



**PISA FOR DEVELOPMENT
CAPACITY BUILDING PLAN:
GUATEMALA**



PISA
FOR DEVELOPMENT



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This plan has been prepared by Leonor Cariola Huerta on behalf of the OECD and the Ministry of Education of Guatemala as part of the PISA for Development project. PISA for Development is an initiative of the OECD and its 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: GUATEMALA

1. Introduction and background

Since being launched in the year 2000, the Programme for International Student Assessment or PISA has assessed the skills of 15-year-old students in the areas of reading, mathematics and sciences. The results have provided reliable evidence for the purposes of decision-making in the field of educational policies in member countries of the Organisation for Economic Co-operation and Development (OECD) and, to an ever greater extent, in other countries with experience in learning assessment. In conjunction with the World Bank, the OECD has embarked on the PISA for Development (PISA-D) project the aim of which is to facilitate the participation of countries with less assessment experience in a test comparable to the PISA standards, adapted to lower than average achievement in order to provide a more accurate description of levels below that defined as low by the OECD.

The initial stage of preparation in each participating country – including Guatemala – was to complete a Capacity Needs Analysis (CNA). For Guatemala this stage was completed between August and October 2014.

In 2014, the overall benchmark to reach in the CNA is the capacity needed in the context of the PISA-D project, defined as follows:

- The ability of the individuals and institutions responsible for the project in each country to perform the necessary functions, as set out in the roles and responsibilities for the National Centre (NC) and the National Project Manager (NPM), to solve the problems that will arise during implementation and set and achieve project objectives in a sustainable manner.

PISA-D includes a capacity building plan for participating countries which is intended to ensure success in participation. Greater capacity for learning assessment and analysis of results will be useful for making decisions founded on evidence and for developing educational goals during and subsequent to PISA-D. Indeed, training shall be given on all processes to build the necessary capacity, particularly in the NC. Where possible, capacity building shall be included as part of the project in areas that are of interest to participating countries and are useful to national assessments.

Prior to implementing the project, the World Bank and the OECD hired the services of consultants to determine the capacity building needs of the participating countries and, on the basis of such findings, to develop this capacity building plan (CBP) and, subsequently, the project implementation plan: the next stage prior to start-up.

This document elaborates the CBP for Guatemala within the context of the PISA-D implementation schedule and the reference framework for the project.

The reference framework stems from the original version of the PISA requirements set out in the NPM Manual PISA (OECD, 2012a); the NPM Roles and Responsibilities PISA (OECD, 2012b); and the

stated programme outputs of PISA-D (OECD, 2013). The PISA requirements are linked to three dimensions: 1) Enabling environment, 2) Organisation and 3) Individual.

The framework is designed to assess the capacity of participating countries to achieve the five programme outputs of PISA-D, which are:

- enhanced contextual questionnaires and data collection instruments
- enhanced descriptive power of cognitive assessments in reading, mathematics and sciences, at appropriate skill levels within the PISA cognitive framework
- an approach, including a methodology and analytical framework, for including out-of-school 15-year-olds in the assessments
- increased country capacity in assessment, analysis and use of results for monitoring and improvement
- engagement with OECD, development partners and, prospectively, with other developing countries in order to identify peer-to-peer learning opportunities regarding participation in PISA and its potential contribution to the UN-led discussions on the post-2015 framework education goals and targets.

The analysis of needs for Guatemala showed that the country and the Directorate-General for Educational Assessment and Research (DIGEDUCA), the NC designated for implementing PISA-D in Guatemala, are well placed to achieve that task. Nonetheless, the analysis also identified the need for capacity building to improve capabilities in each of the three dimensions: enabling environment, organisational capacity and individual skills.

The second stage of PISA-D preparation in each participating country, including Guatemala, was to complete the CBP based on the CNA. For Guatemala, this was prepared between December 2014 and January 2015. The plan covers the four years of the project, from 2015 to 2018, and includes the costs of the learning activities relating to the project implementation timescale and the terms of reference for contractors in charge of implementation. PISA-D is technically complex, operatively demanding and statistically advanced. The CBP focusses on the components that make it possible to analyse results, report on them and facilitate their use to improve educational policies and the practices of the actors involved in education. Another relevant aspect of the outstanding qualities of PISA is the design of items and the ability of the test to gauge skills; hence, DIGEDUCA has insistently applied to take part in activities that would enable it to improve its own tests and items.

2. Country context

According to the World Bank, in 2014 Guatemala had a population of 15.86 million inhabitants. Its gross domestic product stood at USD 538 billion¹ at the current exchange rate. Moreover, the human development index stood at 0.628 (2013), placing it in position 125 of the 186 countries included in the ranking.² The level of corruption is among the highest in the world, with the country holding position 133 of the 174 on the ranking for International Transparency.³ It has a relatively young population, a factor that should be taken into consideration when contemplating broadening educational coverage as there will be a greater number of young people at secondary age.

Guatemala has one of the largest native populations in Central America. According to the 2002 census, nearly 40% of its inhabitants define themselves as native descendants. Three quarters of the

indigenous population live in rural areas and 86% of them live below the poverty line (Minority Rights Group International, 2009).

The education system in Guatemala encompasses 6 years of primary education beginning at the age of six years and six months; three years of lower secondary education – the 1st, 2nd and 3rd years of the basic cycle, equivalent to grades 7, 8 and 9; and between 2 and 4 years of upper secondary education, according to the study plan (or subject area) known as the diversified cycle which may comprise academic and vocational and technical streams.

Educational establishments are classified by Guatemala’s administrative system as follows:

- private
- official, which are free-of-charge and funded by the State
- co-operative, tripartite associations between family parents, the local government and the central government (MINEDUC), funded by all three parties
- municipal, the infrastructure and teachers of which are funded by the municipality, though they are involved in all MINEDUC programmes on an equal footing.

Guatemala has a relatively low percentage of students out of primary school (4.7% in 2011), but this figure is much higher for lower secondary or basic education (20.3%).⁴ In 2010, coverage at primary education exceeded 95%, but for the basic cycle the figure only came to 44.9% in 2014 (see table 1). These statistics match the accumulated dropout rate upon completion of lower secondary which came to 25.7% in 2010, and the transition rate between primary and secondary level (89.8%). Accordingly, it can be deduced that it would be significant to include young people aged 15 years who are not in school within the project.

Table 1. Coverage rate according to education levels

Level	2000	2010	2011	2012	2013	2014
Pre-primary coverage	37.3%	54.9%	47.6%	44.9%	45.6%	46.3%
Primary coverage	85.4%	95.8%	92.8%	89.1%	85.4%	82.00%
Basic cycle coverage	24.7%	42.9%	43.3%	43.2%	44.0%	4.9%
Diversified cycle coverage	15.4%	22.3%	23.5%	24.2%	24.1%	23.8%

Source: DIPLAN/MINEDUC, Guatemala.

Repetition is a significant problem in Guatemala. It is greater than 30% for the first year of primary level, although it does fall thereafter to less than 5% for the sixth year of primary level.⁵ Accordingly, for the purpose of PISA-D, it would be logical to expect 15-year-old students to be dispersed over the various education levels and years as shown in the table below. Students who have not repeated would expect to be ending the 2nd level of the basic cycle upon reaching 15; however, 15% are still following primary level.

Table 2. Distribution of 15-year-old students in 2014

Level	Grade	15-year-old students	Students in Guatemala*	15-year-old students by grade (%)	15-year-old students in school
Primary	1	257	489 157	0.05%	0.11%
	2	722	426 771	0.17%	0.32%
	3	1 903	411 145	0.46%	0.84%
	4	4 216	391 464	1.08%	1.87%
	5	9 133	363 273	2.51%	4.05%
	6	18 187	335 619	5.42%	8.07%
	Total		34 418	2 417 429	1.42%
Basic	1	34 899	298 034	11.71%	15.49%
	2	49 032	249 149	19.68%	21.76%
	3	74 560	221 980	33.59%	33.10%
	Total	158 491	769 163	20.61	70.35
Diversified	4	30 008	157 201	19.09%	13.32%
	5	2 297	151 997	1.51%	1.02%
	6	69	866 18	0.08%	0.03%
	Total	32 374	395 816	8.18	14.37
Total general		225 283	3 583 053	6.29%	100.0%

Note: * Total students in Guatemala not including adults in primary grades.

Source: DIPLAN/MINEDUC, Guatemala, 2014.

The low coverage at the basic and diversified cycles is illustrated by the large number of 15-year-olds that are out of school.

Table 3. Population of 15-year-olds in and out of school

	2000	%	2010	%
Population of 15-year-olds in school	126 759	47.7%	177,743	52.9%
Population of 15-year-olds out of school	139 060	52.3%	158,321	47.1%
TOTAL	265 819	100%	336,064	100%

Source: Population estimate from the 2002 census produced by the National Statistics Institute of Guatemala in 2004 (projected data for 2013).

In 2000, following the peace agreements, Guatemala embarked on an educational reform focussed on redesigning the curriculum, increasing coverage and quality. The curriculum has consistently been the main concern once again picked up on in 2005 following the change of government. Although it should already have been implemented at all levels up to the 3rd year of basic cycle, difficulties have been encountered. By all accounts, teachers are not capable of implementing it and the syllabus is complex. Major progress has been made in terms of educational coverage, but at the basic cycle and, to a greater extent at the upper secondary level (diversified) with its several different tracks, more efforts are needed. This may be achieved with greater coverage and retention at primary level, whilst also improving the transition between primary and secondary level. Nonetheless, at this juncture it is necessary to take into consideration the increase in the population of young people.

One issue raised in the reform is teacher training and the need to raise the level of teachers' qualifications. However, the foremost endeavours in this regard have been made recently by this administration in requiring teachers to possess higher education.

2008 saw the establishment of the National Education Board formed by 16 representatives of various education and social sectors. The Board sought to define the aims of the reform with eight educational policies each with strategic goals.⁶ The educational policies are as follows:

- coverage
- quality
- management model
- human resource
- bilingual, multicultural and intercultural education
- increased educational investment
- equality
- institutional strengthening and decentralisation.

These eight policies unquestionably point to the key problems in education in Guatemala but not all the efforts made in this regard have proved successful. For instance, in terms of the budget education carries priority but the funds assigned to it only amount to 2.8% of the country's GDP and it has not been possible to increase this.

As part of the policy measures for achieving quality, both at the start of the reform and with the General Law on Education and the National Education Board, student learning assessment was assigned a primary role.

Guatemala already benefits from extensive experience in learning assessment, something DIGEDUCA has capitalised on. During the 1990s, with the support of USAID and the World Bank two efforts were made to assess student learning although they were subsequently discontinued. The Ministry carried out annual assessments between 1996 and 2001. In 2004 and 2005, assessment was the responsibility of a private university; in 2006 and 2007, it was a project conducted within the Ministry of Education; lastly, as of 2008, assessment became an institutional responsibility under DIGEDUCA. Many of the officials who joined DIGEDUCA had taken part in previous assessments administered by the other projects.

From 2004 onwards students completing higher secondary education have been assessed with a test known as *Graduandos* or graduate test. Having the test is a requisite to obtaining the certificate for baccalaureate, although the grade obtained does not affect the mark with which students graduate. As a result, in 2005 this test became a census.

The department also conducts a census test upon completing lower secondary level or the basic cycle (9th year), but the regularity thereof varies. Hitherto it was performed in 2006, 2009 and 2013. Likewise, from 2006 onwards, reading and mathematics tests have been carried out on samples in 1st, 3rd and 6th year of primary level. These are conducted yearly, although due to budget restraints they were cancelled in

2011 and 2012, exceptionally. In addition to national tests, DIGEDUCA has taken part in three international tests: SERCE, TERCE and ICCS.

Despite this extensive experience, which enables Guatemala and DIGEDUCA to take part in PISA-D, as confirmed in the CNA, officials attached to DIGEDUCA would like to improve the three dimensions of the reference framework: Enabling environment, Organisation and Individual. These capacity building needs are summarised briefly below.

3. Summary of capacity building needs

DIGEDUCA has confirmed that it has two priority needs:

- to improve capacities to process, analyse and report on data, thus providing more effective support in the design of policies and the practices of stakeholders in the system
- to learn to prepare items based on the PISA framework and develop them specifying the difficulty prior to the psychometric analysis.

In addition, the CNA highlighted the following areas in need of development:

- capacity to improve data collection instruments and implement these
- capacities related to assessing out-of-school 15-year-olds
- capacity in assessment, analysis and use of results.

These capacity building needs are summarised below.

3.1. Capacity to improve contextual questionnaires and data collection instruments and implement them

DIGEDUCA needs to understand PISA contextual questionnaires and adapt them to the reality of Guatemala. To do so, it would benefit greatly from further understanding of the reference framework for the PISA questionnaires. Such an adaptation should lend careful consideration to the formulation of questions that would make this learning easier.

3.2. To improve cognitive assessment instruments

DIGEDUCA has experience in designing tests and developing items. Nonetheless, it has highlighted needs in two fundamental areas to improve cognitive assessment.

- First, in improving qualitative aspects of the preparation of items to adapt them to the reality without changing their characteristics. DIGEDUCA needs capacity in order to assess abilities in line with the PISA reference frameworks. Specialists from DIGEDUCA expressed the need for knowledge and skills to work on the ontology of the PISA reference frameworks. It is vital to note that the development and correction of open questions is an aspect that is relatively unknown to DIGEDUCA and they need to acquire greater capacity for these tasks. Their experience with open-ended questions is limited to SERCE and TERCE.
- Second, in achieving a better command of item response theory in general and specific psychometric analyses, particularly in relation to the bias and differential operation of items to increase the accuracy and relevance of the tests.

When it comes to administering the instruments, quality control mechanisms need to be improved. Furthermore, in order to achieve greater coverage of knowledge and skills it is in DIGEDUCA's interest to improve the preparation of the tests according to technical criteria and to use groups of rotated items and make comparisons.

3.3. Capacities to assess out-of-school 15-year-olds

DIGEDUCA does not have experience in out-of-school assessment. Consequently, it needs to gain an acquaintance of techniques for sampling populations with specific characteristics when rigorous sample frameworks are not available. It will also be necessary to build on research and home interview techniques.

Similarly, DIGEDUCA staff have stated the need to gain specialist knowledge and skills in order to scientifically obtain probability samples on schools and students.

3.4. Capacity in assessment, analysis and use of results

DIGEDUCA prepares and distributes a number of reports but is unaware of how effective they are. It therefore needs to ensure access, understanding and application of documents and reports on results on the part of the various stakeholders and the policy makers.

In statistical terms, DIGEDUCA staff need to possess a command of multivariate statistical analyses and dimensionality analyses in order to build indices. The DIGEDUCA staff are extremely keen to develop indices using item response theory.

4. Methodology

The CNA made it possible to classify capacity training needs of two types: those needed to implement PISA and those needed more generally for management of large-scale national assessments. These are each in turn classified into a range of categories as set forth below.

For implementation of PISA the categories are:

- capacity building elements for developing the commitment of stakeholders
- capacity building elements for gaining an understanding of progress with new quality procedures and those established for the implementation of PISA-D
- progress area for sampling schools, students and out-of-school young people
- development area for products, communication and dissemination.

Capacities for improving PISA and national assessments in general are classified into:

- development area for improving infrastructure
- development area for psychometric methods
- development area for preparation and storage of items
- development area for research methodologies.

In order to determine the aforementioned capacity building needs, the 112 required conditions included in the capacity needs analysis framework were classified into four categories according to their current status: “Latent”, “Emerging”, “Established” and “Advanced”. For each of them there is a rubric that describes the status of those conditions. The final two categories, “Established” and “Advanced”, constitute the level needed for effective implementation of PISA-D. Each requirement that did not make it into the best category was assigned a target to be reached.

By using the www.polymetrika.org/PISAD/Home/DataEntry tool, a general and an annual capacity building goal was assigned to each needs area for the four years of the project. Next, capacity building was detailed along with the activities for each year taking into consideration the timeframe with which PISA-D would be developed. For each activity the following was detailed: documents that need to be attached, required reports, country responsibility, administrative matters, relevant documents and the cost. The cost may be broken down according to whether it is national or international. In the case of the former it is possible to indicate what amount should be covered by loans or contributions from other countries. No international costs were identified as this type of expenditure is covered by the project. Most national costs relate to expenses for attending meetings, namely, transport and living expenses. Since the State of Guatemala does not allow trips overseas to be funded by its budget, funds for this area are expected to be secured from donors or through loans. Indeed, the Directorate-General is endeavouring in this regard.

Collaborative and agreement-based work with DIGEDUCA was conducted between 9 and 16 December 2014 during the consultant's second mission. From the proposed draft, which is already incorporated into the online tool (www.polymetrika.org/PISAD/Home/DataEntry), certain activities were removed and others were added by working directly online. Subsequently, the costs of all activities were determined.

For the areas stated, the pertinent capacity building plans were designed envisaging general international meetings for PISA, meetings in Spanish for Latin American countries and self-learning as well. It is necessary to point out that a requisite in self-learning processes is to reach an agreement with contractors for them to supervise, lend guidance and give feedback on these activities. This was reviewed with the DIGEDUCA director, who is also the NPM. We then received the schedule with the international meetings programmed and needed to adjust the programme. A decision was made on which individuals would join the national director in these meetings. Subsequently, the technical and field support area coordinator weighed up the cost of the activities programmed. This cost estimate was then revised down by the director general. Generally speaking, the reduction was carried out by reducing the number of people who would attend international meetings. Lastly, the participant profile was described.

5. Results of the analysis based on the capacity building reference framework

The CBP was drawn up for the four year PISA-D cycle (2015-2018). As stated, the preparation of this plan co-ordinated the capacity building needs with the eight international meetings that had previously been programmed and the PISA-D implementation schedule that had been updated in January 2015. The costs of the programme were determined according to information provided by DIGEDUCA.

This plan includes two capacity building aspects that Guatemala is in the process of requesting from the contractor to strengthen those areas with the greatest need for capacity building: analysis and item development. This latter aspect exclusively relates to Latin American countries.

In addition to these meetings or workshops, the programme includes activities that will make capacity building possible with remote support from contractors. Of these, it is considered that the development of items may progress substantially if teams apply what they have learnt in their countries with their entire teams, developing items that serve for subsequent remarks and feedback.

Certain international activities will meet certain capacity building goals and, by extension, will serve several capacity building areas. When this is the case, the meeting is included in the most pertinent area and footnotes are detailed to indicate other purposes. Accordingly, the costs are not doubled and all activities also appear with their costs. The table below details the meetings proposed with the capacity building areas to which they contribute along with the participants envisaged in the costs and their characteristics.

Table 4. International meetings with the capacity building areas proposed, cost assignment and envisaged attendees

First Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise	
September 2015, 1st meeting Topics: PISA-D contextual and cognitive reference frameworks Contextual and cognitive items Characteristics of the bank of items available Capacity building for preparation of items	5.12 New and established quality procedures for implementing PISA-D 5.2.3 Item storage and preparation	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Command of mathematics, reading, natural sciences / Research	
		Sub-director for instrument development	Master in educational research, assessment and measurement	Sub-director for instrument development		
		Instrument staff (mathematics area)	Degree in education	Specialist in mathematics		
		Instrument staff (reading area)		Specialist in reading		
		Instrument staff (natural science area)		Specialist in natural sciences		
		Syllabus participant	Degree in education / Psychology	Officer for syllabus assessment		Syllabus assessment
		A research technician	Degree in education specialising in research	Educational researcher		Qualitative and quantitative research

Second Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise		
January 2016, 2nd meeting Topics: Capacity building for adaptation, translation and verification of all study materials Sampling	5.1.2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D 5.1.3 Progress area for sampling of schools, students and out-of-school young people. 5.2.3 Development area for preparation and storage of items.	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling		
		Sub-director for instrument development		Sub-director for instrument development			
		Sub-director for analysis		Sub-director for data analysis			
		Instrument staff (mathematics area)	Degree in education	Preparation of tests and items for mathematics	Preparation of tests and items for mathematics		
		Instrument staff (reading area)					Preparation of tests and items for reading
		Instrument staff (natural sciences area)					Preparation of tests and items for natural sciences
		A research technician	Degree in education specialising in research	Educational researcher	Qualitative and quantitative research		

Third Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
April 2016, 3rd meeting Topics: Sampling of students Field operations Applicator training	5.1.2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for instrument development		Sub-director for instrument development	
		Sub-director for analysis		Sub-director for data analysis	
		Sub-director for logistic operation	Master in human resources	Sub-director logistic operation	Logistics

Fourth Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
July 2016, 4th meeting Topics: Field operations Contextual and cognitive coder training Data handling	5.1.2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D	Sub-director for instrument development	Master in research, assessment and measurement	Sub-director for instrument development	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for logistic operation	Master in human resources	Sub-director for logistic operation	Logistics
		1 analysis participant (data management)	Specialists: Degree in education / Psychology	Data analysis	Data analysis
		3 instrument participant (1 specialist per area)		Specialist in mathematics, reading, natural sciences / data analysis	Preparation of tests and items for the areas of mathematics, reading, natural sciences
		A research technician	Degree in education specialising in research	Educational researcher	Qualitative and quantitative research

Fifth Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
May 2017, 5th meeting Topics: Analysis and interpretation of pilot results Analysis plan for contextual questionnaires Preparation for definitive application and sampling	5.1.2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D 5.1.4 Development area for products, communication and dissemination. 5.2.2 Development area for psychometric methods 5.2.3 Development area for preparation and storage of items.	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for instrument development		Sub-director for instrument development	
		Sub-director for analysis		Sub-director for data analysis	

Sixth Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
July 2017, 6th meeting Topics: Field operations for final application Sampling of definitive application Applicator training Correction of open questions and data handling	5.1.2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D 5.1.3 Progress area for sampling of schools, students and out-of-school young people.	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for execution	Master in human resources	Sub-director for execution	Logistics
		1 participant analysis (data management)	Specialists: Degree in education / Psychology	Data analysis	Data analysis
		3 instrument participants (1 specialist per area)		Specialist in mathematics, reading, natural sciences	Preparation of tests and items for the areas of mathematics, reading, natural sciences

Seventh Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
March 2018, 7th meeting Topics: Summary of procedures for data processing Scaling methodology Data analysis Mediation of reports for various audiences	5.1.4 Development area for products, communication and dissemination	Sub-director for instrument development	Master in research, assessment and measurement	Sub-director for instrument development	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for analysis	Master in research, assessment and measurement	Sub-director for data analysis	
		1 analysis participant (data management)	Specialists: Degree in education / Psychology	Data analysis	Data analysis
		1 communication technician	Communication	Specialist in mediation of reports	Mediation y communication

Eighth Meeting

NPM meeting (date and topics to address)	Capacity building area	Attendees from DIGEDUCA	Formal education speciality and level	Position	Expertise
July 2018, 8th meeting Topics: Part 1: Scaling, analysis and interpretation of definitive test results Preparation for reporting and disseminating results Part 2: Plans for the national report	5.1.4 Development area for products, communication and dissemination	NPM	Master in research, assessment and measurement	Director general	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for instrument development		Sub-director for instrument development	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		Sub-director for analysis	Sub-director for data analysis	Sub-director for data analysis	Preparation of standardised tests nationally / Preparation of items / Teaching / Syllabus assessment / Research / Test data analysis nationally / Rasch / TC / Database and statistical package handling
		1 communication technician	Communication	Specialist in mediation of reports	Mediation and communication

The plan set out below sought follows the summary format produced by the www.polymetrika.org/PISAD/Home/DataEntry tool and the recently submitted model.

5.1. Capacity building for PISA-D implementation

5.1.1. Capacity building element: Stakeholder engagement

The ultimate goal for this capacity building element is:

- DIGEDUCA strengthens the links and get a better feeling of what kinds of analysis are required and of what is needed to improve cognitive instruments and background questionnaires to better respond stakeholders demand.

Assessment of capacity building needs:

- efficiency of communication protocols – **advanced**
- communication with stakeholders – **established**
- perceptions of external survey-based large-scale assessment (LSA) of lower level stakeholders – **established**
- having strong public engagement for NLSA – **advanced**
- feedback from ILSA – **emerging**
- breadth of stakeholder engagement – **advanced**
- availability of ILSA training – **advanced**.

DIGEDUCA will nominate an advisory council some of its plausible members will be invited at the PISA launch.

Year 1: Disseminate PISA-D. Establish a permanent advisory council with stakeholders of different sectors (Activity 1)

Activity	DIGEDUCA will nominate a PISA council in order to impact different stakeholders who may help with PISA dissemination. This people should be able to sense what is required for the best interests of student learning and to provide DIGEDUCA with an external vision of their work. This council will include people from other Directions of Ministry (especially from curriculum), teachers, principals, entrepreneurs, academics, experts in assessment, journalist. Maybe a representative of the teacher union. Probably some international agency that may co-operate with PISA. They will meet periodically and be informed of the activities in regard to PISA.
Deliverables	Presentations. Hands out. Invitation letters. Meeting minutes.
Reporting requirements	Keep records of meeting minute.
Country responsibilities	NO EXTRA COSTS. Nominate the council members and commit them to participate in it. Organise a periodical agenda for this council. Feed DIGEDUCA's social network with the progress of the council meetings. Get the council acquainted with PISA and the activities developed by DIGEDUCA.
Relevant documentation	Presentations from DIGEDUCA to the council.
In-country costs	USD 0.

Year 1: Disseminate PISA-D. Establish a permanent advisory council with stakeholders of different sectors (Activity 2)

Activity	PISA launch in Guatemala. OECD will hold meetings with DIGEDUCA staff, Ministry authorities and main stakeholders. There will also be official public events for PISA dissemination and to give an overview of the whole PISA project. One week meeting.
Deliverables	Hands out and presentations with the agenda and timeline for the whole process. NPM Manual. PISA brochure of Guatemala.
Reporting requirements	Register and booking for participants.
Country responsibilities	Decide participants to each meeting. Host the meeting. Logistic.
Administrative details	Logistic.
Relevant documentation	PISA brochure of Guatemala.
In-country costs	USD 0.

Total Cost Year 1 = USD 0

Year 2: DIGEDUCA assisted by the council develops a draft analysis plan for reporting PISA-D, considering main country's educational policies and theoretical knowledge

Activity	Start discussion of the analysis plan for the national report in an active dialogue with the council and the OECD. The first step will be to determine the main educational issues and/or policies that the report could address.
Deliverables	Agenda. Meeting minutes. Educational issues to be discussed. Draft plan analysis for discussions.
Reporting requirements	Keep technical meeting summaries and participation.
Country responsibilities	NO EXTRA COSTS. Organise the agenda for the council meetings and provide background to the issues to be discussed. Keep record of the agreements and suggestions and inform the council on actions taken. Send technical meeting summary records to OECD and be the linkage between the council and OECD.
Administrative details	Logistics for the meeting. Appointing participants.
Relevant documentation	OECD country reports.
In-country costs	USD 0.

Total Cost Year 2 = USD 0

Year 4: Involve the Council in the discussion for planning the report release

Activity	Regular meetings for sharing and discussing with the Council the plan of analysis, the preliminary results and the report release.
Deliverables	Tables, graphs and drafts.
Reporting requirements	Complete confidentiality.
Country responsibilities	Security measures, organising the meetings. Keep record of the agreements and suggestions and inform the council on actions taken. Send technical meeting summary records to OECD and be the linkage between the council and OECD.
Administrative details	Logistics for the meeting. Appointing participants.
Relevant documentation	Country reports.
In-country costs	USD 0.

Total Cost Year 4 = USD 0

Summary: Total capacity building element cost = USD 0

5.1.2. Capacity building element: Upgrading existing and new quality procedures for PISA implementation

The ultimate goal for this capacity building element is:

- PISA-D will be successfully implemented meeting all standards and these standards will also be applied to national assessments. Implement quality controls that will evidence that the standards were met.

National Centre

- stability of NLSA programme – **established**
- having regular funding for NLSA – **established**
- adequacy of NLSA funding – **emerging**
- relevance of NC expertise – **established**
- experience in planning, organising and conducting large-scale surveys – **established**
- experience in planning, organising and conducting international assessments – **advanced**
- having regular funding for ILSA – **established**
- adequacy of ILSA funding – **emerging**
- bureaucratic efficiency – **advanced**
- NLSA research and development funding – **established**
- having strong organisational structures for NLSA – **established**
- autonomy of NLSA structures – **established**
- accountability of LSA structures – **established**
- ILSA research and development funding – **established**
- effect of political climate on implementation – **established**
- scheduling conflicts due to local political activities – **established**
- funding for NPM/NC for international training and meetings – **latent**
- availability of NPM/NC for international training and meetings – **established**
- participation in previous international ILSA training – **established**
- learning needs for non-academic outcomes – **established**
- monitoring of collection procedures – **advanced**

- national co-ordinator for ILSA – **established**
- effectiveness of human resources for ILSA – **established**
- scheduling priority given to ILSA activities – **established**
- availability of NPM – **established**
- engagement of clerical/administrative support – **established**
- NC co-ordination – **advanced**
- data quality of ILSA – **established**
- sufficiency of data collection staff – **established**
- commitment of data collection staff – **advanced**
- avoidance of conflicting interests – **advanced**
- commitment of data collectors to training – **advanced**
- correct sequencing of administration of national options – **advanced**
- effectiveness of training for data collection – **advanced**
- availability of document formatting and print specifications – **established**
- responsiveness of sample design to data collection activities – **established**
- fidelity of response coding – **established**
- adherence to protocol – **advanced**
- NPM’s skill in managing a team of project staff who carry out multiple tasks often needing simultaneous attention – **advanced**
- relevance of NPM expertise – **advanced**
- NPM’s previous experience in planning, organising and conducting large-scale surveys – **advanced**
- NPM’s knowledge and confidence to represent the country at international meetings where aspects of the project will be discussed – **advanced**
- NPM’s knowledge of, and the confidence to deal with government agencies, school principals, parents and teachers within their own countries – **established**
- NPM knowledge of language of assessments – **established**

- NPM's level of oral and written communication skills in English for meetings and communications with the OECD Secretariat and with the International Contractor – **established**
- NPM's previous work experience in an education system and experience in educational assessment – **advanced**
- NPM's General computing skills (e.g. Microsoft Office suite, WebEx and secure FTPs) – **advanced**
- English proficiency of NPM – **established**
- NPM's and NC's familiarity with PISA skill ontology / framework – **emerging**
- NC's understanding of item response theory – **established**
- NC's test development skills – **established**
- fidelity of administration in local contexts – **established**
- quality of training for data collection – **established**
- adequacy of translator assessment background – **emerging**
- translator knowledge of PISA framework – **latent**
- appropriateness of instrument translation and adaptation to local contexts – **established**
- fidelity of instrument translation and adaptation to local contexts – **established**
- response coding expertise – **established**.

Security

- security issues with data collection – **advanced**
- integrity of coding – **established**
- computing security – **established**
- accountability for security – **advanced**
- secure storage of completed materials following data collection – **advanced**
- adherence to security protocols – **established**
- security auditing – **advanced**
- secure space for conducting the coding operations – **advanced**
- booklet distribution infrastructure – **advanced**

- adequacy of transportation for data collectors – **advanced**
- data collection monitoring – **latent**.

Logistics

- geography and climate obstacles – **established**
- access to a reliable, high bandwidth Internet connection and e-mail facilities – **established**
- computing environment – **established**
- software resources – **advanced**
- availability of training facilities – **established**
- quality of document proofing – **advanced**
- availability and quality of publishing resources – **advanced**.

Included in this capacity building element is the preparation required for participating in PISA-D ensuring the NC's capacity, the security measures and the logistical needs.

There will be five meetings of the International Advisory Group (IAG) for PISA-D focussing on the process of implementation. These meetings will be held in different countries and are organised by the OECD team members with different international contractors, participants and donors.

Year 0: First Meeting for the International Advisory Group

Activity	May 27-28, 2014 (Paris).
Deliverables	ToR, Timetable, expert papers, review of capacity building design.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country Process tickets, Visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country Process tickets, visas and travelling insurance.
In-country costs	USD 0.

Year 0 Total Cost = USD 0

Year 1: Second Meeting for the International Advisory Group

Activity	March 11-13, 2015 (Paris).
Deliverables	ToR, Timetable, expert papers.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country. Process tickets, visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country. Process tickets, visas and travelling insurance.
In-country costs	USD 0.

Year 1 Total Cost = USD 0

Year 2: Third Meeting for the International Advisory Group

Activity	April - March, 2016 (Paraguay).
Deliverables	ToR, Timetable, expert papers.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country. Process tickets, visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country. Process tickets, visas and travelling insurance.
In-country costs	USD 4 000.

Year 2 Total Cost = USD 4 000

Year 3: Fourth Meeting for the International Advisory Group

Activity	April - March, 2017 (Zambia / Cambodia).
Deliverables	ToR, Timetable, expert papers.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country. Process tickets, visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country. Process tickets, visas and travelling insurance.
In-country costs	USD 9 600.

Year 0 Total Cost = USD 9 600

Year 4: Fifth Meeting for the International Advisory Group

Activity	April - March, 2018 (Senegal).
Deliverables	Framework, Timetable, expert papers.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country. Process tickets, visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country. Process tickets, visas and travelling insurance.
In-country costs	USD 3 000.

Year 4 Total Cost = USD 3 000

There will be eight international peer-to-peer meetings focussing on different aspects or processes of PISA-D. In addition, since DIGEDUCA is very much interested in improving their security and quality control areas, they are proposing a self-access-training activity assuming that they will have the support of the international contractor.

Year 1: Get acquainted with the whole process starting with the items that will be administered

Activity	September, 2015 (Ecuador). First NPM 4-5 day meeting: Contractor holds international meeting on existing PISA cognitive and contextual assessment frameworks, characteristics of the available item pools, and capacity building around item development, including training and peer-to-peer learning activities. ⁷
Deliverables	Frameworks in Spanish. Tables of Specification used in the last regular PISA and/or ToRs to be used in PISA-D. Presentations and hands out. Item writing guidelines.
Reporting requirements	After the meeting delivering items developed according to the framework and to instructions received. Contractor should give feedback to those items.
Country responsibilities	Official authorisation for leaving the country. Process tickets, visas and travelling insurance. Before assisting: Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. After the meeting: Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Commitment to fulfil and exchange the tasks and works required by the seminar.
Administrative details	Official authorisation for leaving the country. Process tickets, visas and travelling insurance.
Relevant documentation	Frameworks in Spanish. Item writing guidelines.
In-country costs	USD 14 700; people assisting = 7.

Year 1: Design a quality control plan to be implemented, including the way in which quality will be assessed

Activity	During the three years of the project, the international contractor will ask reports for each process that back the compliance with PISA standards. The contractor will give feedback to PISA-D participant country in regard to this compliance and suggest ways to improve the process in a next opportunity.
Deliverables	Guidelines and forms for reporting each process. Feedback to those reports. Quality control manuals. Quality control questionnaires.
Reporting requirements	Systematise failures to comply with PISA standards. Send the required reports on time. Analyse and share the feedback with a broad team. Keep timelines. Clarify questions from the International Contractor.
Country responsibilities	NO EXTRA COST FOR THE COUNTRY. Develop the quality control plan and ask peer countries and the international centre to review and comment it.
Relevant documentation	Quality control manuals. Quality control questionnaires.
In-country costs	USD 0.

Year 1: Recruit, select and train part time workers for DIGEDUCA

Activity	DIGEDUCA design a way to organise files and records of external workers. Start filling in three different files with previous item developers, test administrators and coders. Entering available data in them.
Reporting requirements	This will be reported together with reports for item development, test administration and coding.
Country responsibilities	Design and keep files.
Administrative details	Consulting administrative possibilities to certify these trainings and/or having a joint venture with a university. Consult costs for having a site where candidates can renew data, interests and availability.
Relevant documentation	Profiles for item adaptors, item translators, and coders. Adapted guidelines and manuals in Spanish.
In-country costs	USD 0.

Year 1 Total Cost = USD 0

Year 2: Learning to prepare survey material and sampling for field trial

Activity	January 2016 (Washington). Second NPM 4-5 day meeting: Contractor conducts international meeting on capacity building around adaptation, translation and verification of all survey materials and sampling.
Deliverables	Guidelines for item development. Guidelines for item adaptation. Forms for recording the items to be developed. Forms to include desired adaptations and contractor's answers. Sampling manual in Spanish. Forms for sampling framework. Software for completing sampling framework and for drawing the sample. Data management manual. Sampling framework and requirement for exclusions. Hands out. Presentations.
Reporting requirements	Countries submit some items. Contractor gives feedback on them. Approved adaptations. Reasons for rejecting those that were not approved. Entering data into the sampling framework.
Country responsibilities	Reading documents previously sent. Discussing those documents with the whole team so that the person/s that assists asks everybody's questions. Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Process tickets, Visa, per diem, insurances, authorisation.
Administrative details	Process tickets, visa, per diem, insurances, authorisation.
Relevant documentation	Guidelines for item development. Guidelines for item adaptation.
In-country costs	USD 11 200; Assisting people = 7.

Year 2: Be prepared for field trial test administration and sampling

Activity	April 2016 (Paraguay). Third NPM 4-5 day meeting: In liaison with the Contractors for Strand B and Strand C, Contractor holds international meeting on student sampling, FT survey operations, test administrator training.
Deliverables	Operation manual, NPM manuals, Test administrator manual, School Co-ordinator manual, Quality control manual, School tracking forms, Student tracking forms, Sampling manual (if these process require software they should be distributed).
Country responsibilities	Summarise the challenges that the country will need to face and the ways in which the NC may surmount them. Describe the adaptations required in the country compared to the established PISA procedures. Reading documents previously sent. Discussing those documents with the whole team so that the person/s that assists asks everybody's questions. After the meeting, reproduce the workshops to their teams.
Administrative details	Register and booking of country participants. Official authorisation for leaving the country. Process tickets, per diem, visas and travelling insurance.
In-country costs	USD 8 400; Assisting people = 4.

Year 2: Final preparation for field trial test administration and for data processing after it

Activity	July 2016 (Zambia). Fourth NPM 4-5 day meeting: Contractor conducts international meeting on capacity building around field test survey operations, scoring and coder training, and data management.
Deliverables	Coding manuals and Marking guides. Examples of coded open-ended answers. Data management manual in Spanish. Software to be used. Presentations. Hands on.
Reporting requirements	File with data entered and clean. Report of inconsistencies found and checked. The international contractor may establish other.
Country responsibilities	Nominate the persons that will assist. Prepare for the meeting by reviewing the marking guides within the team and collect questions and doubts.
Administrative details	Tickets, visas, per diems and authorisations. The data manager assists to the meeting and prepares for it. Takes his own laptop.
Relevant documentation	Coding manuals and Marking guides.
In-country costs	USD 28 000; Assisting people = 7 (instrument and analysis sub-directors, 2 subject specialists and 1 analysis technician).

Year 2: Implement the quality control plan

Activity	Continue with the same activity as in year 1. The quality control plan will be implemented in the test administration process, in question marking and in data entry.
Deliverables	Feedback from the International Contractor in regard to the reports. Detailed reports required. Forms for reporting.
Reporting requirements	Keep processes and reporting timeline.
Country responsibilities	Reports of each process.
Relevant documentation	Reports required with guidelines.
In-country costs	USD 0.

Year 2: Have test administrators trained for when they are required

Activity	Organise a national workshop for test administrators and keep records of participants. Staff trained in the international meeting will lead this process.
Deliverables	Adapted test administration manuals and school co-ordinator manuals. Hands out and presentations.
Administrative details	Organise several workshops along the country to prepare PISA test administrators. Keep their records.
Relevant documentation	Adapted Test Administrator and Co-ordinator manuals.
In-country costs	USD 7 200.

Year 2: Have coders trained for when they are required

Activity	Trained staff in marking open-ended questions from DIGEDUCA prepare coders for marking open-ended questions according to PISA standards. DIGEDUCA keep records of coders' data and performance. Organise a national training for a five-day workshop for coders. If possible certify the training and acknowledge assistants as appliers to become PISA coders. Keep register of their data and performance during the workshop.
Deliverables	Marking guides and coding manuals.
Country responsibilities	ORGANISING AND CARRYING OUT THE WORKSHOP.
Relevant documentation	Coding manual and marking guides. Examples of marked open-ended questions.
In-country costs	USD 8 000 (temporal human resource, material and workshop).

Year 2: Have item developers trained for when they are required

Activity	Organise a national training for a three-day workshop for item developers. If possible certify the training and acknowledge assistants as appliers to become item developers. Keep register of their data and performance during the workshop.
Deliverables	Report and power point presentation for sharing information received and results of training.
Country responsibilities	Organise and deliver workshop.
Administrative details	Transportation within the country and per diem for item developers from other places of the country. Logistics for the workshop. Consulting administrative possibilities of certifying these trainings and/or of having a joint venture with a university. Consult costs for having a site where candidates can renew data, interest and availability.
Relevant documentation	Guidelines and manuals for item writing.
In-country costs	USD 7 000.

Year 2 Total Cost = USD 69 800

Year 3: Learn to analyse and use field trial results to improve main study instruments

Activity	May 2017 (Washington or New Jersey). Fifth NPM 4-5 day meeting: In liaison with the Contractors for Strands B and C, Contractor holds international meeting on analysis and interpretation of FT results, and preparation for MS ⁹ including sampling and proposed draft MS instruments. ¹⁰
Deliverables	Almanacs with item data. Rules and standards for discarding or retaining items. Presentations and hand out on general knowledge about IRT. Options of software to analyse items, manuals for using them and procedures in Spanish Software manuals.
Country responsibilities	Fulfil tasks assigned for periods in between meetings.
Administrative details	Official authorisation for leaving the country. Process tickets, visas, per diem and travelling insurance.
Relevant documentation	Document on general knowledge of IRT. Almanacs with item data. Rules and standards for discarding or retaining items.
In-country costs	USD 4 800; Assisting people = 3.

Year 3: Be prepared for main study test administration and data processing

Activity	July 2017 (Guatemala). Sixth NPM 4-5 day meeting: Contractor conducts international meetings on capacity building around MS survey operations, MS student sampling, test administrator training, scoring and data management. ¹¹
Deliverables	Survey operation manual and forms to be used by test administrators. Test administrator manual. School co-ordination manual. Marking guides. Coding manuals. Examples from the field trial. Data management manual for the main study in Spanish. Software for MS data entry. MS sampling manual.
Reporting requirements	Reports for every process that affect test administration: printing, packing, delivering, Student Tracking Forms, labelling, test administrator performance, incidents during test administration, school and student participation, test material recovery, etc. VERY IMPORTANT that contractor gives feedback and suggestions for improvement after the field trial as well as after final test administration. Main problems encountered during the field trial, from the country's perspective and from the contractor's point of view. Ways to overcome those difficulties. Completed sampling framework. Sampling forms. Exclusion.
Country responsibilities	Be prepared for the meeting. Prepare for the meeting by reviewing the marking guides and the report of difficulties for the trial test.
Administrative details	Tickets, visas, per diems, authorisation and insurances.
Relevant documentation	Survey operation manual and forms to be used by test administrators. Test administrator manual. School co-ordination manual. Marking guides. Coding manuals.
In-country costs	The cost for hosting would be considering approx. 40 people. The country provided the workshop place, coffee breaks, lunch, transportation from the airport to hotel, and translations (English-Spanish), USD 9 000.

Year 3: Verify the quality of the whole process

Activity	Assess the quality of the test administration process in regard to PISA standards.
Deliverables	Forms for reporting. Feedback to those reports.
Reporting requirements	Synthesis report of the whole project including an assessment of the process and of what was learnt.
Country responsibilities	NO EXTRA COSTS. Keep timelines. Clarify questions from the International Contractor. Produce reports for each process.
Relevant documentation	Feedback to those reports.
In-country costs	USD 0.

Year 3: Use record files and choose the best test administrator and coders

Activity	Call test administrator and coders from the records and train them again. Assess the benefits of recruiting known people.
Deliverables	Manuals and hand out. Marking guides and coding Manuals. Test administrator manual.
In-country costs	USD 11 400.

Year 3 Total Cost = USD 25 200

Year 4: Assess the quality of the test administration process in regard to PISA standards

Activity	Continue with the same activity.
Deliverables	Forms for reporting. Feedback to those reports.
Reporting requirements	Synthesis report of the whole project including an assessment of the process and of what was learnt.
Country responsibilities	NO EXTRA COSTS. Keep timelines. Clarify questions from the International Contractor. Produce reports for each process.
Relevant documentation	Feedback to those reports.
In-country costs	USD 0.

Year 4 Total Cost = USD 0

Summary: Total capacity building element cost = USD 130 700*5.1.3. Capacity building element: School, student and out-of-school sampling*

The ultimate goal for this capacity building element is:

- Guatemala should be able to draw school, student and out-of-school 15-year-old, including weights.

Assessment of capacity building needs:

- reliability of student attendance – **advanced**
- quality of school sample frame – **advanced**
- level of detail in administrative student data – **advanced**

- 15-year-old census – **emerging**
- location of 15-year-olds – **latent**
- information on student language of instruction – **emerging**
- information on school language of instruction – **emerging**
- engagement of data collection agency or network with collection sites (e.g. schools) – **advanced**
- household survey collection – **established**
- specialised skill for scientific probability sampling – **established**
- quality of replacement sample – **advanced**
- management of linked data files – **established**
- data manipulation skill: manipulating data structures – **advanced**
- data manipulation skill: fluency with statistical software (e.g. SPSS, SAS) – **advanced**.

The CBP will be through meetings 2nd, 5th and 6th that were described and cost in the previous capacity element.

DIGEDUCA will follow the instructions of the Contractor to draw the sampling frame and draw the samples. This process will be under quality control, as every other PISA-D task.

5.1.4. Capacity building element: Product development, communication and dissemination

The ultimate goal for this capacity building element is:

- Guatemala will develop their country report according to their needs and orientations given by DIGEDUCA's Council.

Assessment of capacity building needs:

- clear statement of purpose for participation in NLSA – **established**
- transparent policy for NLSA – **established**
- clear statement of purpose for participation in ILSA – **established**
- use of ILSA – **established**
- stakeholder use of LSA data – **emerging**
- expectations for NLSA – **advanced**
- setting clear policies for ILSA – **established**

- contributions to ILSA – **advanced**
- dissemination of ILSA results Feedback from ILSA – **established**
- media coverage of ILSA – **emerging**
- positive washback of ILSA – **established**
- providing teachers with opportunities to learn about the NLSA – **established**
- NPM experience with dissemination of results from large-scale assessment – **advanced**
- NPM regularity of communication – **established**.

Year 4: DIGEDUCA research and analysis teams are able to decide on the best way to release results and on the contents of the country report

Activity	In house self-training in theoretical knowledge regarding educational models and learning factors. These may be considered as a deepening of the study of the background questionnaire framework. The OECD may give some guide on bibliography for this seminar that should extend to year 3.
Deliverables	Bibliography. Presentations. Minutes of discussions.
Reporting requirements	Keep notes that will be an input for the PISA National Report.
Country responsibilities	NO EXTRA COSTS. Organisation of the seminar and distribution of responsibility. Working time allowed.
Relevant documentation	PISA National Reports from other countries.
Expected additional funding	USD 0, NO EXTRA COSTS.

Year 4 Total Cost = USD 0

Year 4: Learn what is required to start analysing MS data after data collection

Activity	March 2018 (Senegal). Seventh NPM 4-5 day meeting: In liaison with the Contractors for Strands B and C, Contractor holds International Meeting on scaling methodology, and data analysis and reporting tools, including training and peer-to-peer learning activities.
Deliverables	Presentations and hands out. Briefing documents. Syntax in SPSS. Software manuals. Guidelines with types of analysis that can be carried out.
Reporting requirements	Distant work of the countries with the contractors by exchanging specific analysis and interpretations with feedbacks.
Country responsibilities	Provide notebooks so that participants can take their own notebook to work. Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. Fulfil tasks assigned for period in between meetings. Travel arrangements.
Administrative details	Official authorisation for leaving the country. Process tickets, Visas, per diem and travelling insurance.
In-country costs	USD 16 000; Assisting people = 4.
Expected additional funding	USD 16 000.

Year 4: Be prepared to develop country's own report according to national interests

Activity	July 2018 (Guatemala). Eighth NPM 10-15 day meeting: Contractor conducts international meetings on (Part 1) capacity building around analysis and interpretation of MS results and (Part 2) capacity building around preparations for reporting and dissemination of country reports.
Deliverables	Hands out. Presentations. Bibliography.
Reporting requirements	Those required by the contractor.
Country responsibilities	The following people should assist: NPM (National Director), Analysis Sub-director, Instrument Sub-Director (questionnaire and analysis), Communication technician. These people should take their own notebooks. Arrange travel requirements.
Administrative details	Tickets, insurance, per diem, authorisations.
In-country costs	The cost for hosting would be considering approx. 40 people. The country provides the workshop place, coffee breaks, lunch, transportation from the airport to hotel, and translations (English-Spanish), USD 9 000.
Expected additional funding	USD 9 000.

Year 4 Total Cost = USD 9 000

Summary: Total capacity building element cost= USD 25 000

5.2. Increased capacity for PISA and for national assessments**5.2.1. Area for development: Infrastructure improvement**

The ultimate goal for this area of development is:

- DIGEDUCA does not have any urgent need of infrastructure improvement for participating in PISA-D.

Assessment of capacity building elements:

- access to a reliable, Internet connection and e-mail facilities – **established**
- computing environment – **established**
- software resources – **advanced**
- availability of training facilities – **established**.

DIGEDUCA would like to improve their connecting facilities and has planned to get Wi-Fi in their building. But this improvement will not be included in this programme, since they already have budget for it.

5.2.2. Area for development: Psychometric methods

The ultimate goal for this area of development is:

- DIGEDUCA needs to deepen their knowledge in IRT, compute IRT parameters, be able to score tests according to IRT and to produce relevant analysis of them. They also need to construct items and scale them with IRT.

Assessment of capacity building elements:

- NC's understanding of item response theory – **established**
- NC's test development skills – **established**.

Year 3: Analyse item psychometric data from the pilot and interpret them correctly

Activity	This workshop would be complementary to the fifth NPM meeting. It could be organised as a peer-to-peer training in a regular international PISA meeting or in a workshop for Latin American countries in Spanish. This workshop will be done on the basis of pilot test data. It should be a workshop oriented to IT and statistic people, --in order that they are able to carry out the processes for doing item IRT analysis-- and to item developers in order that they analyse from a qualitative point of view why some items does not work. All of them should get to understand the principles of IRT. Participants should learn to process and compute item parameters and to interpret them for improving tests. They need to learn about scaling, equating and HLM.
Deliverables	The almanacs with item data. Document on basic concepts of IRT. Guidelines to interpret data. Guidelines to choose appropriate software. Presentations. Bibliography.
Reporting requirements	There should be a summary of the main item problems. Exercises of processes learnt.
Country responsibilities	Before the meeting, review the data from the pilot test and consult your analysis team about their interpretations and questions. Within the team develop hypothesis for the flagged items. After the meeting, inform and explain to the team what has been learnt. Official authorisation for leaving the country to the staff that will be assisting. Process tickets, visas and travelling insurance.
Administrative details	Official authorisation for leaving the country to the staff that will be assisting. Process tickets, visas and travelling insurance.
Relevant documentation	The almanacs with item data.
In-country costs	USD 20 550 If it is organised by the International Contractor.
Expected additional funding	USD 20 550.

Year 3 Total Cost = USD 20550

Summary: Total capacity building element cost = USD 20 550

5.2.3. Area for development: Item writing and item banking

The ultimate goal for this area of development is:

- Adequately adapting PISA items after translation. Being able to report relevant results for stakeholders, such as abilities developed by students. Having tests that comply with International Standards for Assessment.
- DIGEDUCA needs to deepen their knowledge and expertise for writing items. They will get experience in developing open-ended questions and learn to develop challenging multiple choice items to be able to assess competencies for life according to their intended curriculum.

Assessment of capacity building elements:

- NC's understanding of item response theory – **established**
- NC's test development skills – **established**

- adequacy of translator assessment background – **emerging**
- translator knowledge of PISA framework – **latent**
- appropriateness of instrument translation and adaptation to local contexts – **established**
- fidelity of instrument translation and adaptation to local contexts – **established**
- response coding expertise – **established**.

Year 1: Being able to write items drawn from PISA frameworks (general, each subject and background questionnaires), which are well understood

Activity	This workshop is thought for Latin American countries because it will be in Spanish. DIGEDUCA's national director wants to propose to the international contractor to carry out specific workshop (3 days workshop) for item development. After the NPM meeting and after getting acquainted with PISA frameworks, an item development workshop in Spanish will take place. The objective of this workshop is learning to and developing multiple choice and open-ended items (including marking guides) for 15-year-old students. Participants will receive general guidelines from an expert in each area and develop items, which will be commented and criticised by participants and experts. The seminar should be carried out by a team of expert item developers for each subject co-ordinated by an expert in measurement (who can be one of the subject experts). Before and after the workshop, participants will develop items with their home teams, which will be analysed in the workshop or by the experts after that. This workshop may be held in any of the three Latin American countries. So national costs should include both tickets and per diem for each of the participants or the logistic costs of the seminar. Costs will depend on the number of areas of interest.
Deliverables	Guidelines for item development. Forms for recording the items to be developed. Hands out. Presentations.
Reporting requirements	Hosting country inform authorities in the Ministry.
Country responsibilities	Reading documents previously sent. Discussing those documents with the whole team so that the person that assists asks everybody's questions. Reproduce the workshops to their teams. Fulfil the tasks assigned for the period in between meetings. Since it would be hosted by one of the participant countries, the responsibilities will differ: Non-hosting: Official authorisation for leaving the country Process tickets, Visas and travelling insurance. Hosting country: Seminar logistics and organisation for participants' stay. Participating countries would share experts' costs.
Relevant documentation	Guidelines for item construction.
In-country costs	If Guatemala host the event, it will be USD 5 850. If, in addition, they provide lodging, it would be USD 28 350. We estimate that the workshop cost could be about USD 5 500 per expert, total USD 16 500. This sum could be divided by participating countries. If the workshop is abroad the expenses would be USD 11 750 for seven people.
Expected additional funding	USD 28 250.

Year 1 Total Cost = USD 28 250

Summary: Total capacity building element cost = USD 28 250

5.2.4. Area for development: Research Methodologies

DIGEDUCA has not asked for any specific training in research methodologies but expects a lot from the seventh and eighth meetings. The following areas are highlighted: multilevel and multivariable analysis.

6. Summary of Capacity Building Plan costs for Guatemala

The table below shows that the overall cost of this programme comes to two hundred and eighteen thousand, one hundred and ninety dollars (USD 218 190). It does not include operating costs as these shall be entirely national and are budgeted for.

The bulk (65%) of the budget is earmarked to improving implementation of PISA-D. However, funds allocated to improving PISA and national assessment procedures are far less. Of all the capacity building areas with a better procedure, this area is intended to improve procedures for implementing PISA, although these procedures also apply to national assessment and it would benefit from such capacity building.

Only two activities are primarily focussed on the specific needs of Guatemala and they match the areas of interest for DIGEDUCA: preparation of items and improvement of test quality; and improvement of analysis capacity.

The third year of the programme, 2017, will place the greatest burden on the budget.

Table 5. Summary of Capacity Building Plan costs

in USD

CAPACITY BUILDING AREAS	Y1	Y2	Y3	Y4	Total
	2015	2016	2017	2018	
5.1 Capacity building for PISA-D implementation					
5.1.1. Capacity building element: Stakeholder engagement	0	0	0	0	0
<i>Disseminate PISA-D</i>	0	0	0	0	0
5.1.2. Capacity building element: Upgrading existing and new quality procedures for PISA implementation	14 700	73 600	34 800	7 600	130 700
<i>IAG Meetings</i>	0	3 800	9 600	7 600	21 000
<i>NPM Meetings</i>	14 700	47 600	13 800	0	76 100
<i>Training</i>	0	22 200	11 400	0	33 600
5.1.3. Capacity building element: School, student and out-of-school sampling	0	0	0	0	0
5.1.4. Capacity building element: Product development, communication and dissemination	0	0	0	25 000	25 000
<i>NPM Meetings</i>				25 000	
Sub-total	14 700	73 600	34 800	32 600	155 700

CAPACITY BUILDING AREAS	Y1	Y2	Y3	Y4	Total
	2015	2016	2017	2018	
5.2. Increased capacity for PISA and for national assessments					
<i>5.2.1. Area for development: Infrastructure improvement</i>	0	0	0	0	0
<i>5.2.2. Area for development: Psychometric methods</i>	0	0	20 550	0	20 550
<i>Training</i>			20 550		
<i>5.2.3. Area for development: Item writing and item banking</i>	28 250	0	0	0	28 250
<i>Training</i>	28 250				
<i>5.2.4. Area for development: Research Methodologies</i>	0	0	0	0	0
Sub-total	28 250	0	20 550	0	48 800

CAPACITY BUILDING AREAS	Y1	Y2	Y3	Y4	Total
	2015	2016	2017	2018	
5.1 Capacity building for PISA-D implementation	14 700	73 600	34 800	32 600	155 700
5.2. Increased capacity for PISA and for national assessments	28 250	0	20 550	0	48 800
TOTAL	42 950	73 600	55 350	32 600	204 500

The majority of the budget is for travel in order to take part in workshops held abroad. This is a problem for DIGEDUCA owing to administrative restrictions that do not allow for expenditure in this area. This is one of the foremost reasons why funds are applied for from co-operation agencies. It would be beneficial for there to be more local meetings in Guatemala and assurance could be given with regard to this being worthwhile for other countries. In any event, the country offers to host the sixth and the eight NPM meeting.

7. Monitoring and assessment

The table below sets out the ultimate goals of each capacity building area and, alongside, information is given on the indicators that would make it possible to assess and monitor progress on the project.

Table 6. Ultimate goals of each capacity building area

Areas for development	Ultimate goal	Indicators
1 Strengthening ties with stakeholders	DIGEDUCA needs to receive feedback on the impact of assessment regularly in order to centre its products on its stakeholders and conduct the necessary analyses to increase the impact on educational policies and the practices of the various players, and likewise to improve contextual questionnaires.	The system provides opportunities for learning about international projects. Stakeholders actively analyse data to search for specific information. The NC holds regular meetings and has meeting places for sharing opinions and perspectives. Research and development activities. The DIGEDUCA Council is a standing committee with a bearing on decisions made within the institution. Political and civic activities are not detrimental to the project.
2 Capacity building elements for progress with new and established quality procedures for implementing PISA-D	DIGEDUCA expects to conduct the processes for the PISA-D project as well as the national assessments in line with the PISA standards without setbacks, documenting them and carrying out pertinent quality checks. DIGEDUCA expects to have authority to log onto, administer and handle large-scale assessment databases. It also expects to be in a position to control unforeseeable factors and document circumstances to check whether PISA standards have been met.	The NC conducts national assessments without hitches. Open question correction is performed in line with the methodology designed for PISA-D. DIGEDUCA has a sufficient number of qualified item developers, examiners and coders to make a selection. Funds are available for participation in international meetings and for international capacity building. Funding covers all central activities of national and international assessments. DIGEDUCA has sufficient, suitably trained staff to conduct international assessments effectively. Time is specifically assigned for participation in and preparation of international activities. Coders are recalibrated periodically (see standard 11.3). The tests bear no safety risk. Databases are accepted by contractors. The data manager can teach others and put together information from other databases with the results of PISA-D. Information on students includes the prevalent language of instruction. Information on schools includes details about the prevalent language of instruction. All staff receive training on safety protocols. Monitors are also trained to serve as examiners.
3 Sampling of schools, students and out-of-school young people	It intends to avoid the risk of the sample losing representativeness during test application.	Students have a unique data item incorporated into their school record. The number of dropouts is estimated by following the unique codes every two years. The analysis team has experience designing complex samples with suitable weightings and/or adjusts weightings according to non-responses.

Table 6. Ultimate goals of each capacity building area (continued)

Areas for development	Ultimate goal	Indicators
4 Development area for products, communication and dissemination	It develops assessment reports focussed on the needs of the country and intended to improve education.	The assessment results are used to inform on decision-making within the national system. Teachers read and are aware of the results of assessments. Teachers read and are aware of the results of assessments. Decisions based on results of international assessments have a favourable impact on students' level of accomplishment. Education stakeholders acknowledge the uses given to information from international assessments in order for them or other interested parties to inform on policies or practices.
5 Development area for improving infrastructure		The NC has a wireless network in all facilities with universal broadband access to the Internet and e-mail.
6 Development area for psychometric methods	It maximises analysis capacity and is able to develop analyses that are more aligned to its requirements.	The team at the NC has experience in multiple choice answer items (e.g. polytomous, Rasch, 2PL, 3PL).
7 Development area for preparation and Development storage of items	It suitably adapts the PISA items subsequent to being translated. It is able to assess student skills. It is able to prepare national tests meeting international assessment standards. It is able to develop and prepare open questions. It is able to understand the PISA reference frameworks, to compare them with the national curriculum, to draw up specifications tables for the tests and to develop items in line with these frameworks.	The curriculum framework extends from pre-primary to the end of the diversified cycle and encompasses adult skills relevant to the local context, including economics and citizenship, etc. Translators and staff responsible for adaptation are also professional item developers. Translators and staff responsible for adaptation may predict the difficulty of PISA items with great reliability. Translators and staff responsible for adapting instruments are aware of the constructs measured by the PISA questionnaires. DIGEDUCA uses the PISA reference frameworks to assess its curriculum. DIGEDUCA may prepare items stemming from the PISA frameworks.

8. Next steps

This CBP should be embarked on as soon as possible. The first activity is to launch PISA-D in Guatemala, for which a number of activities have been contemplated. The director general expects to have appointed a board by this time in order for it to be actively involved in events.

Prior to this it is necessary to design the implementation plan, an activity scheduled for the week prior to the launch. Moreover, there is a pressing urgency to secure funding to enable DIGEDUCA staff to attend international meetings; discussions are under way with GIZ in respect of the latter.

NOTES

¹ <http://datos.bancomundial.org/pais/guatemala>

² UNDP, 2013, <http://hdr.undp.org/es/content/table-1-human-development-index-and-its-components>

³ www.transparency.org/cpi2012/results

⁴ <http://data.uis.unesco.org/#>

⁵ DIPLAN/MINEDUC, Guatemala.

⁶ National Education Board: Strategic Goals and Policies.

⁷ This activity is also related to Capacity Building element 5.2.3, Item writing and banking.

⁸ This activity is also related to Capacity Building elements 5.1.3, School, student and out of school youth sampling; and to 5.2.3, Item writing and banking.

⁹ We have considered this preparation for the Main Study in regard to instruments and not field operations.

¹⁰ This activity is also related to Capacity Building elements 5.1.4, Product development, communication and dissemination; 5.2.2, Psychometric Methods; and 5.2.3, Item writing and banking.

¹¹ This activity is also related to Capacity Building elements 5.1.3, School, student and out of school youth sampling.

REFERENCES

OECD (2013), *PISA for Development Project Document (with Logical Framework)*, OECD, Paris, <http://www.oecd.org/callsfortenders/ANNEX%20C.pdf>.

OECD (2012a), *NPM Manual PISA*, OECD, Paris, France.

OECD (2012b), *NPM Roles and Responsibilities*, OECD, Paris.

PISA FOR DEVELOPMENT

Capacity building plan: Guatemala

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. Guatemala is one of six countries participating in the project, and the Ministry of Education, through the Directorate of Evaluation and Educational Research (DIGEDUCA), 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 Guatemala. PISA for Development is technically complex, operationally demanding and statistically advanced, and the capacity building plan therefore focuses on PISA components that will allow Guatemala 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: Guatemala report have been used to design this capacity building plan for Guatemala that will be implemented by the OECD, its contractors, the Ministry of Education, and the Directorate of Evaluation and Educational Research (DIGEDUCA), through the PISA for Development project.