Unlocking the potential of synthetic biology for improving livelihoods insub-Saharan Africa

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ABSTRACT

Synthetic biology (SynBio) is an interdisciplinary field that has developed rapidly in the last twodecades. It involves the design and construction of new biological systems and processes from standardized biological components, networks and synthetic pathways. The goal of Synbio is to cre-ate logical forms of cellular control. Biological systems and their parts can be redesigned to carry out completely new functions. SynBio is poised to greatly impact human health, the environment,biofuels and chemical production with huge economic benefits. SynBio presents opportunities for the highly agro-based African economies to overcome setbacks that threaten food security: The setbacks are brought about by climate change, land degradation, over-reliance on food imports,global competition, and water and energy security issues among others. With appropriate regula-tory frameworks and systems in place, the benefits of harnessing SynBio to boost development in African economies by far potentially outweigh the risks. Countries that are already using GMOs such as South Africa and Kenya should find the application of SynBio seamless, as it would be a matter of expanding the already existing regulations and policies for GMO use.