

Policy pointers

Incentive-based fisheries management schemes must carefully assess potential unintended impacts beyond the fishery itself, avoiding 'spill-over' disadvantages for local producers and labourers, and fluctuating local interest rates.

Sourcing local 'in kind' compensation for fishery closures will make unintended impacts less likely, should cut costs, and could even stimulate the local economy.

Closing a fishery can temporarily flood local labour markets, so compensation schemes should consider offering fishers labour-intensive alternative income generating activities, such as building a new community asset.

Microcredit should be available and tailored to complement fisheries regulations, including a 'grace period' during any closures. Well-thought-out microcredit should gradually liberate fishers from a cyclical debt trap and prevent them from paying inflated interest rates when a fishery is closed.

Mitigating unintended local economic impacts of the compensation scheme for hilsa management

Management of Bangladesh's hilsa fishery is moving from regulatory regimes that often ignore the short-term cost imposed on fishers to an approach that combines regulations with incentives or compensation packages. This approach offers a major breakthrough, but needs careful design to minimise, and where possible eliminate, unintended negative socioeconomic consequences beyond the fishery. Even though unintended local impacts are often short term or seasonal, their effect on vulnerable and less resilient communities can be significant. This briefing discusses the hilsa fishery and suggests ways to ensure management through seasonal closures does not damage other aspects of the local economy.

Hilsa catches make up one per cent of Bangladesh's gross domestic product (GDP) and contribute considerably to foreign exchange earnings. About 287,000 fishers depend directly on the hilsa fishery and about 2–2.5 million people are involved throughout the supply chain in transportation, marketing, processing and other post-harvest activities.¹

Once a cheap fish affordable even for the poor, hilsa catches declined gradually over 30 years to reach a low point of only 0.19 million tonnes in 1991–1992, then stagnated until 2001–2002. This prompted the government of Bangladesh to declare hilsa sanctuaries in 2003 and seasonally ban the fishing of hilsa at important stages in its life cycle. To compensate for lost earnings during the closure, and to incentivise compliance with the new regulations, the government started providing affected fishing communities with rice and alternative income-generating activities.²

The incentive-based hilsa management scheme

Since 2003 five sites in the Meghna and Padma rivers, and some inshore marine areas, have been declared hilsa sanctuaries under Bangladesh's Protection and Conservation of Fish Act, 1950. The government aims to conserve juvenile hilsa ('jatka') in their major nursery areas and maintain fish biodiversity. Figure 1 shows the main nursery grounds in Bangladesh waters and the boundary of the hilsa protection zone.

The 'no-take period' and zone around the sanctuaries have two components covering different months. Brood (adult) hilsa fishing is banned in all waters five days before and after the full moon in October — the 11 day window believed to be the hilsa's main spawning season.³ The second component aims to protect juvenile hilsa in their nursery grounds, where they settle in

The unintended effects of 'in-kind' compensation are largely unaccounted for in policymaking

large numbers any time from November onwards. They remain there until June, reaching about 12cm, but numbers peak from mid-February to mid-May. Another large nursery ground is

situated in the coastal belt from Kuakata (Patuakhali) to Dubla Island (Khulna). Within this area, comparatively large (11–15 cm) jatka appear in large numbers during December and January.

In order to allow the successful recruitment of jatka (meaning that they leave the nursery to join the adult population), fishing of juveniles is strictly banned in sanctuaries for up to seven months from December/January to June/July.

Banning fishing certainly deprives fishers of income, even if they benefit from stock recovery in the long term. It is widely recognised that the fisher communities are among the most impoverished people in Bangladeshi society, so conservation efforts that limit their catches will hit poor fishers hardest, at least in the short run, and make it difficult for them to comply.

Recognising this, the government decided to compensate some fisher households and communities, providing an incentive for compliance. The compensation is mostly provided as food — vulnerable fisher households receive about 40 kilograms of rice per month for four months during the ban period, and support for alternative income-generating activities. Using 2004 census data, the government identified about 287,000 fisher households from 20 coastal districts, covering 91 subdistricts (locally known as 'upazila'), who were directly affected by the no-take periods. Of these, 187,000 vulnerable households were selected — defined as those headed by women or older fishers and having no alternative livelihood to fishing.

Box 1. What makes the hilsa special?

Hilsa is the preferred fish for the people of Bangladesh and West Bengal in India, and is of religious and cultural importance, forming part of Bengali festivals. It constitutes 11 per cent of Bangladesh's total fish catch.¹ Hilsa inhabits the coastal regions from the Mekong estuary of Vietnam to the Persian Gulf and migrates from the sea into freshwater to spawn. In Bangladesh, hilsa is mostly caught in the Meghna estuary, the Padma river and some coastal areas. Bangladesh accounts for about 60 per cent of the total hilsa catch within the Bay of Bengal region, with the remainder caught by Myanmar and India. There are three species of hilsa, but *Tenualosa ilisha* makes up 99 per cent of total hilsa catches in the Bay of Bengal region,¹ the major producing region for this species.²

Externalities of the compensation scheme

Lessons from similar social protection schemes show that in-kind compensation (such as rice) may have some unintended negative socioeconomic consequences or 'externalities'.⁴ The unintended effects are seldom identified by impact evaluation studies⁵ and consequently they remain largely unaccounted for in policymaking.

For example, 'compensation' for hilsa fishery closures may distort local rice prices for farmers and retailers. Prices might be pushed down as more rice is available and/or there is less demand for locally bought rice. So compensating fishers might disadvantage other sections of the community, possibly reducing overall societal wellbeing.

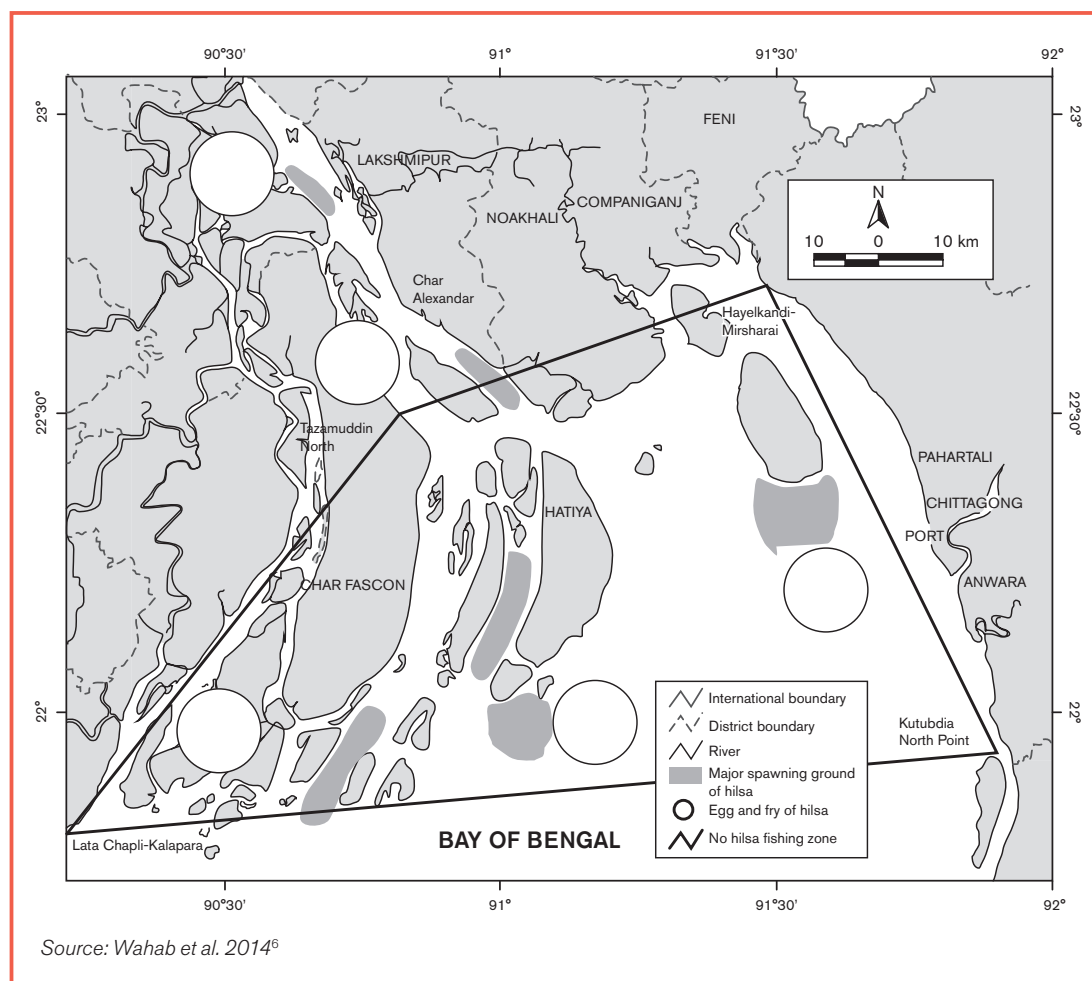
Similarly, fishers who stop fishing for several months are likely to look for other work, causing knock-on effects to the local labour market that can cause local conflict. And when a whole economic group suffers a long gap in regular income, local finance and credit markets can be affected too.

To investigate such issues in the hilsa fishery, a team from the Bangladesh Centre for Advanced Studies (BCAS) conducted four focus group discussions with a total of 81 members of the residents of Gobindia and Charipara villages, in Chandpur District in the Chittagong Division of eastern Bangladesh. Both villages are within a designated jatka sanctuary and house fishers getting rice 'compensation'. Focus group participants included fishers, rice retailers and wholesalers, grocery shop owners, labourers, and other interest groups, including women. In addition, we conducted interviews with local fisheries officers and local money lenders.

Impacts on local rice prices. The mean average of local retailers' rice daily sales when the hilsa sanctuaries are open is around 80kg; wholesalers sell around 1.5 metric tons per day. Rice retailers working in and around the communities receiving compensation told us that during the fishery closures their sales fall by 10 to 20 per cent; wholesalers in the same areas reported 20 per cent. And falling demand means falling prices — rice sellers reported losing up to 10 per cent of the price rice commands when the fishery is closed, down from an average of between 35–40 Bangladeshi Taka (BDT) per kilogram.

The wholesalers said that while they feel the fall in sales, it is local rice producers who shoulder most of the cost when prices fall. However, these

Figure 1. Main hilsa nursery grounds and the 'no-take' zone in Bangladesh waters.



impacts were sensitive to distance. Wholesalers and retailers living inside or near the recipient villages were most affected. Wholesalers and retailers 10km or more from the villages receiving compensation did not notice a decline in sales during the fishing ban.

Impacts on the local labour market. Even if rice compensation can to some extent cover fisher households' daily carbohydrate needs, they must buy their animal protein intake. Also, fishers will have 'time on their hands' if they can't fish. So many hilsa fishers and others who normally work within the supply chain look for alternative work during the fishery closure.

Hilsa fishers often work as labourers during the ban. They plough, dig wells, clean sewage, work in local harbours or major ports, and sometimes pull rickshaws. Fluctuations in the availability of labour affects wages — participants of the focus group discussions in both villages said that wages, which are on average BDT 300 per day, drop by up to 40 per cent during the ban. Not only does this affect the livelihoods of many local labourers, but it also creates conflict between

local labourers and hilsa fishers, diminishing their social capital, which is the primary asset of the mostly impoverished communities.

Impacts on the local microfinance market.

A third important area that may be affected by the hilsa management plan is the local financial market. Compensation is mostly provided as rice and other alternative income-generating activities; these are not enough to offset the short-term economic cost of the ban period. Fishers also need to prepare for the next fishing season, which includes buying and repairing fishing nets and boats, and so on. These factors force many fishers to seek loans from both formal and informal sources.

Local microfinance institutions and informal money lenders (mainly hilsa middlemen called 'aratdars') stated that demand for credit increases by almost 30 per cent during the ban. The limited capacity of formal microfinance institutions means most fishers rely on the aratdars. Such increases in demand lead to a 20–30 per cent rise in the interest rates of informal loans, plunging many fishers further into a debt trap.

Fishers who borrow from aratdars must hand all their catch to the money lenders who then decide its price. They take some (up to 50 or 60 per cent) to service the debt and the rest is given back to the fishers in cash. Fishers who already have debts are expected to repay their loans even during the ban, resulting in illegal fishing activity.

Implications for policy

Complementing fisheries regulations with incentives or compensation packages is a major advance on management regimes that impose most of the short-term costs on the poorest fishers. Bangladesh's approach to managing its hilsa fishery is at the forefront of this breakthrough. After looking at the unintended consequences of other schemes and investigating them in the local context, we can suggest four main suggestions for designing policy for the hilsa fishery and similar schemes elsewhere:

- Incentive-based fisheries management schemes must carefully assess potential unintended impacts beyond the fishery itself — in this case distortions in the local rice, labour and microfinance markets. Schemes will succeed in this if there are no (or negligible) 'spill-over' disadvantages for local producers, retailers and labourers, and no related rise in local interest rates.

- Unintended impacts such as fluctuations in the price of rice will be less likely if 'in kind' compensation for fisheries closures is sourced locally. Compensation schemes should either buy locally produced rice or issue vouchers for local purchases — perhaps limited to specific sub-districts or villages. Sourcing compensation locally could stimulate the local economy and should reduce transport and distribution costs for the scheme.
- To avoid seasonally flooding local labour markets, compensation schemes should consider offering fishers alternative paid work during the ban — perhaps to build a new community asset — or labour-intensive alternative income-generating activities.
- Microcredit should be introduced and tailored to meet the needs generated by a fishing ban. This must include a 'grace period' that protects fishers from repaying capital or interest when the fishery is closed, which would in turn boost compliance with the ban. Well-thought-out microcredit should gradually liberate hilsa fishers from a cyclical debt trap and prevent the interest rates they pay rising when the fishery is closed.

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This research and publication was funded by Defra's Darwin Initiative and UK aid from the UK Government; however the views expressed do not necessarily reflect the views of the UK Government.



Notes

¹ Rahman, MA et al. (2012) Hilsa fishery management in Bangladesh. In Hilsa: Status of fishery and potential for aquaculture, Proceedings of the Regional Workshop held in Dhaka, 16–17 September 2012, The WorldFish, Bangladesh and South Asia Office, Dhaka, pp 40–60. / ² Mohammed, EY and Wahab, A (2013) Direct economic incentives for sustainable fisheries management: the case of Hilsa conservation in Bangladesh. IIED, London. / ³ Haldar, GC and Islam MR (2003) Hilsa fisheries conservation, development and management technique. Department of Fisheries (DOF), Dhaka / ⁴ Levy, S and Robinson, S (2014) Can cash transfers promote the local economy? A case study for Cambodia. International Food Policy Research Institute, Washington DC / ⁵ Barrientosa A et al. (2014) Social transfers and child protection in the South. *Economic Dimensions of Child Protection and Well-being*. 47 (2), 105–112 / ⁶ Wahab, A et al. (2014) Payments for hilsa fish (*Tenualosa ilisha*) conservation in Bangladesh. In Mohammed, EY (ed.) *Economic incentives for marine and coastal conservation: Prospects, challenges and policy implications*. Routledge. Chapter 10, p176; Figure redrawn from Haldar, GC (2004) Present status of hilsa fisheries in Bangladesh: A report on hilsa management development and conservation studies conducted under the ARMDCS, GEF component, Fourth Fisheries Project. Report No. 38.8. Department of Fisheries, Matshya Bhaban, Dhaka 1000, p73.