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## Notes on the construction of 12 cu m ferrocement maturation tank for prawn broodstock

**Rodolfo T. Tolosa**

Initial successes in obtaining gravid female prawns by ablation in wooden and concrete tanks led to the attempt at mass production of spawners. This is significant in view of the high cost of procuring sugpo spawners from the wild and of their seasonal spawning. This study aimed to develop an economical, rational and easy method of constructing ferrocement tanks suitable for *P. monodon* maturation.

To accommodate 80 prawns at a 1:1 male to female ratio, a cylindrical tank was constructed. Its design called for materials which were durable, readily available and had low thermal conductivity. Inside wall surface was smooth so as not to harm the broodstock when they came in contact with it. A flow-through system of water supply, a piping system for equal water distribution, a filter system for improving water quality and a well illuminated area in the tank were needed.

Fig. 1 shows an isometric drawing of the prototype maturation tank. The tank consists of two components a cylindrical portion, 4.0 m in diameter; and an auxiliary rectangular portion, measuring 1.2 x 1.2 x 1.2 m. The holding structure is made of ferrocement, approximately 4.00 cm. thick.

Leaks were observed at two points. The first one was due to a partially embedded nail which was not taken off during plastering. The other was due to air cavities in the epoxy glue between glass and ferrocement. These defects were easily corrected, and it could be said that ferrocement provided a satisfactory water-tight enclosure.

The distribution pipes had too many perforations in it. As a result, the flow of water was localized at the points nearest the source. Equal distribution of water in the tank was obtained by plugging some holes with epoxy glue. Cost savings could further be realized by reducing the number of concentric distribution pipes to 3.

The tank's lighting system was not really given much attention when it was observed that drawing the broodstock into the rectangular annex, highly stressed them. The scheme was abandoned when a better method of detecting the broodstock's condition was discovered. This was done by aiming a beam of

light on the broodstock by means of underwater flashlight.

As designed, the tank did not really need aerators as it was a flowthrough system. However, aerators were installed as a precaution for pump or power breakdowns.

Based on the studies and observations conducted during the construction of the prototype, it is recommended that the tank's design be revised. The cost of materials of the prototype tank is P5,363.00. With the revised scheme a reduction in cost of materials by about 28% for the ferrocement enclosure and 38% in overall costs, is obtained. Fig. 2 shows the revised design. Presently, 2 tanks of the revised scheme are being constructed. A 25-ton ferrocement tank is on the planning stage.

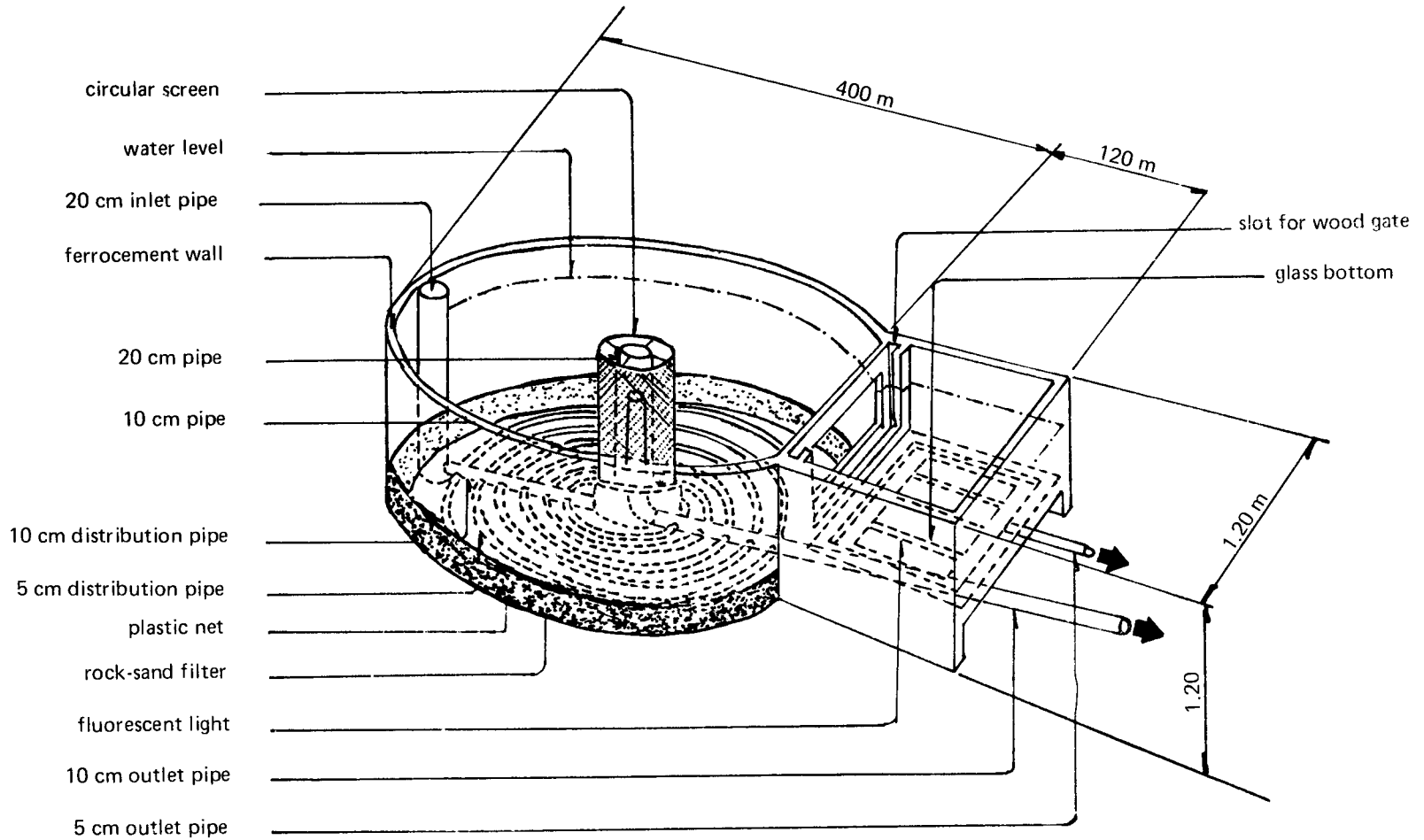


Fig. 1. Prototype Maturation Tank

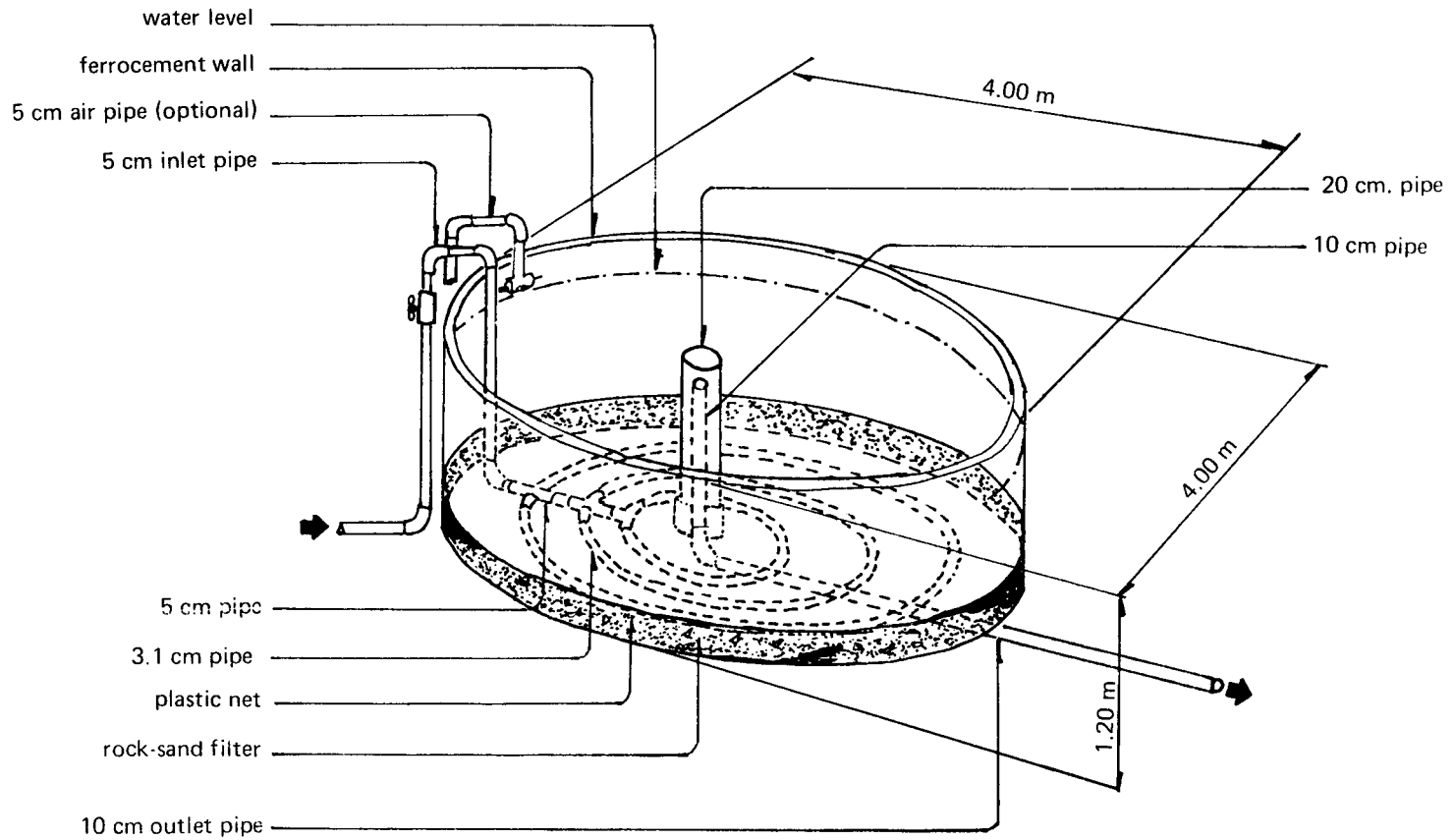


Fig. 2. Revised Ferrocement Maturation Tank

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