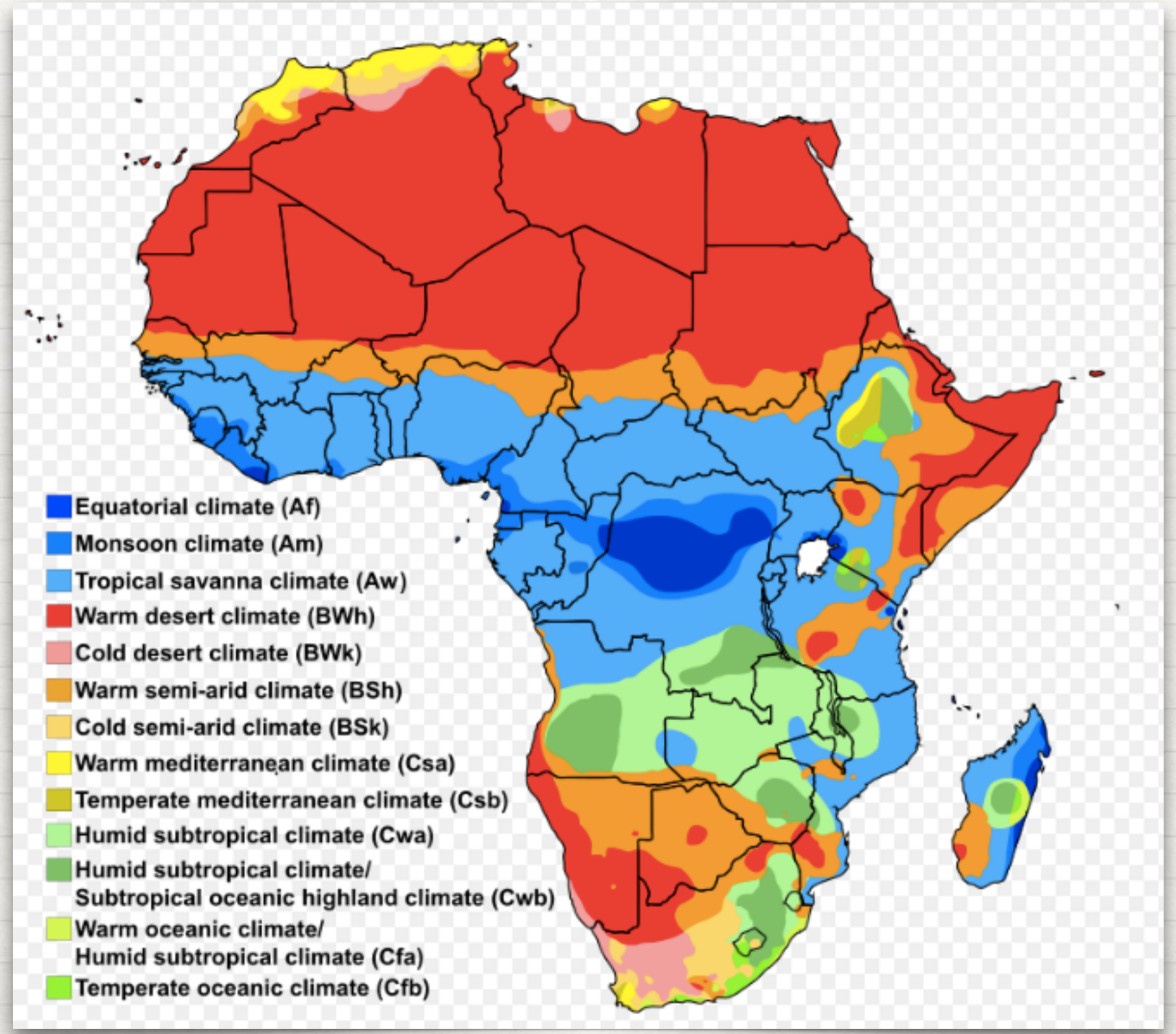
EUNJUNG KIM, I-DREAM / CNRS, PARIS-DAUPHINE UNIVERSITY, FRANCE

SCIENCE EDUCATION IN AFRICA



SUB-SAHARAN AFRICA



I. Glimpse through numbers

II. Efforts: more than building schools

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EDUCATION IS THE PASSPORT TO THE FUTURE.

–Malcolm X

”

I. GLIMPSE THROUGH NUMBER

Primary education, pre- and post-primary
- progress & challenge
- what outside schools affects a student?

Learning environment, quality of education
- teachers, infrastructure, learning process, community

“

A TWIN EDUCATION CRISIS IS HOLDING BACK AFRICA; MILLIONS ARE NOT AT SCHOOL, MILLIONS MORE ARE FAILING TO LEARN.

–Africa Progress Report 2012, Africa Progress Panel

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PROGRESS: ENROLMENT

PRIMARY AND SECONDARY SCHOOL

- primary school: 60% in 2000 to 76% in 2009
- secondary schools, from 24% to 34%
- 15 sub-saharan African countries eliminated school fees
- 38 millions out of school in Africa

GOING TO UNIVERSITY



In sub-saharan Africa, 6% go to university (0.9% in Chad).



MANY DON'T GO TO OR DROP OUT OF SCHOOL.

EVEN WHEN IN SCHOOL, LEARN VERY LITTLE.

DISPARITY - BEING A GIRL

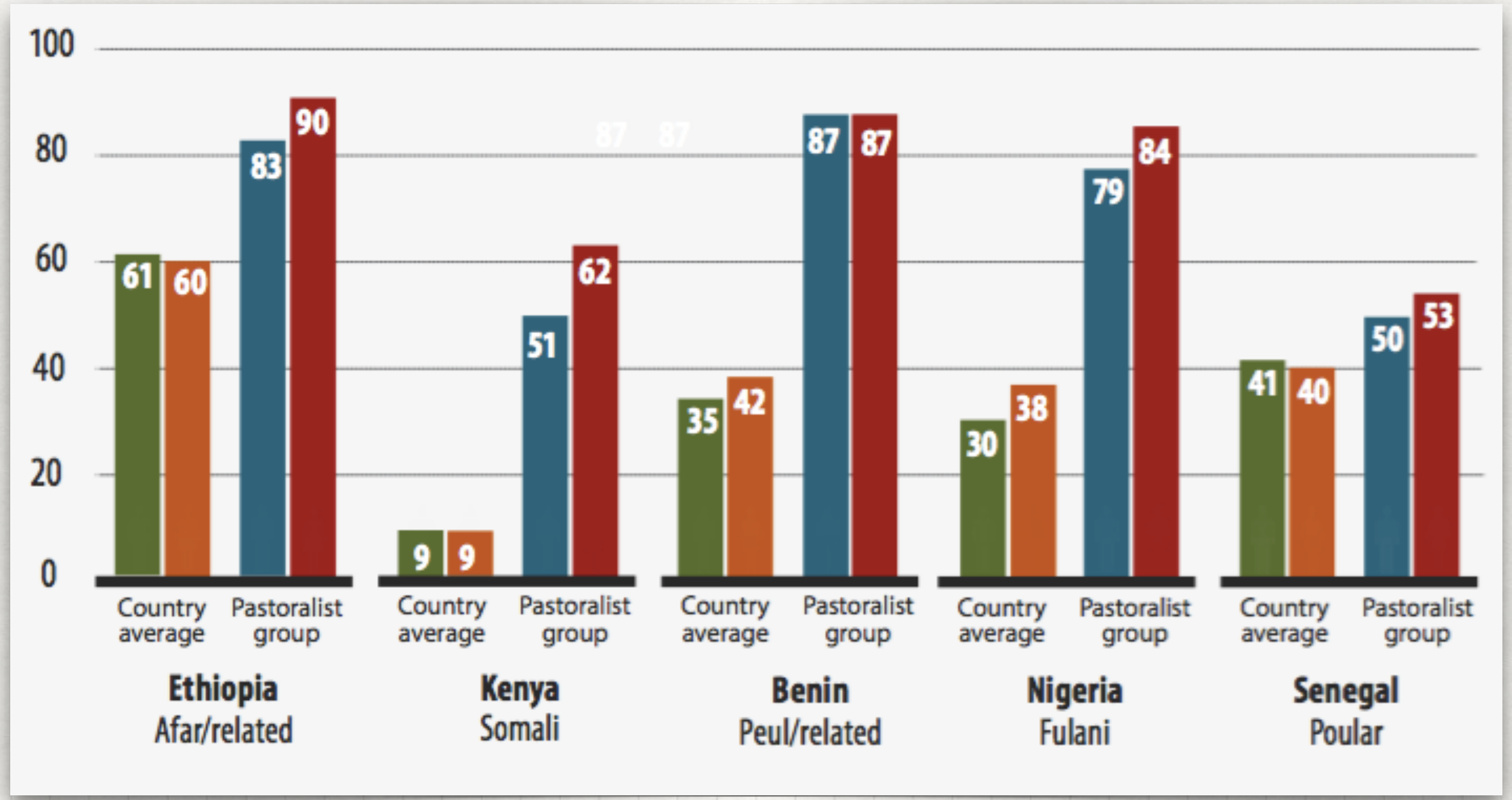






Start school late
Early marriage cut short school years.

DISPARITY - LIVING IN RURAL AREAS



7 out of 10 rural youths have never attended school

https://www.youtube.com/watch?v=eIsQ0B43Q9Y

DROP OUT OF SCHOOL, QUALITY OF EDUCATION

- formal/informal fees, cost of textbooks, uniforms, etc.
- literacy and numeracy: in Zambia, >90% primary-school age kids are in school, but in the last grade, half of them cannot read, write, calculate.
- short of trained teachers
- learning process and children-teacher interaction
- basic infrastructure (facility, crowded, ventilation, light, etc)
  In Niger, >50% schools have no black board or has one but rarely used. Not atypical.

II. EFFORTS: MORE THAN BUILDING SCHOOLS

IMPROVING QUALITY OF EDUCATION

- High education (in science)
- Teacher training & empowerment
- After-school classes
- Another chance for learning
- Books & library

HIGH EDUCATION IN MATH

AIMS - AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES





- Pan-African network of math institutes.
- South Africa, Senegal, Ghana, Cameroon, and Tanzania.
- Master Program, Teacher training, public engagement.

TEACHER TRAINING & EMPOWERMENT

- Critical for the quality of education
- Not much attention paid so far, much more needed
- Turing Foundation, ORT South Africa, Escuela Nueva, AIMS Schools Enrichment Center, I-DREAM Science Club

TEACHER TRAINING & EMPOWERMENT

THE CASE OF AIMS SCHOOLS ENRICHMENT CENTER

- Training programs for math teachers
  - new teaching skills, improving subject knowledge
  - empowering teachers from disadvantaged communities
  - residential units, home-study, on-line/tv, assignments
  - international volunteers, MA students of AIMS as teaching assistants
  - attendees must train other teachers; cascade model
- Networking math teachers and students
  - AIMING HIGH Teacher Network: online forum; sharing resources, ideas and advises
  - Videoconferencing lessons: linking schools around the world

AFTER-SCHOOL CLASS



- Many fail to learn in class; unable to read and write at the end of primary school
- After-school, remedial class; proved to be very effective

ANOTHER CHANCE FOR LEARNING

- Speed School Program
  - targeted for 13-14 yrs children, haven't attended primary school
  - provide 6-yr primary education in 2 yrs
  - able to go to secondary school afterwards

- Before University
  - many after-secondary students do not have enough knowledge to continue at university
  - remedial classes for learning before university

BOOKS & LIBRARY

- Building library

- Creating texts (RoomToRead)
  - many developing countries, texts for early readers do not exist.
  - creating texts in local languages
  - example (LAOS): traditional oral stories are transformed into rich children's books in Laos
  - example (South Africa): learning materials for teachers and children are published in the South African language of Tsonga

- Building the right environment for reading
  - training teachers to maintain library
  - example (Sri Lanka): Artist workshops contribute to building the local children's book publishing industry

THANK YOU!

REFERENCE

- I-DREAM http://www.idream4all.org/
- RoomToRead http://www.roomtoread.org/
- Academics Without Borders http://www.awb-usf.org/
- UNESCO Global Education Monitoring Report http://en.unesco.org/gem-report/
- African Institute for Mathematical Sciences http://nexteinstein.org/
- Africa Progress Panel http://www.africaprogresspanel.org/
- “Ten Innovative NGOs in Education” (12/09/2014), https://ironline.american.edu/
- Turing Foundation http://www.turingfoundation.org/
- Brookings Report http://www.brookings.edu/research/reports/
- Wikipedia https://en.wikipedia.org/wiki/