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Promoting critical knowledge, skills and qualifications for sustainable development in Africa: How to design and implement an effective response by education and training systems

Sub-theme 1
Common core skills for lifelong learning and sustainable development in Africa

Science Education for Developing Core Skills Necessary for Scientific and Technological Development —Experiences of Japan and Africa—

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ABSTRACT

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ABSTRACT

1. As it is widely acknowledged that science education contributes to laying the foundation for scientific human resources, many African countries have endeavored to strengthen science education, in particular, by shifting the focus of education on from basic education to post-basic education. However, the experience of high-performing economies in Asia suggests that providing quality science education at the basic education level is even more important because science education at that level can effectively foster core skills such as scientific thinking skills and problem solving skills, referred to as scientific literacy for ordinary citizens.

2. The study first reviews literature on science education curriculum and the aspects of the cognitive and cultural domains of science education. It also analyses Japan's experience in science education development and lesson delivery, and projects supported by the Japan International Cooperation Agency (JICA), which are aimed to improve science and mathematics education in Africa by introducing a learner-centered teaching and learning approach called ASEI-PDSI approach.

3. Based on the literature review and the experiences of Japan, the study proposes that science education at the basic education level should be strengthened. In particular, the quality of lesson delivery at that level needs special attention. For instance, in order for science lessons to be leaner-centered, lessons should properly deals with students' pre-instructional conceptions and cultural difference between learners' life and school science.

4. In order to learn not only from theories but also from actual experience on the ground, it is important to create a forum where African countries can share experiences and good practices to bring about improvements in teaching and learning in science education in Africa.