

Tree Root Technology (*Fard Kai Pa*):

a natural synergy



Summary

Villages in the central province of Xieng Khouang use a method that capitalises on the natural synergy of a particular plant and a particular fish; the roots of the water chestnut tree act as a safe haven for the sticky eggs of the common carp. The method uses readily available natural materials that easily biodegrade and costs nothing but the labor required.

Methodology

Beginning in June as farmers prepare their rice fields for planting, a separate area is set aside for male and female carp to breed. During this time, farmers collect and clean the roots of the water chestnut tree - roots that due to their fine but bushy filaments are particularly suited to this usage.

After the roots are clean, they are placed in the flooded rice field where the eggs spawned by the carp attach themselves to the roots. Once the roots are full, they are removed from the field and incubated in a container lined with bamboo leaves for 2-3 days. They are then returned to the rice field and left to grow. In preparation for the rice harvest in early October, farmers drain their fields and harvest the fish, eating some, saving some in ponds, and selling others.



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Traditional Aquaculture Practices

Lao, PDR



Fish Pit (*Lum Pa*)

Technology:

a practical method passed down through generations



Summary

Fish pits (*lum pa*) are small wells, usually 2-3 meters deep, built with a wood frame. They are mostly found in rice fields but can also be constructed in wetlands areas or even within small ponds near dwellings. The primary purpose is to preserve a habitat for fish to live and grow during the dry season and therefore increase food security for the families who own them.

Climate change in the region has caused disruption in rain flows and droughts. Rice farmers with *lum pa* have added protection against such unpredictability since fish find refuge in pits when water levels decline.

Location

Lum pa are prevalent in villages in Attapeu and Champasak provinces in southern Laos. They work best in areas of lower ground so that as waters recede, gravity works in the *lum pa*'s favour.

History

Lum pa have been part of the landscape for as long as anyone can remember. The technique has been passed down through generations to the present day and in many ways, is more relevant than ever.

Construction

A *lum pa* is most often constructed during the dry season using wood known to resist rotting. 3-4 people can dig the well and construct the frame in less than a week.

Method of Use

Farmers place hollow logs within the *lum pa*. When disturbed, fish will hide in the logs for protection. Farmers harvest the fish by retrieving the logs and emptying them into a container.



Ponds vs. Pits

Pits can be an excellent alternative in areas where ponds are less practical:

1. Pits conserve water and biodiversity and provide a pulse of aquatic organisms into the rice field at the beginning of the wet season.
2. Pits can be dug by hand and framed in a matter of days; making a pond is difficult and cannot be done by hand.
3. Ponds take up more space and are more expensive than pits.
4. Pits can be more easily secured against theft.