

Fish Farming in Poly tanks: An Adoptive and Climate Resilience Practice in Hills

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Abstract—People at mid altitude have very limited income generating resources and agriculture is limited having less soil productivity due to marked water shortage and gravelly and porous soil has low water holding capacity which limits the production cycle and agricultural activities. Due to low thermal regime, fish farming was not feasible, but in case of increasing temperature situation, fish farming resulted as nucleus of integrated farming system, which is an option to support nutritional & livelihood security in mid hill area. Study was conducted at Doonagiri (District-Almora, Uttarakhand) lies in the drainage of river Kosi, which originates from Pandukhola and located at 3000 msl. Study revealed that the catchment area of Kosi is being reducing by 5 kms/yr. Doonagiri area is known for snow falling, but during last decade, snow fall has reduced drastically due to increasing environmental temperature. Therefore, this area is prone to climate change. In this situation, exotic carps (*Hypophthalmichthys molitrix*, *Ctenopharyngodon idella* and *Cyprinus carpio*) and indigenous minor carp (*L. dyochielus*, *B. dero*) in tanks are thriving well. Study was conducted in plastic film lined poly tanks, which are suitable for rainwater harvesting & water storage. Pond water temperature in poly tanks remain 2-6 °C higher than the earthen ponds since poly film conserve the energy of sun light as well act as insulation between water and earth. The temperature helps in regulating the fish physiology resulting in better growth of fish. The average fish production of 0.7 kg/ m³ per year is achieved in poly tanks. These poly tanks provide the buffer stock of water for the horticulture and agriculture practice. Hence, this integrated farming model keeping the fish poly tank as the nucleus has scope to support nutritional and livelihood security in the mid hills in climate changing context.

Keywords: exotic carps, integrated farming, indigenous minor carps, livelihood security, poly tank.