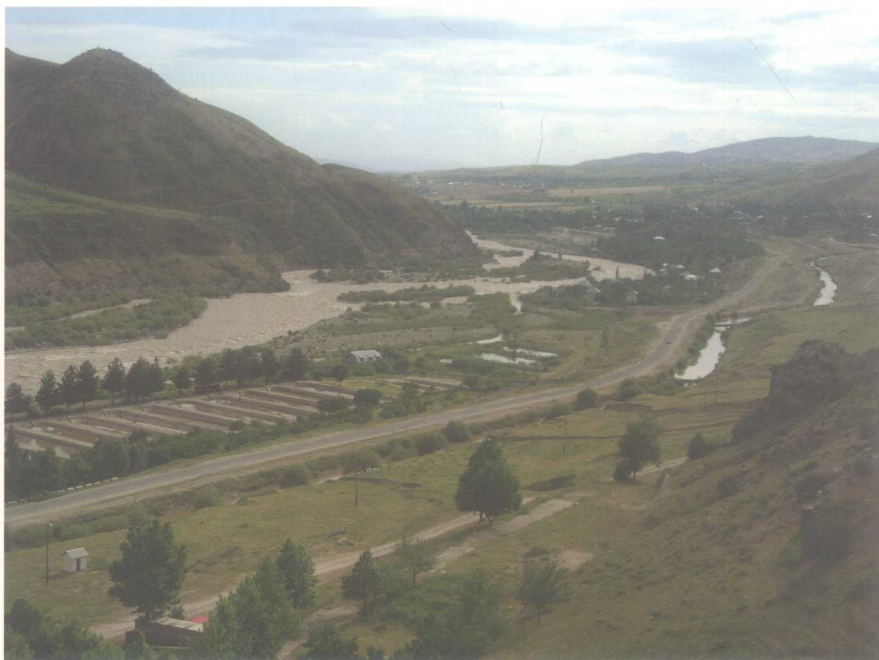


FISHERIES AND AQUACULTURE IN TAJIKISTAN: REVIEW AND POLICY FRAMEWORK



FISHERIES AND AQUACULTURE IN TAJIKISTAN: REVIEW AND POLICY FRAMEWORK

by

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Cover photograph: *River valley with a trout farm in the background, Wahdat district, Tajikistan*
(courtesy of FAO/Raymon van Anrooy).

PREPARATION OF THIS DOCUMENT

This document contains: (i) the Review study on capture fisheries and aquaculture in Tajikistan; and (ii) a Diagnosis of the sector, structured as a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis. Both documents were prepared by national fisheries and aquaculture experts in Tajikistan with technical and financial assistance from the FAO Sub-regional Office for Central Asia, the Aquaculture Service (FIRA) and the Fisheries and Aquaculture Department, FAO, Rome.

The Review study on capture fisheries and aquaculture in Tajikistan was prepared by Mr Abduvali H. Khaitov (Tajik Agrarian University), Mr Ahmadjon Gafurov (Mohii Tajikistan of the Ministry of Agriculture of Tajikistan), Mr Raymon van Anrooy (presently Fisheries and Aquaculture Officer, FAO Subregional Office for the Caribbean), Mr Mohammad R. Hasan (FAO Fisheries and Aquaculture Department), Mr Pedro B. Bueno (FAO Consultant) and Mr Sedat Yerli (Hacettepe University).

Logistical and operational support in the collection of information was received from Ms Svetlana Balkhova (previous FAO National Correspondent to Tajikistan) and staff members of the Ministry of Agriculture of Tajikistan.

The Diagnosis part of this document reflects the outcome of a Fisheries Sector Stakeholder meeting held on Friday 7 March 2008 at the Ministry of Agriculture in Dushanbe. The draft version of this document was used in the National Workshop on the Policy and Strategy for Fisheries and Aquaculture Development for Poverty Alleviation in Tajikistan, held in Dushanbe on 10–11 May 2010. The document accounts with the approval of Mr Sijoviddin Isroilov, Deputy Minister for Agriculture of Tajikistan.

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 FAO Fisheries and Aquaculture Circular. No. 1030/3. Ankara, FAO. 90 pp.

ABSTRACT

The fishery sector currently plays a minor role in development of the rural economy of Tajikistan. Its contribution to the country's Gross National Product was in recent years less than 0.1 percent. Despite the availability of extensive water resources (ponds, reservoirs, lakes, rivers and channels), fish production has fallen from 4 000 tonnes in 1991 to 214 tonnes in 2006. As a consequence, fish consumption per capita has decreased to a level less than 0.5 kg, compared to 3 kg at the end of the 1980s.

Fishery in Tajikistan started with the construction of Farkhadskiy and Kayrakkum reservoirs in the north of the Republic. Aquaculture development received the most attention. In the early 1960s the government carried out a large-scale program of fish farming development. Under this programme aquaculture farms with a total area of about 2 500 hectares (ha) were established. Production technologies included semi-intensive culture and extensive polyculture of carp in earthen ponds. Species cultured were common carp *Cyprinus carpio carpio*, silver carp *Hypophthalmichthys molitrix*, bighead carp *Hypophthalmichthys nobilis*, and grass carp *Ctenopharyngodon idella*.

Aquaculture provided 70–80 percent of the marketed fish before independence. After independence the reform process of the economy led to a partly privatized fishery sector. The poorly managed privatization process negatively affected the fishery and aquaculture sector. Combined with a general economic crisis, breaking of communications and dramatic decrease in trade with the former Soviet Union states, limited availability of commercial fish feeds and hatchery equipment, limited investment in research, training and education, the privatization process can be considered disastrous for the sector. At present the sector is slowly recovering but the severe winter in 2007/2008 (the coldest in over 25 years) set back the sector's growth. The principal fishery sector governing body is the Ministry of Agriculture (MOA). Scientific research is mainly carried out by the Department of Ichthyology and Hydrobiology of the Institute of Zoology and Parasitology under the Academy of Science, of Tajikistan and the Faculty of Ichthyology and Physiology of farm livestock of the Tajik Agrarian University.

The MOA, recognizing the potential contribution of the capture fisheries and aquaculture sectors to rural poverty alleviation, achievement of food security and generation of alternative employment, has started to support actively the rehabilitation of the sector. Acknowledging that the country cannot develop the sector on its own, the MOA took a leading role in the initiation of regional collaboration, by organizing the first Regional Intergovernmental meeting to initiate the establishment of a Central Asian Fisheries Organization in November 2008.

This FAO Fisheries and Aquaculture Circular has three main aims. First, it is intended to inform those interested in fisheries and aquaculture in Tajikistan about the current situation with regard to fishery resources and their utilization in the country. Second, it attempts to provide background information in support of the national sectoral policy and strategy formulation process. Thirdly, it may serve as guidance for future interventions by the government and donors in support of the sustainable development and management of the sector.

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The authors hereby would like to acknowledge the important contribution of Mr Sijoviddin Isroilov, Deputy Minister for Agriculture of Tajikistan, Ms Svetlana Balkhova (previous FAO National Correspondent to Tajikistan), Mr Firuz Akhronov (Institute of Zoology and Parasitology, Tajik Academy of Science), Mr Farukh Fatkhuloevich Azizov (Department of Ichthyology and Physiology of Livestock of the Tajik Agrarian University), Mr Rustam Ibrahimov (Mohii Tajikistan), Mr Tsukasa Kimoto (former FAO Emergency Coordinator for Tajikistan) for their support provided to the collection of the data, field missions and consultations. We further express our gratitude to Ms Elif Erkal, Ms Cana Salur, Mr Haydar Fersoy, Mr. Ozgur Altan and Mr Mustapha Sinaceur (FAO Subregional Office for Central Asia), Mr Jiansan Jia, Ms Marianne Guyonnet and Ms Tina Farmer (FAO Fisheries and Aquaculture Department) for their technical, administrative, editorial, operational and supervisory support in the production of this circular. Ms Danielle Rizcallah is acknowledged for final formatting of the document. Last but not least, the authors would also like to thank the fisheries sector stakeholders who participated in the SWOT meeting on 7 March 2008 and all the experts who have contributed to the review with information and advice.

ABBREVIATIONS AND ACRONYMS

| | |
|--------|---|
| IUU | illegal, unreported and unregulated |
| GNP | gross national product |
| LIFDCs | low-income food-deficit countries |
| MOA | Ministry of Agriculture of Tajikistan |
| SWOT | strengths, weaknesses, opportunities, threats |
| TCP | Technical Cooperation Programme |

EXCHANGE RATE

The average exchange rate applied throughout this document is: US\$1 = 4.76 Somoni as of September 2012.

EXECUTIVE SUMMARY

The fishery sector can play an important role in the rural development of Tajikistan. It currently contributes less than 0.1 percent to the GNP (gross national product) but a vast inland water resource comprising storage basins, glaciers, lakes, rivers, ponds and irrigation channels presents a large production potential that can be realized with good management and technology and the appropriate policy and incentives to encourage private sector investments.

Fishery in Tajikistan began with the construction of two major water storage basins. Aquaculture development began in 1960 when the government undertook a large-scale fish culture development programme by establishing several fish farms and research and educational centres. The farming technology was based on semi-intensive polyculture in earthen ponds of various carp species. Aquaculture provided 70–80 percent of the fish production. The diversity of indigenous species of commercial value however was poor. The ecological niche for herbivorous fishes was filled only when Chinese carps were introduced.

With independence and the subsequent economic reform, fishery was partially privatized but the initial stages of privatization lacked the appropriate technological and policy support. Fish production fell from 4 000 tonnes in 1990 to just a little over 200 tonnes in 2006 but it was not just because of a poorly managed privatization process. The reasons for the severe contraction of output included an economic crisis and a civil strife, disruption of technical exchanges and trade among former Soviet Union republics, the ensuing scarcity of supply and high costs of inputs, deteriorating facilities, and little support for research and extension. Privatization thus suffered from the understandable indifference of investors because of low productivity and profitability of fish culture and fishing. The lack of private investment exacerbated the neglect of the sector.

At present the sector is however slowly recovering, although the harsh winter in 2007/2008, the coldest in over 25 years, has set back the little growth it had managed to achieve. Some entrepreneurs have taken cautious steps to rehabilitate old facilities and adopt improved culture technologies. A few farms have started to show encouraging results. But the ancillary industries remain poorly developed. Most inputs have to be imported and the post-harvest and processing facilities are inadequate but then there is not enough volume to process. There is very low investment in the post-harvest sector although over the past five years some enterprises have ventured into this segment of the industry.

The principal fishery sector governing body in Tajikistan is the Ministry of Agriculture (MOA). Mohii Tajikistan, the fishery department under the Ministry, is responsible for the sectoral management and development on behalf of the Ministry. Scientific research is mainly carried out by the Department of Ichthyology and Hydrobiology of the Institute of Zoology and Parasitology under the Academy of Sciences of Tajikistan and the Faculty of Ichthyology and Physiology of farm livestock of the Tajik Agrarian University. To support the development of the sector the Government and Majlisi Oli (parliament) of the Republic of Tajikistan have adopted the Law of the Republic of Tajikistan on Fisheries in December 2006, which regulates the development and management of the sector and is the basis for development policy and strategy for capture fishery and aquaculture. Tajikistan is a signatory to several international protocols and agreements that relate to fishery and the environment. The country started to implement the FAO Code of Conduct for Responsible Fisheries since 2008.

A diagnosis of the fishery sector, mainly through an analysis of its strengths, weaknesses, opportunities and threats (SWOT), indicates a few strengths, which include the abundance of suitable fishery resources, a legacy from the Soviet Union of good science and technology, the presence of a number of private fishery, fish farming, processing and trading enterprises that have shown receptivity to innovation, and a legal framework already established for fishery management and development. On the other hand, the industry has a weak technology and manpower base owing to the neglect that it had suffered after independence and during the civil strife. The transition to a market economy has not been accompanied by adequate technological and policy support to encourage private sector investment.

Sector management, as yet, lacks the private sector mechanism: the country has no union, cooperative society or association of fishers and fish farmers at the national level.

The opportunities for growth are presented by a tradition of fish consumption, a potential local demand of 70 000 tonnes of fish yearly based on a per capita consumption level of 10 kg, increasing the productivity of waterbodies through stocking and stock enhancement; and the presence of indigenous as well as established introduced species for culture, many of which can command a good price if quality and safety of the products are ensured. The fishery industry can exploit the opportunities through improved management and production technology, guided by strong research and extension. Showing that the industry can be profitable through improvements in productivity and viability would encourage private investment and create demand for more and better services.

Threats to the productivity of the water resources in terms of suitability for fisheries and aquaculture development come from the use of water for crop (mainly cotton) irrigation and the deterioration of the water resources from various sources of pollution. Water resources suitable for fishery development are mostly managed by the irrigation service and the network of irrigation users, not by fishery organizations. This problem of being a secondary user of water can be addressed by a better integrated management of the agriculture and fishery sector, in which also the hydropower sector should be involved. A poorly managed privatization process and the wrong policies could lead to the concentration of ownership of resources in a very few establishments or individuals and to the exclusion of the poorer and weaker segments of the population in fisheries development activities and access to fisheries resources. The other extreme is that ownership becomes extremely diffused and fragmented that production units lack the economy of scale.

The MOA, recognizing the potential contribution of the capture fisheries and aquaculture sectors to rural poverty alleviation, achievement of food security and generation of alternative employment, supports actively the rehabilitation of the sector. Acknowledging that the country needs collaborative assistance to accelerate the development of the fishery industry, the MOA took a leading role in the initiation of regional collaboration, by organizing the first Regional Intergovernmental meeting to initiate the establishment of a Central Asian Fisheries Organization in November 2008. In early 2010 Tajikistan was the first country to accept the Central Asian and Caucasus Fisheries and Aquaculture Commission (CACFish). This FAO-affiliated commission (a so called Article XIV body under the FAO Constitution) is a regional fishery body is expected to work on both capture fisheries and aquaculture issues in the wider Central Asian region. The government has also entered into multilateral and bilateral agreements on economic and technical cooperation to complement national efforts and resources for capacity building. At this juncture, fishery management and development sorely needs scientific and technology guidance and the strengthening of fishery research, training and extension capacities will require a significant amount of investment. The sector has considerable natural assets and what it needs are effective tools, guidelines and support to improve its economic viability and social and environmental responsibility, which it needs to prove that it is worthy of investing public funds and private capital. A progressive and modernized fishery industry would contribute better to improving national wealth and the social and economic status of rural communities.

PLATE 1

Participants in the Intergovernmental meeting to initiate the establishment of a Central Asian regional fisheries organization, Dushanbe, November 2008



Courtesy of: FAO/Raymon Van Anrooy.

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1. INTRODUCTION

The capture fishery and aquaculture sector is important world-wide in terms of its contribution to food production, employment and income generation. Box 1 provides a global overview of the contributions of capture fisheries and aquaculture to these economic objectives.

BOX 1

Global overview, contribution of capture fisheries and aquaculture to national economic goals

Capture fisheries and aquaculture supplied the world with about 110 million tonnes of food fish in 2006, providing an apparent per capita supply of 16.7 kg live weight equivalent. In 2006, per capita food fish supply was estimated at 13.6 kg (excluding China). Overall, fish provided more than 2.9 billion people with at least 15.0 percent of their average per capita animal protein intake. The share of fish proteins in total world animal protein supplies grew from 14.9 percent in 1992 to a peak of 16.0 percent in 1996, declining to about 15.3 percent in 2005. Notwithstanding the relatively low fish consumption by weight in low-income food-deficit countries (LIFDCs) of 13.8 kg per capita in 2005, the contribution of fish to total animal protein intake was significant – at 18.5 percent – and is probably higher if the contribution of small-scale and subsistence fisheries are fully recorded. As to inland fisheries, in 2006, reported global inland water catches exceeded 10 million tonnes. This was a 12.8 percent increase over 2004 data. Asia accounts for two-thirds of total global inland capture production. Aquaculture contribution has been increasing from 3.9 percent of total production by weight in 1970 to 36.0 percent in 2006. In the same period, production from aquaculture outpaced population growth, with per caput supply from aquaculture increasing from 0.7 kg in 1970 to 7.8 kg in 2006, an average annual growth rate of 7.0 percent. Aquaculture accounted for 47.0 percent of the world's fish food supply in 2006.

In 2006, more than 110 million tonnes (77.0 percent) of world fish production was used for direct human consumption. Trade in fish and fishery products plays an important role in improving food security and contributes to meeting nutritional needs. Fish and fishery products are highly traded with more than 37.0 percent (live weight equivalent) of total production entering international trade. World exports of fish and fishery products reached US\$86 billion in 2006. Export value expanded at an average annual rate of 5.0 percent in the period 1996–2006. In real terms (adjusted for inflation), exports of fish and fishery products increased by almost 104.0 percent between 1986 and 2006. Available data for 2007 indicate further strong growth to about US\$92 billion. Although some weakening in demand was seen in 2007–2008 with the turmoil in the financial sector, the long-term trend for trade in fish is positive.

Fishery net exports continue to be of vital importance to the economies of many developing countries. They have increased significantly in recent decades, growing from US\$1.8 billion in 1976 to US\$24.6 billion in 2006. The low-income food-deficit countries (LIFDCs) play a growing role in the trade in fish and fishery products. In 1976, their exports accounted for a mere 10 percent of the total value of fishery exports. This share has reached 20.0 percent in 2006, when their fishery exports were US\$17.2 billion and their fishery net export revenues were an estimated US\$10.7 billion.

Aquaculture provides worldwide employment to millions of people. Total employment in the aquaculture sector is highest in China where in 2006 almost 13.06 million people worked in this sector. Between 2002–2003 in the European Union, approximately 65 000 people were employed in aquaculture i.e. 15.5 percent of the total employment in the fishery sector. In Europe, some 123, 000 people are employed by the aquaculture industry, with three countries – the Russian Federation, France and Spain – accounting for half of those employed. On gender based occupation, the majority of the workers are men, with the exception of the Russian Federation where fish culture is dominated by women.

Source: FAO (2009).

The fishery sector can potentially play an important role in the development of Tajikistan's rural sector and to the country's economy. In recent years however the share of the sector to the GNP has been less than 0.1 percent. Tajikistan has vast natural water resources that include ponds, reservoirs, lakes, rivers and irrigational channels. Despite these abundant water resources catches have significantly decreased from 3 700 tonnes in 1990 to 214 tonnes in 2006 and 285 tonnes in 2007 (Khaitov, 2006; Ahmadjon Gafurov, Mohii Tajikistan, personal communication, 2008). As a consequence, fish consumption per caput has decreased to a level below 0.5 kg (compared to 3 kg at the end of the 1980s). This, while recommended fish consumption levels by various nutritional institutions vary between 12 and 23 kg per caput per year.

The Ministry of Agriculture of Tajikistan and the Food and Agriculture Organization of the United Nations (FAO) recognized that very limited information was available on fisheries and aquaculture in Tajikistan and that the historical development, particularly the era since independence in 1991, has not been documented. In order to support the development and management of the sector in a structured and coherent manner it would be necessary to understand the current situation in the sector. To fill the existing gap in information, a review study was conducted in 2008–2009¹. This study has three aims: inform those interested in fisheries and aquaculture in Tajikistan about the current situation with regard to fishery resources and their utilization in the country; provide background information in support of the national sectoral policy and strategy formulation process²; and serve as guidance for future interventions by the government and donors in support of the sustainable development and management of the sector.

This Circular comprises two parts, namely, (i) the Review study on capture fisheries and aquaculture in Tajikistan; and (ii) a Diagnosis of the sector conducted through a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

This review comprises eight chapters. Chapter 1 is Introduction and Chapter 2 is a historical review describing the situation in the fishery sector before independence in 1991, and thereafter until 2006. Chapter 3 describes the current status of natural resources and the potential of the sector in Tajikistan and the status of fishery and aquaculture in inland waterbodies. Chapter 4 gives an overview of the current development in fish storage, processing, distribution and marketing and an analysis of the consumption pattern of fish in Tajikistan. Chapter 5 is devoted to the institutions and their roles and activities in management, research, technology, statistics and information, manpower development and infrastructure and facility improvement. Chapter 6 reviews the sectoral policy and legal aspects of management. Chapter 7 considers the social and economic aspects of fishery and aquaculture including employment and welfare, cost and return structures of fish farming, credit and insurance services. Chapter 8 provides the outcomes of the sectoral diagnosis, prepared by a fishery sector stakeholder meeting in March 2008 to analyse strengths, weaknesses, opportunities and threats (SWOT) of the sector.

¹ Relevant information after 2009 have been added to update the review.

² The draft of this review was one of the major references to the formulation during May-July 2010 of the Policy and Strategy for Fisheries and Aquaculture Development for Poverty Alleviation in Tajikistan (2010-2025), which has been adopted by the Government.