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## Smart Designed, Mechanised Large-Scale Cocoa Plantations as a Forward-Looking Component of Sustainable Cocoa Production

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### Abstract

To meet the rising demand in the 1960s and 70s, smallholder farmers, especially in West Africa, started to increasingly grow cocoa. In order to generate higher incomes and to overcome price fluctuations, farmers intensified their farming strategies which led to an intermediate improvement of livelihood but also to a higher dependency on cocoa. Today, farmers get a share of about 6–10% of the high-end chocolate product compared to 15–23% in the beginning of the 60s. Thus they often miss the up-to-date knowledge, network and financial background to run highly intensified cocoa cultures in a sustainable way. Among others this led to extensive use of agrochemicals without increasing productivity in long-term. Land scarcity due to deforestation and soil degradation processes is becoming an important issue in many tropical countries. Besides, climate change is expected to seriously affect the present cocoa growing regions.

Smart designed large-scale projects would be able to increase and sustain productivity in long-term by combining modern planting material, soil conservation and adjusted management by optimising the existing processes and including present scientific findings. Thus, such projects could have the means to combine regional, national and global interests, protect nature reserves and support the development of rural communities by involving the rural population.

Large-scale plantations may include more than 100 shade trees of different species per hectare while providing a stable production of 1000 kg of dry cocoa per hectare per year, compared to the annual production of often only 350 kg per hectare on smallholder plantations. The approach is comparable to modern fruit orchards where the productivity per worker is increased by the use of machines that allows working more efficiently.

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