

African Condition and the Changing Goals of Science and Technology Education

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Overview of Presentation

- Science in Africa
- Science in Africa: Its Evolution
- Issues in S&T Education (STE)
- How could Africa rethink STE?
- Conclusions: How do we change?

Science in Africa

- No significant measure of sustainable human development.
- The result: civil wars, political instability, authoritarian regimes, unacceptable level of poverty, widening gap between Africa and the developed world, and increasing marginalization
- Investment in people and in S&T are prerequisites for economic growth

Science in Africa (*Cont.*)

- Africa's stock of human capital is particularly poor, and the science and technology base in Africa is weak
- Investing in science and technology (S&T) in Africa is urgent

Science in Africa: Historical Perspective

- Life according cultural norms
- Mobility, food, disease, forces of nature
- C19th: Formation of states that gave little attention to STE
- Early 1960s: The awakening to STE at independence
- In Primary: nature study, hygiene, health and rural science. Focus: rural life
- 1950s-60s: few schools taught biology, chemistry and physics; inadequate facilities; curriculum was racially defined, and geared to overseas exams

Science in Africa: Historical Perspective

- Objectives for teaching science not stated: focus was on overseas exams
- African Primary Science Programme started with missionary influence and participation of US and British scientists in 1960/SEPA in 70s.
- 1967: Namutamba Project (UNESCO)
- Science Programme for Africa (SEPA, Nuffield Science & School Mathematics Project: introduced inquiry-based learning
- AFCLIST 1988, Zanzibar camps, Minds-on programme, SCISA in South Africa are new initiatives seeking to entrench inquiry-based STE

Issues in S&T Education

- The state of S&T education and research in Africa is grave
- Teachers of S&T are both under-qualified and poorly motivated
- There is less inquiry science learning, more rote learning.
- The most significant cause of failure in adoption and implementation of better STE curricula materials lies in what happens in science teacher education and their professional development

Issues in S&T Education (*Cont.*)

- Consequences: Most students are unable to execute *thinking, reasoning, and understanding*.
- This is an education that would not suit an industrial age, let alone an information age society.
- What kind of STE best promotes this devt?
- What perspectives of S&T better suit devt in Africa?
- . Africa needs to develop strategies that would enhance the quality of her human capital and strengthen her S&T base

How could Africa rethink STE?

- Is it in: the national education policies? curriculum documents? assessment process?
- What *truly* benchmarks quality and relevance in STE?
- Two key players in the S and T discourse environment are teachers and learners
- Inclusive, holistic responsiveness to: *who* is involved in S&T education, *who* directs its goals and activities, and *whose* interests in STE

Conclusion: How do we change?

- S&T are now increasingly seen as evolving ways of coping with the world within specific contexts and cultures (Loving, 1995; Jegede, 1994, 1995; Lee, 2007)
- Sensitivity to contexts and cultures demand responsiveness of S&T to alternative worldviews:
- STE should engender critical thinking: which S&T, S&T for what purposes and interests, examin and question of roots of unsustainability in the society

THANK YOU

- END OF PRESENTATION