SELECTION OF SITE

The selection of site is a critical determinant of the success of a hatchery business. The site should be easily accessible and in the vicinity of the farms where fish can be sold at reasonable transportation costs. Site should have access to good quality water available year round. Access to reliable electricity will also be a requirement. In this chapter, we use the model of a carp hatchery for generic purposes. Other species of fish may have minor differences.

WATER QUALITY

Good quality water is fundamental to the success of a fish hatchery. Ideally each fish hatchery has a continuous supply of good quality water at least during its operation for induced spawning and rearing of the eggs, fry and juveniles. During spawning and hatching, oxygen rich water with ambient temperature in the range for spawning is useful for successful accomplishment of this process. Dissolved oxygen level in water can be enhanced by aeration before its entry into the hatchery proper or with aeration or oxygenation in the tanks, but at extra cost.

Underground water is preferable because canal or rainwater can carry a variety of pollutants and harbor predators. The silt in canal water may smother eggs, and adversely affect their developmental process. Rainwater is exceptionally soft with virtually no minerals and likely will cause osmotic stress to eggs, larvae or fry.

LAYOUT PLAN OF HATCHERY

Components of a typical fish hatchery

The hatchery is a composite facility consisting of many essential components which are:

- Broodfish ponds or tanks to grow and hold adult fish who would serve as parent stock for the hatchery, and to accommodate the spent females and males; (Fig.1 & 2)
- An indoor hatchery facility including cement, plastic, or fiberglass tanks for fish spawning, hatching and care of hatchlings to raise them up to post-larval stage; (Fig. 3 & 4)
- Tanks or nursery ponds for rearing post-larvae to fry stage when these are shifted from the indoor hatchery facility; (Fig. 5 & 6)
- Rearing ponds or tanks for growing fry to fingerlings ready for marketing.

Fig.1

Fig.2

Fig.3

Fig.4

Fig.5

Fig.6

Carp Brood fish Requirement

Brood fish is the parent stock from which fish fry and fingerlings are produced. The quality and requisite quantity of fish seed supply depends on health and sufficient number of brood fish. The major carps and Chinese carps generally have high fecundities which vary according to species. Trout and tilapia produce fewer eggs per female. Fecundity is a function of the age of the brood fish, the size, its nutritional state and, therefore, the type of feeds it has been given. For the various carp species, female brood fish weighing 3-6 kg each can be presumed to produce 240,000 viable eggs each spawning cycle. Spawners for the various carp species are paired in male to female ratio of 3:2, keeping the total weight of female brood fish approximately equal to that of male brood fish. One thousand kilograms of brood fish can be comfortably reared in each hectare of fish pond. A brood fish pond of 0.2 ha area is appropriate for convenient netting, feeding, aeration, application of prophylactic and therapeutic chemicals as well as flushing the pond with fresh cool water for proper gonadal development. More brood fish ponds are required for higher fish seed production targets.