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Sustainable Aquaculture for a Secure Future

Title: Prospects and Potential for Aquaculture of African Lungfish in Uganda

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Abstract: Shifting rainfall and temperature regimes are bringing new challenges to the management of water bodies and fish farms in sub-Saharan Africa (Dixon *et al.* 2003). Culturing species that are resilient to drought and stressful water quality conditions may be a major part of future African aquaculture. Air-breathing fishes, such as the African Lungfish *Protopterus aethiopicus* can use atmospheric oxygen to meet all or part of metabolic demands (Mlewa *et al.* 2007). Air-breathing fish have a role in managed fisheries and low-management culture systems where dissolved oxygen concentration is not a limiting factor. Among air-breathing fishes, the African Catfish *Clarias gariepinus* can tolerate low levels of dissolved oxygen but its flesh is held in lower esteem by consumers as compared to lungfish. The quality of *Pangasius*_catfish flesh is high but it is not a native species in Africa.

African lungfish is native to natural waters of Uganda (Greenwood 1958, 1986, Birt *et al.* 2006) but populations are rapidly declining and the species is now endangered, mainly caused by overexploitation, environmental degradation and large-scale conversion of wetlands to agricultural land (Goudswaard *et al.* 2002, Balirwa *et al.* 2003). Therefore, it is

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essential to develop aquaculture to relieve pressure on natural stocks. This article explores the potential of African lungfish aquaculture to improve food security and livelihoods in Uganda; identifies indigenous production practices and approaches; consumer perspectives and markets; and an outlook for lungfish fisheries and aquaculture in Uganda and sub-Saharan Africa.

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