



AIMS

African Institute for
Mathematical Sciences

NEXT EINSTEIN INITIATIVE

Increasing Female Participation in Science through International Collaboration

Cape Town, South Africa, April 28-30, 2015

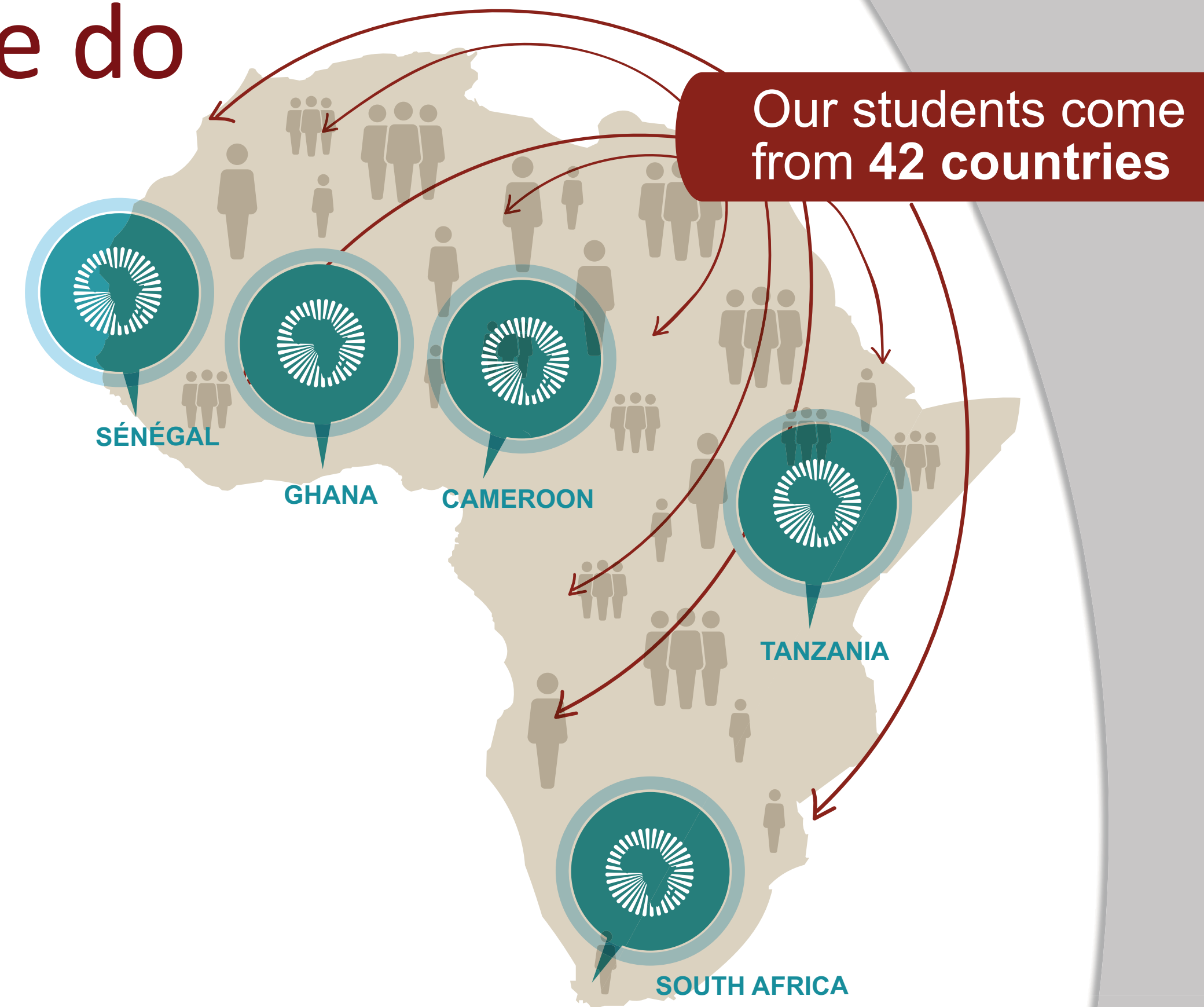
DR. DOROTHY NYAMBI

Executive Vice President | AIMS Next Einstein Initiative



AIMS – Who we are and what we do

- A Pan-African network of centres of excellence in mathematical sciences
- Started in 2003 in South Africa
- 2015: South Africa , Senegal, Ghana, Cameroon and Tanzania
- Goal: 15 centres by 2023
- AIMS students receive a Masters in Mathematical Sciences



AIMS – Who we are and what we do continued

- International and African lecturers + tutors
- 748 students from 42 countries
- 70% remain on the continent
- In addition - Independent Thinking, Problems Solving, Professional development, and Leadership Skills

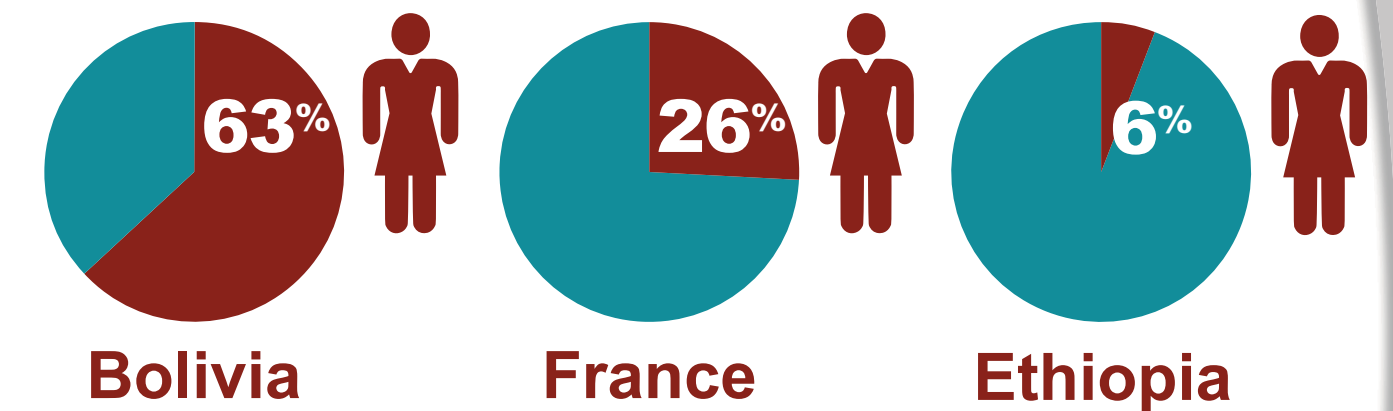
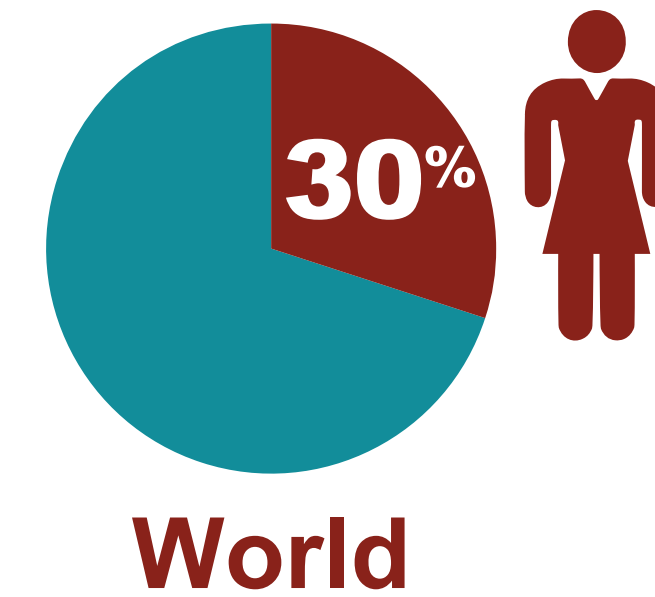


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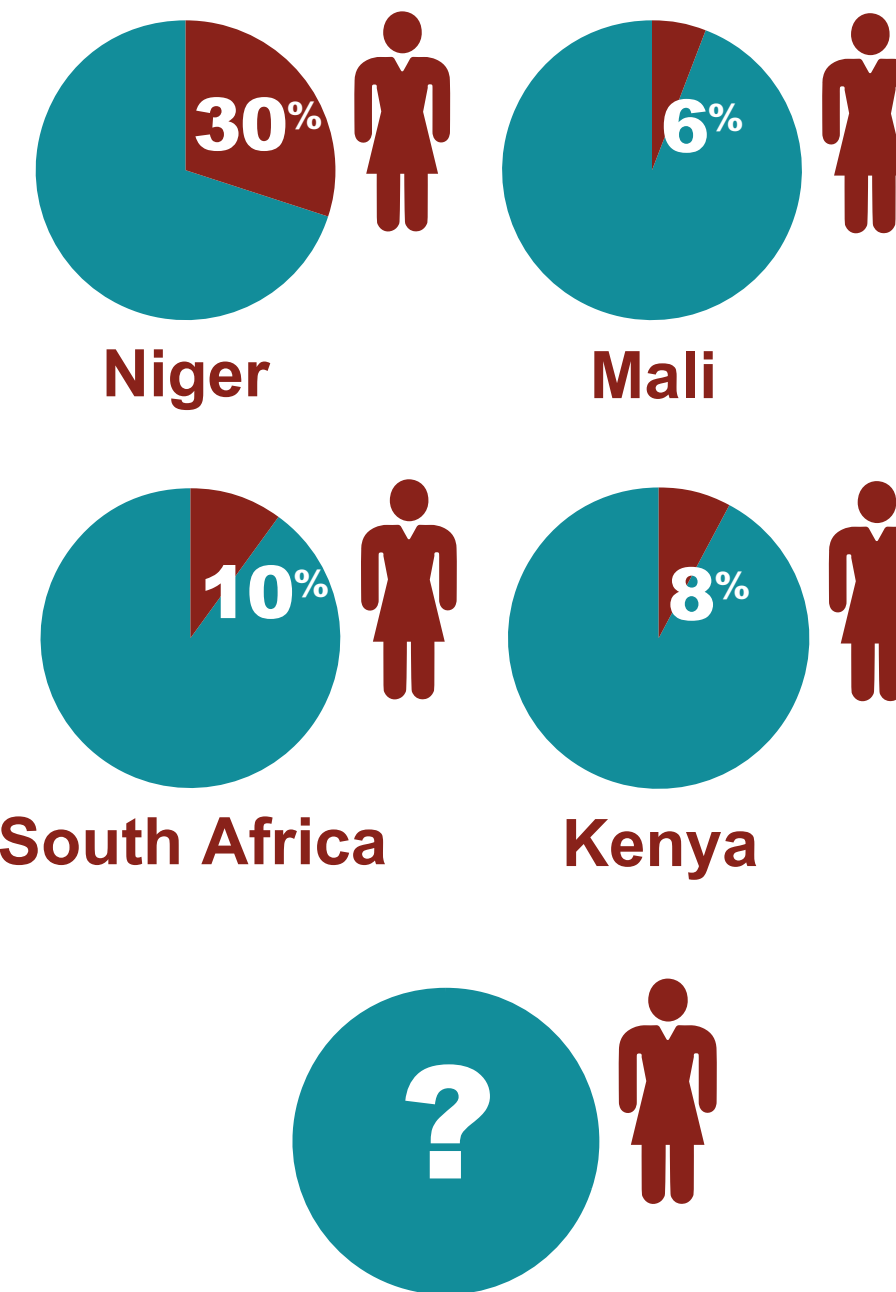
Global Context – Women in Science & Research ** Source: UNESCO

- Only 30% of the world's researchers are women
- Women often opt out of research career
- Data reveals global variations
 - *Bolivia, women account for 63% of researchers*
 - *France, women account for 26%*
 - *Ethiopia, only 6%*
- Data also reveals that women prefer social sciences to STEM fields
- Women researchers go into academic and government, men into industry/private sector



The African Context ** Source: UNESCO

- African countries have made great strides to close gender gap at primary level
- Gender gap most evident at tertiary level
- Girls pursuing STEM fields is low and varies across countries
- 30% of women study engineering in Niger, only 6% in Mali
- Engineering workforce is only 10% in South Africa, 8% in Kenya
- Lack of data of comprehensive, comparable data on women in STEM in Africa



Women in STEM:
NO DATA



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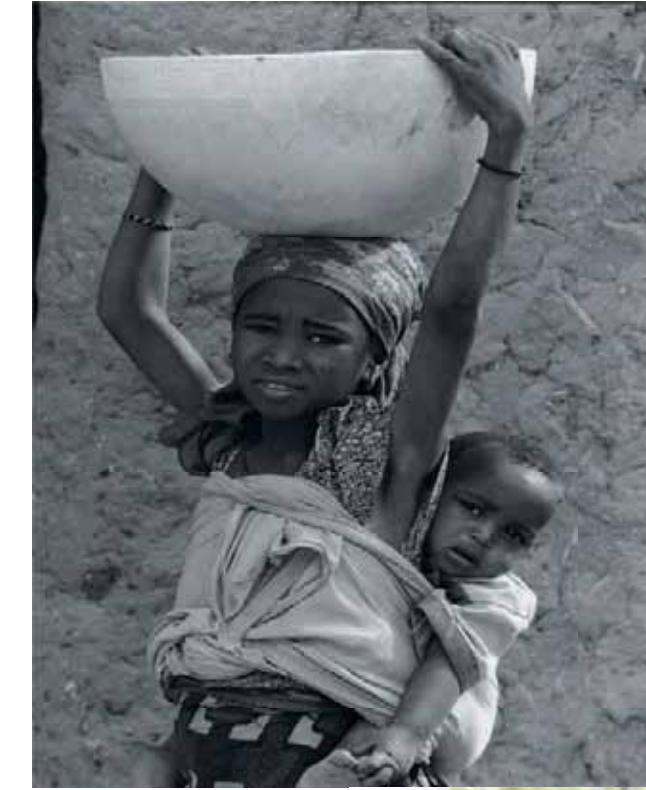
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Causes of low STEM enrolment for girls in Africa

- **Stereotypes:** Families socialized to believe that boys not girls have natural aptitude for math & science
- **Self-Limiting beliefs**
- **Work-life balance**
- **Gender based:** Lack of female math and science teachers
- **Gender biases** in curricula and pedagogy
- **Lack of role models** in academia and industry to encourage girls

Result:

- ✓ ***No incentive for girls to go into STEM fields***
- ✓ ***Pipeline for girls to transition into STEM fields at all levels is VERY WEAK***



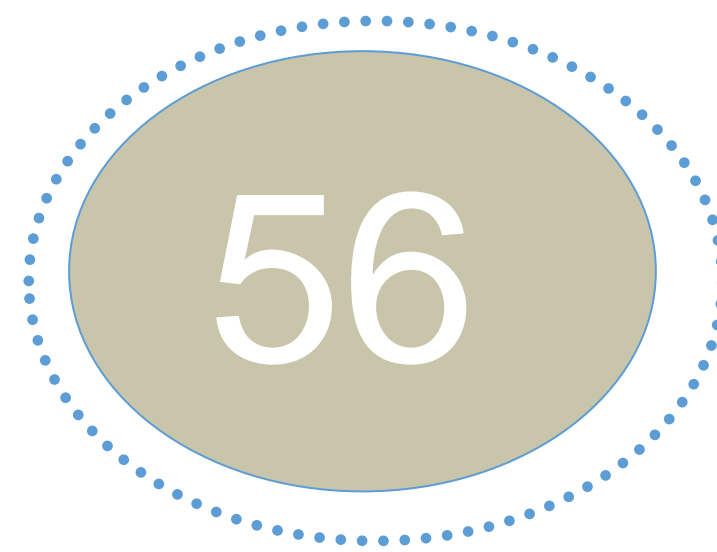
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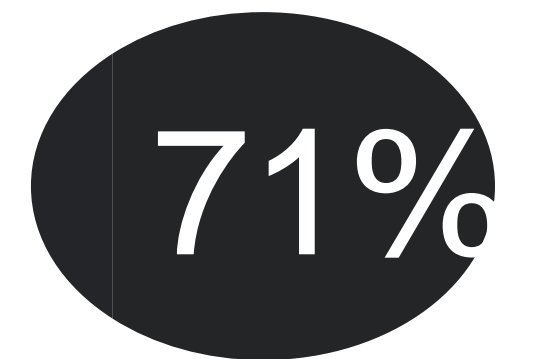
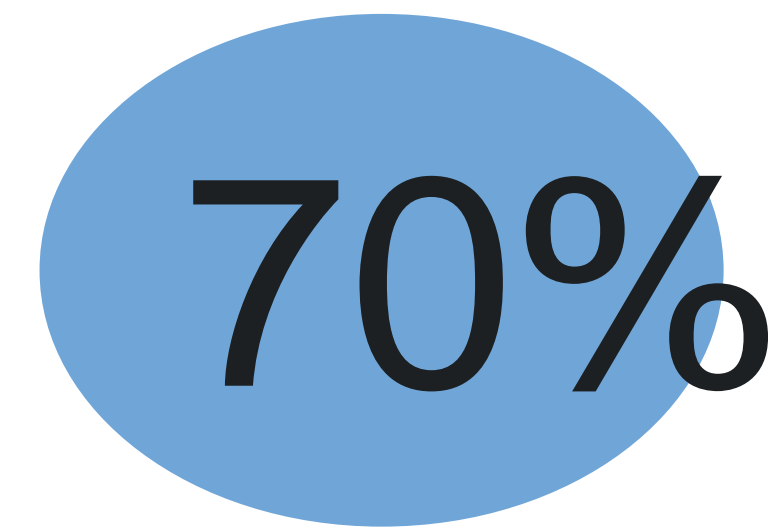
The world has changed in the last 45 years and



Life expectancy (2012)



chance of being vaccinated for DPT (2012)



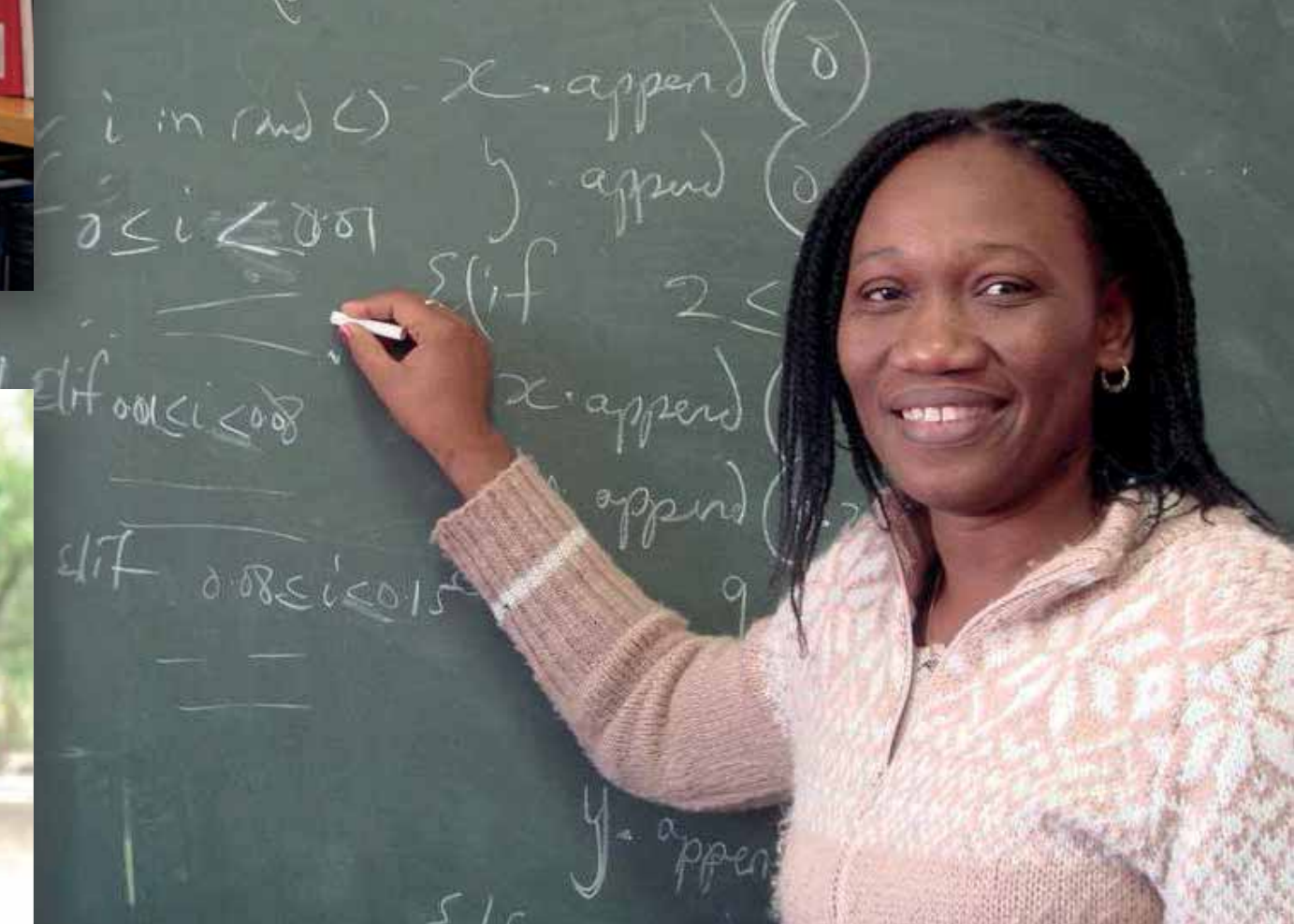
lifetime earnings (2013)

chance of finishing primary school (2012)

chance of being affected by war/armed conflict in his lifetime (2012)

AIMS and Gender Equality

- Over the last 10 years, 30% of its students are female
- All female students meet the same requirements as male colleagues – breaking down stereotype that mathematics is a male only field
- Goal is to move from 30% to 50% in the next 5-10 years

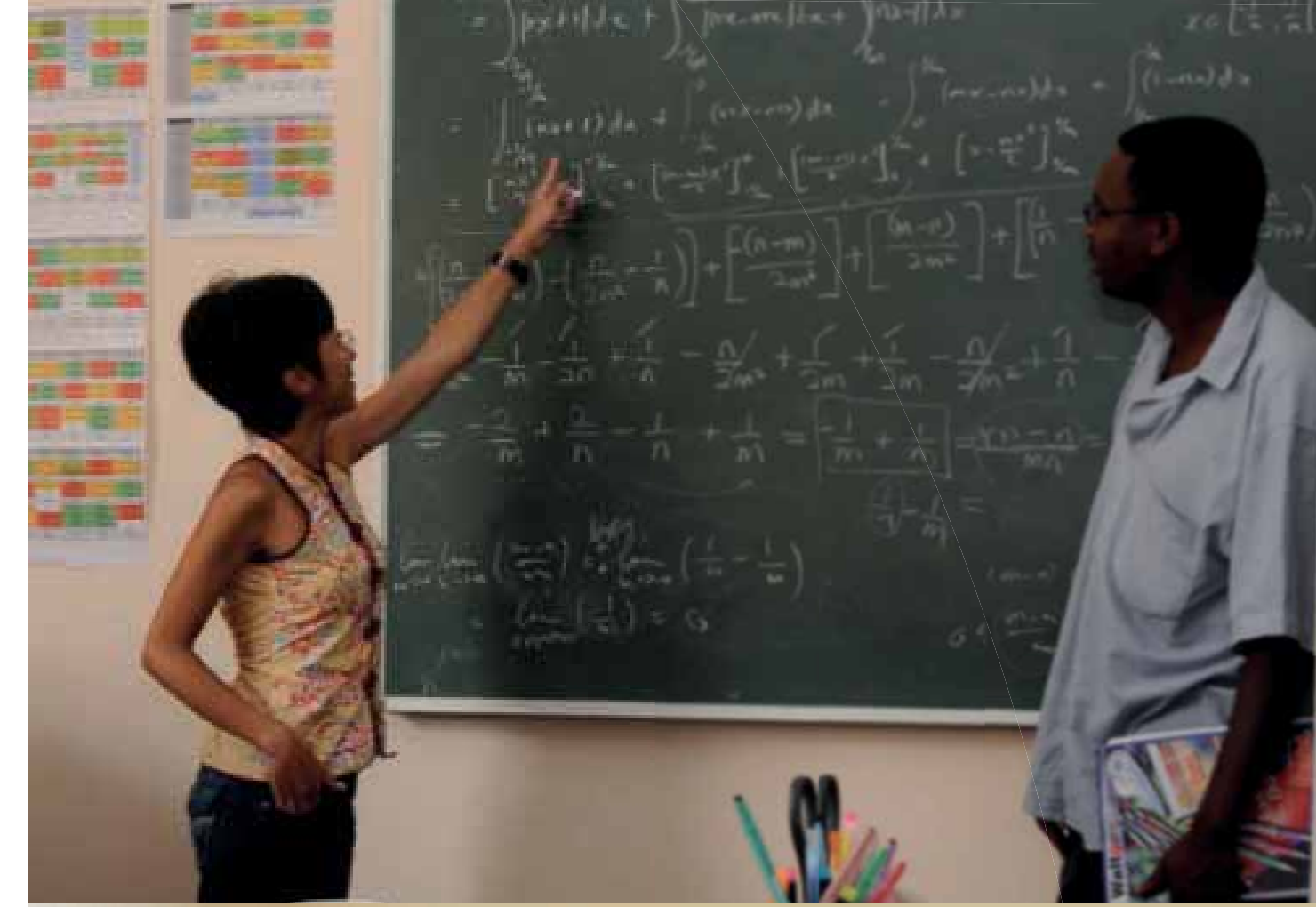


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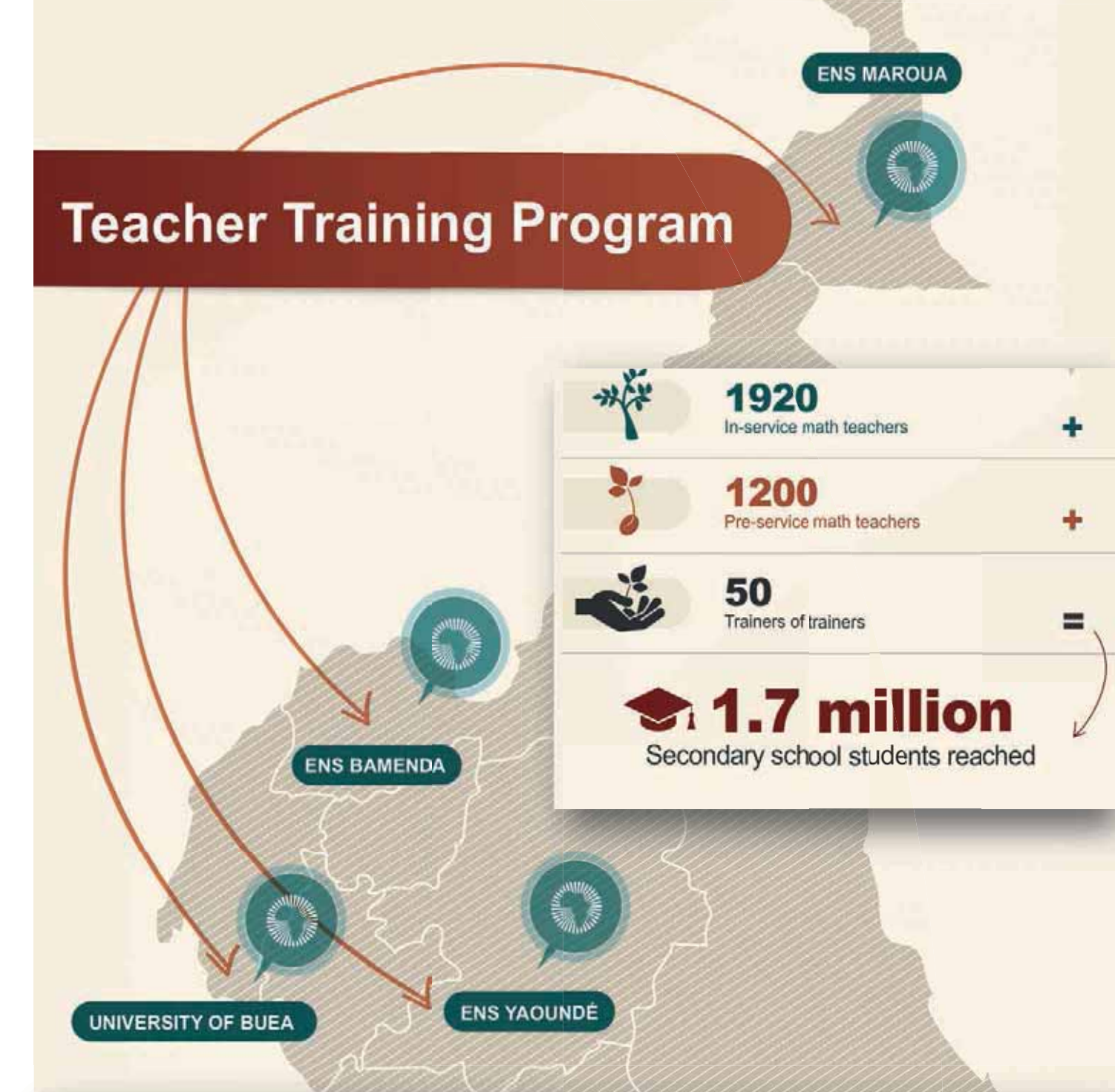
AIMS Approach to Increasing Female Participation in Science

- AIMS model challenges stereotypes and empowers and engages women
- Each centre is a mini-Africa where students live, study together and male students get to see in person the abilities of female colleagues
- 2013, alumni - after one year at AIMS, female students
- developed increased self-confidence in their skills & leadership
- Male students, AIMS helped them realize that women are just as capable
- AIMS model also led to change in behaviour



Employing a diversified gender mainstreaming approach

- AIMS has a centralized gender & inclusion policy but allows centers flexibility to employ own approach and activities
- Multiple track options to increase women in mathematical sciences:
 1. *Academia, Research and further studies*
 2. *AIMS Industry Initiative – employment skills and entrepreneurship*
 3. *Co-op pilot program in Senegal that focused on development of employment skills, mentoring and networking*
 4. *Secondary School Teacher Training Program in Cameroon that will lead to more girls going into math & science fields*



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Increasing Women's Participation - International Partnerships

- Partnerships - TT
- Partnerships - MSc
- Research Partnerships
- Public Engagement
- Next Einstein Forum
- Mentorships, coaching
- Promoting women in STEM in Industry



Robert Bosch **Stiftung**

Pan–African Partnerships to Increase Coordination

- **African Union – STISA 2024** as an instrument of Agenda 2063: Improved quality of math and science education across Africa + promote women in STEM
- **Federation of African Women Educationalists (FAWE)**
- **Association of African Women in Mathematics – Mentors, role models and champions**
- **Emerging Partnerships: CAMFED, UNESCO-ANSTI, OWSD**



Platforms, Tools & Mechanisms

1. *Value Chain approach to the needs of women to fulfill their dreams in STEM*
2. *Women in STEM panel at the Next Einstein Forum Global Gathering March 2016*
3. *Women in STEM Taskforce to drive innovative study on status of women in STEM across Africa*
4. *Taskforce - publish regular reports analyzing various sectors for Women in STEM & integration*
5. *Address needs of Women in STEM in francophone Africa*
6. *Women in Science Ambassadors*
7. *Leverage & tap into African women in STEM in the Diaspora*
8. *Evidence to inform policy and create a strong enabling environment*
9. *Build a structured mentoring and coaching network for African women in STEM*

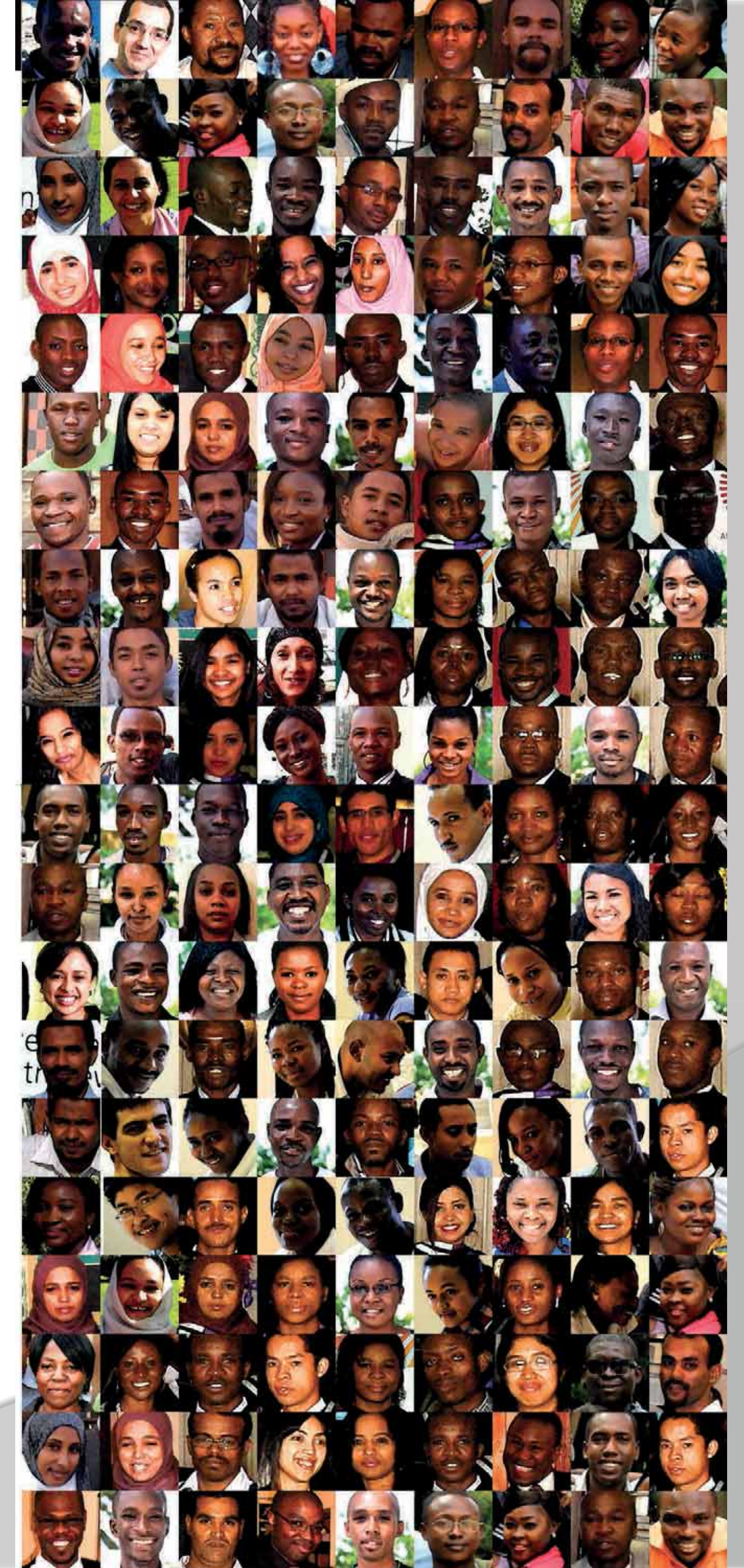


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AIMS Global Alumni Network

- 700+ strong alumni network across the world
- **224** (30%) female alumni benefit from support of network of peers
- AIMS leverages public engagement and media opportunities for female alumni to increase the profile of women in Science to break gender stereotypes



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AIMS Alumni Making a Difference



There Remains Work To Do

- AIMS: successful in increasing women's participation in mathematical sciences but more work remains in Academia and Industry
- We are looking to increase partnerships that coordinate efforts and look at the issue of:
 - gender mainstreaming in the STEM Value Chain
 - policy,
 - pedagogy,
 - Investment in Women in STEM,
 - implementation, and
 - monitoring and evaluation



The Next 'Einstein' will be an African Woman

- According to the UN, by 2050, 40% of the world's youth will be from Africa
- For AIMS, this means that beyond probability, it is a certainty that ***The next 'Einstein' will be from Africa. And we believe she can be a woman!***

MAKERS

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Will the Next Einstein Be a Woman from Cameroon?

By MAKERS Team | March 13, 2015



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EMAIL TO A FRIEND 

This year's Pi Day is particularly special because not only is it 3.14, but it's 3.1415. This only happens once every century! We say that's all the more reason to celebrate brilliant female mathematicians that are contributing solutions to global challenges.

Around the world, women only represent 30% of researchers, but these four women are making a name for themselves and encouraging more girls to get involved in science, technology, engineering, and math (STEM fields), particularly in Africa. They all participated in a program called AIMS—the African Institute for Mathematical Sciences—that recruits students from across the continent to participate in a postgrad program taught by international



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We want to be a Leading contributor to the Global Scientific Community



Be the Solution



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