

# Small but Nutritious

**Small indigenous freshwater fish species can help meet the nutritional needs of the rural poor in developing countries, as a recent ICSF workshop noted**

In much of the developing world, the rural poor have traditionally depended on various varieties of small indigenous freshwater fish species (SIFFS) to meet their nutritional needs. SIFFS—defined as those fish species that grow to a maximum length of 25 cm—are easily available and accessible from nearby water bodies. In India, for instance, they contribute to a significant share of the freshwater fish production in the eastern and northeastern States. Yet they have received insufficient attention in inland water fisheries policies and programmes, both at the national and State levels.

To address this anomaly, the International Collective in Support of Fishworkers (ICSF) Trust, in collaboration with the Inland Fisheries Society of India (IFSI), organized a national workshop titled “Small Indigenous Species of Freshwater Fish: Their Role in Poverty Alleviation, Food Security and Conservation of Biodiversity”, during 23-25 February 2010 at the Central Inland Fisheries Research Institute (CIFRI), Kolkata, West Bengal.

The workshop was meant to be a forum for people working in freshwater fisheries and aquaculture to exchange views on the role of SIFFS in enhancing rural food and livelihood security and in conserving biodiversity. It was also meant to discuss the socioeconomic and cultural context for culture and capture of SIFFS with a view to enhancing access, especially of women, to better income, livelihood and nutritional security, and to propose policy spaces for sustainable SIFFS.

The workshop was attended by 58 participants, including scientists, researchers, policymakers, fish farmers, members of civil society and representatives of multilateral agencies.

In her introductory speech, Chandrika Sharma, Executive Secretary, ICSF, highlighted the importance of SIFFS as a unique source of nutrition, especially for the disadvantaged populations in the eastern and northeastern States of India. She pointed to the need for retaining and strengthening access of discriminated groups, particularly

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women, to such species, both for nutrition and livelihoods. Pointing out that the workshop was the result of extensive collaboration, Chandrika Sharma concluded by thanking all who were instrumental in making it possible.

## Contemporary relevance

A. P. Sharma, Director, CIFRI, and President, IFSI, pointed to the contemporary relevance of the workshop. Considered as trash fish until the 1980s, SIFFS are slowly being recognized as highly valuable from economic, livelihood, nutritional and environmental perspectives. Studies by CIFRI indicate that traditional fishers of

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river basins depend, to a large extent, on fishing of SIFFS for their daily earnings, especially during lean seasons and fishing holidays. No amount of progress in the aquaculture of large and fast-growing fish and prawn can replace the utility, free accessibility and benefits of SIFFS. Debates at the workshop should pave the way for strong policy guidelines for the

conservation and rational exploitation of these species, he concluded.

P. Das, former Director, National Bureau of Fish Genetic Resources (NBFGR), highlighted the need for a culture protocol for SIFFS and wider adoption of these species in aquaculture.

In his keynote address, V. V. Sugunan, the Assistant Director-

## The Barrackpore Declaration

**W**e, scientists, researchers, policymakers, fish farmers and members of civil society, having participated in the workshop on "Small Indigenous Freshwater Fish Species: Their Role in Poverty Alleviation, Food Security and Conservation of Biodiversity", organized jointly by the International Collective in Support of Fishworkers (ICSF) and the Inland Fisheries Society of India (IFSI), from 23 to 25 February, 2010 at the Central Inland Fisheries Research Institute (CIFRI), Barrackpore, Kolkata;

*Being aware* that the 61<sup>st</sup> Session of the United Nations General Assembly has declared 2010 as the International Year of Biodiversity;

*Recognizing* the importance of conserving biodiversity of small indigenous freshwater fish species in the context of climate change, sustainable development and aquatic biodiversity;

*Taking note* of the significant but invisible contribution of small indigenous freshwater fish species to culture and capture fishery production in India;

*Being aware* of the importance of small indigenous freshwater fish species as an affordable source of nutrition, particularly of micronutrients, to the rural poor;

*Taking note* of research and good practices in relation to small indigenous freshwater fish species, aquatic biodiversity and poverty alleviation, by national and international agencies;

*Recommend* the Department of Animal Husbandry and Dairying and Indian Council of Agricultural Research, Ministry of Agriculture, Government of India; Ministry of Environment and Forests, Government of India; State fisheries ministries and departments, and State environment and forest ministries and departments, civil society organizations and other relevant and interested parties to:

*Conserve* small indigenous freshwater fish species by protecting their natural habitat;

*Promote* sustainable use of small indigenous freshwater fish species in both capture and culture fishery systems for enhancing nutritional security of the rural poor, providing greater employment opportunities;

*Actively examine* the feasibility of incorporating small indigenous freshwater fish species into existing polyculture practices through research, development and extension programmes;

*Target* studies on contribution of small indigenous freshwater fish species from different aquatic resources and farming systems;

*Evaluate* the role of small indigenous freshwater fish species in nutritional security of vulnerable groups, such as pregnant and lactating women and children;

*Ensure* that policy and legislation at different levels on capture fisheries, aquaculture and biodiversity conservation addresses the development needs and conservation requirements of small indigenous freshwater fish species;

*Protect* access rights of local communities, especially women, to small indigenous freshwater fish species, particularly through appropriate policies and legislation that take into consideration the local socioeconomic, cultural and institutional context; and

*Document and protect* traditional knowledge and farmers' innovation with regard to use of small indigenous freshwater fish species resources.

General, Indian Council of Agricultural Research (ICAR), said that SIFFS are relevant in the context of diversification of species in aquaculture. He added that estimates of the contribution of fish to the country's gross domestic product (GDP) are off the mark, due to poor valuation techniques. The importance of fish as a source of nutrition for the poor should be recognized since variously priced fish are available for different income groups. Sugunan also emphasized the need for an enabling policy environment, proper governance and a co-management platform.

In his presidential address, G. Mohan Kumar, Principal Secretary, Fisheries and Animal Resources Development Department, Government of Orissa, stressed the need for policy packages to protect SIFFS, considering their nutritional significance for the rural poor.

The presentation on nutrition highlighted the importance of SIFFS as a source of micronutrients, vitamins and fatty acids. SIFFS offers a better bioavailability of calcium than milk and could thus be a good dietary supplement for expectant and lactating mothers. SIFFS' bioavailability can be improved with more attention to cleaning and cooking practices. Even a minimal production of 10 kg per pond per year of *mola* (*Amblypharyngodon mola*) can make a large difference to the nutritional needs of the rural poor, it was pointed out.

*Mola* is a self-recruiting species, and perennial ponds can produce enough seeds. Experiments in Bangladesh have proved that a flow-through circulation system would facilitate continuous production and harvest of *mola* in polyculture. Improving habitat itself will enhance the production of SIFFS. Therefore, it is all the more important to raise awareness about the dangers of using piscicides (chemical substances that are poisonous to fish) in ponds. The Bangladesh government, it was pointed out, has issued an order that forbids the use of poisons for cleaning ponds prior to the introduction of scientific aquaculture.

India has around 450 species of SIFFS, of which 62 are highly important



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as food species and another 42 species as food and ornamental fish. Nonetheless, despite this diversity, SIFFS are invisible in official statistics, it was pointed out. There is a need to develop a legislative framework, as well as criteria, for the conservation of SIFFS in the larger context of biodiversity and inland fisheries conservation, keeping in mind the need to ensure local food security.

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SIFFS, however, should not be allowed to feed the fishmeal industry, it was cautioned.

The workshop session on livelihood emphasized the contribution of SIFFS from river systems. There is significant demand for SIFFS in the eastern and northeastern States of India. Unlike in the case of Indian major carps, SIFFS contribute a greater share of the consumer rupee to the fisher. A shift in focus from promoting the culture of exotic fish to culturing commonly consumed fishes such as SIFFS and other indigenous varieties is greatly needed. Polyculture of SIFFS and carps

need not have a negative impact on carp production, it was noted.

During the session on capture fisheries, Mohan Kumar said that the feasibility of SIFFS in the State of Orissa, where two-thirds of the population were below poverty line and are dependent on fish as the principal source of animal protein will be looked into. It was suggested that the Central Institute of Freshwater Aquaculture (CIFA) and CIFRI should undertake assessment of the economic and nutritional value of different species of SIFFS.

In the northeastern States of India, there is no concept of 'trash fish', and all non-poisonous fish, especially SIFFS, have a ready market and fetch high prices, ranging from Rs300 to Rs600 (US\$7-14) per kg.

Traditional community fishing has been sustained by SIFFS, which are available all year round, and provide income to fishers dependent on wetlands.

The workshop session on culture fisheries focused on the 'aquaplosion' (the vertical and horizontal expansion in aquaculture) happening in India. The possibilities of including SIFFS, now largely ignored, in culture

yield good farmgate prices through the year, and are a ready source of essential nutrition for the family.

Any threat to biodiversity and the ecosystem is a threat to SIFFS and *vice versa*, it was pointed out. The lack of policy on maintaining rivers and the environment—and the resulting pollution—has largely contributed to the decline in biodiversity of SIFFS. Current licensing and leasing rules lack coherence, and are largely focused on raising revenue. Due to exorbitant lease fees, common-property water resources are increasingly getting shifted into the hands of private lease holders, to the detriment of fishers.

The first right of access to inland water bodies should be reserved for co-operatives of traditional fishers, as in Madhya Pradesh, it was suggested. Improved collection and collation of baseline data on inland fishery resources production and consumption was sought by the participants.

The last session of the workshop on community knowledge and intellectual property rights focused on the objectives of promoting SIFFS—nutritional security (especially for women), livelihood security, conservation of biodiversity, or a combination of all three. It was suggested that the Honey Bee network be requested to document innovations and traditional knowledge regarding native fish species, while the ICAR network could focus on the nutritional profile of these species. A State-wise list of endemic and endangered SIFFS was sought.

The potential for culture of these species should be evaluated, considering their nutritional and therapeutic value. Technology for polyculture using SIFFS should be developed only after careful thought, it was suggested. Unless a package of practices is offered, farmers may not be interested in culture of SIFFS.

### Best practices

The best practices of farmers need to be employed to promote integration of SIFFS into composite aquaculture or polyculture systems. Rather than opting for a readymade package of

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fisheries need to be considered. CIFA was requested to develop a package for fish farmers for culture of SIFFS. Such schemes could be implemented under the Rashtriya Krishi Vikas Yojana (RKVY), and under the National Rural Employment Guarantee Scheme (NREGS).

During the session on policy and social dimensions, it was pointed out that large farmers, guided mostly by the extension services provided by the fisheries departments, are largely disinclined to include SIFFS in culture unless they are proved profitable. Small farmers with homestead ponds prefer to rear SIFFS, which, according to them,

practices, the focus should be on promoting SIFFS by incrementally improving existing practices, said one of the participants. To view aquafarmers as only being interested in income is regressive, it was opined.

**Group Discussions:** The group discussions focused on three themes: biodiversity, poverty alleviation and nutrition. The groups discussed and suggested policy interventions that could better integrate SIFFS into different perspectives.

The nutrition group suggested studies on intra-household consumption of fish, prioritizing species to be cultured in consultation with stakeholders; and popularizing the consumption of nutrient-dense fish species through awareness programmes. Ensuring access rights of local communities to SIFFS was also emphasized.

The poverty alleviation group called for recognition of SIFFS' role in poverty alleviation; assessing their contribution to the economy and nutrition of disadvantaged populations, particularly women and children; ensuring protection and management of aquatic habitats, while securing the access rights of disadvantaged groups to aquatic resources; promoting SIFFS in culture-based fisheries and aquaculture systems through research and policymaking; and strengthening appropriate community institutions to protect access rights, and to ensure responsible ecosystem management and equitable economic benefits.

The biodiversity group recommended assessment of freshwater habitats, species richness, endemism and the causes of environmental degradation. This would help develop priorities for SIFFS conservation. Existing policies should be reviewed for their adequacy and shortcomings, and community awareness should be developed. Management models and recovery programmes should be developed with the participation of local communities, it was suggested.


The group also drew attention to the lack of recognition of wetlands as a multiple-use system. It stressed the need to find a balance between

conservation measures and livelihood and nutrition needs. Traditional knowledge and practices ought to be recognized and rewarded; and wetland commons should be protected from being taken over by powerful interests. The group also pointed to

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the lack of representation of fishery interests in the various bodies governing wetland habitats.

The session on “The Way Forward: Integrating Small Indigenous Freshwater Fish Species into Fisheries and Aquaculture Development Policies and Programmes” had inputs from various State governments. The Department of Fisheries, West Bengal, expressed interest in a thorough study of the breeding biology of SIFFS and in profiling their nutritional value, stressing the need for collaboration between different agencies. Conservation of SIFFS in open water bodies needs to be prioritized as a way of addressing starvation, food insecurity and poverty alleviation. There is need to consider the introduction of SIFFS in paddy fields and open water bodies. People for whom policies are made should be involved in these processes, it was noted.

At the end of the workshop, a declaration was finalized based on inputs from all the participants. In his concluding remarks, A. P. Sharma, Director, CIFRI, pointed out that it was for the first time that the issue of SIFFS was being highlighted in India. He hoped that such workshops will help generate different ways of thinking about how India can meet some of the Millennium Development Goals by 2015, namely, enhancing food security, raising nutritional security, and halving poverty. 

#### For more



[www.eseap.cipotato.org/UPWARD/Publications/Agrobiodiversity/pages%20439-447%20\(Paper%2055\).pdf](http://www.eseap.cipotato.org/UPWARD/Publications/Agrobiodiversity/pages%20439-447%20(Paper%2055).pdf)

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