5.6 Introduction of Cactus (*Opuntia ficus-indica f. inermis*) in semi-arid areas of Sudan as a strategic fodder and drought mitigation

Elsamani Abelmahmoud¹ and Muna Ahmed²

¹Consultant, walgaili@yahoo.com

²Institute of Environmental Studies, University of Khartoum; Munamm789@yahoo.com

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This study is proposed with the objective to grow cactus (*Opuntia ficus-indica f. inermis*) in areas of Nahr Al Nil State that are vulnerable to sand encroachment and at the same time provide an alternative source of feed to livestock and food (cactus fruit) to humans. The increased importance of cacti, such as Opuntia species, in arid zones is because of their ability to (i) grow in “deserts” and their drought tolerance; (ii) produce forage, fruit, and other useful products; and (iii) mitigate long-term degradation of ecologically fragile environments. The various Opuntia species have developed phenological, physiological and structural adaptations favoring survival in arid environments, in which water is the main factor limiting the development of most plant species. Pre-eminent among these adaptations are asynchronous reproduction and its crassulacean acid metabolism which combines with structural adaptations, such as succulence, to allow this plant to continue the assimilation of carbon dioxide during long periods of drought. In this way, acceptable productivity levels are attained even in years of severe drought. Significant achievements in desertification control using cactus to reverse the desertification is well documented. The state main agricultural land (3.1 million feddan), which is the sole supplier of livestock feed, lies along the banks of the River Nile and is subjected to considerable reduction in size because of sand infringement. Cactus could be grown in areas that are continuously threatened by sand movement to stop sand movement and at the same time provide untapped feed source for feeding livestock.