this will be the case for PISA 2025.	
E6 Use of assessment data	Government and key stakeholders have capacity to use data from large-scale assessments for evidence-based education policy and planning.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Document source: National Pre-tertiary Education Curriculum Framework (NPECF) (2018) • WAEC develops reports from results of BECE and WASSCE. • Some examples of the use of data from LSAs include: Accountability of funds for school development; Low learning outcomes; Infrastructure deficit; For identify learning gaps; Developing educational interventions; Informing policies on education; Curriculum review; Resource allocation; Teachers professional training and capacity building; Educational planning and policies; Identifying variations in performance by region, sex, ethnic background and social-economic background. • NPECF notes changes to curriculum as a result of data from NEA and other national assessments. • Also note reference in NPECF to international benchmarking of curriculum. MoE agencies and other key stakeholders (e.g. WAEC) have demonstrated capacity to produce, analyse and use data from large-scale assessments. Data has been used to: • target infrastructure deficits • identify learning gaps and develop educational interventions • allocate resources • raise school accountability.	

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
			The NPECF identifies the current broad changes to the curriculum in pre-tertiary Ghanaian schools as a direct result of data use from national large-scale assessments and identifies international benchmarking of the national curriculum as a specific priority.	
E7 Educational Management Information System	The government has developed a system for the collection, integration, processing, maintenance and use of data and information related to school, teachers and students.	Emerging	Supporting evidence from in-country visit meetings and consultations, online questionnaire responses and personal correspondence: Document sources: Education Strategic Plan 2018-2030 (MoE); Technical review of EMIS and statistical analysis in Ghana (2012); National experience sharing on EMIS in Ghana (2016) • The EMIS, a unit under the Statistics, Research and Information Management (SRIM) is one of Ghana's main national data sets about education. • EMIS launched in 1997 as a part of the Free Compulsory and Universal Basic Education programme. • Current system developed from UNESCO Institute for Statistics (UIS) Capacity Building Project and has been in use since 2007. • Despite significant achievements, there is still further scope of reducing the time-lag as well as improving the coverage, quality, consistency, sharing, dissemination and use of educational statistics. • The EMIS collects data through an annual census, focusing on enrolment, teacher data, physical infrastructure and financial data. • The EMIS unit of the MOE collects data from November to March of every year and uses the period from April to May to process data and compile reports. • Key indicators are made available to the public electronically in June, and the Education Sector Performance Report (ESPR) compiles the data into a report in July of every year. • Education Strategic Plan notes: underreporting of student data, particularly of students with disabilities; ongoing need to strengthen EMIS making data "more comprehensive, digital and accessible"; plan to link EMIS with TVET information system; intent to link EMIS with other databases including student performance and human resources; inaccurate and unreliable EMIS data. The EMIS, a unit under Statistics, Research and Information Management (SRIM) is one of Ghana's main national data sets for education. It is through the EMIS annual census that the MoE collects, analyses and disseminates school-level data about all pre-tertiary level schools (public and private) including Kindergartens, Primary Schools, Junior High Schools, Senior High Schools, and Technical and Vocational Training Institutions. The Ghanaian EMIS, initially launched in 1997, was redeveloped from a UNESCO UIS project in 2007, and currently operates in digitised form for timely and real time processing of data from the school level, including student enrolment, teachers, physical infrastructure and school finances.	

Table A A.2. Organisational level

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
O1 Assessment team	There is a dedicated and skilled assessment team to complete the diverse tasks associated with large-scale assessments, including management, instrument development, translation and linguistic quality control, test design, sampling, survey operations and logistics, data management, data analysis, reporting and dissemination. Capacity-building is provided for assessment centre staff.	Latent	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: There is significant experience within both NaCCA and WAEC in the implementation of large-scale assessments in Ghana. Individuals within both agencies have experience in management, instrument development, test design, sampling, survey operations and logistics, data management, data analysis, reporting and dissemination. The PISA working group, comprising members across several other agencies, is also providing advice on the implementation of PISA 2025. However, a PISA NC has not yet been established.	Capacity is needed in the development of a dedicated PISA NC. The Director General of NaCCA has been named as the NPM, and it would seem suitable and appropriate that the PISA NC be developed around the structures of NaCCA. But the accountability and organisational structure of this NC needs to be established. Capacity is also needed to identify and allocate a suitable budget for the establishment and development of the NC. At present NaCCA, WAEC and other agency individuals have work commitments additional to PISA. These potential conflicts will also need to be allowed for in the establishment of the NC.
O2 Mobilisation of funding	The large-scale assessment centre is able to mobilise the allocated funds to complete the diverse tasks associated with large-scale assessments. Funding is also mobilised to provide for capacity-building of assessment centre staff.	Latent	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Funds have been allocated and mobilised to complete the diverse tasks associated with large-scale assessments, including the implementation of the NST, but funds for PISA are yet to be identified or budgeted. There is a lack of long-standing agreements to cover funding of international large-scale assessments. Funding for previous cycles of large-scale international studies has largely been sourced from international donor organisations.	Securing funding for capacity building of NC staff members may further increase the chance of successfully implementing PISA 2025. The Project Implementation Plan (PIP) will assist Ghana to budget for PISA 2025.
O3 Temporary staff	Clear and transparent criteria and procedures are in place for recruiting and remunerating temporary staff, including translators and reconcilers, test administrators, quality monitors, coders of constructed response items, coders of occupational data, and data entry and data management support staff.	Latent	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Currently, WAEC recruits temporary staff for item writing, test development, moderation and marking as needed. The need for recruitment of temporary staff within MoE agencies, and the procedures for doing so, are not clear at this stage.	Capacity is needed to develop a strategy to identify and recruit external, additional staff and experts on a needs basis according to the PISA timelines. The development of clear and transparent terms of reference for staff recruitment is also needed.

O4 Physical infrastructure	The physical infrastructure of the large-scale assessment centre is adequate, i.e. there is sufficient and secure office space, meeting rooms, telephones with international access, secure facilities for data processing, coding operations and storage of assessment material.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: The PISA NC will likely be established at NaCCA although that is yet to be determined. NaCCA, WAEC and other relevant agencies have well-equipped facilities with necessary physical infrastructure for implementing large-scale assessments, including workstations and offices, meeting rooms, computer and video conferencing facilities, secure network and storage, and relevant internet access. WAEC also has well-established security procedures and protocols for printing, storage, transport and delivery of test and exam materials used in NST, BECE and WASSCE.	As previously noted, capacity is needed to identify the location of the NC and to ensure relevant infrastructure and security procedures are available for the PISA team.
O5 IT infrastructure and support	The IT infrastructure of the large-scale assessment centre is adequate, i.e. there are computers running Windows with up-to-date Microsoft Office, high bandwidth internet connection, secure networked environment, secure servers, cloud access/storage, printers, copiers, scanners and email. Necessary specialised software licenses are identified, acquired, installed and maintained. IT personnel is available to support the assessment team in all IT related aspects.	Emerging for PBA; Latent for CBA	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: The IT infrastructure at both NaCCA and WAEC is well established and used for item writing and test development, test delivery and logistics, test marking and data analysis, so as to deliver the current national large-scale assessments. The Centre for National Distance Learning and Open Schooling (CENDLOS) has significant IT infrastructure and expertise, and ongoing plans to develop, deliver and implement online assessments. As with previous indicators, the particular rating level of this indicator is largely contingent on the final decision regarding the location of the NC.	Capacity needs include maintaining and developing the stability and security of internet connections, data storage and server access, as well as assistance with specific software, student delivery, coding system and assessment team support for implementation of PISA 2025. Additional IT infrastructure support to implement the CBA delivery will also be needed if the CBA option is chosen for Ghana.
O6 Security policies and procedures	Security policies and procedures are established to ensure assessment material and data is kept secure and confidential. Legally binding measures are in place to ensure compliance (e.g. confidentiality agreements).	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Both NaCCA and WAEC have significant experience at securely delivering national large-scale assessments and have well-developed security protocols, including: • monitored printing • CCTV monitoring • internal security and police co-operation • safe storage facilities with 2-key security and 24-hour guards, amongst others. Confidentiality agreements around the security of materials are used in MoE agencies.	As with other indicators at the organisational level, with the PISA NC not yet established, capacity is needed to ensure these security policies and procedures are established in accordance with PISA technical standards.
O7 Instrument development	Quality assurance mechanisms are in place to ensure the assessment instruments (tests and contextual questionnaires) are reliable, valid and fair.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: WAEC have detailed item development, test construction and quality assurance mechanisms and procedures. A team of subject specialists, some with psychometric experience, is supplemented by outside experts as needed for the development of national tests and examinations. Training in Item Response Theory for test developers is also ongoing. MoE agencies include experts in adaptation, translation and contextualisation of test items and survey questions, however, there is limited experience in following the quality assurance procedures of international large-	Once a PISA NC is established a strategy will be needed to build capacity for both improved assessment design to enable analysis and comparability across time and cohorts and to interpret item statistics resulting from psychometric analysis.

			scale assessment programmes.	
O8 Translation and linguistic quality control	Where assessment instruments are developed in multiple languages, linguistic quality assurance procedures are in place to ensure the items are linguistically and psychometrically equivalent across multiple languages.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: For PISA in Ghana, cognitive items and contextual questionnaires will be adapted from the English source version to the Ghanaian context following the PISA translation and adaptation guidelines. As noted for indicator O7, MoE and external agencies in Ghana have experience in item development, adaptation and translation along with well-developed quality assurance processes, however, PISA translation and adaptation procedures will be new to the PISA NC, when established.	Given that the ability to interpret item statistics, such as Differential Item Functioning, is important to identify translation and adaptation errors in Field Trial and Main Survey data, an extensive capacity building opportunity in the area of translation and linguistic quality control will be beneficial to the PISA NC in Ghana.
O9 Target population and sampling	The sample frame provides complete coverage of the defined target population. Practicalities for assessing the target population are considered in the sampling design. Exclusions are clearly defined and documented.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Document source: Early grade reading assessment and early grade mathematics assessment – report of findings (USAID, 2015) • Initial trial of NST used sample approach. • Previous experience in sampling includes NEA administered to P3 and P6 students: EGRA/EGMA, which used a random sample of P2 students. There is significant experience across multiple agencies in delivering sample-based large-scale assessments in Ghana, including the EGRA, the EGMA, the NEA and the initial trial of the NST. All these assessments have been, and are, grade-based rather than age-based. The EMIS contains a database of all public school but does not yet include all private schools. While work is ongoing within the EMIS unit to enhance and improve coverage some concerns remain about reliability of data.	Capacity may be required by the PISA NC, when established, to create a sample frame that provides complete coverage of the age-based target population with exclusions being clearly defined and documented. Additional capacity needs include the identification of a suitable testing window according to the PISA technical standards, measures to ensure response rates, and ensuring access to sampled students in remote areas.
O10 Survey operations and logistics	Quality assurance mechanisms are in place to ensure survey operations are standardised, monitored and documented. Measures are in place to ensure participation and to monitor response rates.	Emerging for PBA; Latent for CBA	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: WAEC has well-developed quality assurance processes for survey operations relating to national large-scale assessments. NaCCA has significant experience in delivering a number of these assessments, including in remote areas. The experience of these, and other agencies will need to be utilised when the PISA NC is established.	If Ghana chooses the option of CBA delivery, which has been favoured in recent discussions, capacity will be needed for planning quality assurance mechanisms to ensure survey operations for the CBA are standardised, monitored and documented. Further capacity will be required of the NC staff to: understand and adhere to the PISA Technical Standards on quality assurance; plan independent quality monitoring measures to ensure the quality of test administration; and develop a strategy for regularly monitoring participation during data collection.

O11 Data management	Quality assurance mechanisms are in place to ensure the final database is free from discrepancies and errors, appropriately structured and documented.	Emerging	Supporting evidence from in-country visit meetings and consultations, online questionnaire responses, and personal correspondence: Document source: Fidelity of implementation (NaCCA, 2022) • See above re. WAEC processes • Example of major data collection and analysis, sampling across all regions in Ghana using EMIS data. Both NaCCA and WAEC have significant data management experience from implementation of national large-scale assessments, including NST, BECE and WASSCE. While not specifically focusing on large-scale assessment, the recent surveys focusing on the fidelity of implementation of the standards-based curriculum also point to significant experience across MoE agencies in data collection and analysis of schools across all regions of Ghana. The EMIS provides a centralised, interactive means of monitoring, measuring, analysing, and extracting a wealth of insights from relevant datasets and capturing key indicators from schools.	When the PISA NC is established, capacity will be needed to develop a comprehensive data management plan according to PISA timelines and technical standards, and national quality assurance measures for data management.
O12 Data analysis and reporting	Technically sound and appropriate data analysis techniques are used to provide analytical results that permit valid and useful inferences about the population(s) of interest. Analytical results are fully documented and reproducible.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Individuals within NaCCA, WAEC and other agencies in the MoE have experience in national-level data analysis, including: • the use of statistical software packages • interpretation of scale scores and performance levels • performing descriptive and regression analyses • calculation of standard errors • the use of correction techniques.	However, producing a national report based on PISA international analytical results will be a new experience for the data analysts in the PISA NC when it is established. Some delays in the data analysis and dissemination of results from the NST have been noted and capacity will be needed to build on existing experience, strengthen reporting and analysis skills, and analyse and interpret PISA data, and to use the findings from PISA results in the national context.
O13 Dissemination and communication	Appropriate products and approaches to reporting and dissemination are tailored to the different stakeholder groups and promote appropriate and effective use of the assessment data and results by those groups.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: Results from large-scale assessments are widely disseminated through relevant websites and via published reports. The annual National Education Week is also used as a venue to discuss, distribute and more widely disseminate information on national large-scale assessments to a variety of stakeholder groups.	However, tailoring of assessment results to different stakeholders is not apparent and capacity is needed to establish a detailed dissemination and communications plan to assist with the dissemination and application of the PISA findings, in particular, to identify different types of reports and products targeting different stakeholder needs.

Table A A.3. Individual level

Indicator area	Capacity indicator	Rating	Justification	Identified capacity needs
I1 National Project Manager	There is an appropriately skilled and experienced National Project Manager (NPM) with decision-making authority within the assessment centre to lead the assessment team and to oversee all assessment activities. The NPM is able to communicate effectively, orally and in writing, in English. The NPM is employed on a full-time basis for the duration of the assessment cycle.	Emerging	Supporting evidence from in-country visit meetings and consultations, and online questionnaire responses: The Director General of NaCCA has been appointed to the role of PISA NPM. He will have full decision-making authority within the PISA NC, once established, to lead the assessment team and to oversee all assessment activities. The NPM has high-level work commitments within NaCCA in addition to the PISA NPM role, so it is essential to ensure the availability of the NPM for the duration of the PISA 2025 cycle. Given these other commitments it is also important that support mechanisms are put in place to ensure the NPM can fully pay attention to the PISA tasks and that the NPM as well as all NC staff who have major responsibility for different PISA task areas are familiar with the PISA technical standards.	Given the responsibilities of the NPM outside of PISA, it would be advisable to quickly identify a deputy NPM in order to be able to work on PISA on a daily basis and to be able to respond quickly to any requests from contractors or the OECD.
I2 Assessment instruments co-ordinator	The national-level tasks related to the assessment instruments are overseen by an appropriately skilled and experienced team member, including national item review, organisation of translation, adaptation and verification, coding of constructed response items, and coding of occupational data. If needed, domain and contextual experts are engaged to assist with national item review, linguistic and contextual adaptation, supervising coders and interpretation of findings.	Not yet appointed	The national-level tasks related to the assessment instruments will be overseen by an appropriately skilled and experienced assessment instruments co-ordinator. However, the role has not been filled at the time of the CNA.	Capacity needs of the assessment instruments co-ordinator should be identified in light of the roles responsibilities once a co-ordinator has been appointed.
I3 Sampling manager	The sampling manager is appropriately skilled and experienced in sample design and in the use of scientific sampling methods, to oversee and manage all sampling-related activities at the national level.	Not yet appointed (likely Emerging for a first participation, based on the experience at the organisation level)	The national-level tasks related to sampling will be overseen by an appropriately skilled and experienced sampling manager. However, the role has not been filled at the time of the CNA.	Capacity needs of the sampling manager should be identified in light of the roles responsibilities once a manager has been appointed. Given previous sample-based national large-scale assessments in Ghana have been focused on grade levels and not student age, this indicator is likely to be Emerging when a manager is appointed.

I4 Survey operations and logistics manager	The survey operations and logistics tasks are organised and overseen by an appropriately skilled and experienced team member, including preparation of school-level materials, school contact and co-ordination, assessment logistics, test administration and training, and national quality monitoring (including monitoring response rates at school and student levels). A good understanding of the security and confidentiality requirements, and the technical support requirements for computer-based delivery (as applicable) is critical.	Not yet appointed (likely Emerging for PBA and Latent for CBA, based on the experience at the organisation level)	The national-level tasks related to survey operations and logistics will be overseen by an appropriately skilled and experienced manager. However, the role has not been filled at the time of the CNA.	Capacity needs of the survey operations and logistics manager should be identified in light of the roles responsibilities once a manager has been appointed.
I5 Data manager	The data manager is appropriately skilled and experienced in data management, data processing, quantitative data analysis and using statistical packages such as SPSS, SAS, STATA or R, to oversee and manage all data-related activities at the national level.	Not yet appointed	The national-level tasks related to data management will be overseen by an appropriately skilled and experienced data manager. However, the role has not been filled at the time of the CNA.	Capacity needs of the data manager should be identified in light of the roles responsibilities once a manager has been appointed.
I6 Data analyst	There is a senior data analyst who is appropriately skilled and experienced in quantitative data analysis and using statistical packages (e.g. SPSS, SAS, STATA or R), to assist with national-level data analysis and reporting. The senior data analyst is familiar with Item Response Theory and is able to interpret item statistics. The senior data analyst is familiar with methods for calculating appropriate standard errors of statistics in complex survey designs to support interpretation of assessment results.	Not yet appointed (likely Emerging, based on the experience at the organisation level)	The national-level tasks related to data analysis will be overseen by an appropriately skilled and experienced data analyst. However, the role has not been filled at the time of the CNA.	Capacity needs of the data analyst should be identified in light of the roles responsibilities once an analyst has been appointed.
I7 Information Technology co-ordinator	The team has a full-time IT co-ordinator for PISAs IT-related activities for the implementation of the computer-based survey within schools in their country/economy (if this option is taken).	Not yet appointed (likely Established for PBA and Emerging for CBA, based on the experience at the organisation level)	The national-level tasks related to IT will be overseen by an appropriately skilled and experienced IT co-ordinator. However, the role has not been filled at the time of the CNA.	Capacity needs of the IT co-ordinator should be identified in light of the roles responsibilities once a co-ordinator has been appointed.

Annex B. Stakeholder and document mapping

Table A B.1. Stakeholder mapping table

Dimensions	Government (national or sub-national)	Education or assessment institutions, organisations, agencies	Representatives in education development partner/ donor organisations
Enabling environment / Organisational level	Ministry of Education (MoE), Republic of Ghana Officials: • Director Statistics, Research, Information and Monitoring • Principal Planning Officer Departments and Divisions: • Education Management Information System (MoE) • Centre for National Distance Learning and Open Schooling (CENDLOS) • Free Senior High Schools • Ghana Accountability for Learning Outcomes Project • Ghana Education Service (GES) • National Council for Curriculum and Assessment (NaCCA) Professor Edward Appiah • National School Inspectorate Authority (NaSIA) • National Teaching Council (NTC) • Planning, Budgeting, Monitoring and Evaluation (PMBE) Unit Mrs. Mavis Asare Donkor • Pre-Tertiary Directorate (MoE) • Technical Vocational Education and Training Service (TVETS)	• Ghana National Association of Private Schools (GNAPS) • Private Education Coalition • T-TEL Transforming Teaching, Education, Learning • West African Examinations Council (WAEC)	• The Global Partnership for Education • Innovations for Poverty Action • UNESCO • UNICEF • USAID • The World Bank Ms. Eunice Yaa Brimfah Ackweh

Table A B.2. Document mapping table

Dimensions	Documents
Enabling environment (Information about education in Ghana)	• Ghana Education Act 2008 www.ilo.org/dyn/natlex/docs/MONOGRAPH/83622/92463/F2061259086/GHA83622.pdf • MoE, Education Strategic Plan, 2018-2030 www.globalpartnership.org/content/education-strategic-plan-2018-2030-ghana • MoE, Education Sector Medium-Term Development Plan, 2022-2025 • NaCCA MoE, National Pre-tertiary Education Curriculum Framework nacca.gov.gh/wp-content/uploads/2019/04/National-Pre-tertiary-Education-Curriculum-Framework-final.pdf • NaCCA MoE, National Pre-tertiary Learning Assessment Framework • ghanaeducation.org/wp-content/uploads/2021/01/National-Pre-Tertiary-Learning-Assessment-Framework_-24062020.pdf • Education Sector Performance Report 2018 assets.globalpartnership.org/s3fs-public/document/file/2020-16-Ghana%20-%20ESP-IR.pdf?VersionId=foXJ6Zqb.K1ISYmnT.c4EtcxpliHRs3c • Education Bill 2015 new-ndpc-static1.s3.amazonaws.com/CACHES/PUBLICATIONS/2016/04/16/Education+Bill+Final+10th+November+New.pdf • Education Regulatory Bodies Act 2020 www.nasia.gov.gh/wp-content/uploads/EDUCATION-REGULATORY-BODIES-ACT-2020-ACT-1023_26AUG2020.pdf • Education Management Information System: A short case study of Ghana documents1.worldbank.org/curated/en/133081468031776923/pdf/466190NWP0Box310Case0Study0Ghana111.pdf • Looking through the lenses of EMIS www.researchgate.net/publication/265598388_Looking_through_the_Lenses_of_Educational_Management_Information_Systems_EMIS • National experience sharing on EMIS in Ghana uis.unesco.org/sites/default/files/documents/rws_windhoek2016_national-experience-sharing-on-emis_ghana.pdf • Technical Review of EMIS and Statistical Analysis in Ghana docplayer.net/59996991-Technical-review-of-emis-and-statistical-analysis-in-ghana.html
Organisation level (Information about assessment in Ghana)	• 2022 Fidelity of Implementation, NaCCA nacca.gov.gh/wp-content/uploads/2022/09/Fidelity-of-Implementation-July-2022.pdf • 2018 National Education Assessment, Report of findings (Ghana 2016, National Education Assessment, Report of findings sapghana.com/data/documents/2016-NEA-Findings-Report_17Nov2016_Public-FINAL.pdf) • Ghana 2015, Early Grade Reading Assessment and Early Grade Mathematics Assessment, Report of findings nacca.gov.gh/wp-content/uploads/2019/04/Ghana-2015-EGRA-EGMA_22Nov2016_FINAL.pdf • The use of learning assessment data: Ghana, International Institute for Educational Planning (IIEP) Policy Brief, 2021 unesdoc.unesco.org/ark:/48223/pf0000375497 • Learning assessments in Ghana, IIEP information sheet, 2021 www.iiep.unesco.org/sites/default/files/informationsheet_ulad_ghana.pdf • SABER[6] Ghana: Student assessment Country report 2013

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[6] SABER = Systems Approach for Better Education Results (www.worldbank.org/en/topic/education/brief/systems-approach-for-better-education-results-saber)

documents.worldbank.org/en/publication/documents-reports/documentdetail/175691468037472271/saber-student-assessment-country-report-ghana-2013

- TIMSS data in an African comparative perspective, Large scale assessments in education
largescaleassessmentsineducation.springeropen.com/articles/10.1186/s40536-015-0014-y
- Ghana Accountability for Learning Outcomes Project, Project information Document, World Bank, 2018
documents1.worldbank.org/curated/en/612671545310563888/pdf/Concept-Project-Information-Document-PID-Ghana-Accountability-for-Learning-Outcomes-Project-P165557.pdf
- Use of learning assessment data in the planning cycle, Case study – Ghana, USAID March 2021
www.edu-links.org/sites/default/files/media/file/LearningAssessmentData_CaseStudy_Ghana_Mar21.pdf

Annex C. Capacity Needs Assessment consultations

Table A C.1. List of participants in the Capacity Needs Assessment consultations

Name	Title	Organisation
The Honorable, Dr. Yaw Osei Adutwum	Minister for Education	Ministry of Education
Catherine Appiah-Pinkrah	Director General Administration	Ministry of Education
Hanifa Abdulai	Assistant Planning Officer	Ministry of Education
Matilda Azuimah	Head Legal	Ministry of Education
Rose Bentsil-Quaye	Senior Planning Officer	Ministry of Education
Godwin-Godson Seli	Deputy Director Policy and Admin Pre-tertiary Directorate	Ministry of Education
Clement Antwi	NST Coordinator	Ministry of Education
Gilbert Bruce	ICT	Ministry of Education
Joshua Simpson	APO PBME	Ministry of Education
Emmanuel Asare	APO	Ministry of Education
Mirabel Bentil	Personnel Officer	Ministry of Education
Ignatius Onai	Driver	Ministry of Education
Dr. Leslie Casely-Hayford	Director	Associates for Change
Dr. James Adam	Senior Research Lead	Associates for Change
Nana Adwabour	Executive Director	Centre for National Distance Learning and Open Schooling
Kwadwo Amoateng	Executive Secretary	Centre for National Distance Learning and Open Schooling
Edem Tumdie	Auditor	Commission for Technical and Vocational Education and Training
Kofi Kyei-Bafffauw	Senior Public Relations Officer	Commission for Technical and Vocational Education and Training
Nana Sika	Deputy Coordinator	Free Senior High Schools
Kwame Opoku-Siaw	IT	Free Senior High Schools
Nana Hagan	Deputy Director	Ghana Accountability for Learning Outcomes Project
Cynthia Lawson	Administrator	Ghana Accountability for Learning Outcomes Project
Cynthia Heyman	Administrator	Ghana Accountability for Learning Outcomes Project
Petnie Addaie	Research Advisor	Ghana Accountability for Learning Outcomes Project
Patty Assan	Director, Schools and Instruction Division	Ghana Education Service
Kenneth Abitey	Schools and Instruction Division	Ghana Education Service
Charles Asante	Schools and Instruction Division	Ghana Education Service
Enoch Gyetuah	National Education Director	Ghana National Council of Private Schools
Abigail Tetteh	Administrative Assistant	Ghana National Council of Private Schools
Osei Samuel	Finance	Ghana National Council of Private Schools
Cynthia Bosumtwi-Sam	Policy Advisor	Innovations for Poverty Action
Professor Edward Appiah	Director General	National Centre for Curriculum and Assessment
Matthew Owusu	Deputy Director General	National Centre for Curriculum and Assessment
Anita Collison	Acting Head, Standards, Assessment and Quality Assurance	National Centre for Curriculum and Assessment

Bridget Anku	Acting Head, Standards, Assessment and Quality Assurance	National Centre for Curriculum and Assessment
Michael Acheampong	Deputy Inspector General of Schools	National Schools Inspectorate Authority
Cynthia Botchway	Director Standards and Licensing	National Schools Inspectorate Authority
Gideon Sarpong	Assistant to IGS	National Schools Inspectorate Authority
Nathaniel Fotwe	Personal and Technical Assistant	National Schools Inspectorate Authority
Atubga Agumba	Acting Director Continuous Professional Development	National Teaching Council
Grace Duah	Acting Director Standards and Compliance	National Teaching Council
Nimako Dorme	Acting Director Exams and Assessment	National Teaching Council
Hazel Sarpong	Acting Director Monitoring and Evaluation	National Teaching Council
Janet Obiri-Yeboah	Member Executive	Private Education Coalition
David Prah	Deputy Director	Technical and Vocational Education and Training Service
Phillibert Nkumah	Head of Training Assessment and QA	Technical and Vocational Education and Training Service
Lily Djima	Deputy Director	Technical and Vocational Education and Training Service
David Mensah	Senior Technical Advisor	Technical and Vocational Education and Training Service
Ruth Abogye	Executive Assistant	Technical and Vocational Education and Training Service
Stella Nfou	Acting Director Finance	Technical and Vocational Education and Training Service
Alice Dolley	Acting Director	Technical and Vocational Education and Training Service
John Crae	Assessment	Technical and Vocational Education and Training Service
Cathy Mensah	G and C Coordinator	Technical and Vocational Education and Training Service
Dr Eric Kofi Adzroe	Acting Director Infrastructure	Technical and Vocational Education and Training Service
Elvis Addo	Public Relations Officer	Technical and Vocational Education and Training Service
Juliana Nkrumah	Acting Director G and A	Technical and Vocational Education and Training Service
Abigail Burgessom	Acting Director Partnerships	Technical and Vocational Education and Training Service
Adwoa Owusuah Yawson	Acting Director Admin	Technical and Vocational Education and Training Service
Christian Agordah	Acting Director V and R	Technical and Vocational Education and Training Service
Samuel Debkha	Acting Director TAQA	Technical and Vocational Education and Training Service
Apollonius Asare	Chief Programme Officer	UNESCO
Moses Gemeh	Principal Programme Officer	UNESCO
Adamu-Ussah Madeez	Education Specialist	UNICEF
Ben Owusu	Acting Head of Office	West African Examinations Council
Richard Sefah	Controller of Science/Maths/IT	West African Examinations Council
Isaac Danso	Acting Head Test Administration	West African Examinations Council
Emmanuael Gliforbu	Acting Head ICT	West African Examinations Council
Victor Brew	Head Legal	West African Examinations Council
Agnes Teye-Cudjoe	Head Public Affairs	West African Examinations Council
Collins Essah	PA to HNO	West African Examinations Council
Eunice Yaa Brimfah Ackweh		World Bank

Annex D. CNA questionnaires

Questionnaire for officials

Participant information

Please enter your information.

Name	
Job title	
Organisation	
Role in PISA 2025	

Introduction

[Country] is participating in the OECD Programme for International Student Assessment – PISA 2025. ACER has been engaged by the OECD to support [country] in preparing and implementing PISA 2025. One part of this support is to conduct a Capacity Needs Assessment (CNA). The aim of this CNA is to identify capacity assets and needs of [country's] assessment system for the successful implementation of PISA 2025.

This CNA questionnaire asks you about the capacity assets and needs at the system and organisational levels. We have around [number] questions to ask you and the questionnaire is expected to take approximately 30 minutes.

Voluntary participation and informed consent:

Your participation in this questionnaire is entirely voluntary and explained in the consent form that is provided separately.

Section A: Experience in large-scale assessments

A1.	Has your country implemented a large-scale **national** assessment before? (please circle your answer)	Yes	No	Not sure

If you have answered "No" or "Not sure", proceed to A9 {these will be automatically routed online}

A2.	Please list, up to three, most recent **national** large-scale assessment(s) your country implemented and tell us about when, and with whom it was implemented.	**A3.** In which year(s) was it implemented?	**A4**. What were the targeted grades of school education?
#1	[Enter the name of the national large-scale assessment]		
#2	[Enter the name of the national large-scale assessment]		
#3	[Enter the name of the national large-scale assessment]		

Please answer the following questions about the **national** large-sale assessment you listed as #1 in A2.

Name of the national large-scale assessment (this will be populated by the answers above)	
A5. What learning domains were included?	(drop down menu of: • Reading/literacy/language • Mathematics/numeracy • Sciences • Social sciences • Computing/information literacy/IT/ICT • 21st century skills/global citizenship/civics)

A6.	How was the performance data measured?	(Please tick all that apply)
a	Raw scores (or averages of raw scores)	
b	Percent correct (per learning domain)	
c	Scale scores	
d	Performance levels on a scale	
e	Described proficiency levels	
f	Linked performance data (to monitor changes over time/between grades)	

A7.	What type of contextual information was collected?	(Please tick all that apply)
a	Gender	
b	Socio-economic status	
c	Language spoken at home	
d	School structures and resources (e.g., public/private status, location of school, school and class sizes)	
e	Teaching and learning practices (e.g. teaching methods, classroom management)	

A8.	What areas of the large-scale national assessment was led by your country? (Please tick all that apply)	(Please tick all that apply)
a	Coordination of the assessment program	
b	Design of the assessment	
c	Item development	

d	Sampling	
e	Implementation of the assessment	
f	Analysis	
g	Reporting	
h	Dissemination of results	

{Questions A5 to A8 will be repeated for each of the national assessments listed in A2.}

A9.	Has your country implemented a large-scale **international** assessment before? (please circle your answer)	Yes	No	Not sure

If you have answered "No" or "Not sure", proceed to A20 {these will be automatically routed online}

A10.	Please list, up to three, most recent **international** large-scale assessment(s) your country implemented and tell us about when, and with whom it was implemented.	**A11.** In which year(s) was it implemented?	**A12**. What were the targeted grades of school education?
#1	[Enter the name of the international large-scale assessment]		
#2	[Enter the name of the international large-scale assessment]		
#3	[Enter the name of the international large-scale assessment]		

Please answer the following questions about the **international** large-sale assessment you listed as #1 in **A10**.

Name of the international large-scale assessment (this will be populated by the answers above)	
A13. What learning domains were included?	(drop down menu of: • Reading/literacy/language • Mathematics/numeracy • Sciences • Social sciences • Computing/information literacy/IT/ICT • 21st century skills/global citizenship/civics)

A14.	How was the performance data measured?	(Please tick all that apply)
a	Raw scores (or averages of raw scores)	
b	Percent correct (per learning domain)	
c	Scale scores	
d	Performance levels on a scale	
e	Described proficiency levels	
f	Linked performance data (to monitor changes over time/between grades)	

A15.	What type of contextual information was collected?	(Please tick all that apply)
a	Gender	
b	Socio-economic status	
c	Language spoken at home	
d	School structures and resources (e.g. public/private status, location of school, school and class sizes)	
e	Teaching and learning practices (e.g. teaching methods, classroom management)	

A16.	What areas of the international large-scale assessment were led by your country? (Please tick all that apply)	(Please tick all that apply)
a	Coordination of the assessment program	
b	Design of the assessment	
c	Item development	
d	Sampling	
f	Implementation of the assessment	
g	Analysis	
h	Reporting	
i	Dissemination of results	

{Questions A13 to A16 will be repeated for each of the international assessments listed in A10.}

A17.	Is there currently an established centre that is responsible for implementing PISA 2025? (please circle your answer)	Yes	No	Not sure

If you have answered "Yes" please continue to question A18.

If you have answered "No", please continue to Section B.

A18. What is the name of the centre and where does this centre sit? (For example, a unit or department within the Ministry of Education or external to the ministry and/or government)

_____

_____

_____

A19.	Is the assessment centre widely recognised in your country as an authority in student assessment? (please circle your answer)	Yes	No	Not sure

A19.a. Please explain the reason for your answer in A19?

_____

_____

_____

A20.	Which body is the assessment centre accountable to?	(Please tick the most accurate answer)
a	An autonomous board or committee that is institutionally separate from the assessment centre (e.g. the centre is within the MoE and reports to a board not within the jurisdiction of the MoE)	
b	A board or committee that belongs to the same institution as the assessment centre (e.g. the centre is within MoE and reports to a board from within MoE)	
c	An internal board or committee that sits within the assessment centre unit	
d	Other	

A20.e If you ticked "Other" in A20, please specify:

_____

_____

_____

A21.	How much autonomy does the assessment centre have?	(Please tick the most accurate answer)
a	Has complete autonomy. It can make decisions regardless of political party or matters.	
b	It has some autonomy. Some decisions can be made, but decisions may be reversed due to political matters.	
c	It does not have any autonomy at all. It is completely affected by political matters	

Section B: Implementation of PISA 2025

B1.	Has an assessment team been established that is primarily responsible for implementing PISA 2025 in your country? (Please circle your answer)	Yes	In progress	No	Not sure

If you have answered "Yes" of "In progress" please continue to question B2.

If you have answered "No", or "Not sure" please continue to Section C.

B2.	Is there an organisation chart of the PISA assessment team? (Please circle your answer)	Yes	In progress	No	Not sure

If you have answered yes to B2, please provide a copy of the organisation chart to your liaison officer.

B3.	What is the availability of the PISA assessment team members to fill the following key roles to work on PISA 2025? (Please tick that apply)	Full-time	Part-time	Not sure
a	National Project Manager			
b	Survey operations and logistics manager			
c	Administrative Officer			
d	Sampling Manager			
e	Assessment instruments coordinator			
f	Data Manager			
g	Data analyst			
h	IT Coordinator			
i	Translation/Adaptation coordinator			

B4.	Are there written job descriptions for each of the key roles for each of the core assessment team members? (please circle your answer)	Yes	In progress	No	Not sure

If you answered "Yes" or "In progress" to B4, please provide a copy (in English) of any of the available job descriptions to your liaison officer

B5.	Are there processes and procedures in place to secure extra permanent or temporary staff if needed? (Please circle your answer)	Yes	No	Not sure

B6. Can you describe the office space available for the PISA assessment team?

_____

_____

_____

_____

B7.	Are there adequate and secure (i.e. safe from unauthorised access, theft, fires, floods): (Please tick the relevant box in each row)	Yes	No
a	Workstations		
b	Meeting rooms		
c	Facilities for data processing		
d	Facilities for coding operations		
e	Storage rooms for assessment material		

B8.	Is there adequate: (Please tick the relevant box in each row)	**Yes**	**No**
a	Number of computers running Windows with up-to-date Microsoft Office (one per assessment team member)?		
b	High bandwidth internet connection? (e.g. at least 50mbits/sec)		
c	Secure network and servers? (e.g. requires password to access)		
d	Secure cloud access/storage? (e.g. requires password to access)		
e	Number of printers, copiers and scanners?		
f	Email accounts specific for PISA 2025?		

B9.	Do you have security policies and procedures in place to ensure all PISA 2025 assessment material and data is kept secure and confidential at all times? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to B9, please provide a copy (in English) of the security policies and procedures to your liaison officer

B10.	Are confidentiality agreements in place with all relevant staff and contractors who have access to assessment materials and data? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to B10, please provide a copy (in English) of the confidentiality agreement to your liaison officer

B11.	In your opinion, do all relevant individuals understand the security and confidentiality requirements? (please circle your answer)	Yes	No	Not sure

B12. What measures are in place to ensure assessment material and data are kept secure from unauthorised access, theft, fire and flood? Please also consider factors such as storage and transportation/delivery in your answer.

_____

_____

_____

Section C: Legislation and engagement

C1.	Are there national policies and/or guidelines for the implementation of large-scale assessments? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to C1, please provide a copy (in English) of the policies or guidelines to your liaison officer

C2.	Is there official documentation that outlines:	(Please tick all that apply)
a	The purpose of large-scale assessments	
b	How large-scale assessments inform education policy and practice	
c	The intended uses of assessment data	

C3.	Are large-scale assessments in your country enacted by legislation? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to C3, please provide a copy (in English) of the legislation to your liaison officer

C4.	Is the participation in large-scale assessments of schools and students enacted by this law or regulation? (please circle your answer)	Yes	No	Not sure

C5. How do senior government officials promote large-scale assessments?

_____
_____
_____

C6.	Are there any key stakeholders who oppose large-scale assessment programs? (please circle your answer)	Yes	No	Not sure

C6.a. If you answered 'yes' to C6, what are their main reasons for opposition?

_____
_____
_____
_____

C7.	What kinds of products will be developed to communicate the assessment results to stakeholders?	(Please tick all that apply)
a	Reports	
b	Policy briefs	
c	Assessment database	
d	Press releases	
e	Media reports	
f	Other	

C7.f. If you answered 'other' to C7, please specify

_____
_____

Section D: Funding

D1. How is the implementation of PISA 2025 going to be funded?

_____

_____

_____

_____

D2.	In your opinion, is there adequate funding for the implementation of PISA 2025? (please circle your answer)	Yes	No	Not sure

D2.a. If you answered "no" to D2, please specify why.

_____

_____

_____

_____

D3.	Has funding been fully secured to participate in PISA 2025 international meetings and trainings? (please circle your answer)	Yes	No	Not sure

D3.a. If funding has not yet been fully secured, do you expect to secure the funding, and by when?

_____

_____

_____

D4.	What is the main source of funding for the implementation of PISA 2025? (please circle your answer)	Internal sources	Donors or sponsors	Equal contribution of internal sources and donors/ sponsors	Not sure

D5.	Which development partners/donors (if any) have been actively supporting/funding the development of education in your country?	

D6.	Please list below the current and planned education assessment projects/programs funded by the development partners/donors:	
a		
b		
c		

Section E: Use of large-scale assessment data

E1. If assessment data is used to inform educational policy and practice in your country, please provide examples of how this happens. For example:

- Education policy processes, including education sector planning, monitoring and evaluation
- Resourcing/funding allocation
- Curriculum development
- School development
- School education workforce development (e.g., qualification and professional development of teacher trainers, teachers, school principals)

_____

_____

_____

_____

E2.	Do you expect to face any of these challenges when using large-scale assessment data in your country?	(please tick all that apply)
a	Lack of confidence in the reliability and validity of assessment results	
b	Inability to analyse and interpret assessment data	
c	Your own difficulty in understanding the purpose, intent and findings of the assessment	
d	Wider stakeholders have difficulty in understanding the purpose, intent and findings of the assessment	
e	Difficulty in using the results to inform decision making in education policies and practices	
f	Difficulty in dissemination of the results widely to engage wider stakeholders	
g	Fear of reprisal in light of poor assessment results	
h	Other	

E2.i. If you answered "Other" to E2, please specify:

_____

_____

Section F: Educational Management and Information System

F1.	Has an Educational Management and Information System (EMIS[7]) been developed within the Ministry of Education? (please circle your answer)	Yes	No	Not sure

---

[7] EMIS is a centralised system for the collection, integration, processing, maintenance and use of data and information related to schools, teachers, and students.

F2. If you answered "Yes" to F1, which department or unit of the Ministry of Education or agency/institution is responsible for managing EMIS in your country?

_____

_____

_____

_____

F3. If you answered "No" to F1, please explain how data and information related to schools, teachers and students are currently collected, integrated, processed, maintained, and used:

_____

_____

_____

_____

Section G: Training

G1.	Please select the opportunities (if available) to build capacity of core assessment team members outside of PISA international meetings and trainings. For the areas selected, what form will the capacity building take place (For example, formal qualification, workshop, short course)?	(Please tick all that apply)
a	No opportunities are available	
b	Test development	
c	Translation and adaptation	
d	Test design	
e	Item writing	
f	Sampling	
g	Field operations	
h	Data management	
i	Data analysis	
j	Project management	
k	IT	
l	Other	

G2. If you ticked any of the options in G2, please comment on what form the capacity building will take place.

_____

_____

_____

_____

Thank you very much for completing this Capacity Needs Assessment questionnaire!

Questionnaire for individuals

Participant information

Name	
Job title	
Organisation	
Role in PISA 2025	

Introduction

[Country] is participating in the OECD Programme for International Student Assessment – PISA 2025. ACER has been engaged by the OECD to support [country] in preparing and implementing PISA 2025. One part of this support is to conduct a Capacity Needs Assessment (CNA). The aim of this CNA is to identify capacity assets and needs of [country's] assessment system for the successful implementation of PISA 2025.

This CNA questionnaire asks you about the capacity assets and needs at the individual level. We have around [number] questions to ask you and the questionnaire is expected to take approximately 30 minutes.

Voluntary participation and informed consent:

Your participation in this questionnaire is entirely voluntary and explained in the consent form that is provided separately. If you agree to participate, please sign the second page of the form.

Section A: Your role

A1. Which title best describes your role in PISA 2025?

{Drop down menu for}:

- National Project Manager
- Survey operations and logistics manager
- Administrative officer
- Sampling manager
- Assessment instruments coordinator
- Data manager
- Data analysis
- IT coordinator
- Translation/ Adaptation coordinator
- Other

A1.a. If you selected "Other" in A1, please specify your role.

_____

_____

_____

A2. What previous work experience have you had that has helped you to prepare for your role in PISA 2025?

_____

_____

_____

_____

_____

A3.	Are you a regular employee of the assessment centre[8]? (please circle your answer)	Yes	No	Not sure

A4.	Are you aware of processes and procedures in place to secure extra permanent or temporary staff if needed? (please circle your answer)	Yes	No	Not sure

A5.	Do you have a written job description for your roles in PISA 2025? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to A5, please provide a copy (in English) of your job description to your liaison officer

A6.	Will you be available to attend the NPM meetings and international training if required? (please circle your answer)	Yes	No	Not sure

A6.a. If you answered "No" or "Not sure" to A6, please explain why.

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A7.	Which aspects of PISA 2025 do you anticipate will be most challenging for your country?	(please tick all that apply)
a	Developing a sampling frame	
b	Translation of materials	
c	Engaging schools to participate	
d	Coordination of participating schools	
e	Training test administrators	
f	Data management	

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[8] By "assessment centre" we are referring to the centre which is responsible for the implementation of PISA 2025 in your country

g	Data entry (if paper-based option is taken)	
h	Data analysis	
i	Dissemination and reporting of data	
j	Other, please specify	

A7.k Please explain why you have chosen those aspects in A7.

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A8.	Do you have: (please tick all that apply)	Yes	No	Not sure
a	Your own work computer running Windows with up-to-date Microsoft Office			
b	High bandwidth internet connection (e.g. at least 50mbits/sec)			
c	Access to a secure work network and server (e.g. requires a password for access)			
d	Access to secure cloud access/storage for work (e.g. requires a password for access)			
e	Access to professional printers for school materials			
f	Access to a work email account specific for PISA 2025?			
g	Your own workstation/desk cubicle			
h	Access to meeting rooms that you can book and freely use			
i	Access to video-conferencing software that you can freely use			

A9.	Have you signed a confidentiality agreement to ensure all PISA 2025 assessment material and data is always kept secure and confidential? (please circle your answer)	Yes	No	Not sure

If you answered "Yes" to A9, please provide a copy (in English) of the confidentiality agreement to your liaison office

{Depending on what role was selected at the drop-down menu, selected questions for the following roles will appear on screen.}

Section B: Specific aspects of implementing PISA 2025

National Project Manager

B1.	Do you have authority to make decisions regarding the implementation of PISA 2025 for:	Yes	No	Not sure	If no, please state who has the authority
a	Budgeting				
b	Personnel				
c	Infrastructure				

B2.	Have you been responsible for any of the following for other large-scale surveys (e.g. TIMSS, other national assessments)?	Yes	No	Not sure
a	Establishing an assessment team			
b	Using promotional materials to raise awareness of the assessment			
c	Supervising staff to complete tasks			
d	Maintaining ongoing communication with international contractors			
e	Distribution of assessment materials electronically			
f	Distribution of paper-based assessment materials			
g	Contacting schools			
h	Informing schools of assessment requirements			
i	Recruiting test administrators			
j	Training test administrators in standardised material and delivery			
k	Monitoring the quality of test administration			
l	Ensuring security policies and procedures are always followed (including test administrators, schools)			
m	Developing national reports to summarise all data			
n	Developing national dissemination strategy to communicate key findings			
o	Implementing national dissemination strategy to communicate key findings			

If you have any written plans/procedures (in English) relating to any of the above measures, please provide a copy to your liaison officer

B3.	Will you be available to work on PISA 2025 in a full-time capacity from 2023 onwards? (please circle your answer)	Yes	No	Not sure

B4. What challenges do you anticipate that you could face in ensuring that you have sufficient staff in your assessment centre to implement PISA 2025?

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B5. In which areas of PISA or large-scale assessment more broadly, would you like to develop more expertise?

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IT Coordinator

B1.	In your opinion, do you have the IT personnel available to support the assessment team in these IT-related aspects of implementing large-scale assessments?	Yes	No	Not sure
a	Troubleshooting problems with hardware			
b	Troubleshooting problems with networks and internet services			
c	Maintaining data and communications security			

B2. What challenges do you anticipate you could face in ensuring that you have sufficient staff to support the assessment team in the IT-related aspects?

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B3. In which areas of PISA or large-scale assessment more broadly, would you like to develop more expertise?

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Translation/ Adaptation Coordinator

B1. Please describe your experience in translating and/or adapting tests or questionnaires for large-scale assessments to the national context.

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B2.	Will domain experts and contextual experts be available for assisting with national adaptations of items and questionnaires? (please circle your answer)	Yes	No	Not sure

B3.	Will the PISA 2025 assessment items and questionnaires need to be translated for the national context? (please circle your answer)	Yes	No	Not sure

B4.	Will domain experts and contextual experts be available for:	Yes	No	Not sure
a	Reviewing the translated science test items			
b	Reviewing the translated mathematics test items			
c	Reviewing the translated reading test items			
d	Reviewing the translated questionnaire items			
e	Reviewing the translated items from the innovative domain "Learning in the Digital World"			

B5.	Are you aware that translation of the PISA instruments will require at least three professional translators to work individually on every element of the translation? (please circle your answer)	Yes	No	Not sure

B6. In which areas of PISA or large-scale assessment more broadly, would you like to develop more expertise?

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Sampling manager

B1.	In relation to sampling activities, do you have access to:	Yes	No	Not sure
a	A central database such as an education Management Information System (EMIS)?			
b	A database that provides full details about every school in your country			
c	A database that provides the number of students per age and grade in each school in your country			
d	Accurate and up-to-date enrolment and attendance data for each school in your country			

e	Accurate data for children and youth that are out-of-school[9]			
f	A complete list of the number of students with special needs in each school			

B2. Please describe any potential challenges in assessing the target population in the sampling design, including students with special needs, students in areas that are difficult to reach (e.g. as a result of conflict, remoteness), and students with a minority language or specific ethnic background.

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B3. In which areas of PISA or large-scale assessment more broadly, would you like to develop more expertise?

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Data manager

B1. In previous large-scale assessments, how have you monitored school participation and student response rates?

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B2.	Do you have previous experience from large-scale assessments to:	Yes	No
a	Validate data collected from students		
b	Train and supervise data entry and data management support staff		

B3.	Will the assessment centre be able to:	Yes	No	Not sure
a	Undertake national-level data analysis			
b	Use statistical packages (e.g. SPSS, SAS, STATA, or R)			
c	Interpret scale scores and performance levels			
d	Perform descriptive analysis (e.g. frequencies, comparison of mean scores and variances)			
e	Perform regression analyses depending on the research questions			

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[9] Children and youth who are not enrolled or not attending school

| f | Calculate standard errors to provide information about the spread or variability of a sample statistic around its mean | | | |
| g | Use correction techniques in the form of sampling weights to adjust the sample and account for biases | | | |

B4. Please describe your previous experience in recording and reporting statistical analysis from national-level data

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B5. In which areas of PISA or large-scale assessment more broadly, would you like to develop more expertise?

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Thank you for completing this Capacity Needs Assessment questionnaire!

PISA
Capacity Needs Assessment: Ghana

The Organisation for Economic Co-operation and Development (OECD)'s Programme for International Student Assessment (PISA) measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges.

Based on the experiences of the support programmes provided in PISA previously, PISA 2025 offers new participants the Capacity Building and Implementation Support (CBIS) option. CBIS aims at providing new participants with specific and targeted support for their successful implementation of PISA 2025.

At the outset of CBIS, a Capacity Needs Assessment is carried out to assess the participants' capacity to implement PISA. The assessment provides information about their capacity assets and needs in relation to what is required to implement PISA successfully. This report presents detailed findings of the assessment for Ghana. The results are being used to design a capacity building plan for Ghana that will be implemented by the OECD, its contractors, and Ghana's Ministry of Education.