Facing Forward:
Schooling for Learning in sub-Saharan Africa

Regional Study on the Quality of Basic Education

Presentation to the “National Dialogue on Education Quality and Learning Outcomes in Kenya”
2 February, 2018
Learning crisis in developing countries

Immediate causes
- Children come unprepared to learn
- Teachers lack skills and motivation
- Inputs fail to arrive to schools
- Poor governance and management

Three actions
- Assess learning
- Act on Evidence
- Align systems
Africa Study on Quality of Basic Education, 2018: *Facing Forward – Schooling for Learning in Africa*

1. Compares countries by education progress and learning

2. Four focus areas: student progression, teachers, budgets, capacity gaps

3. What are the implications for Kenya?
Kenya in a comparative perspective

• Has done well on access in primary and secondary education ("Group 1 country")
  • Despite facing “many challenges" in mid-nineties
• Is a good performer on regional learning assessments
• Has spent consistently high levels on public education
• Created a network of institutions that can improve quality of learning
Kenya can go to next level: improve learning for all

• Aim higher: benchmark against middle income countries on international learning assessments
  • Even the “best” in SSA are behind other regions

• From “Science” to “Service Delivery”
  • Learn systematically from the best and adapt to local conditions
  • Focus on implementation fidelity

• Develop the culture of continuous improvement
  • At all levels of educational administration down to schools
Vietnam is a very high performer in PISA – How did it do it? (1)

• 2001: Fundamental School Quality Standards designed and *implemented* (ie budgeted and monitored)
  • Physical infrastructure; teaching staff; school organization and management; community involvement; educational processes and inputs for learning; expected outcomes with respect to enrollment and completion

• **Support institutions focused on improving learning**
  • Provincial and district offices to support teachers and schools
  • Tight alignment between materials, training, assessment
Vietnam ....(2)

• **Analysis of national learning assessments**
  - Used publicly available items in mathematics and reading from International Education Assessment (IEA) agency

• **Evaluation of TIMSS and PISA – decided to participate in PISA**

• **Prepared systematically (learnt from Shanghai)**
  - A small PISA team was constituted, led by a senior researcher at the National Institute of Educational Science.
  - The team mobilized subject specialists **to analyze the thinking processes required to solve the problems presented in the items.**
  - The subject specialists prepared a synopsis of their findings.
  - Synopsis copied and distributed to all 63 provinces for education managers and teachers **to study.**
What does it take?

• High level political commitment
• Ability to coordinate and implement at the Ministry level
• Develop country’s technical resources, providing support to schools and teachers
  • Subject specialists, learning specialists, assessment specialists
• Attention to equity (all schools meet minimum standards)
• Inculcate a culture of learning and adapting at every level of the system
Kenya in a comparative perspective
Four groups of countries based on progress in primary education – Kenya is in Group 1 (high GER and retention and low out of school children)
Lower secondary education (GER) – Kenya has made great progress since 2000 (data not strictly comparable)
Kenya faced many social and economic challenges in the mid/late nineties – but has done better than others facing similar challenges.

<table>
<thead>
<tr>
<th>Challenges* in mid/late 1990s</th>
<th>Group 1 Established</th>
<th>Group 2 Emerging</th>
<th>Group 3 Emerging</th>
<th>Group 4 Delayed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Few</td>
<td>Botswana, Cabo Verde, Ghana, Lesotho, São Tomé and Príncipe, Swaziland, Mauritius</td>
<td>Comoros</td>
<td>Benin, Mauritania</td>
<td></td>
</tr>
<tr>
<td>Some</td>
<td>Congo, Rep., Gabon, Namibia</td>
<td>Cameroon, Malawi, Tanzania, Togo</td>
<td>Côte d'Ivoire, The Gambia, Guinea-Bissau, Madagascar, Sierra Leone, Zambia</td>
<td>Burkina Faso, Guinea, Mali, Senegal</td>
</tr>
</tbody>
</table>

* Challenges: population size, growth in school-age population, economic growth rate, economic inequality, poverty, linguistic diversity, conflict.
Few students at minimum proficiency level. Better in Group 1 and Burundi.

(each dot represents an international or regional assessment in Reading, Math, and Science from early grade to lower secondary, and adult literacy)
Math scores (SACMEQ) have improved over time in most countries.
But Learning Crisis in SSA is Serious

• By international standards, SSA countries are very low performers
• Average TIMSS math and science scores of students in Botswana, Ghana and South Africa:
  • between one and two standard deviations below the international TIMSS scale center points of 500
  • well below the scores of 8th grade students from the other low- and middle-income countries
  • several standard deviations below the scores of students in high-income countries
Lower secondary (grade 8) TIMSS mathematics scores, 2003, 2007, 2011 and 2015, selected countries, by region

- United States
- England
- Japan
- South Korea
- Malaysia
- Indonesia
- Chile
- Colombia
- El Salvador
- Jordan
- Iran
- Lebanon
- Morocco
- Saudi Arabia
- Botswana (9)
- South Africa (9)
- Ghana

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What influences learning? (Evidence from Analysis of Learning Assessments and Impact Evaluations)

**Equity is a major issue in SSA**

- **Socio-economic status (SES):** Children from high income households do far better than children from low income households.
- **Average SES of students in school:** one of most important correlates of learning; large horizontal inequalities between schools.
- **Community location:** Rural-urban gap.
- **Gender effect** varies.
- **Language:** children who do not speak language of instruction at home do significantly worse.

**Teachers, Classroom and School Resources Make a Difference**

- **Structured pedagogy** (tightly linked curriculum, teacher training, instructional materials, assessment).
- **Teacher content knowledge**
- **Teacher pedagogical practices**
- **More instructional time**
- **Infrastructure, classroom and school pedagogical resources**
Four Focus Areas for SSA countries

1. Student Progression from early grades to end of lower secondary, with learning

2. Teacher Management and Support

3. Using the Budget to Improve Quality

4. Closing the Capacity Gap
1. Student Progression from early grades to end of lower secondary, with learning
Focus area 1

Student progression: early grades through basic education

- Address Early Grade “Traffic Jam”
- Expand Access to Lower Secondary Education
- Address Demand-Side Constraints in transition to lower secondary education
Early Grade “Traffic Jam” : 3 interlinked factors

• **Progression through Primary Cycle**: Kenya seems to do fairly well in progression through the early grades, but this should be monitored in every school.

• **Learning environments**: Class sizes are large in early grades; teachers unprepared to teach reading and numeracy; insufficient materials.

• **Language of instruction may not be appropriate**
  • Children encounter a “reading mountain”
  • If they don’t master early literacy skills by end of grade 2 and reading comprehension by end of grade 4, they will not progress
Children are stuck in early grades: SSA countries are the worst performers on composite index of internal inefficiency

In countries with high inefficiency, Index shows that over long periods of time:
• Entry rate into Grade 1 is over 150
• Grade 2 enrolment/ Grade 1 enrolment is less than 0.8
• Pre-primary enrolment rate is low

Note: Index not estimated for Kenya due to missing data in one of the components (GIR in Grade 1).
Values in other indicators suggest high inefficiency does not affect the country:
• Grade 1 Bulge : 122
• Ratio Enrollment Grade 2 to Grade 1: 0.95
• Pre-Primary GER : 53.53
Grade 2: Whether school language used at home makes big difference

PASEC Grade 2: Score gap between students with and without use of the language of instruction at home
More consistent implementation of Language of instruction policy is needed in SSA

<table>
<thead>
<tr>
<th>Language of Instruction in various SSA Countries – Policies and Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1 Established</strong></td>
</tr>
<tr>
<td>Single local language, consistently implemented</td>
</tr>
<tr>
<td>Multiple local languages, consistently implemented</td>
</tr>
<tr>
<td>Single local language: changes in policy/ inconsistently implemented</td>
</tr>
<tr>
<td>Multiple local languages: changes in policy/ inconsistently implemented or only as pilots</td>
</tr>
</tbody>
</table>
At the end of 4\textsuperscript{th} grade, only 20 percent can read paragraphs in English (Service Delivery Indicators survey)
Early grades is one bottleneck; the other is transition from primary to lower secondary (grade 6/7 or 7/8)

- Rural children
  - Kenya: overall good parity, but there are lagging regions

- Girls
  - Kenya: overall parity achieved with an index of 0.99, but again lagging regions

- Examinations are a bottleneck
  - Kenya: What about KPSCE?

- Provision of quality secondary schools requires careful choices
  - Complexity of curriculum: requirements of subject specialists, especially teachers in maths and science; laboratories
  - Boarding schools: are they equitable?
How do we address these issues in Kenya?

• All children must master foundational skills in early grades
  • Every school and teacher must be clear about expectations of student learning
  • If Tusome and Early Grade Mathematics are yielding results, they must be sustained (books, teacher training, teacher support and classroom observation, assessments, and monitoring)

• All children should complete lower secondary education with quality
  • Remove qualifying exam, but do assessments (eg Botswana, Mauritius)
  • Support girls, poor children, nomadic children to make the transition
  • Ensure greater use of equity criteria to allocate students to secondary schools
  • Bring day schools on par with boarding schools
Plan now for the increase in the lower secondary student population in Kenya

• Do the projections
  • Plan for schools, classrooms, teachers, materials
  • What kind of schools?

• Using ICT to reinforce teaching
  • Does NOT replace teachers, but can be powerful aid to teachers, especially with low content knowledge (math and science)
  • Curriculum mapped digital materials
  • Adapt open education resources
  • Formative assessment should be included
  • Budget for in-school network, maintenance, technical support
  • Needs detailed implementation plan and technical supervision for roll out
2. Teachers: Improve Management and Support
Focus area 2

*Improve Teacher Management and Support*

- Improve professional knowledge and competence
- Strengthen leadership of school heads and others
- Improve teacher deployment/teacher presence
- Ensure all schools have minimum learning conditions
- Strengthen accountability and incentives
What type of students become teachers in Kenya?

• Based on the Kenya Certificate of Secondary Education (KCSE) 2015 admission exercise:
  • Differences in scores between those admitted to teacher training diploma and degree programs and to other fields are not large
  • Suggests that teacher training programs in Kenya are still able to attract relatively well-qualified candidates from among the available pool of secondary school graduates.
  • But overall, quality of secondary graduates is low, hence teachers have low content knowledge.
Teacher mathematics knowledge (TEDS-M) is correlated with student scores (TIMSS)

Upper secondary graduates in SSA countries would have same knowledge as lower secondary graduates in more developed countries
Teacher knowledge in Kenya is better than in other SSA countries, but lags in more advanced tasks (SDI surveys 2012–2016, grade 4)

<table>
<thead>
<tr>
<th>% correct on language</th>
<th>% correct on mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language (average score)</td>
<td>Grammar task</td>
</tr>
<tr>
<td>Group 1</td>
<td>Kenya</td>
</tr>
<tr>
<td>Group 2</td>
<td>Uganda</td>
</tr>
<tr>
<td>Togo</td>
<td>50</td>
</tr>
<tr>
<td>Tanzania</td>
<td>42</td>
</tr>
<tr>
<td>Group 3</td>
<td>Mozambique</td>
</tr>
<tr>
<td>Nigeria</td>
<td>49</td>
</tr>
</tbody>
</table>
But, teachers’ pedagogical knowledge is low (SDI surveys, grade 4)

<table>
<thead>
<tr>
<th></th>
<th>Pedagogy Average Score (% correct responses)</th>
<th>Preparing a lesson plan</th>
<th>Assessing children’s abilities</th>
<th>Evaluating pupil progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>35</td>
<td>39</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Tanzania</td>
<td>36</td>
<td>58</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda</td>
<td>25</td>
<td>31</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Togo</td>
<td>19</td>
<td>27</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Group 3</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>18</td>
<td>20</td>
<td>23</td>
<td>6</td>
</tr>
<tr>
<td>Mozambique</td>
<td>15</td>
<td>19</td>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>
Minimum conditions for teaching are not met in SSA (in Kenya, 60% percent meet at least 5 out of 6 conditions)
Instructional time is lost due to poor teacher management and accountability

Share of teachers by reason for absence from school

<table>
<thead>
<tr>
<th>Country</th>
<th>Authorized leave</th>
<th>Unauthorized leave</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senegal</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Uganda</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Madagascar</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mozambique</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Share of classes with no instruction going on

<table>
<thead>
<tr>
<th>Country</th>
<th>Authorized leave</th>
<th>Unauthorized leave</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senegal</td>
<td>29%</td>
<td>25%</td>
<td>45%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>22%</td>
<td>48%</td>
<td>48%</td>
</tr>
<tr>
<td>Mozambique</td>
<td>27%</td>
<td>45%</td>
<td>22%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>1</td>
<td>47%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Legend:
- Authorized leave
- Unauthorized leave
- Unknown
## Teacher Priority Action (1): Professional Knowledge and Skills

### New entrants

**Pre-service training**

- Pre-service curriculum remains theoretical, does not teach practical skills that teacher needs
- Align initial teacher education to new school curriculum, improve quality of practicum, introduce quality assurance for pre-service education

### Existing Stock of Poorly Trained Teachers

**In-service training**

- One-off training (5, 10, 15 days), away from school, with no recurrent support
- Recurrent support to teacher from headmaster or others
- Support to improve specific teacher skills (e.g., early grade reading; fractions)

**What Works ✓**

**What DOES NOT work ❌**
### Teacher Priority Actions (2-5): Supportive environment for teaching

<table>
<thead>
<tr>
<th><strong>What WORKS</strong></th>
<th><strong>What DOES NOT work</strong></th>
</tr>
</thead>
</table>
| Strengthen managerial and instructional leadership | • Appointment based purely on seniority  
• Generalized training  
• Competency based selection  
• Dedicated training focused on how to coach and support teachers  
• Training on management |
| Improve teacher deployment and teacher presence in schools | • Initial deployment based on students, followed by discretionary teacher transfers  
• Rule-based deployment and transfer policy, implemented strictly  
• Substitute teachers |
| Ensure all schools have minimum learning conditions | • Minimum package not clearly defined  
• Minimum package budgeted and implemented |
| Strengthen accountability and incentives | • Untargeted allowances (e.g., rural allowance, housing)  
• Reliance on school principals for monitoring attendance  
• Incentives based on data and which are monitored for effect  
• Monitoring of attendance by communities, 3rd party |
Kenya has embarked on some ambitious teacher reforms, need to be deepened and expanded

• Negotiated agreement between TSC and unions
  • Not a one time action, active management required

• Teacher professional development and accountability
  • Accountability measures often “lack teeth”
  • Avoid bureaucratization
  • Professionalize teaching force gradually, so that intrinsic motivation becomes more important

• Teacher pre-service education and careers
  • How to get universities to enforce higher standards/ quality assurance
  • Raise the bar for entry into teaching

• Career development and options for teachers and school heads
Areas that need strengthening

• Leadership training of school heads
  • Managing large resources

• Continuous upgrading of technical staff who support teachers and schools
  • TSC’s CSOs
  • County and sub-county directors
  • Provide adequate budgetary resources

• Alignment of other institutions with teacher related bodies
  • TSC, KICD, CEMASTEA, NEC etc

• Training of high quality teacher educators
3. Use the Budget to Improve Quality
Focus area 3

Use the Budget to Improve Quality

- Spend incremental resources to improve learning
- Reduce disparities in standards of provision
- Improve the efficiency of public spending on salaries and non-salary inputs
- Strengthen projections of multi-year resource requirements
Composition of Education Budget and Execution are Critical for Quality Service Delivery

• Most SSA countries do not budget for textbooks, school grants, teacher training in their domestic budgets
  • Heavy reliance on donors; education quality is compromised if there is a shortfall
  • About 15-20 percent of the basic education budget should be non-salary expenditures
• Execution rates of non-salary expenditures are typically low
• Predictability of funding is also variable
• Ministries of Education need to invest in building capacity in budget preparation, execution, procurement, monitoring of performance
Kenya spends a reasonable amount of its budget: How can it improve efficiency of spending?

• **Allocate 15-20% of education budget to non-salary expenditures**
  • Textbooks, student materials, teacher training and guides, teacher support, assessment, information systems are core part of education
  • Fund domestically; not continued reliance on donor funding
  • Spend on evidence-based programs

• **Efficiency of salary expenditure**
  • Rationalize teacher deployment and utilization
  • Reduce loss of teaching time

• **Efficiency and accountability of non-salary expenditure**
  • Procurement practices and contract management
  • Textbook unit prices
  • Construction unit prices
  • School grants allocation and utilization
  • Per diems, travel
4. Address Capacity Gaps in Ministries of Education
Focus area 4

Knowledge of “what to do” and increased financial resources are not enough

The challenge is implementation and specific capacities are required
What kind of capacities do Ministries of Education need to improve learning?

• Capacity to collect, analyze and use data
• Technical skills (curriculum, materials development, assessment, teacher training, planning etc) – or should be able to access them
• Capacity to coordinate
• Negotiation skills (with politicians, local govts, parents, unions, etc)
Kenya: Key data have been missing for some time (UIS)

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>2000-2004</th>
<th>2005-2009</th>
<th>2010-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>New entrants to Grade 1 of primary education, both sexes (number)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Repetition rate in primary education (all grades), both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Completion rate, primary education, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Enrolment in secondary education, both sexes (number)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Net intake rate to Grade 1 of primary education, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Survival rate to the last grade of primary education, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Effective transition rate from primary to lower secondary general education, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Enrolment in secondary vocational, both sexes (number)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td>Teachers</td>
<td>Teachers in primary education, both sexes (number)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Percentage of teachers in primary education who are trained, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Teachers in secondary education, both sexes (number)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Percentage of teachers in secondary education who are trained, both sexes (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td>Spending</td>
<td>Government expenditure on education as a percentage of GDP (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Expenditure on primary as a percentage of total government expenditure (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Expenditure on secondary as a percentage of total government expenditure (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Expenditure on school books and teaching material as % of total expenditure in primary public institutions (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td></td>
<td>Teaching staff compensation as a percentage of total expenditure in public institutions (%)</td>
<td>Present</td>
<td>Present</td>
<td>Present</td>
</tr>
</tbody>
</table>
Capacity acquisition in education sector requires as much planning as curriculum planning

- Institutional and technical capacity of all supporting institutions (TSC, KICD, etc)
- Data collection and Information literacy of all staff
- Coordination and leadership capacity of top cadres
Looking Ahead: Key issues

• Kenya has achieved:
  • Good educational progress since the nineties
  • Good standing in Economic Growth

• But all can be easily jeopardized if elevated Fertility Rates persists

• Conflict can set educational attainment back by a decade
Looking ahead: Elevated Fertility Rate

<table>
<thead>
<tr>
<th>Education Progress</th>
<th>TFR 1 and 2</th>
<th>TFR 3</th>
<th>TFR 4</th>
<th>TFR 5+</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong> (Established)</td>
<td>Mauritius; Botswana; Cape Verde; S. Africa</td>
<td>Gabon; Lesotho; Namibia; Swaziland; STP; Zimbabwe</td>
<td>Congo; Ghana; <strong>Kenya</strong></td>
<td></td>
</tr>
<tr>
<td>Group 2 (Emerged)</td>
<td></td>
<td>Cameroon; Togo</td>
<td>DRC; Malawi; Tanzania; Uganda</td>
<td></td>
</tr>
<tr>
<td>Group 3 (Emerging)</td>
<td>Burundi; Cote d’Ivoire; Ethiopia; Madagascar; Mauritania</td>
<td></td>
<td>Angola; Benin; Gambia; Guinea- Bissau; Mozambique; Nigeria; Rwanda; Zambia</td>
<td></td>
</tr>
<tr>
<td>Group 4 (Delayed)</td>
<td></td>
<td>CAR; Eritrea; Sudan</td>
<td></td>
<td>Burkina Faso; Chad; Eq. Guinea Guinea; Liberia; Mali; Niger; Senegal; Sierra Leone; Somalia</td>
</tr>
</tbody>
</table>
Thank You

Suggested citation:

Bashir, Sajitha, Marlaine Lockheed, Elizabeth Ninan, and Jee-Peng Tan. Forthcoming.