

ORL-F&PI-07**Rainbow Trout *Oncorhynchus mykiss* in Recirculating Aquaculture System: Challenges and Its Future in Context of Nepal.**

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Pond culture, cage culture, pen culture, bio-floc culture, flow-through culture, RAS (recirculatory aquaculture system), and in-pond-raceway system (IPRS) are a few of the aquaculture techniques that are widely, semi-intensively, intensively, and super-intensively used to boost global fish production. The RAS (recirculatory aquaculture system) system is currently receiving the most popularity and attention among all the advanced aquaculture technologies and practices because of its enhanced production and sustainability. Aquatic animals can be cultivated in RAS at higher densities and under fully or partially regulated circumstances by reusing excrement, adding oxygen, ammonia, and carbon dioxide. The water recirculation efficiency in RAS systems ranges from 70 to 99.5%, with 70% in partially recirculatory systems and 99.5% in fully recirculatory systems depending on the filtering system. Rainbow trout is deemed as premium fish and it has its own challenges in rearing them.

A commercial pilot scale model of Recirculating system is built with fiberglass tanks manufactured on site, filtration equipment purchased from China, assembled and run using local means and resources. The total setup having a water volume of approx. 120 m³ with rearing tanks of 35 m³ and 65 m³. With continuous pure oxygen injection with Nanobubble system it has capacity to rear 6 MT per batch. With current setup the FCR is stable at 1.1. Initially, 10,000 fries were stocked with average weight of 1 gram, with 310 pcs mortality till date.



Photograph: Current RAS setup at Panauti,Kavre