Annex. Tabular Comparison of Cases

The following table captures some of the essential elements of the four cases. The table is based on the PowerPoint presentations made by three of the country experts at the December 2019 workshop but also on prior and ensuing discussions regarding each case. We do not present the Chile case here as it covers a complex set of policies developed over a few decades, in a context of already-high performance relative to the rest of Latin America, which has also improved over recent decades. The Chile case also did not describe a pedagogical focus on foundational literacy and numeracy, so a comparison of the Chile case with the other three cases was not possible. Following the summary table are narratives that provide the context and story for each case, after providing data on why the case is worthy of study.

In this table, the cases of Sobral and Puebla relate to fairly specific interventions that had a relatively clear beginning and specific development, and the Kenya case relates to a particular intervention with a clear starting point but in a context of historically good performance relative to peers. The table is organized in terms of the what (describing the approach or intervention), why (why that specific approach and what caused the government to embark upon it), and how (how the reforms were accomplished). Each of these three big themes has a set of sub-themes. The case of Puebla had different approaches for various levels; for this note we emphasize the primary or generic (all grades) interventions.

Table 1 What was the approach or intervention?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
What was the package of services or policies delivered?	 Prescriptive lesson plans within an annual teaching plan that is centrally designed. A set of teaching tools that can be modified and allow the family to follow. Prescriptive learning materials integrated with the lessons. Clear definition of and focus on fluency (number of words per minute with comprehension and prosody). This is/ was particularly the case in the early grades and early in the program. In later grades goals move towards comprehension. Allocation of best teachers to initial ("literacy") grades. Assuring basic, non-luxurious infrastructure, but trying to make sure all elements are present in all schools. 	 Detailed year-long scope and sequence of lessons Lesson plans Textbooks Appropriate assessment (EGRA) Systematic visits to teachers by coaches Tight coordination Focus on specific indicators and targets such as fluency Building capacity of teachers, curriculum support officers, country County-level directors Approach was piloted first (PRIMR) and then scaled up (Tusome). 	 APA model (Asistencia, Permanencia, y Aprendizaje; Attendance, Completion, and Learning) with clear numerical targets. Targeting based on learning, not poverty. Optional participation, non-participants replaced. Linkages and coherence of institutions, levels, and resources. Specific reading method and materials (supplementary), re-design of materials based on results of initial assessment. (New) assessment of 2nd graders. Lots of information dissemination on performance. "We were not talking about 21st C skills, good infrastructure, or more budget. We just wanted to ensure that kids attend, complete, and learn the basics."

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Reading pedagogy	 In line with the evidence-based literature on the science of reading, lines up with, for instance, recommendations from the US National Reading Panel, as the original design by Professor Edgar Linhares was to a significant degree based on the NRP. Phonics. Focus on fluency, accuracy, prosody, then comprehension. Assessment of reading is tightly linked to the pedagogical approach to reading and the lesson plans. Clear scope and sequence for the lesson plans. More complex texts in higher grades. 	 Phonics-based, "big five" more or less as in the US National Reading Panel (phonological awareness, alphabetic principle, fluency, etc.). Assessment is tightly linked to the approach, as are the lesson plans, the coaching, etc. Clear scope and sequence for the lesson plans. 	 A locally-generated approach, highly focused on supplementary reading books, was designed when, based on a surprising initial learning assessment, the normal books were found to be out of reach for most students. A group of experts chose "palabra generadora" (generating word) as the method to teach reading in primary. The method has a specific scope and sequence and relies on everyday words to drive home syllabic abilities. The approach, in the end, was largely embodied in the students' learning materials and teacher guides. There had been many changes in reading textbooks over the years, teachers felt confused, often hankered for a well-structured textbook from the past. The new materials were highly appreciated and were taken up. Does not seem as clearly lined up with the standard literature on effective methods. It seems that in Puebla, more than in the other two cases, the specific pedagogy used was not as much of a driver as was the overall managerial support and improvements, the focus on performance, based on data and assessment, as well as the overall APA model.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Level of prescription	Highly prescriptive in the sense that, while there is choice and there are alternatives, they are all based on the same basic pedagogical approach to reading (see row immediately above). In addition, the focus on achievement and assessment effectively limits the range of choices to those that deliver results.	Prescriptive.	At both preschool and primary levels, intervention was prescriptive (one method was chosen, and textbooks were designed after that). At the lower and upper secondary levels, schools were given academic information (analyzed standardized tests' results) and a general strategy, so they were able to decide about specific actions.
Goal setting	 Ensuring a definition of literacy as starting with reading skills, not "language," grammar, etc. A few strong, measurable learning goals rather than many vague ones. (Starting with word reading, then connected text and then fluency). Fluency definition was a major breakthrough. Getting rid of school-generated illiteracy and persisting until 9th grade. Targets set in terms of specific assessment tools. Specific fluency standards in key grades. 	 Ensuring a definition of literacy that is based on reading, but also included listening, speaking and writing. The emphasis was far less on grammar than in previous materials. Improve reading of Grade 1, 2, and eventually 3 students in English and Kiswahili. 	 Ensuring a definition of literacy based on reading, not just language or grammar, and that was more specific and graspable than the national curriculum. Before the end of Grade 2 all students have learned to read, write, add, and subtract. Purpose-built assessment designed for Grade 2. In all Primary, Lower and Upper Secondary levels, the goal was to ensure that all students perform above Level I (the lowest) in PLANEA (the Mexican standardized test), which is applied to students in the last year of every level.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Curricular space	The approach included a very prescriptive set of activities specified in 15-minute chunks, enforcing 4 hours of teaching per day, and a minimum of 200 days per year (according to national law, but enforced).	The existing national curriculum was not inimical to a basics-based and "big five" approach but the timetable did not focus specifically on time for reading as an actual skill and practice. All Kenyan schools had the same timetable, which included both English and Kiswahili as separate 30-minute lessons. PRIMR negotiated plans/methods to be used during these English and Kiswahili lessons.	Teachers and students of preschool and primary schools were given workbooks and were asked to finish those, rather than mandate a certain amount of time.
What grades?	Early grades with support through primary school for children who fall behind.	Early grades (1-3)	Secondary at first, then moved to primary and preschool. The entire intervention focused on early grades of Primary and Secondary levels. Only in Preschool was the last grade targeted.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Focus on learning at the lowest levels	 Schools were not targeted. It was felt that any effort needed to start in all schools, but note that Sobral is quite small (only 56 schools in total). Remediation for students is an ongoing strategy. It was a much greater challenge in the first years until the flow of students was finally streamlined. Schools that fall behind (identified through ever-improving evaluation criteria) receive support from the others and the central staff, not embarrassment. The system can support the lowest-performing schools and lowest-performing students. This was a challenge until the student flow was streamlined. Schools that fall behind an ever-increasing set of evaluation criteria can receive extra support. Also, children that get past the first two years, and still struggle, receive extra support. 	No specific targeting of poorest-performing or poorest schools. The pilot program (PRIMR) did not target poor counties in particular, and in fact, some of the counties such as Nairobi were somewhat wealthier than average. The scale-up (Tusome) is universal, implemented in all public schools as well as 1500 low-cost private schools	 Targeted lowest-performing schools. Targeting based on performance only, not income or SES. Pedagogical targeting was an effective way to generate equity. Targeted a small number at each level (100 Preschools, 200 Primary schools; 200 lower secondary schools, 100 upper secondary schools, from a total of 14,000 schools at these levels) during the entire strategy. Targeted lowest-performing schools.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Pedagogical support	 Devoting 1/3 of teacher time to professional development, highly scripted lessons. The central training comes with highly specified plans and suggestions for activities. There is a national teaching books program, and all schools in Sobral have to select the same collection in order to facilitate training. Teacher support and development to a large extent happens in schools. There was antipathy in the municipal administration to taking teachers out of the classroom too much. In-school support is provided by "Pedagogical Coordinators" who have a high status within the school and work under the Principal. They serve a function similar to the coaches in Kenya (see to the right) but are based in the schools. They motivate, organize, help teachers plan the lessons and monitor progress. 	 Prescriptive lesson plans for all teachers. The materials were integrated in the sense that everything was included in one teachers' guide for teachers and a student book for learners. Extensive coaching to (somewhat) replace old-fashioned inspection by slightly re-purposing existing actors called Curriculum Support Officers who supported nearly 20 schools on average. Teachers provided initial 4-day training prior to the first term and then 2- or 3-day training prior to subsequent terms. Coaching was supplemented by cluster meetings, which were held at the cluster center of around 20 schools. This was probably not an essential part of the change practice. Head teachers were also trained to support teachers, but their role was probably more important in encouraging teachers to implement Tusome than actually in giving teacher support. 	 Training and materials for teachers and principals. Training content centrally (state)-designed by specialists. Courses organized in different locations statewide. External trainers for teachers. In the case of principals and supervisors, trainers were selected from among the best local ones. The training was face to face with online as a supplement only. Teacher support was not on site at the schools, but there were sites relatively near the targeted schools. At the same time there was a Federal effort with supervisors to improve teacher support using the Stallings time-observation method, along with teacher-based student assessment.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Data and assessment	 A great deal of data from assessments, and against specified fluency and other early literacy standards. Very well-structured loop for carrying out the assessments, processing, feeding back to schools. At least at first, the system required taping all students in Grades 1 and 2 and having them evaluated by experts. Data was important in creating "wake-up value" from a simple initial assessment. 	 Observations once per month by the coaches, captured in tablets, uploaded to the cloud and provided in a dashboard. "Mastery checks" of 3 students randomly selected after every classroom by the coaches. Classroom observations and mastery checks were followed by feedback sessions between the coach and the teacher focused on particular areas of improvement for the teacher. Baseline, midline, and end-line assessments based on EGRA. Role of data in "wake-up value" in an initial reading assessment. 	 Data from national standardized assessments widely distributed among all schools, especially targeted ones, including general results but emphasizing the percentage of students in the lowest category ("Insufficient," lowest among four possible categories). Assessment and summer course for children who could not read. Specific new assessment was created for Grade 2, as none existed. The assessment was created to support the pedagogy and the support to teachers. Role of data in "wake-up value" in an initial reading assessment.

Table 2 Why did the country (or province/state or municipality/district) embark on the reforms?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Why did the intervention choose the particular approach chosen?	 Early grades were chosen as there was a focus on reading and continuing through lower secondary. In fact, the key insight (in part driven by previous reforms efforts at access) was that there was much school-generated illiteracy in the municipality. In addition, there was no particular effective reading method being used at all by teachers. It was more or less chaotic. The decision to tackle school-generated illiteracy came after a report that applied standardized tests to students in many municipalities that were participating in a different program—the national student flow correction effort, the highly troubling situation. The report caused surprise to the Mayor of Sobral and his brother (see elsewhere in this brief on the politics), who thought they were solving the quality problem by investing more in infrastructure. So, they decided to change strategy, and there was a World Bank project at hand to help change management. But the change in reading methods was messier and more random. Luck played a role in finding the right person to help. 	 National outcry over Uwezo and EGRA assessment results led to PRIMR. Officials, with foreign technical assistance, observed the implementation of PRIMR to determine whether it had an impact on learning in the 1400 schools where it was working. Based on the PRIMR results, Tusome was implemented using USAID funding and the PRIEDE GPE program implemented the mathematics intervention. The focus was on foundational reading skills, so the early grades were chosen as focus years. 	 As noted elsewhere, the main motivator appears to have been an opportunity rather than a perceived crisis, in that a new administration and state Education Secretary ("Minister") wanted to make a mark. The administration took risks, but did things to minimize them: Choosing the right people who have a good reputation was an important one. The initial success in upper secondary convinced the Ministry to expand the strategy to the K-9 levels.

Table 3 How was the approach or intervention carried out?

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Teacher motivation	 Ongoing professional development based on those materials, in sequence. Evidence that the approach worked; teachers' inherent satisfaction with their children's learning. Good communication, distribution of learning materials, substantial bonuses, awards and public recognition events for high performing teachers and schools. Results-based rewards. Schools take great pride in being selected for rewards; the function of the rewards may not be necessarily to incentivize behavior but to allow a public signaling around pride in achievement. 	 Teachers in Kenya have historically been rather more professional than in many other countries, parental involvement tends to demand performance, and there is a tradition of posting exam school results at schools. Teachers are motivated by esteem. Thus, when the program started showing noticeable and quick results, teachers were even more motivated. It also became the norm to have a structured curriculum, as long as teachers felt valued and that the prescriptiveness helped them. In Tusome, performance on the number of visits made to schools was part of how supervisors evaluated coaches using the Tusome dashboard. 	 Identity and pride were more important than bonuses. This was tied to ability of the approach to actually deliver results. Involvement of teachers in designing the approach. Recognition of expert panels: the Academia Poblana de Supervisores had the best-of-the-class chosen by neutral people. They participated in state-wide peer training for no extra salary. Teachers welcomed professional development because skills-specific PD was nonexistent – they also welcomed the quality of training and materials. School was accountable for performance, not teachers. Targeted schools were mostly happy with support received, but other schools did not want to become targeted.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Bureaucrat motivation	Led by influential Gomes family involved in multiple levels of municipal and state government. Mid-level motivation grew as results started to be obtained.	 Kenya has always tended to take an interest in learning, more so than other countries in the region. That provided an opening when results of Uwezo and EGRA came in. The bureaucrats tended to get on board as the results from the pilot, PRIMR, started to be highly visible not only in reports and presentations but also in their own visits to the schools. Then, very high-level interest, all the way to the President, helped. A key role was played by officials serving the role of coaches, as they are the link with the bureaucracy and were the first to notice that results were improving on the ground, thus legitimating the effort beyond written numerical evaluations. 	 Initial opening by the Secretary. Midlevel motivation as results started to be obtained. This was key. One particular element was the participation of supervisors, who are the crucial link between schools and the central bureaucracy, and have been neglected in the past as a source of pedagogical leadership. Also, having a clear and shared view of policy (APA Model) added certainty about the educational goals of all efforts.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Coherence at instructional core: lessons, assessment, textbooks Also how does one organize so many people around a common goal and maintain momentum?	 Many factors helped generate coherence. First, central control allows for easier coordination between subsystems. Second, the coherence was generated through professionalism and realization by key actors of the importance of coordinating across sub-systems (assessment, lesson plans, texts, etc.); the key sub-systems were all accountable to the same top leadership and that leadership drove coordination even if it did not micromanage; the need for coordination was also built into the workplans of those in charge of the sub-systems. Driven from materials and top-down or central. Workbooks—not much room for creativity. Organizing communication channels between central office and schools was also important. However, the "tools" typical of each sub-system (assessments, lesson plans, etc.) and the coordination amongst them, were the most important way. 	 Instructional materials – 98% of teachers and 97% of children had teachers' guides and textbooks, respectively, at a 1:1 ratio. People – CSOs, and county officials were essential to having a coherent structure to support learning. The foreign partner and government were crucial for coherence. Facilitation by an external service provider and a very focused development partner, USAID, played a key role. 	 Facilitation by an external service provider (Proyecto Educativo) was vital, as this helped centralize the vision and designed structures for actors to work together in a manner coordinated by this provider, with freedom to do so generated by the top leadership and the fact that results started to be obtained. The presence of an external advisor organization made possible the continuous change in the formal leadership at the Ministry. Professionalism of key actors in each sub-system was also important. A first step was to revive a dormant institution (from the secondary level), the State Commission for Upper Secondary Education, which was supposed to meet just three times per year and started meeting weekly. Technical sub-groups formed to work on each specific subsystem, and the coordination between them was provided to a large degree by the structures designed by the external agent. The approach eventually extended to all compulsory education, with two weekly gatherings. The structure also coordinated between levels: schools, supervisors, and State. Some features:

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Coherence at instructional core: lessons, assessment, textbooks			The minister needs to let the structure know the effort is important for the ministry.
Also how does one organize so many people around a common goal and maintain momentum?			Need an implementing body or "partnership," a structure that allows one to preserve the sense of importance and high aspirations, e.g., coordinating structures do not allow substitutes or delegates to come to meetings, instead of intended ongoing participants.
			The changes in ministers did not make a difference because of the strength of these bodies.
			In short, the Minister provided the will (support), the means, and the aspirations. The external group proposed structures and strategies, as well as implementation and follow-up support. Boards were very useful to address academic issues, support decisions, and articulate efforts.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Role of serendipity ¹¹	 The presenter noted: "One cannot fail to note the random character [of the starting point] - many other municipalities were exposed to the national and state context of the late 1990s and early decades of the 2000s, but perhaps few counted on the political will of their leaders enough to set a goal, in legislation, the eradication of school illiteracy in the 1st school year. Certainly, at least at the time of the beginning of the Sobral literacy program, only Sobral could count on the expertise of someone who studied literacy processes practiced in developed countries." So, there was a role for luck, but in a context where the actors were ready to take advantage of it. For example, when the municipality felt unable to come up with an approach to reading, they reached out to a professor, Edgar Linhares, at the Federal University of 	• Kenya has always been a fertile breeding ground for experimentation. However, even here luck helped. For instance, one of the specific inspirations for PRIMR and eventually Tusome came from a USAID officer who had become familiar with early grade reading improvement efforts (and above all the importance of foundational skills) funded by USAID in other contexts and presented at USAID education officers conferences. This was more or less coincident in time with the wake-up provided by Uwezo and EGRA. This officer tested two different approaches to improving learning, simultaneously and impact evaluation results reinforced the structured PRIMR approach as more effective. Similarly, the technical leader of PRIMR had carried out an evaluation of EGRA-Plus in Liberia, one of the early successes in the earlygrade reading effort started in the mid-2000s.	 Serendipity played a role in Puebla as well. The opportunity created by a new government in 2011 coincided with the prior existence of a service provider NGO (Proyecto Educativo) based in Puebla since 2006 and with the fact that the public sector, in trying to be reformist, was open to outside influence in 2011 (e.g., Puebla invited OECD to carry out the first state-level work in Mexico). Other lucky strikes were knowing about a call for proposals from the federal ministry one day before its closure, in which Puebla received US\$1.5 Million to fund the Programa de Atención Intensiva (Intensive Care Program). Also, the invitation from OECD to know about the experience of Ontario regarding education policy, that was the inspiration for the APA model.

¹¹ This may seem an odd thing to think about, but it is important for how assistance from development partners is provided. If luck and serendipity played a role in some of these reforms, but one does not want to depend on that for obvious reasons, then one has to note that one can make up for luck through purposeful action, such as making sure that the information channels about what works are relatively saturated and are "on" continuously. As the saying goes, "luck favors the well-prepared." Being well-prepared, for instance, allows actors to recognize true coincidences (of which there are many, but one may have to be on the lookout), to build on what appears to be coincidence, and take advantage of it. All this requires more than the occasional, casual donor-driven event or somewhat passive dissemination of a report and manuals.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Role of serendipity con't	of Ceará, who happened to be knowledgeable about phonics, the US's National Reading Panel. Similarly, through an NGO, they came upon a World Bank manual on school effectiveness that summarized and made practical the literature on school effectiveness. There was also help from the Ayrton Senna Foundation in establishing some of the initial wake-up around reading levels.		
Influencers/political capital	Influential Gomes family, key reformist politicians especially since the late 1990s and at many levels in the municipality and State. Many reformists in Sobral were educated in the same progressive secondary school since the 1930s.	Kenya has always had a concern with learning performance, and this is "owned" at various levels, including teachers, district leadership, and parents "All for education" rather than "Education for all" seems to pervade. However, wake-ups provided by Uwezo and EGRA data were specific motivators that helped galvanize many layers in the system, not just a few leaders. Eventually, ownership came from highest levels. President of Kenya launched the program giving it a level of seriousness for implementation at the beginning.	The incoming of a new administration and new Education Secretary created the influencing and political space. But this did not last that long. It was the fact that that initial period was capitalized by service providers and mid-level officials that kept the effort going after the initial opening up. The Secretary was very willing to bring in people from outside the state both to craft the approach but also for regular staffing, which was not usual. OECD was invited to provide the first state-level assessment of education in Mexico, think-tanks/NGOs were invited to the table and asked to take leadership/coordinating roles. This led to a change in the parameters of the discussion around basics, quality, and the aspirations for Puebla.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Integration and coherence of specific interventions	 Since the beginning, there was an effort at coherence, even at the legislative level. Teacher professional development is mandated to be aligned with the central planning of pedagogic activities. Prizes and recognition are given by law. Bonuses for teachers meeting goals are also ruled by legislation: an integration of rewards with standards. The municipality also became more open to skilled general managers who applied better managerial techniques in the education sector. In a manner similar to the other 	There was conscious bureaucratic and technical coordination to ensure a fit between all the components: assessment was linked to lesson plans, both were linked to the coaching and classroom observation scheme, etc.	The APA Model is key to understanding how different actors and actions followed the same objectives. Academic bodies were designed to ensure that efforts from different offices and institutions were complementary. The external group designed the APA Model, structures and strategies, and was present between 2011 and 2018 to ensure continuity and consistency.
	cases, the initial role of an external professional was key in driving a coordinated approach. Professor Linhares brought in a team of four or five young professions who were not so much pedagogical experts as good managers. But the Secretariat of Education was also ably organized and realized the importance of coordination among the various delivery vectors into the schools. Over time ownership by the Secretariat increased.		

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Were feedback loops used?	Yes, extensively. Example: When the assessment results showed children were not learning and teachers did not get the bonus, they started getting interested in using the materials, especially after they say, in the (disseminated) learning assessment results, that the children were learning better.	Yes, extensively. Example: teacher coaches gather and report information on the teachers, but also use a tablet-based tool to immediately provide support based on observation of how a teacher is teaching the lessons that pertain to the approximate date of visit, according to the standard lesson plan.	 Extensive feedback and, in some cases, required new measurement, such as using a Grade 2 assessment in order to provide schools with information in time to prevent failure. Regular, intense meetings of key parties involved were also a way to provide very tight and fast feedback. Information distributed via the web, a report to each school identifying every single student at risk every two months. Decision-makers visit schools, not as a punitive measure, but to study and finetune the approach. See other rows in this matrix as examples of how feedback was used.

Specific topic	Sobral Municipality, Ceara State, Brazil	Kenya	Puebla State, Mexico
Challenges, mistakes, and adaptations?	Opposition from local schools of education within universities, who felt the approach teaches to the test and "dumbs down" the curriculum. Higher levels of teacher unions (that is, leadership and intellectuals more than rank-and-file teachers) espouse concerns around the top-down or centralist nature of the reforms.	 Tusome is still seen to some degree as a USAID-inspired program relatively outside the system as opposed to other national programs more completely endogenous to the Ministry. Approach is somewhat contradicted by current trends in Kenya, including the new "competency-based" curriculum, which is a more constructivist view of how children learn. It remains to be seen how much the gains of Tusome persist in the implementation of the new curriculum, which began in 2019. 	 A big challenge: Puebla had a culture of hiring local-only officials and setting the national average in most indicators as an acceptable standard for goals. The approach was able to measure and self-correct. Bodies were used to identify and correct mistakes, but confidence from the Ministry was essential to create conditions for accepting them. E.g., initial materials were too high-level for children, 91% could not read, so adapted the next year to make them easier. Some academics from top institutions decry the approach as too light, too non-academic, and simple. The rank and file teachers, principals, and supervisors are very welcoming.