

Overview of the debate

The purpose of these *Key Sheets* is to provide decision-makers with an easy and up-to-date point of reference on issues relating to the provision of support for sustainable livelihoods.

The sheets are designed for those who are managing change and who are concerned to make well-informed implementation decisions. They aim to distil theoretical debate and field experience so that it becomes easily accessible and useful across a range of situations. Their purpose is to assist in the process of decision-making rather than to provide definitive answers.

The sheets address three broad sets of issues:

- Service Delivery
- Resource Management
- Policy Planning and Implementation

A list of contact details for organisations is provided for each sub-series.

Over the last 5 years the debate concerning inland fisheries development has focused on:

- degradation of aquatic habitats especially from urban, agricultural, industrial and forestry sources;
- re-engineering of habitats by dams and other infrastructure;
- biodiversity loss from habitat degradation and change, pollution and selective exploitation;
- interactions between capture fisheries and aquaculture;
- over-exploitation of resources in some areas and the need for appropriate management measures;
- multiple use of the aquatic environment and resulting conflicts at policy and local levels, often combined with weak transparency of decision-making;
- poverty in the small-scale sector and access rights of the poor;
- international collaboration on shared water bodies linked to the global conflict over water shortages;
- the costs and benefits of stock enhancement.

Key issues in decision making

The resource: threats and trends Although it makes up only a small proportion of the world's total water volume, the inland water system is of disproportionately great importance for small-scale fisherfolk. Some 92% of the recorded inland fisheries catch comes from developing countries, and the actual catch is thought to be several times the official 1999 figure of 8.2 million tonnes. Most fisheries are small-scale, with landings made at many dispersed sites where records are not kept and the fish is consumed mainly for subsistence purposes. Given the uncertainty over production and the high subsistence consumption, inland fisheries are often under-valued by policy makers.

Inland fisheries are found in a wide diversity of complex, often fragile, ecosystems: lakes, rivers, reservoirs, ponds and wetlands. Many systems vary in size with the seasons and from year to year, influencing the livelihoods of their users. Many freshwater species are endemic and do not disperse easily among fragmented ecosystems. Many species are now vulnerable, endangered or extinct. Water removal for irrigation and human consumption, increased sediment loads from cultivation and deforestation, runoff of agricultural chemicals, and industrial and urban pollution all reduce water quality and quantity. Many important wetlands have been drained to meet the rising demand for land for agricultural, industrial and urban expansion. Dams and flood-protection schemes have changed seasonal water flows and obstructed fish migration. Inappropriate fishing practices, and the introduction of diseases and non-native species through aquaculture have also adversely affected local stocks.

A past strategy for addressing these problems has been to change the resource management system. Many fishing communities traditionally had some form of management, but most have fallen into disuse as a result of changes in governance, population, technology and market pressure. Governments have tried to compensate by introducing centrally planned management systems. Few of these have worked well because of institutional problems and difficulties in ensuring compliance, especially over such dispersed fisheries. Attempts are now being made to work with communities to build on traditional knowledge, institutions and systems to provide co-management between government and communities and resolve conflicts between fisheries and other diverse uses of the water bodies.

In some areas, stocking water bodies has been successful in increasing catch rates, but the long-term success of such practices in terms of both environmental balance and supporting the livelihoods of the poor remains uncertain. Limited catch expansion can be expected from such enhancement, from the development of new fisheries in some areas, and from the rehabilitation of degraded ecosystems.

Stakeholders

- The number of people involved in inland fisheries globally is unknown but it is thought that many millions are involved in inland capture fisheries alone. Many more work in processing, trading and transporting fish, and in ancillary services such as net repair, ice production, boat-building and basket-making. Most are involved at the small-scale or subsistence level.
- Many inland water resources are under the control of individuals who hold leases to the resources, or who have access rights. In floodplains, the land under water is also used for agriculture, and farmers are key stakeholders in many inland fisheries.
- Most inland fish production goes for subsistence or local consumption, so many poor consumers depend on the fisheries. Some species, such as Nile perch, are exported and create employment for poor people in processing plants.
- As with marine fisheries, there is division of labour on the basis of gender (with the men fishing and the women processing and trading), but the division is less strict in inland fisheries, with women and children also involved in small-scale fishing.
- Class, caste, tribe and ethnic origin influence access to fishing rights and skills in many countries.

Experience

- DFID supports a wide range of work in E, W and S Africa, S and SE Asia, the Caribbean and Latin America. Contact n-mapherson@dfid.gov.uk or tolavey@dfid.gov.uk

Expertise

- FAO Fisheries Dept, www.fao.org
- FAO Support Unit for International Fisheries and Aquatic Research, www.onefish.org
- ICLARM, World Fish Center, www.iclarm.org
- Marine Resources Assessment Group, London, www.mragltd.com
- Netherlands Institute for Fisheries Research (RIVO), IJmuiden, www.rivo.dlo.nl
- Univ. of Aberdeen, Dept of Zoology, www.abdn.ac.uk/zoology
- Integrated Marine Management, Exeter www.ex.ac.uk/imm
- Univ. of Portsmouth, Centre for Economics and Management of Aquatic Resources, www.pbs.port.ac.uk/econ/cemare
- Wageningen University Fish Culture and Fisheries Group, www.zod.wau.nl/venv

Inland Fisheries *continued*

The remote location, migratory nature, poverty and (generally) low status of inland fishers often marginalises them from political decision-making, and their contribution to the wider economy is undervalued.

- Migration of people across state and national borders is a common livelihood strategy, and thus many water bodies seasonally attract a diversity of nationalities.

Livelihoods for the poor Inland fisheries provide regular employment for millions of poor people, and seasonal or part-time employment for many more. This work is closely linked to other activities such as farming, livestock rearing, and fuelwood collection. Because many water bodies are seasonal, occupational and geographical migration is common, though inland fisheries often provide seasonal employment for people displaced from other sectors. The diversity of species and ecosystems creates a variety of livelihood niches that different groups can occupy and that are not commercially viable for larger operators.

Farmland on seasonal floodplains has complex access-rights systems, and fisheries and farming interests often conflict. Rising pressure for land exacerbates these conflicts. In areas such as Bangladesh, river courses and floodplains can change from year to year, affecting access to both land and water resources, and creating uncertain legal title. The poor are made more vulnerable by unclear policy environments that govern inland fisheries and the marginalised position of many people in the sector.

Freshwater fish are important for food security. They are reported to make up 12% of the capture fish consumed by people (although the real figure is likely to be much higher). In Africa, per-capita consumption rates are very high, and millions of consumers count on inland fish as a major source of protein. Inland production is also important for other parts of the world. In the largest producers (China, India, Bangladesh, Cambodia and Indonesia), most is consumed locally and forms a vital source of food and micro-nutrients. Whereas marine fisheries production is increasingly entering export markets, inland fish production largely continues to feed local populations.

Key actions Key actions for development agencies include:

- Shifting from a fish-production focus to a people focus, where the needs and aspirations of the fishing communities are listened to and valued, and where their opinions are actively sought.
- Recognising the multi-use nature of many inland water bodies and the difficulties of defining access rights, and embracing this complexity by developing localised, adaptive management within a livelihoods context that involves all local water-resource users.
- Helping resolve potential trade-offs between access/property rights and sustainable management.
- Reorienting research to be multidisciplinary and demand-driven, to bridge between communities and policy makers through greater involvement of fishers and indigenous knowledge in research.
- Encouraging and supporting the uptake of the Code of Conduct for Responsible Fisheries.
- Actively supporting improved, more transparent and accountable management of resources through a partnership between the state and resource users, and across national boundaries. Recognising the interconnected nature of large regional drainage basins, but acknowledging that simple solutions to long-term management problems do not exist.
- Enhancing or maintaining the carrying capacity of the environment by reducing the adverse effects of other sectors through inter-sectoral and international cooperation in policy making and implementation.
- Recognising the fragility of species and ecosystem biodiversity, and approaching with care habitat changes, resource-exploitation patterns, species introductions and resource enhancement.
- Supporting the identification and development of viable, diversified livelihood opportunities for people who will be excluded from the sector. This necessitates viewing fisheries in the wider, more holistic, context of rural communities.

Key literature

- FAO (1995) *Code of Conduct for Responsible Fisheries*. www.fao.org/fi/agreem/codecond/ficonde.asp
- FAO (1999) 'Management Guidelines for Asian Floodplain River Fisheries. Part 1: A spatial, hierarchical and integrated strategy for adaptive co-management.' *FAO Fisheries Technical Paper* 384/1.
- FAO (1999) 'Review of the State of World Fishery Resources: Inland Fisheries'. *FAO Fisheries Circular* 942. <ftp://ftp.fao.org/fi/document/circular/all-16a.pdf>

Key Sheets are available on the Internet at: www.odi.org.uk/keysheets/
or through the websites of DFID and the Netherlands Ministry of Foreign Affairs



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