



## Low Cost Cage Culture at Khuga Dam of Churachandpur District, Manipur: A Success Story

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Churachandpur district of Manipur is blessed with diverse water resources which include rivers, streams, ponds, tanks and dams/reservoir. Among these water bodies, the Khuga dam represents one of the largest water resources not only in the district but also for the state Manipur. Although the construction begins in the year 1983, it was formally inaugurated in the year 2010 and the dam doesn't offer much to the purpose of its construction. However, from fisheries point of view, the water body was restricted only to recreational fisheries and no commercial fisheries were carried out for a long time. Most of the fishery contribution coming from the water body is mere angling and no significant role in overall production. There was no intervention for capture or culture fisheries in the water body. Cage culture is a relatively new venture in the inland aquaculture scenario of the country and is no different for this water body too. This type of new culture practice offers new opportunity for optimizing fish production and developing new skills among the fish farmers and local society/groups to enhance their earning and livelihood of the district. However, proper technological knowhow and intervention was the only bottleneck and challenge for the fishers community habituated near of the area of Khuga dam.

### Initiatives

The establishment of cage culture units was observed along the western periphery of the Khuga Dam by some individuals and farmers society. After close monitoring of their culture practice and construction techniques, it was observed that all the units constructed were made from locally available empty plastic drums and bamboo poles. The net enclosure was also custom-made using material from local markets and none of farmers had any formal training and technical guidance from any institute/organization. They have been doing all themselves by gathering information from the social media platform and with no financial assistance from government and/or any funding agencies. There was no proper stocking density of the culture species and feeding management was totally messed up. Due to this problem in culture practice, most of the cage units are not making enough profit and mortality was very high. After the intervention of the KVK Churachandpur, ICAR-RC for NEH Region, Manipur Centre, the farmers were given extensive training, expert field visits and field demonstration. Although they could not follow the cage culture guidelines issued by National Fisheries Development Board (NFDB), Hyderabad on "Guidelines for cage culture in inland water bodies of India (2016)" in terms of cage size and construction material due to pre-established cage made from locally available materials, they were taught and guided with proper stocking and feeding management so that production and productivity can be increased manifold.

The technology interventions are as follows:-

- Stocking size for Indian Major carps and exotic carps to be 50 mm length (grow out)
- Stocking size for Indian Major carps and exotic carps to be 25 mm length (for rearing to fingerling)
- Stocking density to be maintained @ 60-100 nos/m<sup>3</sup>
- Feeding should be given as pelleted floating (above 1.0mm size) feed with 25-30% protein @ 5% body weight for first 2 months, 3% body weight upto 5<sup>th</sup> month and 2% body weight from 6<sup>th</sup> months onward twice daily or as required.

### Outcome

The average production and productivity from the cage culture practice in Khuga Dam ranges between 12-18 kg/m<sup>3</sup> whereas the national average productivity ranges from 30-50 kg/m<sup>3</sup>. The low productivity from the water body as compared to other cage culture could be due to difference in culture duration, stocking of inferior species not recommended for high value cage culture, improper feeding and high mortality. However, the change in productivity was double after the intervention of KVK Churachandpur.

### Impact

The culture duration varies from 6 months to 10 months depending upon the species and partial harvest was seen as per their interim needs. Usually high demand of fish harvested from Khuga dam was observed during the Christmas and New Year occasions. The prices of the Khuga fish were comparatively higher from the fish produced from local pond and iced fish coming from outside the state. The productivity level is relatively low due to less stocking as compared to the recommended nos/m<sup>3</sup> of stocking density. Less stocking is maintained to avoid mortality due to poor water quality encountered frequently as an outcome of using fine meshed net and not the standard/recommended mesh size. Although recommended feeding rate were provided to the farmers but due to irregular supply of feed in the district, the feeding were erratic and hampers the growth from time to time.

**Table: Production and Income Before and After the intervention**

Status of intervention	Cage per Unit size	Production (kg)	Gross Income (Rs.)	Net Income (Rs.)	% change in income
Before	10x12x6 ft	8kg/ m <sup>3</sup>	38400/unit	9600/unit	87.5
After	= 20m <sup>3</sup>	15kg/ m <sup>3</sup>	72000/unit	18000/unit	

Please note that the price of fish in local market based upon the size is taken as Rs 240/kg

**Lesson Learned:** The cage culture in Khuga dam of Churachandpur is a game changer considering the limited aquaculture ponds and water resources in the district. Some of the highlight of technological intervention by the KVK Churachandpur is that there is significant change in the income per unit cage. Most of the individual cage owner and members of the society associated with cage culture showed tremendous interest in further expansion of cage units since their income increased manifold upto 87% as compared to their earlier income. Also, one aspect which is unique and cannot be rectified is the species cultured in most of the cages. Farmers here mostly culture common carp in their cages and sometimes grass carp. In spite of repeated advice from our side, they continue to culture this species which is due to high local demand. Another reason may be due to unavailability of fish species to the fisher community.

### Quotes from the farmers

- Mr. Thuamlalmuan Kopsian, Adhaar no. 445588313548, contact no. 8729916435, age 36 years old from Vengnuam New Lamka mentioned that “the technical knowledge and

*guidance received from the KVK help in increasing their production thence production tremendously”*

- Mr. Khanthang contact no 8413843434, age 52 years old from Zoutuinam village expressed that *“the society has benefitted from the training and demonstration provided by KVK Churachandpur and help increased production and productivity for member cage holders”*
- Mr Mung Naulak, contact no 82557808403, age 32 years old from New Lamka also stated that *“with proper scientific knowledge and guidance, one can certainly take up cage culture as an enterprise in Khuga Dam”*

**For more information, please contact**

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