



# PISA FOR DEVELOPMENT CAPACITY BUILDING PLAN: CAMBODIA



# PISA

FOR DEVELOPMENT



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CAPACITY BUILDING PLAN:  
CAMBODIA**

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This plan has been prepared by Fernando Cartwright on behalf of the OECD and the Ministry of Education, Youth and Sport (MoEYS) of Cambodia as part of the PISA for Development project. PISA for Development is an initiative of the OECD and development partners that aims to identify how the Programme for International Student Assessment (PISA) can best support evidence-based policy making in emerging and developing economies – and contribute to the UN-led definition of global learning goals for the post-2015 agenda. In addition the project will help to build country capacity in assessment, analysis and use of results for monitoring and improvement of education among participating countries.



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## **PISA FOR DEVELOPMENT**

### **CAPACITY BUILDING PLAN: CAMBODIA**

#### **1. Introduction and overview of plan**

Since its launch in 2000 the Programme for International Student Assessment (PISA), which measures the competencies of 15-year-olds in the domains of reading, mathematics and science, has served as a reliable source of evidence for policy decisions and educational reform in developed countries. In order to make this valuable tool more accessible and relevant to developing countries, the Organisation for Economic Co-operation and Development (OECD) initiated PISA for Development (PISA-D) in consultation with development partners, which uses appropriately modified instruments but provides results on the same scales affording international comparisons.

In order to ensure successful participation, the OECD has helped to prepare participating countries by first carrying out a capacity needs analysis and then preparing a capacity building plan to address any areas that needed strengthening. The improved assessment capacity, followed by analysis and use of results will improve the evidence-based decisions of the participating countries and will also contribute to the UN-led definition of global learning goals for the Education 2030 agenda.

This document presents the capacity building plan: The Capacity Building Plan (CBP) for Cambodia and is based on the Capacity Needs Analysis (CNA) that has been completed for the country. The CNA was conducted through consultations with key stakeholders organised by the Education Quality Assurance Department (EQAD) of the Ministry of Education, Youth and Sport (MoEYS) of the Kingdom of Cambodia. The EQAD is intended to be the National Centre designated for implementing PISA-D in Cambodia. The proposed National Project Manager and Deputy Project Manager are Mr. Samith Put and Mr. Chinna Ung, respectively. The proposed operational staff for the PISA-D team within the National Centre is the team responsible for implementing the National Assessment, which is conducted annually. However, as noted in the CNA report, the EQAD will require substantial collaboration with other departments and institutions to realise the goals of PISA-D. The stakeholders included departments in the MOEYS, non-governmental organisations and research institutes.

The CBP was developed with the EQAD, led by Mr. Chinna Ung. The CBP development was conducted in the context of developing a preliminary project implementation plan and budget to facilitate discussion for project approval and planning at the national level. This preliminary plan was presented to the Minister of Education, HE Dr Hang Chuon Naron, and co-operating partners in February 2015.

The key findings of the PISA-D CNA for Cambodia indicated that the country has sufficient individual capacity in many technical areas to implement PISA-D. In addition, the Enabling Environment is supportive of large-scale assessment; many stakeholder institutions expect to make immediate use of PISA-D results for planning and monitoring as they become available. However, there is substantial disagreement between key stakeholders regarding the priority of PISA-D within the sector development plan. The institutional capacity of EQAD is strong in areas related to the data collection scope, which is similar to the annual National Assessment, but is limited in areas related to quality standards and communication. While some of these limitations are related to historical priorities within the MoEYS that have since changed under the current Minister, they nonetheless will need to be remedied in order to allow successful implementation of PISA-D.

The CBP for Cambodia is designed to incorporate the key activities identified in the PISA-D integrated timeline. It also incorporates the national-level priorities identified in the CNA report that relate to institutional structures and project financing. Capacity building goals are wholly owned by the MoEYS as part of the long-term assessment strategy in the education sector. Specific capacity building activities make use of a variety of modalities, including international workshops, in-country workshops led by both external consultants and MoEYS specialists, and peer-to-peer engagement with other PISA-D participating countries and existing PISA participants, in particular, Korea. The CBP includes activities to be conducted within the four-year PISA cycle (2015-2018). The plan is fully costed and integrated with the PISA-D international schedule.

Section 2 of the report provides some background to the capacity building components of PISA-D. Section 3 describes the Cambodia country context including national aspirations for PISA-D. Section 4 summarises the CNA which was completed in Phase 1. Section 5 presents the capacity building activities developed in response to these needs. The activities, timing and budget over the period of PISA-D implementation are presented in Section 6. Section 7 explains the monitoring and evaluation strategy for of the CBP and the final section concludes with next steps.

## 2. Background

This collaborative effort between the OECD and its partners is designed to develop capacity for seven developing countries to prepare them for participation in PISA-D. The seven countries participating in PISA-D are Cambodia, Ecuador, Guatemala, Honduras, Paraguay, Senegal and Zambia.

The CBP will run concurrently with the process of implementing PISA-D, culminating in the collection of data in late 2016 (field trial) and late 2017 (main data collection) and analysis and reporting in 2018. There are two stages in the development of the CBP for countries participating in PISA-D.

- Stage one is the CNA: This capacity of the country is based on its national and international assessment experience benchmarked against the requirements for PISA-D. The necessary capacity for PISA-D is defined as:

“the ability of the individuals and institutions responsible for the project in each country to perform the necessary functions to carry out the multiple steps of PISA assessment implementation (as generally set out in the roles and responsibilities for the National Centre (NC) and the National Project Manager (NPM), as well as in the Participation Agreement signed between the country and the OECD), solve the likely problems that will arise during implementation, provide timely and adequate information for project implementation, and set and achieve project objectives in a sustainable manner.”

The CNA for Cambodia was finalised in March 2014 as the end product of a multi-stage process including meetings with multiple stakeholder groups in Montreal, Canada and Phnom Penh. The CNA recognised the existing large-scale assessment activities in Cambodia, focusing on operational strengths and weaknesses as well as effectiveness of these activities in providing useful information to decision-making processes.

- Stage two is the CBP: The CBP focuses on the needs identified in the CNA for the country based on the difference between the current capacity and the target competencies required. The CBP will cover the four years of PISA-D implementation, cost and planned in relation to the PISA-D schedule. The programme would include the human and financial resources both international and national to achieve the target capacity within a projected timeline. Although specific dates and activities may require modification based on co-ordination of activities with the PISA-D

international contractor, OECD, and other participating countries, the intent of this CBP is that the activities and outcomes should be achievable within a four-year time period.

In the final stage of preparation for the participating countries a Project Implementation Plan (PIP) is prepared. Though a generic PISA-D PIP has been provided to countries, each country has to prepare a PIP according to its specific needs and operational conditions. The national PIPs are co-ordinated with the integrated international timeline followed by the PISA-D international contractors and the OECD.

### 3. Cambodia country context

The Royal Government of Cambodia has the ambition to transition from a lower-middle income country to being an upper-middle income country by 2030 and a developed country by 2050. Cambodia recognises the importance of the education sector in leveraging the economic potential of the country and increasing its competitiveness within the ASEAN economic environment.

The current role and priorities of the education sector are detailed in the Education Strategic Plan (ESP) 2014-2018. The previous ESP 2009-2013 described three areas for strategic focus: 1) ensuring equitable access to education services, 2) improving quality and efficiency of educational services, and 3) institutional and capacity development for educational staff for decentralisation. Existing progress indicators for these areas indicate significant improvement in terms of access and decentralisation. However, the planned National Assessment programme has not been fully implemented, and there have been delays in the analysis and reporting of results. As a consequence, there have been no meaningful progress updates regarding the issues of quality in the current ESP 2014-2018. As access to basic education approaches 100%, issues related to quality of education become more policy-relevant.

Monitoring educational quality is the responsibility of the Education Quality Assurance Department (EQAD). The EQAD operates relatively autonomously from the broader operations of MoEYS from within the offices of the Inspectorate General. The Inspectorate General is responsible for monitoring and reporting to the Ministry leadership on all administrative procedures. The specific responsibilities of EQAD are:

- to study, research, analyse and evaluate the quality and effectiveness in the education sector
- control and monitoring of curriculum implementation and effective use of all school materials at all national and private institutions
- control and monitoring on the methods of evaluation of national standards of education at all institutions
- ensuring equivalence levels in assessment results and credentials required for transitions between formal and non-formal education and academic and technical education
- control and monitoring of competence of educators in MoEYS
- submitting activity reports to the leadership of MoEYS.

Many of these responsibilities require institutional capacity that will be directly enhanced under the CBP. Cambodia also benefited from a multi-year capacity building plan supported by the World Bank from 2007 to 2010. This capacity building plan included several international workshops on topics related to sampling, test specification and item development, data analysis and reporting. Unfortunately, because these workshops targeted a small number of participants, there has been little institutional retention of the

knowledge and skills acquired in the workshops. Of the participants in this capacity building plan, only one currently has assessment-related responsibilities in EQAD. The World Bank also continues to support direct capacity building activities with technical assistance provided directly to EQAD through an international consultant.

Cambodia has previously participated in the international assessment PASEC in 2012. While this project has produced relevant and interesting data for Cambodia, there has been more limited impact on capacity development or the use of results to inform policy review and decision making. The department responsible for national implementation of PASEC is not responsible for routine assessment activities, and thus was not able to institutionalise any practices demonstrated by the project. There is unanimous agreement among stakeholders in Cambodia that the two major roles of international large-scale assessments are 1) providing information that may be used to inform an evidence-based decision-making process, and 2) developing sustainable capacity in large-scale assessment that may be used for a variety of ongoing and future assessment activities.

The capacity building activities described in this CBP are intended to reinforce the earlier capacity building efforts. The design of the CBP incorporates lessons learned about the effectiveness of different strategies for maintaining institutional capacity. The CBP is situated within the broader goals for the EQAD to provide information relevant to a wide variety of stakeholders, including government and communities and parents, development partners, the private sector and non-governmental organisations.

#### **4. Summary of the Capacity Needs Analysis**

The capacity needs of Cambodia were analysed in terms of the five desired outcomes of the PISA-D project. The findings of the CNA with respect to four of these outcomes are discussed in the following sections. The fifth outcome – engagement with the OECD, development partners and with other participating countries in order to identify peer-to-peer learning opportunities arising from PISA – is cross-cutting and has already been incorporated into the integrated international timeline of activities.

##### ***4.1. Capacity for enhancing and implementing contextual questionnaires***

The NC has sufficient technical capacity to apply the protocols and standards required by PISA-D. Cambodia has a well-developed public examinations system and has implemented an annual large-scale survey-based assessment for almost a decade. Where the protocols of PISA-D require additional effort or diligence, the increased requirements represent incremental adjustments to existing operational practices, rather than completely novel practices. There are many institutions and private sector service providers with experience adapting international survey instruments to the Cambodian context. These experienced translators will require training in the PISA-D adaptation guidelines.

Lack of physical resources available to the EQAD for processing and storage of booklets and data presents a major obstacle. There are three types of resources that are currently insufficient to enable the programme implementation: 1) secure data processing environments, 2) secure storage spaces, and 3) training facilities. The EQAD is expecting a physical relocation before the PISA-D data collection phase of the project (late 2016). If the new facilities are not able to satisfy the project requirements, EQAD will collaborate with other institutions that do have access to the necessary resources.

EQAD has limited experience developing survey questionnaire content. Therefore, if new content is to be added to the instruments, EQAD will require close collaboration with an institution with more experience in secondary data analysis. The most likely candidate is the Educational Research Council (ERC), or, more specifically, the Faculty of Education at the Royal University of Phnom Penh (RUPP).

This collaboration will also be necessary to properly utilise the PISA-D data to address different information needs of stakeholders.

#### ***4.2. Capacity for enhancing and implementing cognitive instruments***

The capacity limitations identified above for questionnaire adaptation also apply to the cognitive instruments. However, other aspects of cognitive instrument development, such as adaptation of cognitive items, scoring of complex performance tasks, analysis of data, and transparent reporting of results are new and will require specific capacity development.

The EQAD team has limited experience in adapting international assessments to the Cambodian context. Cambodia has participated in only a single international large-scale assessment, the 2013 administration of PASEC. Instrument adaptation for that assessment did not follow rigorous procedures. Although there are many high quality translation services available to the NC, the translators have no experience with adaptation of cognitive items. The translators will require specific training related to the cultural adaptation of cognitive items to ensure that the translations do not affect their psychometric equivalence.

Current capacity to conduct assessments using modern psychometric techniques is focused around individuals rather than institutions. Although the use of Item Response Theory and complex sample analysis are not widespread, several individuals at EQAD and RUPP have adequate technical skills to benefit from the planned capacity building activities of PISA-D. However, in order to meet the larger goals of capacity building, this capacity must be institutionalised in Cambodia so that the knowledge and skills can be passed to others through peer-to-peer learning, such as planned with KICE and strengthened through routine application.

#### ***4.3. Assessment of capacity for incorporating out-of-school 15-year-olds in the assessment***

There is substantial interest from stakeholders in the information described by Strand C, and the proposed programme design complements the Non-Formal Education National Action Plan. However, expected difficulties and costs discouraged stakeholders from supporting the implementation of this Strand. Specifically, given the challenges with identifying a target population that was both meaningful for research purposes and relevant to national interests, the consensus within the Ministry of Education, Youth and Sports is that the implementation of Strand C in Cambodia would be too expensive and not have sufficient utility. It should be noted, however, that the National Institute for Statistics has the capacity for household surveys, and the EMIS staff of the Ministry have an existing relationship with them through which they can request services. There are no protocols for involving NIS in education-related surveys, but communication channels are open and a relationship is possible in principle. Nonetheless, Cambodia will not participate in Strand C of the project.

#### ***4.4. Country capacity in assessment, analysis and use of results for monitoring and improvement***

The main capacity limiting Cambodia's ability to participate in PISA-D relate to effective allocation of financial, physical and human resources. Because PISA-D is a multi-year project, it requires a front-loaded funding commitment of a magnitude that cannot easily be accommodated by a discretionary budget allocation. Therefore, PISA-D will need to be assigned sufficient priority by MoEYS leadership to justify reallocation of funds to support the project and/or request additional support from development partners. To reduce vulnerability of the project to specific organisational or political interests, it is important that the NC operates with a high degree of transparency and remain accountable to the collective needs and interests of the Joint Working Group.

In general, to sustain multi-year projects, MoEYS requires consensus approval from stakeholders for the duration of the project lifecycle. The needs of the stakeholder community are represented by the Joint Working Group. Previous efforts at large-scale survey assessments have not been well-co-ordinated between the different stakeholders. The NC will need to facilitate multilateral discussions with these external stakeholders to ensure that *a)* PISA-D is collecting data relevant to the stakeholders' interests and *b)* they are adequately engaged in the results dissemination strategy.

Co-ordination between stakeholders internal to the project will also be a critical role of the NC. Because of limitations in EQAD's physical infrastructure and human resources, it will need to collaborate with other institutions, such as the RUPP, Curriculum Development Department and Secondary Education Department, to perform the operational tasks of PISA-D. EQAD will need additional IT resources and enhanced inter-departmental authority. Information technology resources will be required to host a secure platform for storing data and collaborating between different departments and international contractors. Enhanced inter-departmental authority is required to manage effectively a team of individuals under different management hierarchies. Because these responsibilities are new to EQAD, successfully assuming this role will require support from the OECD and other PISA countries to adopt and adapt appropriate collaboration and project management models. The role of Korea and KICE in particular, as supporter and peer-to-peer learning facilitator will therefore be very important for the success of the project.

In addition to the minimum participation requirements for PISA-D, Cambodia also has many concurrent projects that would benefit from integration with PISA-D activities. Successful integration also has the potential to increase the utility of data from PISA-D.

Concurrent with the implementation timeline of PISA-D, Cambodia is also implementing an enhanced Education Management Information System that also includes data describing the quality of the educational context of schools (QEMIS). The implementation of PISA-D should consider the potential to merge various data sources through the school sample frame rather than depending entirely on the PISA-D questionnaires to capture all information needed for analysis.

The MoEYS is also interested in extending the PISA cognitive framework and methodology for developing performance tasks that are based in real-world contexts. The PISA framework reflects the priorities of MoEYS, reflected in the curriculum policy goals of the ESP 2009-2013, which emphasise the importance of knowledge and skills for life – workplace and citizenship – rather than focusing only on academic progression. The PISA cognitive framework may provide a basis for adapting curriculum and instruction as well as assessment.

## **5. Development of the Capacity Building Plan**

Collaboration with EQAD to develop the CBP took place during February, 2015. The process began by reviewing the findings of the CNA using the web tool (<http://polymetrika.org/PisaD/>). The review focused on capacity elements which either did not meet the recommended level for implementing PISA-D or which aligned with MoEYS' capacity development priorities. Working with reference to the international integrated timeline agreed between the OECD, the contractors and the countries, in particular the programme of international/NPM meetings (Annex A), the design process developed a set of capacity building plan elements to address the capacity needs. Each element corresponds to a specific ultimate capacity goal. For each CBP element, a sequence of development activities was scheduled across the project cycle (2015-2018) to develop the desired capacity, while reaching interim development goals. Each activity was separately costed and resourced to develop the complete CBP.

The CBP process resulted in two types of investments: *1)* related to PISA implementation, and *2)* increased capacity corresponding to aspirational development goals. The results of the analysis of the

capacity building framework are presented under these two types of investment. There are four areas of development with related capacity elements under each type of investment. The capacity needs identified, each with its rating, are presented with their goals, for each capacity building element. This list was used to develop the ultimate goal for each area of development, which will be later used for monitoring and evaluation. Finally, the activities that were planned by year are shown under each of the eight capacity building elements with their related costs.

### **5.1. Capacity building for PISA implementation**

Note: all costs and funding amounts are in US dollars

#### *5.1.1. Project utilisation and knowledge mobilisation*

The NC will understand the information needs and priorities of key stakeholders and be able to identify and communicate the information from the project that is relevant to those interests. The NC will identify opportunities where the project may be modified to better address stakeholder interests and make modifications to maximise the utility of the project to stakeholders.

Specific programme capacity targets:

- use of ILSA: Results from the ILSA are used in a variety of ways to inform decision making in the country/system – **advanced**
- funding for NPM/NC for international training and meetings: Institutional participation is formally committed, with funding from a variety of sources – **established**
- adequacy of NLSA funding: Funding covers all core NLSA activities: design, administration, analysis and reporting – **established**
- having regular funding for ILSA: There is regular funding approved by law, decree or norm – **advanced**
- adequacy of ILSA funding: Funding covers all core activities of the ILSA – **established**
- dissemination of ILSA results: Country/system-specific results and information are regularly disseminated in the country/system – **established**
- providing teachers with opportunities to learn about the NLSA: There are occasional courses or workshops on the NLSA – **emerging**
- stakeholder use of large-scale assessment (LSA) data: Stakeholders actively analyse data for specific information – **advanced**
- communication with stakeholders: The NC has regular meetings or accessible forums with stakeholders for two-way discussions – **advanced**
- NLSA research and development funding: Funding covers some professional development activities – **established**
- ILSA research and development funding: Funding covers some professional development activities – **established**
- positive washback of ILSA: ILSA results have influenced decision making intended to improve students' achievement levels – **established**

- perceptions of external survey-based LSA of lower-level stakeholders: Stakeholders recognise a clear washback effect from the results of LSA and the policies and practices affecting learning – **established**.

**Year 1 (2015-2016): Secure funding and create a transparent project oversight structure that involves key MoEYS stakeholders and Development Partners**

Activity	An in-country two-day workshop facilitated by an international consultant and chaired by the Minister will co-ordinate the interests of the key stakeholder groups and define the communication protocols and obligations of the different stakeholder institutions.
Deliverables	A draft policy document ratified by participating stakeholder institutions that details: 1) the project funding structure for the complete implementation cycle, 2) implementation responsibilities of each institution (if applicable), 3) membership of the PISA-D national Steering Committee, 4) responsibilities of the Steering Committee, 5) meeting schedule for the Steering Committee across the project cycle, and 6) project success indicators or institutional priorities related to the project and its implementation.
Country responsibilities	The NC is responsible for co-ordinating the schedules of participants, arranging for meeting facilities, engaging the international consultant, and finalising and submitting the deliverables for formal approval by MoEYS leadership.
Administrative details	The consultant will be contracted by MoEYS. The contract will include travel and accommodation costs. The consultant must have experience in the structure and operation of large-scale assessments, and the use of large-scale assessment results in policy dialogue and programme evaluation. The consultant will be responsible for preparing the draft document and submitting it to the NPM. Participants should include senior level administrators representing the following government agencies: Education Quality Assurance Office (EQAD) National Institute for Education (NIE) Teacher Training Department (TTD) Department of Curriculum Development (DCD) Secondary Education Department (SED) Royal University of Phnom Penh (RUPP). Invitations should also be extended to the key development partners engaged in the education sector.
Relevant documentation	PISA-D CNA, Cambodia; PISA-D CBP, Cambodia; Education Strategic Plan 2009-2014; a selection of national and international PISA reports to be used as exemplars (for electronic distribution and display only).
International costs	USD 15 000.
In-country costs	USD 560.
Expected additional funding	USD 0.

Year 1 total cost: USD 15 560

**Year 2 (2016-2017): Identify successful strategies for knowledge mobilisation and mediation between stakeholder interests in similar contexts and adapt or adopt strategies to the Cambodian context**

Activity	International/NPM meeting and IAG meeting (March 2016) - including peer-to-peer learning - to identify successful strategies for knowledge mobilisation and mediation between stakeholder interests in similar contexts and adapt or adopt strategies to the Cambodian context. The meeting will be attended by at least two members of the NC, including The NPM or Deputy NPM.
Reporting requirements	In preparation for the meeting, the participants will produce a summary document that describes the issues and challenges of project implementation in the Cambodian context. Following completion of the meeting, the document will be completed with descriptions of the strategies used by other countries to address similar challenges.
Administrative details	The costs include travel and accommodation. The participants should include both the NPM and Deputy NPM.
Relevant documentation	PISA-D CNA, Cambodia.
International costs	USD 0.
In-country costs	USD 3 000.
Expected additional funding	USD 0.

Year 2 total cost: USD 3 000

**Year 3 (2017-2018): Use collaboration between stakeholders and researchers to develop information products based on PISA data that may be utilised by specific stakeholders**

Activity	In-country workshop co-ordinated by the NC with the support of KICE to facilitate collaboration between stakeholders and researchers for the utilisation of PISA-D results.
Deliverables	The NC will prepare a target list of information products and reporting priorities identified by workshop participants. This document will be used to prepare the results dissemination plan.
Country responsibilities	This activity is implemented entirely by NC.
Administrative details	Using available preliminary PISA results, the NC will work with stakeholders to identify information products, such brochures, reports and educational resources, as well as specific statistics or narratives, which will be included in the results dissemination strategy. The NC is responsible for extending invitations to participants, arranging meeting facilities, and documenting the workshop proceedings. The NC will ensure the security of any preliminary results or survey instrumentation that is not publicly available. Approximately 100 participants should represent the geopolitical scope of internal and external stakeholders in the education sector (e.g. school leaders, community, media, development partners, other government). Costs include local travel, per diem, catering and meeting facilities.
Relevant documentation	Education Sector Plan 2009-20014; PISA-D preliminary results; PISA-D contextual questionnaires and assessment instruments (as allowed by the OECD).
International costs	USD 0.
In-country costs	USD 6 800.
Expected additional funding	USD 0.

Year 3 total cost: USD 6 800

**Summary: Total capacity building element cost = USD 25 360**

### 5.1.2. Management of large-scale survey assessments

The NC will manage internal and external resources and co-ordinate with external institutions. The NC will maintain the project timelines by efficiently communicating upwards and downwards within and across management hierarchies.

Specific programme capacity targets:

- relevance of NC expertise: The NLSA office is adequately staffed to carry out the NLSA effectively, with minimal issues – **established**
- experience in planning, organising and conducting large-scale surveys: The country/system offers some opportunities to prepare individuals for work on the NLSA – **established**
- national co-ordinator for ILSA: There is a team and national/system co-ordinator to carry out the ILSA activities – **established**
- effectiveness of human resources for ILSA: The ILSA office is adequately staffed and trained to carry out the ILSA effectively, with no issues – **advanced**
- local capacity building for ILSA: The country/system offers some opportunities to learn about ILSA – **established**
- computing security: Staff follow institutional policies regarding regular software and antivirus definition updates – **established**
- commitment of data collection staff: Data collection staff are specifically hired or reassigned for this role/project – **advanced**
- availability of training facilities: Existing facilities may be repurposed to accommodate training – **established**
- efficiency of communication protocols: The NPM can engage most stakeholders as a peer – **advanced**
- scheduling priority given to ILSA activities: NC staff manage their own schedules and may reschedule ad hoc meeting requests – **established**
- availability of NPM/NC for international training and meetings: Time is specifically allocated to participation in and preparation for international activities – **advanced**
- sufficiency of data collection staff: There is a sufficient number of qualified data collectors for all sites – **advanced**
- availability of NPM: Sufficient time commitments are made by NC staff to meet PISA demands, but no individuals are assigned full-time to PISA responsibilities – **established**
- engagement of clerical/administrative support: Clerical support distributes outgoing correspondence from NC – **established**
- NC co-ordination: Staff meetings are scheduled and attended regularly – **established**
- computing environment: NC staff all have personal or dedicated computers with standard software; access to the workplace network may be limited – **established**
- participation in previous international ILSA training: The ILSA team attended all international workshops or meetings – **established**

- adequacy of transportation for data collectors: Data collectors use personal vehicles with reimbursement – **established**.

**Year 1(2015-2016): Develop and implement a programme management structure with clear allocation of responsibilities, communication protocols and project implementation timelines**

Activity 1	The first international/NPM meeting led by the PISA-D international contractor to 1) familiarise the NPM and NC staff with in-country operational tasks, 2) identify the key project roles, and 3) assist the NPM in developing a project management plan based on the PISA-D NPM Manual.
Deliverables	Drawing on international experience, the international contractor will elaborate on the specific responsibilities associated with different project milestones and how project implementations in other countries with similar operational constraints have managed these responsibilities. The familiarisation with the operational tasks should focus on key risk factors and planning priorities. Where relevant, the international contractor should provide spreadsheet and document templates for project management (e.g. service provider contracts, resource and financial allocations, and activity scheduling). The NC's role in co-ordinating stakeholders internal to the project is crucial, so enhancement of its inter-departmental authority is required. There must be co-ordination among the different roles in different departments as well as with the international contractor.
Reporting requirements	The NPM will use the information and resources presented in the workshop to develop a fully-resourced project management plan that co-ordinates with the international integrated timeline used by the PISA-D international contractor. Although this plan may be modified as new information is revealed throughout the course of the programme implementation, the plan should include up-to-date information on the key tasks, including duration and resource allocation.
Country responsibilities	The NPM is responsible for providing details about the Cambodian context that may constrain the project implementation. Relevant details may include, for example, holidays, labour relations, knowledge of service providers in the sector, fiscal planning schedules and procurement protocols. The NPM should also note where the scope of PISA-D in Cambodia exceeds the minimum participation requirements and where the additional scope or integration with other projects may affect resource availability or scheduling.
Administrative details	The NC is responsible for arranging workshop facilities and co-ordinating the schedules of participants with the workshop. International costs include time, travel and accommodations for the international contractor. In-country costs include clerical costs and catering. Participants should include all members of the PISA-D team at the NC.
Relevant documentation	PISA-D CBP, Cambodia; PISA-D Integrated Timeline; PISA-D NPM Manual; government policies or protocols related to procurements and contracting.
International costs	USD 15 000.
In-country costs	USD 300.
Expected additional funding	USD 0.
Activity 2	International peer-to-peer learning with the support of KICE to review and share practices for co-ordinating between stakeholder groups in different political and funding environments.
Deliverables	Discussion with peer and mentoring countries to 1) identify key challenges in the Cambodian context relating to co-ordinating project priorities with competing priorities of government and different development partners and securing project funding for large-scale assessments and 2) identify successful strategies for collaboration from similar political contexts.
Reporting requirements	The NC will review the results of CNA and produce a summary outline of potential short, medium and long-term strategies to address the institutional and Environmental capacity issues identified in the report.
Administrative details	These activities are expected to occur in conjunction with other planned international activities.

	The costs represent incremental travel and accommodation costs associated with the time requirements for the peer-to-peer learning activities. Participants should include the NPM and Deputy NPM.
Relevant documentation	PISA-D CNA, Cambodia.
International costs	USD 0.
In-country costs	USD 1 000.
Expected additional funding	USD 0.
Activity 3	A one-day in-country workshop led by the NPM with the support of KICE focusing on institutional knowledge retention of large-scale assessment project design and management.
Deliverables	The NPM will elaborate on the project management design provided the international contractor based on lessons learned experiences and subsequent training during the PISA-D implementation. The revised large-scale assessment project management design and templates will be presented to both internal and external project stakeholders as a recommended design for implementing large-scale assessment activities in Cambodia. The design may be extended or modified by similar projects to be implemented at different age or grade populations using different or modified instrumentation.
Country responsibilities	This activity is conducted entirely by the NC with the support of KICE.
Administrative details	The NC is responsible for arranging the meeting facilities and co-ordinating the schedules of participants and the workshop. The workshop costs include meeting facilities and catering. Workshop capacity should be approximately 20 people, including the NC staff, interested MoEYS departments and development partners. Support will be provided by KICE.
Relevant documentation	PISA-D PIP, Cambodia; any relevant documentation produced by the international contractor or the NC.
International costs	USD 0.
In-country costs	USD 1 000.
Expected additional funding	USD 0.

Year 1 total cost: USD 17 300

**Summary: Total capacity building element cost = USD 17 300**

### 5.1.3. Sampling

The NC will design samples constrained by budget, reporting accuracy, and required comparisons between groups appropriate for expected effect sizes. The NC will maintain or produce, as needed, necessary sample frames for the purpose of sampling activities.

Specific programme capacity targets:

- level of detail in administrative student data: Students data are recorded in central records that link student name and school name – **established**
- monitoring of collection procedures: Monitored sites are selected randomly with ad hoc exclusions – **established**.

**Year 1 (2015-2016): Use the principles of scientific sampling to assist in developing a sample design that will address the information needs of stakeholders (e.g. inter-group comparisons, programme monitoring)**

Activity 1	A four-day international/NPM meeting (April 2016) delivered by the PISA international contractor to explain the principles of scientific probability samples, including complex sampling, including stratification, clustering and weighting.
Deliverables	The purpose of the workshop is to familiarise the NC staff with the factors and decision-making process the guide the design of a sample. Although the workshop should include the statistical foundations of sampling, it should focus on the trade-offs between accuracy and feasibility/cost and the role of sample design in facilitating specific analyses, such as monitoring trends and comparison between groups. The workshop should include an introduction to software used for sample selection, with emphasis on understanding the data requirements to use the software and understanding the outputs of the software. Participants should prioritise software fluency rather than the ability to reproduce software outputs using manual calculations with raw data.
Reporting requirements	Participants will be required to present any workshop materials, data and software to colleagues at the NC. The participants should also draft a summary of the key sampling issues that are relevant to the Cambodian context.
Country responsibilities	The NC is responsible for designating local experts who are most likely to learn and retain the information presented in the workshop.
Administrative details	The workshop is expected to be conducted at a venue provided by the international contractor. The two participants should include at least one member of the NC and one statistician or researcher (the latter may be from a co-operating institution). The international costs are the expected incremental costs for two participants from the NC. The in-country costs include travel, per diem and accommodation for the participants. Any required software and hardware should be specified or provided by the contractor.
International costs	USD 800.
In-country costs	USD 6 000.
Expected additional funding	USD 0.
Activity 2	An in-country workshop led by KICE with the support of the PISA-D international contractor to develop and explain the rationale for a sample design specific to the PISA-D project implementation in Cambodia.
Deliverables	The international contractor will use information provided by the NC to define and describe the rationale for Cambodia's sample design. The workshop should focus on the operational constraints and information needs of stakeholders in the Cambodian context. The focus of the workshop should be on optimising sample design to suit the information needs and constraints of the project. However, the workshop should also provide an overview, including benefits and risks, of strategies for dealing with actual samples and errors in data collection (e.g. post-stratification, non-response adjustment and raking) and their effects. The decision-making processes described in the workshop should be directly applicable to the PISA-D sample, but should also be generalizable to other large sample-based data collection activities in Cambodia.
Country responsibilities	The NC will select participants who will be able to maintain the skills and knowledge presented in the workshop through application to routine responsibilities. The NC is responsible for identifying and communicating 1) the information needs and/or research priorities of stakeholders that are relevant to the PISA-D sample design; and 2) operational considerations that may constrain the sample design, including but not limited to the expected supply of trained data collectors, travel limitations, school accessibility, the data collection budget and expected per site data collection and processing costs. Any information requested by the international contractor should be provided sufficiently in advance of the workshop to allow for the development of a preliminary sample design. The NC will arrange meetings facilities and co-ordinate schedules of participants.

Administrative details	The international costs include travel, accommodation and per diem. The in-country costs include facilities and catering for 5-10 participants representing EQAD and partner institutions, such as universities and research agencies. The workshop participants will require at least one modern computer with a Windows operating system (Windows 7 or higher) for every two people. The contractor will specify additional software that may be required for the workshop.
Relevant documentation	Education Strategic Plan, 2009-2014.
International costs	USD 15 000.
In-country costs	USD 200.
Expected additional funding	USD 0.

Year 1 total cost: USD 22 000

**Year 2 (2016-2017): Institutionalise knowledge and skills by working with other projects to develop and/or review sample designs appropriate to specific research needs and project scope. Co-ordinate sampling between projects to optimise data collection activities and minimise data collection burden on the education sector.**

Activity	An in-country workshop led by the NC (or sampling experts from co-operating institutions) with the support of KICE delivered to stakeholders with interests in data collection, programme evaluation or monitoring of education sector performance. The workshop will focus on co-ordinating sampling between projects to optimise data collection activities and minimise the data collection burden on the education sector.
Deliverables:	The workshop will produce a matrix of large-scale data collection activities, indexed by target population, information targets and date of collection. Stakeholders will use this matrix to identify unnecessary redundancies, harmonise reporting on the status of the sector, and reduce the time and effort spent on data collection in the sector. A secondary goal will be to increase the institutionalisation of sampling expertise in the NC (or co-operation institutions) by working with other projects to develop and/or review sample designs appropriate to specific research needs and project scope.
Country responsibilities	This activity is co-ordinated entirely by the NC.
Administrative details	The workshop should include approximately 20 participants representing government departments and development partners with interests in the education sector. The NC will arrange for meeting facilities and catering for 20 participants. Fixed overhead costs are USD 1 800 plus USD 40 per person for meals. Travel costs are USD 20 per person.
Relevant documentation	Sampling workshop materials previously prepared for PISA-D capacity building.
International costs	USD 0.
In-country costs	USD 3 000.
Expected additional funding	USD 0.

Year 2 total cost: USD 3 000

**Summary: Total capacity building element cost = USD 25 000**

#### 5.1.4. Data collection, processing and security protocols

The NC will train operational staff to minimise: 1) variations in responses caused by ambiguous instructions and variations in data collection environment, 2) errors in data processing caused by missing data or data linkage information, and 3) variations in coding or scoring caused by nonstandard interpretations of coding and scoring guidelines.

Specific programme capacity targets:

- booklet distribution infrastructure: Service provider(s) or internal staff may be contracted or re-tasked to print and distribute booklets but must be trained with proper protocols – **established**
- quality of training for data collection: Data collection staff have been monitored during previous or mock data collection and have received feedback on their adherence to protocols during previous data collection – **advanced**
- integrity of coding: Coders are selected from nominated applicants using transparent criteria - **established**
- accountability for security: There are discipline policies for breaches in security with ad hoc or discretionary consequences and individuals with access to secure materials are aware of security protocols – **established**
- effectiveness of training for data collection: Training for data collection is conducted in group settings with feedback between trainees – **advanced**
- availability of document formatting and print specifications: All document print and specifications are maintained in manuals accessible to all NC staff – **established**
- quality of document proofing: Clear protocols exist for the identification of potential typographic errors and/or the NC has an official dictionary and manual of style – **advanced**
- correct sequencing of administration of national options: Final administration protocols are/will be sequentially scripted and bound and provided with the international testing materials – **advanced**
- secure storage of completed materials following data collection: Repurposed storage or private office space is used to secure materials within the NC – **established**
- adherence to security protocols: Staff with access to secure materials receive training in security protocols – **established**
- security auditing: The NPM can invoke or revoke access for any individual on the permitted list at any time – **established**
- secure space for conducting the coding operations: Multi-purpose facilities outside the NC are available for coding – **emerging**.

**Year 1 (2015-2016): Understand the standards of performance and quality defined in the NPM Manual and the PISA Standards and determine the operational requirements for meeting these standards in the Cambodian context**

Activity	Use peer-to-peer learning opportunities led by the OECD (international/NPM meetings) and KICE to identify relevant operational challenges in other countries and adapt or adopt successful strategies to similar challenges in Cambodia.
Reporting requirements	The participants attending international training should explore the strategies employed in other countries to meet different operational challenges related to data collection and processing. Where these strategies are relevant to the Cambodian context, modifications should be made to existing protocols for data collection and security.
Administrative details	This activity is expected to coincide with the scheduling of other international meetings or training. The participants should include the NPM and Deputy NPM. The costs represent incremental travel and accommodation costs associated with the time requirements for the peer-to-peer learning activities.
International costs	USD 0.
In-country costs	USD 1 000.
Expected additional funding	USD 0.

Year 1 total cost: USD 1 000

**Year 2 (2016-2017): Identify relevant operational challenges in other countries and adapt or adopt successful strategies to similar challenges in Cambodia. The NC will train and maintain a core group of experts with skills to train operational staff in protocols for data collection and processing.**

Activity 1	An international/NPM meeting (Guatemala, 2017) led by the PISA-D international contractor explaining the protocols that should be implemented during data collection and processing.
Deliverables	The explanations of the security and quality protocols should explain the rationales for and risks associated with each protocol. The contractor should relate the operational requirements in the NPM Manual to the PISA standards. The contractor should note where country-specific conditions allow or necessitate deviations from standard implementations in other countries and suggest strategies for implementing protocols and minimising project risks.
Reporting requirements	The participants are responsible for making any modifications to existing protocols for data collection and security that may be required to satisfy the PISA Standards in the Cambodian operational context.
Administrative details	The in-country costs are the travel, accommodation and per diem for 2 participants to attend the international workshop.
Relevant documentation	PISA-D NPM Manual; PISA-D Standards.
International costs	USD 0.
In-country costs	USD 6 000.
Expected additional funding	USD 0.
Activity 2	A two-day workshop led by the NPM with the support of KICE to institutionalise capacity within the NC for training data collection and coding staff.
Deliverables	The workshop will train a group of experts who will be able to train and supervise larger groups of operational staff (data collectors, coders and scorers). The NC will use the training models and protocols defined by the PISA-D international contractor, including any modifications necessary for the Cambodian context.

Administrative details	The NC will provide training facilities for approximately 20 people. In-country costs include training facilities and catering. All core staff of the NC will participate in the workshop, as well as staff from co-operating institutions with operational responsibilities. The workshop will cover all operational activities, regardless of the specialisation of specific participants or their ultimate project responsibilities. Exposing participants to all aspects of the project operations will help participants understand the importance of particular protocols to the larger project goals.
Relevant documentation	PISA-D NPM Manual; PISA-D Standards; documentation on operational considerations or strategies specific to Cambodia.
International costs	USD 0.
In-country costs	USD 400.
Expected additional funding	USD 0.

Year 2 total cost: USD 6 400

**Summary: Total capacity building element cost = USD 7 400**

#### 5.1.5. Statistical analysis, data visualisation and reporting

Researchers will translate information needs of stakeholders into specific research questions, select an appropriate statistical method for the research question, and communicate the statistical results in a manner that is accessible to non-statistical audiences.

Specific programme capacity targets:

- NPM experience with dissemination of results from large-scale assessment: LSA reporting uses multiple narratives to multiple audiences, referencing relevant data where appropriate – **advanced**
- NC’s understanding of Item Response Theory: NC staff have experience with multiple item response models (e.g. polytomous, Rasch, 2PL, 3PL) – **advanced**
- NC’s test development skills: NC staff use multivariate statistics to examine test dimensionality, item bias or differential item functioning, and test information and increase the accuracy and relevance of tests – **advanced**.

**Year 3 (2017-2018): Researchers will translate information needs of stakeholders into specific research questions, select an appropriate statistical method for the research question, and communicate the statistical results in a manner that is accessible to non-statistical audiences**

Activity 1	A five-day in-country workshop led by the NC (or relevant experts from co-operating institutions) and with the support of KICE to train institutional researchers in the use of software and data visualisation templates.
Deliverables	The workshop should replicate and redistribute the material from the international workshop. The focus of the workshop should be learning-by-doing, with participants replicating research activities using data and software provided by the NC. The NC should also distribute working versions of the necessary software used in the workshop.
Country responsibilities	The NC is responsible for inviting participants, co-ordinating schedules and arranging for training facilities.
Administrative details	In-country costs include training facilities and catering for 50 participants. Participants should be from MoEYS departments, academic institutions and development partners who are involved in policy research.

International costs	USD 0.
In-country costs	USD 3 000.
Expected additional funding	USD 0.
Activity 2	An international four-day workshop (international/NPM meeting, led by the PISA-D international contractor introducing the concepts of scaling cognitive and contextual data using dichotomous and polytomous item response (Rasch/IRT) models.
Deliverables	The workshop should provide participants an operational understanding of scaling models and the data requirements for their use. Participants should be able to use software to apply psychometric models to data for item calibration and score estimation. Less priority should be placed on mathematical or theoretical understanding of the techniques and more priority should be placed on identifying problems with data that may invalidate the use of scaling models, interpreting the output of estimation software, and using the scale scores in ways that are consistent with their statistical properties. The workshop should illustrate the advantages of model-based scaling for large-scale research projects, such as comparability and linearity. The workshop should provide participants with usable versions of the software used to perform the analyses.
Country responsibilities	The NC is responsible for assigning participants with sufficient experience in statistics and either test development or survey analysis that they will be able to understand and retain the skills and knowledge presented in the workshop. The participants should have positions that already have or are expected to assume responsibilities for scaling cognitive or questionnaire data.
Administrative details	In-country costs include travel, accommodation and per diem for two participants. The participants should include at least one NPM and at least one statistician or researcher assigned to the project.
International costs	USD 0.
In-country costs	USD 6 000.
Expected additional funding	USD 0.
Activity 3	An international four-day workshop (Senegal, 2018) led by the PISA-D international contractor explaining secondary data analysis and data visualisation techniques for common classes of research questions.
Deliverables	The workshop should identify common research questions or information needs and present algorithmic approaches to using software packages (such as SPSS, Excel, Stat, R, etc.) for producing appropriate results. Examples of common questions include multiple group comparisons, growth over time, and univariate and bivariate equity. Recognising that not all participants will have strong abstract mathematics backgrounds, the focus of the workshop should be on the use of software, selection of appropriate methods, and interpretation of results. The contractor should provide combinations of spreadsheet templates, syntax, or step-by-step instructions to simplify the production of results from raw data or statistical output. Preferably, the software used for the workshop should be free (e.g. R, Open Office) or is already accessible to participants (e.g. Microsoft Office).
Country responsibilities	The NC is responsible for assigning participants with sufficient experience in statistics and/or policy analysis that they will be able to understand and retain the skills and knowledge presented in the workshop. The participants should have positions that already have or are expected to assume responsibilities for preparing research reports. In order to meet the larger goals of capacity building to conduct assessment using modern psychometric techniques, this capacity must be institutionalised in Cambodia. Participants in training must be held accountable for explaining the workshop material to their colleagues: they will follow-up by reporting actions that are being taken by their institutions to pass on the knowledge/skills.

Administrative details	In-country costs include travel, accommodation and per diem for two participants. The participants should include at least one person with operational responsibility for the project and at least one statistician or researcher assigned to the project.
International costs	USD 0.
In-country costs	USD 6 000.
Expected additional funding	USD 0.

Year 3 total cost: USD 15 000

**Summary: Total capacity building element cost = USD 15 000**

## 5.2. Increased capacity for PISA and for national assessments

### 5.2.1. Instrument development

The NC will create questions and questionnaires scales for collecting information that can be used to address specific research questions.

Specific programme capacity targets:

- fidelity of administration in local contexts: Translators or staff responsible for adaptation have been trained in PISA data collection procedures – **advanced**
- adequacy of translator assessment background: Translators or staff responsible for adaptation are experienced teachers – **established**
- translator knowledge of PISA framework: Translators or staff responsible for adaptation are knowledgeable about the PISA assessment framework – **established**
- fidelity of instrument translation and adaptation to local contexts: Translators or staff responsible for instrument adaptation have experience with survey research or experience with questionnaire design – **established**.

**Year 2 (2016-2017): Understand the PISA cognitive and contextual questionnaire frameworks and develop appropriate additional items that may be required to measure conditions or outcomes of specific interest to stakeholders in the Cambodian context**

Activity 1	A two-day workshop led by the NC (or relevant experts from co-operating institutions) with the support of KICE to identify information needs of stakeholders that require measurement of latent conditions (i.e. where key process, control or outcome variables are not easily observable) and design appropriate measurement tools.
Deliverables	Using the information provided by the workshop participants, the NC will follow the design methodology from the PISA instruments to propose appropriate measurement tools or adapt/adopt questionnaire scales and reporting methodology from the PISA instruments. As the instruments are used, data from the administrations may be used to update information about the statistical properties of the measurement tools.
Reporting requirements	After preparing initial drafts of the suite of measurement tools (questionnaire scales or derived variables), the NC will circulate the drafts to participants for review before finalising the set of instruments. The measurements and scales will be made available for use through the MoEYS website as resources for monitoring activities in the education sector.
Country responsibilities	All activities will be co-ordinated by the NC.

Administrative details	The in-country costs include meeting facilities and catering for 50 workshop participants (USD 3 000) as well as production costs for materials (USD 1 000). Participants should be invited from EQAD, DCD, ERC/RUPP, TTD and SED.
Relevant documentation	Each workshop participant will receive a resource package that includes documentation of the PISA-D questionnaire development a summary of stakeholder information needs that have been previously identified by the NC.
International costs	USD 0.
In-country costs	USD 4 000.
Expected additional funding	USD 0.
Activity 2	A five-day workshop led by the PISA-D international contractor (international/NPM meeting, Senegal, 2018) explaining the development, scaling and interpretation of derived variables from the contextual questionnaires.
Deliverables	The workshop should explain the PISA research framework and the relationship between PISA questionnaire content and research hypotheses. The content of the draft questionnaires should be explained in the context of the research framework and participants should be able to suggest modifications that will increase the relevance of the questionnaires to the Cambodian context.
Country responsibilities	Participants are responsible for contributing information about country-specific conditions or interpretations of a concept to assist in development of internationally comparable questionnaire scales.
Administrative details	In-country costs include travel, accommodation and per diem for two participants. Participants should represent EQAD and RUPP/ERC.
Relevant documentation	PISA-D draft questionnaires and relevant documentation.
International costs	USD 0.
In-country cost	USD 6 000.
Expected additional funding:	USD 0.

Year 2 total cost: USD 10 000

**Summary: Total capacity building element cost = USD 10 000**

### 5.2.2. *Enhancement of curriculum and development of learning materials*

The Department of Curriculum Development (DCD) will extend curricular learning objectives to skills that are relevant to the demands of the workforce and requirements of participation in society. DCD will adapt the PISA cognitive framework to develop learning activities and classroom assessment tasks that embed curricular skills in real-world contexts.

Specific programme capacity targets:

- NPM's and NC's Familiarity with PISA skill ontology / framework: A common framework is used by NC staff for identifying skill determinants and dependencies for different learning objectives – **advanced**.

**Year 1 and 2 (2016-2017): Use the PISA cognitive framework to expand the scope of the Cambodian secondary education curriculum to address the skills required outside of an academic setting in the workplace and daily life**

Activity 1	The first five-day international/NPM meeting (Ecuador, 2015) led by the PISA-D international contractor explaining the PISA cognitive framework and working with participants to identify relationships between primary/secondary curricula and the PISA framework.
Deliverables	The workshop will provide accessible reference material explaining the PISA cognitive framework and provide examples of how different tasks and documents are used to represent the different cognitive requirements in the framework. The workshop should use example of curricular learning objectives to create PISA-style performance tasks using real-world documents.
Reporting requirements	Participants will be responsible for sharing and explaining the material of the workshop with colleagues.
Country responsibilities	The NC is responsible for inviting participants with relevant experience in curriculum development, test development and/or development of instructional materials. The participants must have sufficient background in content development to understand and apply the psychological principles described in the workshop to the Cambodian context. Participants should provide a selection of contextual documents that students might encounter in a non-academic settings (e.g. workplace, consumer economics, public services) as well as curricular documents and examples of learning materials found in Cambodia. Where possible, the materials should be translated to the language of the international contractor providing the workshop.
Administrative details	In-country costs include travel, accommodation and per diem for two participants. Participants should be invited from RUPP or the Educational Research Council.
International costs	USD 0.
In-country costs	USD 6 000.
Expected additional funding	USD 0.
Activity 2	An in-country five-day workshop on development of performance tasks led by KICE using the PISA cognitive framework led by an international specialist in the PISA cognitive framework.
Deliverables	The workshop will use extend the objectives of the previous workshop related to the PISA cognitive framework and focus on the applying the concepts to the Cambodian primary and secondary curricula. The main product of the workshop should be a set of model and templates that practitioners can use in a step-by-step approach to develop PISA-type performance and learning tasks from the learning objectives in the Cambodian curricula.
Country responsibilities	The NC is responsible for inviting participants, arranging for meeting facilities, and distributing the documentation from previous workshops and relevant curricular materials. The participants must have sufficient background in development of learning resources or cognitive testing to understand and apply the psychological principles described in the workshop to the Cambodian context. Participants should provide a selection of contextual documents that students might encounter in a non-academic settings (e.g. workplace, consumer economics, public services) as well as curricular documents and examples of learning materials found in Cambodia. Where possible, the materials should be translated to the language of the international contractor providing the workshop.
Administrative details	The workshop should focus on capacity development for five experts as well as the NPMs. International costs cover time, travel accommodation and per diem for the international consultant. In-country costs cover catering and clerical expenses. The workshop will be held at EQAD offices. Participants should be invited from EQAD, RUPP and NIE.
Relevant documentation	Relevant primary/secondary curricula; primary documents and texts representing non-academic experiences.
International costs	USD 15 000.

In-country costs	USD 300.
Expected additional funding	USD 0.

Year 2 total cost: USD 21 300

**Year 3 (2017-2018): Develop learning materials and resources relating skill demands of the workplace and daily life with curricular objectives for distribution to educators or used in teacher education. Develop a critical mass of expertise within the DCD that can support the adoption of these resources by educators.**

Activity 1	An in-country workshop supported by KICE to expand training to a larger group of curriculum specialists to review and modify curriculum using the models established in previous workshops, depending upon the availability of the Government of Korea's fund.
Deliverables	The workshop should replicate the methods and materials used in the consultant-led workshop. However, materials should be translated or adapted to Khmer as needed. The focus of the workshop should be learning-through-doing, as participants develop learning materials that may be used by educators.
Country responsibilities	This activity will be conducted entirely by the NC or co-operating Cambodian institution(s).
Administrative details	The workshop should accommodate approximately 50 participants representing EQAD, DCD, ERC/RUPP, TTD and SED. In-country costs cover meeting facilities, catering and clerical expenses.
Relevant documentation	Adapted training materials from the international consultant workshop on cognitive task development.
International costs	USD 0.
In-country costs	USD 3 000.
Expected additional funding	USD 0.
Activity 2	Use examples and lessons from the KICE, consultant and expert-guided workshops to develop a library of practical learning resources and assessment tasks to be made available to teachers and students.
Deliverables:	Develop assessment items and instructional material targeting specific cognitive skills and curricular objectives that combine authentic documents and texts that may be encountered in workplace and other non-academic contexts.
Country responsibilities	This activity will be co-ordinated entirely by the NC or Cambodian co-operating institutions.
Administrative details	In-country costs include clerical expenses associated with data storage, communications, and document production. The main activity should require six subject matter specialists allocating five working days per subject across four subjects (Math, Reading, Science and Qu). Specialists should include at least two members of EQAD, and representatives from CDC, SED, RUPP and NIE.
Relevant documentation	Instructional materials and templates developed by previous workshops in this capacity building element.
International costs	USD 0.
In-country costs	USD 1 000.
Expected additional funding	USD 0.

Year 3 total cost: USD 4 000

**Summary: Total capacity building element cost = USD 25 300****6. Summary of Capacity Building Plan for Cambodia**

The costs for the two types of investment are shown over the four years in the table below. The total cost for the “PISA implementation” investment amount to USD 90 060 which is the greater share of the costs. The capacity building elements related to “increased capacity for large-scale assessments” totalled USD 35 300 over the four years.

The total proposed budget for capacity building for Cambodia is USD 125 360, which are relatively small compared to other countries implementing PISA-D, which reflects the relatively strong individual capacity available in Cambodia. The largest share of the costs are associated with activities that mobilise existing resources and institutionalise collaborative relationships between the EQAD and other stakeholders. These activities largely take place in the first year of the cycle; the costs decrease linearly from USD 55 860 in the first year to USD 43 700 in the second year and USD 25 800 in the third year.

The relationship between cost of operational activities and cost of related capacity development is not constant across project elements. For example, development of sampling expertise is a large component of the sample plan, but is a relatively small operational cost. In contrast, translation is a relatively large operational cost in Cambodia, but the presence of high quality translation services in Cambodia implies a relatively lower capacity building requirement (incorporated into the Instrument Development element).

**Table 1. Capacity Building Plan: Cambodia**

Total capacity building plan cost by capacity element (in US dollars)

Capacity building element		Year 1 (2015-16) USD	Year 2 (2016-17) USD	Year 3 (2017-18) USD	Total
PISA implementation	5.1.1. Project utilisation and knowledge mobilisation	15 560	3 000	6 800	25 360
	5.1.2. Management of large-scale survey assessments	17 300	0	0	17 300
	5.1.3. Sampling	22 000	3 000	0	25 000
	5.1.4. Data collection, processing and security protocols	1 000	6 400	0	7 400
	5.1.5. Statistical analysis, data visualisation and reporting	0	0	15 000	15 000
Increased capacity for large-scale assessments	5.2.1. Instrument development	0	10 000	0	10 000
	5.2.2. Enhancement of curriculum and development of learning materials	0	21 300	4 000	25 300
Total		55 860	43 700	25 800	125 360
<b>Grand Total</b>					<b>125 360</b>

Funding has not yet been allocated to the PISA-D project in Cambodia, but the relatively small capacity building budget combined with the advantage of capacity building to several ongoing large-scale assessment activities in the country present a promising investment. Korea has allocated project funding including support for capacity development through KICE. In addition, Korea has approved a grant of

EUR 40 000 for the OECD in support of Cambodia's participation in international meetings as part of the project. It is expected that the World Bank's new Secondary Education Reform project for Cambodia will include a component of support for PISA-D.

## 7. Monitoring and evaluation

The ultimate goals for the capacity building elements provide a framework for monitoring and evaluation. Each ultimate goal presents an output or an outcome of the set of capacity building elements that are found under each area of development and these can be converted into indicators for monitoring and evaluation. The table below presents the area of development, the ultimate goal and the indicator.

**Table 2. Indicators for monitoring and evaluation based on the ultimate goals for each area of development**

Area for development	Ultimate goal	Indicators
1 Project utilisation and knowledge mobilisation	The NC will understand the information needs and priorities of key stakeholders and be able to identify and communicate the information from the project that is relevant to those interests. The NC will identify opportunities where the project may be modified to better address stakeholder interests and make modifications to maximise the utility of the project to stakeholders.	<ul style="list-style-type: none"> <li>• Consensus endorsement of the PISA-D implementation by the Joint Working Group</li> <li>• Clear identification of relevant information needs of different stakeholders</li> <li>• Use of results in monitoring reports by key stakeholders.</li> </ul>
2 Management of large-scale survey assessments	The NC will manage internal and external resources and co-ordinate with external institutions. The NC will maintain the project timelines by efficiently communicating upwards and downwards within and across management hierarchies.	<ul style="list-style-type: none"> <li>• Implementation activities are conducted in accordance with the PISA international timeline.</li> </ul>
3 Sampling	The NC will design samples constrained by budget, reporting accuracy, and required comparisons between groups appropriate for expected effect sizes. The NC will maintain or produce, as needed, necessary sample frames for the purpose of sampling activities.	<ul style="list-style-type: none"> <li>• Final PISA-D micro-data are able to support estimation of group-level statistics with the desired accuracy</li> <li>• A critical mass of staff participate in training in sample design and weight estimation</li> <li>• Sample design of National Assessment incorporates sample design that is responsive to research needs.</li> </ul>
4 Data collection, processing and security protocols	The NC will train operational staff to minimise: 1) variations in responses caused by ambiguous instructions and variations in data collection environment, 2) errors in data processing caused by missing data or data linkage information, and 3) variations in coding or scoring caused by nonstandard interpretations of coding and scoring guidelines.	<ul style="list-style-type: none"> <li>• Cambodian results are included in the international report.</li> <li>• Best practices for coding and rating are incorporated into National Assessment operations.</li> </ul>
5 Statistical analysis, data visualisation and reporting	Researchers will translate information needs of stakeholders into specific research questions, select an appropriate statistical method for the research question, and communicate the statistical results in a manner that is accessible to non-statistical audiences.	<ul style="list-style-type: none"> <li>• A critical mass of staff undertake training in multivariate analysis.</li> <li>• Development of at least four research projects using data from NAS and PISA.</li> <li>• Use of multivariate statistics or multiple methods in research</li> <li>• Reports intended for public dissemination include multivariate research findings presented in accessible charts and text.</li> </ul>

**Table 2. Indicators for monitoring and evaluation based on the ultimate goals for each area of development (continued)**

Area for development	Ultimate goal	Indicators
6 Instrument development	The NC will create questions and questionnaires scales for collecting information that can be used to address specific research questions.	<ul style="list-style-type: none"> <li>• EQAD creates questionnaire scales to measure complex outcomes, attitudes or behaviours</li> <li>• EQAD makes questionnaire scales available to stakeholder groups</li> <li>• Stakeholders use scales to monitor outcomes in the education sector</li> <li>• Scores for questionnaire scales are estimated using IRT or Rasch modelling</li> </ul>
7 Enhancement of curriculum and development of learning materials	The Department of Curriculum Development (DCD) will extend curricular learning objectives to skills that are relevant to the demands of the workforce and requirements of participation in society. DCD will adapt the PISA cognitive framework to develop learning activities and classroom assessment tasks that embed curricular skills in real-world contexts.	<ul style="list-style-type: none"> <li>• Development of a bank of items and tasks that embed curricular learning objectives in real-world contexts</li> <li>• Training in the use of these tasks by a critical mass of teacher trainers</li> <li>• Wide distribution of the item bank as learning materials for students and educators</li> <li>• Use of contextual tasks in ongoing, classroom assessment</li> </ul>

It should be noted, that it is the ensemble of areas of development that results in the desired capacity, rather than individual areas of development, which is why the programme for capacity building is carefully sequenced over the four years in relation to the PISA implementation schedule. The indicators can be monitored over the four years using the indicators.

## 8. Next steps

The immediate priority for implementing the CBP should be formal approval of the project scope for the four-year budget. Based on this approval, the project implementation planning may proceed to ensure that both the development goals of MoEYS and external stakeholders and the minimum project requirements can satisfy the project objectives.

The final phase of Cambodia's preparation, the preparation of a PIP according to its specific needs and operational conditions, is under way and will be completed by the end of December 2015. The PIP will be integrated with the overall international plan for implementation of PISA-D and the work of the international contractors.

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## ANNEX A. SCHEDULE OF PISA-D INTERNATIONAL/NPM MEETINGS

Meeting	Venue	Date	Content
1. International/NPM/Capacity Building meeting (4-5 days)	Quito, Ecuador	28 September – 2 October 2015	PISA cognitive and contextual frameworks, characteristics of the available item pools.
2. International/NPM/Capacity Building meeting (4-5 days)	Washington, DC, United States	25-29 January 2016	Adaptation, translation and verification of survey materials and sampling.
3. International/NPM/Capacity Building meeting (4-5 days)	Asunción, Paraguay	4-8 April 2016	Student sampling and field trial survey operations.
4. International/NPM/Capacity Building meeting (4-5 days)	Zambia	4-8 July 2016	Scoring and coder training and data management for the field trial.
5. International/NPM/Capacity Building meeting (4-5 days)	Saly, Senegal or Princeton/Washington, DC, United States	May 2017	Analysis and interpretation of field trial results and preparation for main study.
6. International/NPM/Capacity Building meeting (4-5 days)	Antigua, Guatemala	July 2017	Student sampling and main study survey operations.
7. International/NPM/Capacity Building meeting (4-5 days)	Saly, Senegal	March 2018	Data processing, results, scaling methodology and preparation for analysis.
8. International/NPM/Capacity Building meeting (8-10 days)	Antigua, Guatemala	July 2018	Analysis and interpretation of main study results, reporting and dissemination of results.

## PISA FOR DEVELOPMENT

# Capacity Building Plan: Cambodia

PISA for Development is an initiative of the OECD and its partners that aims to identify how its Programme for International Student Assessment (PISA) can best support evidence-based policy making in emerging and developing economies – and contribute to the UN-led definition of global learning goals for the post-2015 agenda. In addition the project will help to build country capacity in assessment, analysis and use of results for monitoring and improvement among participating countries. Cambodia is one of six countries participating in the project, and the Ministry of Education, Youth and Sport of Cambodia is responsible for the project in the country. This plan covers the four-year PISA for Development cycle (2015-2018) and includes costed learning activities related to the implementation schedule of the project in Cambodia. PISA for Development is technically complex, operationally demanding and statistically advanced, and the capacity building plan therefore focuses on PISA components that will allow Cambodia to benefit from international benchmarking and from evidence on student performance derived from multivariate analyses, while also gaining capacity and competencies to raise the quality of its own national assessments through the use of item response theory methodology, rigorous international standards of implementation and increased analysis to provide explanations for the results.

The results from the Capacity Needs Analysis: Cambodia report have been used to design this capacity building plan for Cambodia that will be implemented by the OECD, its contractors, and the Ministry of Education, Youth and Sport of Cambodia, through the PISA for Development project.