J.Natn.Sci.Foundation Sri Lanka 2022 50 (Special): 177 - 194
DOI: http://dx.doi.org/10.4038/jnsfsr.v50i0.11238

REVIEW

New paradigm for inland fisheries development in Sri Lanka: a transdisciplinary approach for addressing food and nutritional security

US Amarasinghe[1], KBC Pushpalatha[2] and WMHK Wijenayake[3]
[1] *Department of Zoology and Environmental Management, Faculty of Science, University of Kelaniya, Kelaniya, Sri Lanka.*
[2] *National Aquaculture Development Authority of Sri Lanka, Battaramulla, Sri Lanka.*
[3] *Department of Aquaculture and Fisheries, Faculty of Science, Wayamba University of Sri Lanka, Makandura, Gonawila, Sri Lanka.*

Summary: Globally, inland fisheries make a significant contribution to sustainable development across dimensions of food security, livelihoods, economic value and biodiversity. Nevertheless, aquaculture is generally considered to be environmentally unfriendly. As such, environmentally friendly approaches of increasing fish production such as fisheries enhancement receive increasing attention. Culture-based fisheries (CBF) are seen as a way forward for inland fisheries development in most Asian countries. Due to the extensive availability, reservoirs of Sri Lanka, which have been constructed in the past for irrigation, can secondarily be utilized for inland fisheries development. The reservoir fishery of Sri Lanka has been a relatively recent development during the second half of last century after the introduction of exotic cichlid species, *Oreochromis mossambicus* and *O. niloticus*. The trends in inland fish production until the 1990s suggested that under the socio-economic milieu that prevailed, for the management of reservoir fisheries, state sponsored monitoring procedures or centralized management systems was essential. Due to the concerted efforts to develop CBF in Sri Lankan reservoirs after 2000, through regular stocking of fingerlings of tilapia, Chinese carps and Indian carps, a significant development in the inland fisheries sector has been achieved. Recent attempts at stocking *Macrobrachium rosenbergii* postlarvae in inland reservoirs as part of CBF contributed to significant elevation of rural income. Also, 'human capital' in the rural institutions (i.e., famer organizations and fisheries societies) has a high potential to be mobilised for CBF development. Introduction of co-management strategies for CBF is useful for its sustainability. CBF development in Sri Lankan reservoirs should essentially be a transdisciplinary approach, which would take into account the biological productivity favouring growth of stocked fish, institutional linkages for supporting different stages of the strategy, social attitudes for adopting CBF within the realm of participatory development, and market forces driving the entire process.

Keywords: Biological sustainability, blue revolution, inland fisheries enhancement, socioeconomics, tropical reservoirs.

INTRODUCTION

As many fisheries and aquaculture development strategies aim at ensuring biological sustainability and economic efficiency of fisheries, their potential contribution to improve food and nutritional security is not fully appreciated (Béné *et al*., 2015). Furthermore, inland fisheries are crucial for many socially, economically and nutritionally vulnerable groups of people around the world (Welcomme, 2001). Nevertheless, a complete understanding of the magnitude of contribution of inland fisheries to food security is often not fully recognized, mainly due to the reason that greater interest is vested in marine fisheries and ocean management (Funge-Smith & Bennett, 2019). There is widespread expert opinion that much of the catch from inland fisheries is unrecorded, bringing about underestimates of inland fishery catches (FAO, 2020). Nevertheless, there is a

* Corresponding author (zoousa@kln.ac.lk; https://orcid.org/0000-0002-0465-6950)