

Nagashini Beel: A Case Study of the Transformation of a Common Property Aquatic Resource

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Beels—low-lying depressions that fill seasonally with water—are among the most important common property resource systems in Bangladesh. The beel ecosystem supports many species of wild fishes and aquatic plants, hence acting as a central, if poorly documented, reservoir of biodiversity. The beel fishery also serves as a key economic resource for inland communities of landless fishers, while supplementing the nutrition of farming families as well. One distinctive feature of the beel tenure system is its variability over seasonal time. In its wet-season form as a waterbody, a beel serves as a multiple-use, common property resource that can be accessed by the community at large. As winter approaches and the monsoon floodwaters recede, the underlying land becomes available for the cultivation of rice on privately held plots. Here we examine what may happen when private leaseholders of beel land from outside the community exert exclusive claims over the water resource after stocking it with fish.

Background

The beel under study, roughly 2 ha in area, is locally known as “Nagashini Chalibeel.” It is situated in Gazipur District about 60 km north of Dhaka city. There are 12 senior owners, although six of them have nominally allocated portions to their sons who are cultivating land in the beel. If their sons are counted instead of themselves, the number of owners rises to 27. Rights to the produce of the beel are allocated to owners according to their share of the total area

of the beel. These rights are limited to cultivated crops or cultured fish. The largest share owned is 0.8 ha and the smallest is 0.04 ha.

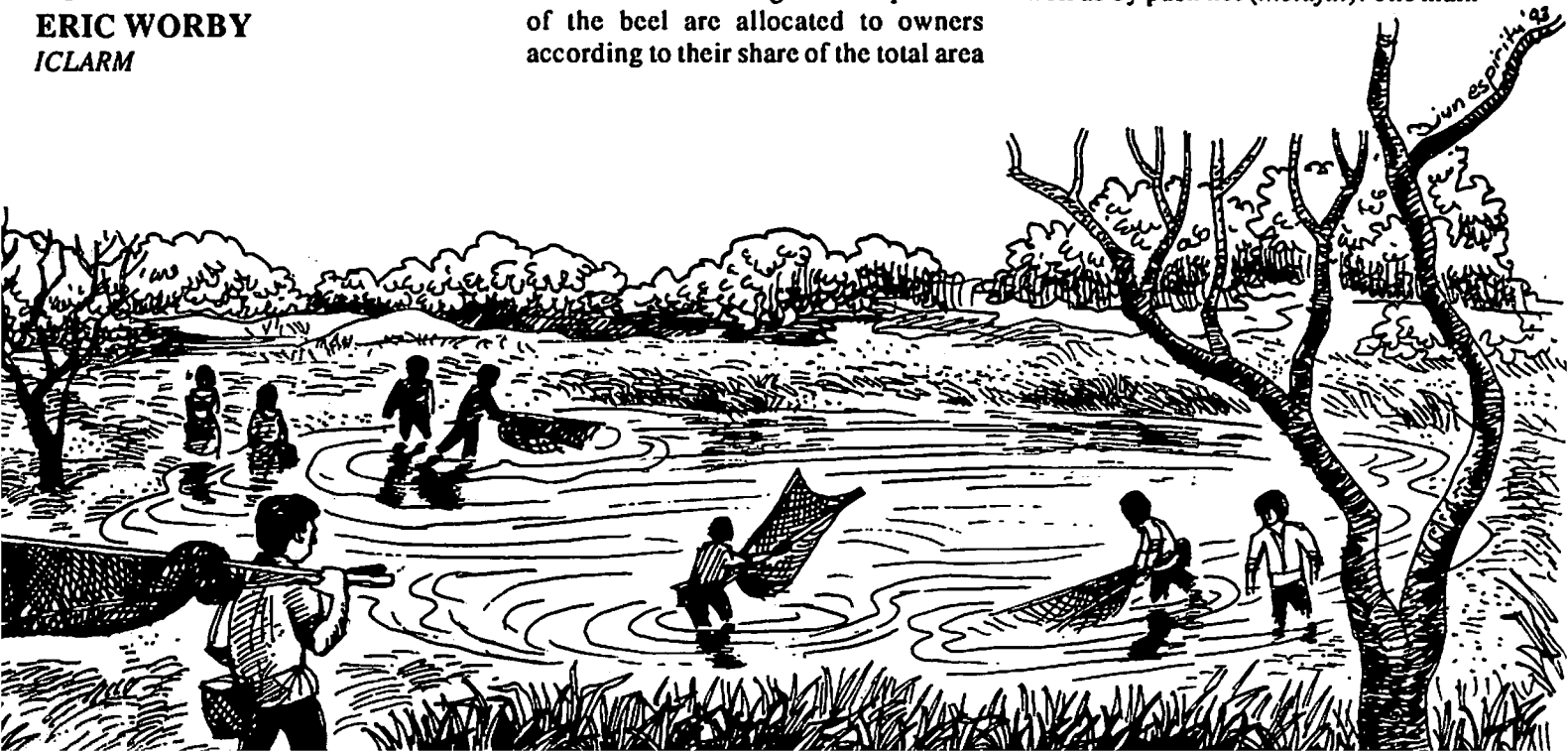
Ecology of the Beel

The water in the beel has thus far been fallow. Normally, planktivorous weed fish such as *mola* (*Amblypharyngodon mola*) and *puti* (*Puntius sophore*) are naturally plentiful in the beel. They serve as a source of food for predator fish such as *boal* (*Wallago attu*). Catfish such as *shing* (*Heteropneustes fossilis*) and *magur* (*Clarias batrachus*) are also present in the beel. By taking shelter in the mud, air-breathing fishes such as *koi* (*Anabas testudineus*), *shing* and *magur* can survive in the dry season when water levels are as low as 2.5 cm. *Koi* eggs remain in dry mud during the dry season. When the monsoon comes, *koi* larvae emerge and grow in the new monsoon waters.

In the beel there are several indigenous submerged and emergent forms of aquatic vegetation, including water hyacinth, lotus and cancon (*Ipomoea aquatica*) which are used as livestock feeds; cancon is also used for human consumption.

Fish Harvesting Techniques

The owners catch fish by angling, and by using a kind of trap called *chai* (horizontal trap set at the edge of the receding water in the dry season), as well as by push net (*thelajal*). The main





A typical beel in Kapasia, Gazipur District, Bangladesh.

technique used by fishers is the *sati* or brushpark: branches of trees are placed in the water so that fish will take shelter there. After a week or more, a group of fishers surround the area with a net (*berjal*), remove the branches and drag the net to catch the fish. Other techniques used by fishers include the push net, lift net (*dharmajal*), *chai*, multipronged harpoon (*koch*) and vertical trap (*palo*). The fishers are mostly landless; their access to the beel for fishing means access to a key source of livelihood.

Crop Cultivation in the Beel

In the winter season, the completely dry areas are used to cultivate vegetables and mainly IRRI's high-yielding boro rice; in the semi-dry areas, local boro rice varieties are cultivated. In this beel, the owner with the largest share cultivates both varieties, but the other shareholders cultivate only local boro, because the area is always semi-dry. The output of paddy is 12-15 maund per bigha (or 2.4-3.0 tonnes per ha) for IRRI rice and 8-10 maund per bigha (1.3-1.6 tonnes per hectare) for boro. Owners of the largest portions can support themselves for about six months through paddy production in the beel, while the smallest can only support themselves for about 15 days. The beel is also used for jute retting and cattle bathing; because there is a river nearby, the beel is not relied upon for irrigation.

Property Rights and Rules

There were no restrictions in catching fish in this beel for anyone living in the surrounding area. But people from distant places such as Dhaka city were not allowed to do so. The fishers usually caught fish for selling in the market, but sometimes they sold fish to the owners at a reduced price in order to maintain good relations with them.

The Change to Leasehold Tenure

In February 1993, the shareholders leased out the beel to a group of investors. The investors hired a broker (*dalal*) who loaned money to the smallest shareholders. These shareholders were very poor, and thus unable to repay the loans; as compensation the dalal demanded that they sign an agreement to lease the beel. After that he convinced the major shareholder to lease out the beel. The remaining owners had no choice but to sign at this point and the shareholders agreed to lease out the beel under certain conditions.

These conditions include an agreement by leaseholders to lease the beel for six years and to pay the owners 2,000 Tk per bigha per year for water area (those areas perennially under water) and 5,000 Tk per bigha per year for paddy field in the beel. There was verbal agreement that the nephew of the largest shareholder would be offered a job by the leaseholders

as a caretaker. Since the owners would henceforth receive rent without having to contribute any labor or make any monetary investment in the beel, they agreed readily to lease out the beel.

Implications for the Future

The ecological consequences of eliminating wild species and introducing cultured ones in the beel are at this point entirely unknown. If standard fish culture techniques are used in the beel, this would imply dewatering or poisoning the beel; weed fish and predator fish will be destroyed, along with various aquatic plants; the overall ecology of the beel will be seriously altered.

The social implications of leasing out the beel are already becoming apparent. As a result of the lease, the people who sharecrop the paddy land in the beel will lose their access to it. No one except the leaseholders will have the unquestioned right to use the beel for other purposes (e.g., collecting cancon or water hyacinth, bathing livestock or retting jute). There is provision, however, for the landowners to irrigate their crops with water from the beel if necessary. These owners will obviously benefit from the cash income realized through leasing the resource. While local fishers will lose the freedom to fish the beel when they like, and to dispose of the fish on the market as they choose, they may still gain from employment opportunities when the leaseholders require their services for harvesting.

As our research continues, we will be monitoring the social and ecological consequences of the shift to fish culture and private tenure in this and other beels. In the meantime, we hope that this study will give pause to those who might promote fish culture in common access waterbodies by private investors without considering the social and ecological consequences.

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