Irrigated ethnoagriculture, adaptation and development: a Pacific case study

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ABSTRACT

The practice of terraced and irrigated creekfield taro (Colocasia esculenta) agriculture was once prevalent in the seasonally-dry regions of many Pacific Islands. This ethnoagricultural system has been characterised as technically sophisticated, intensive, highly productive and ecologically sustainable; with links to social stability and enhanced biodiversity. The food output is highly nutritive. However, despite these advantages, a decline in irrigated terracing has been the historic trend over the last century. Given the decline, the question must be asked: how resilient and sustainable is creekfield ethnoagriculture, especially in a changing world? The late Holocene development of irrigated creekfields was probably advanced by superior characteristics of resilience and adaptation in the face of climate change, but evidence is hindered by lack of research. Conversely, creekfield decline appears to have a strong relationship with the influence of extralocal colonial, modern and globalised development during a historically benign climate period of low agricultural risk – now being replaced by a putatively higher-risk period of vulnerability driven by Anthropocene global warming. An ethnoagricultural case study of Fijian irrigated terrace systems (colloquially called vuci), amid other research from the Pacific, indicates enhanced resilience and increased livelihood stability – characteristics that are needed for adaption to the predicted adverse conditions of the future. The prospects for the revitalization of such systems are discussed. Only some of the reasons for decline are important today, and a developmental reintensification is possible, especially with increased populations and parallel food demands. Innovative technologies can be used to ‘progress with the past’, exemplified by the activities of an NGO which has been reintroducing the ideas and practice of vuci in the Fiji Islands.

Keywords: Irrigation, agriculture, Navosa, Fiji, Pacific, adaptation, Colocasia esculenta, indigenous development, technological change, climate, environment.