

### Chapter III

## THE CURRENT STATUS OF CAPTURE FISHERIES AND AQUACULTURE

The fisheries sector contributes less than 0.1 percent to the national GDP of Uzbekistan. Nevertheless, it is an important source of livelihoods for the rural people of some less-developed areas along the lower course of the Amudarya River and midway along the course of the Syrdarya River. Inland waterbodies in Uzbekistan are a valuable source of fish and fish products, which contribute to the food security (in terms of quality and quantity) of the population, provide healthy nutrition and support a diverse diet. Moreover, inland waterbodies of Uzbekistan offer great value in terms of recreational fishing, which is not accounted for in the GDP estimates. The fisheries sector also provides avenues for foreign exchange earnings through export of fish and fish products, but the current state of the sector makes a search for export opportunities unnecessary, as national demand for fish is far from being met at present. The sector also provides an opportunity for the rural population to diversify their economic activities and earn additional income.

### NATURAL RESOURCES AND THE POTENTIAL OF THE FISHERIES SECTOR

#### Description of the water resources

The total area of inland waterbodies in Uzbekistan (except the Aral Sea) is more than 800 000 ha. The waterbodies in the Aral Sea basin can be grouped as follows (Karimov, 1994):

- natural waterbodies (rivers and streams, lakes);
- primary, artificial freshwater waterbodies (irrigation canals, reservoirs, ponds); and
- secondary, artificial brackish waterbodies (drainage canals, lakes for residual water storage).

In Uzbekistan, there are more than 600 large and small rivers. Only a few of them, those in the mountains, are not affected by irrigation. The Amudarya River, 1 440 km long, has the highest annual discharge of about 78 km<sup>3</sup> of water. The Syrdarya River is 2 140 km long and has a discharge of 36 km<sup>3</sup> of water. During the last few decades, all natural lakes have been impacted by large-scale irrigation development. Some lakes have dried up and others have been used for residual water storage. Almost none of the natural lakes at the middle and lower courses of the Uzbekistan rivers have a water regime and water quality that is not affected by salinity and by the irregular discharges of drainage water (Karimov and Razakov, 1990; Joldasova *et al.*, 2004; Karimov *et al.*, 2006).

In the countries of Central Asia, about 60 reservoirs with a total volume of 61.6 km<sup>3</sup> were constructed in the basins of all large rivers. In the basins of the two major rivers, the Amudarya and the Syrdarya Rivers, there are 39 reservoirs (Table 12 and Table 13). The total water surface of reservoirs that are important for fisheries is 3 310 km<sup>2</sup> (Nikitin, 1991). Some of the large Uzbekistan reservoirs, such as the Tudakul, the Shorkul and the Mezhdurechye reservoirs, are important for fisheries.

TABLE 12  
Reservoirs in the Aral Sea basin

River basin	Number of reservoirs	Area km <sup>2</sup>	Volume km <sup>3</sup>
Syrdarya basin	22	1 850	34.5
Amudarya basin	17	1 460	23.3

Source: Nikitin, 1991.

TABLE 13  
**Distribution of reservoirs by size in the Aral Sea basin**

Volume (in million m <sup>3</sup> )	The Amudarya basin	The Syrdarya basin
Number of reservoirs		
1–50	5	4
50–500	6	13
>500	6	5
Total	17	22
Volume of reservoirs in million m <sup>3</sup>		
1–50	110	112
50–500	1 490	1 543
>500	21 700	32 850
Total	23 300	34 505

Source: Nikitin, 1991.

The system of irrigation canals is well-developed and totals about 150 000 km of canals. Only five or six large main canals, each 100–350 km long and with a capacity of 100–300 m<sup>3</sup>/sec, are at present of fishery significance. They are the Yuzhnogolodnostepsky, the Karshi, the Amu-Bukhara main canals and several other main canals. In most canals, water flows by gravitation. In the Karshi and the Amu-Bukhara main canals, pumps are used.

There are about 100 000 km of drainage canals (collectors) in Uzbekistan. The only collectors of some importance to fisheries are the large, main collectors that are longer than 100 km and have water flow rates of 40–100 m<sup>3</sup>/sec. The annual discharge of some of these collectors is comparable with rivers such as the Ozerny (1.5 km<sup>3</sup>) and the Centralno-Golodnostepsky Rivers (2.5 km<sup>3</sup>).

Lakes used for or especially created for residual water storage are important for fish fauna. The lakes that are important for fish fauna cover a surface area of about 7 000 km<sup>2</sup>, about twice the area of that covered by the important reservoirs. Most of the lakes function for many years. They do not experience major seasonal changes in water levels and water quality.

#### **Water resources used for capture fisheries in recent years**

Following the demise of fisheries in the Aral Sea, capture fisheries is conducted in a range of inland waterbodies. Fishery enterprises presently exploit 11 reservoirs, which cover a total area of 90 000 ha, and 34 lakes with a total area of 347 000 ha. The most important regions for capture fisheries in recent years are:

- the area occupied by lakes and reservoirs in the lower Amudarya River (in Karakalpakistan), which provided between 550 tonnes and 1 200 tonnes of fish annually. In this region, there are 20 lakes with areas ranging from 4 000 ha to 15 000 ha each. The total area occupied by lakes and reservoirs is about 96 800 ha (150 000 ha according to modern estimates [IFAS]).
- the area occupied by the Aydar-Arnasay lake system, which covers about 400 000 ha and includes three brackish-water lakes. This lake system provides between 760 tonnes and 2 000 tonnes of fish annually. The actual productivity (2–3.3 kg/ha) is as little as one tenth of the potential productivity (estimated to be 20 kg/ha).

Reservoirs and lakes situated midway along the course of the Syrdarya, the Amudarya, the Zarafshan and the Kashkadarya Rivers are also used for fisheries, but the productivity of these waterbodies is low because of poor fishery equipment and poor fishery management. An excellent example of positive changes in productivity is the Tudakul reservoir, where a newly created enterprise named Akva-Tudakul developed a culture-based fisheries programme and in four years increased fish production from 170 tonnes to 1 000 tonnes. It is likely that production will increase further in the near future. The reservoir is now considered a success story for culture-based fisheries development in Uzbekistan. This unique waterbody has a large, dead volume and, therefore, is very suitable for fishery development. It is, however, very difficult to repeat the success of Tudakul reservoir in other

waterbodies because of the often very small, dead volumes and the frequent, full discharges of water during the vegetation periods when all waterbodies are used for irrigation.

### Potential water resources for fisheries

It can be argued that the utilization of reservoirs and lakes by capture fisheries can only improve compared with the current situation. If the fishing brigades were well-equipped and methodologies for better fishery management were applied, utilization of the available resources would improve tremendously. Most promising are culture-based fisheries (including restocking programmes) and cage-culture development. Waterbodies suitable for these practices can be found in all regions of the country: Tuya-muyun, Talimardjan, Kattakurgan, Uchkizil, Yujnosurkhan and Zhizak and other reservoirs on the plains for warm-water fishes; and Andijan, Charvak, Akhangaran, Karkidon and other reservoirs in submountain and mountain regions. For cage-culture development, virtually all large irrigation canals and, more importantly, most drainage canals have suitable areas available.

### Fish fauna

Prior to large-scale irrigation efforts, the indigenous fish fauna in the Aral Sea catchments, rivers and lakes was little affected by human activities. G. Kamilov and Zh.U. Urchinov (1995) listed 84 species of fish for Uzbekistan, including both rare and introduced species. The ichthyofauna has undergone major changes as a result of water regulation and the introduction of fish species from outside the Aral Sea basin (Kamilov, 1973; Kamilov *et al.*, 1994). Some species disappeared or became rare, such as three species of endemic shovel-noses (*Pseudoscaphirhynchus kaufmanni*, *P. hermani*, *P. fedschenkoi*), ostrolochka (*Capoetobrama kuschakewitschi*), minnows (*Alburnoides bipunctatus*, *A. taeniatus*, *A. oblongus*) and Zarafshan dace (*Leuciscus lehmanni*), because they have been unable to adapt to the changed environment or because dams blocked their spawning migrations (spiny sturgeon *Acipenser nudiiventris*, Aral barbell, *Barbus brachycephalus*). Some species, such as gudgeons (*Neologius fluviatilis*, *N. melanostomus*, *Pomatoschistus caucasicus*, *Proterorhinus marmoratus*) and Baltic herring (*Clupea harengus membras*), which were introduced into the Aral Sea, were common for a while but later disappeared as a result of increasing salinity and other changes in the Aral Sea environment.

During the period from 1960 to 1990, a number of fish species from outside Central Asia were introduced into the water irrigation systems of the region. Pike-perch and bream were released into reservoirs and lakes fed by the Zarafshan and the Kashkadarya Rivers and were released midway along the courses of the Syrdarya and the Amudarya Rivers. Silver carp (*Hypophthalmichthys molitrix*), bighead carp (*H. molitrix*), grass carp (*Ctenopharyngodon idella*) and snakehead (*Channa argus warpachowskii*), which were introduced from the Far East, were stocked in fish farms in the Tashkent area and from there the hatchery-produced stocking material was regularly released into lakes and reservoirs (Salikhov and Vundzettel, 1986).

Three species of buffalo (*Ictiobus cyprinellus*, *I. bubalus*, *I. niger*) were introduced into the country by fish farms but they did not enter river systems. In contrast, channel catfish (*Ictalurus punctatus*) were also introduced and entered the Syrdarya River basin. Rainbow trout (*Oncorhynchus mykiss*), Sevan trout (*Salmo ischchan issykogegarkuni*), peled (*Coregonus peled*) and lake herring (*Coregonus sardinella*) were released into the Charvak reservoir in the Tashkent region, where they are now established. A list of 73 fish species found in Uzbekistan over the last 40 years is given in Annex 2.

### Commercial fishes

Of the 73 species of fish that can be found in Uzbek waterbodies, only 35 species (48 percent) are considered to have commercial value and the balance of 38 species (52 percent) are regarded as having less value and/or as being a trash fish species. Of the 35 species of commercial value, only about 18–20 species are captured for commercial purposes because the rest of the 35 species have

small populations and some are listed in the Red Data Book<sup>1</sup>. The eight main species of fishes caught in inland waterbodies are shown in Table 14.

TABLE 14  
Common commercial fish species in Uzbekistan

Common name	Scientific name
Common carp	<i>Cyprinus carpio</i>
Pike-perch	<i>Stizostedion lucioperca</i>
Eastern bream	<i>Abramis brama</i>
Catfish	<i>Silurus glanis</i>
Crucian carp	<i>Carassius auratus</i>
Grass carp	<i>Ctenopharyngodon idella</i>
Silver carp	<i>Hypophthalmichthys molitrix</i>
Snakehead	<i>Channa argus</i>

Source: Authors.

The catch of the above-listed eight species made up 62 percent of the total catch of 3 400 tonnes from natural waterbodies in 2006.

Analysis shows that many of the fishes in Table 14 are representatives of the family *Cyprinidae*. Because of intermuscular bones and the rather low quality of meat, these fish species have no great value in either the international or the local market. Private investors, therefore, have little interest in growing these fish species. Only pike-perch, snakehead, trout, pike and white fishes (*Coregonus* sp.) are considered commercially attractive for investments in the sector. European catfish is very popular in local markets and in neighbouring countries. Cray fishes are also caught in some waterbodies of the Navoi and the Bukhara regions, but the limited volume caught make them of low commercial significance.

It can be argued that the local ichthyofauna has low biodiversity and largely consists of species that are of limited commercial value and/or are not well-appreciated by consumers.

The variability of the water environments (including in high and cool mountains and hot deserts) provides good prospects for the development of recreational fisheries and ecological tourism. The fisheries sector has not investigated and/or invested in the opportunities recreational fisheries and ecological tourism may provide.

## MARINE CAPTURE FISHERIES

Uzbekistan is considered a landlocked country and does not have access to an ocean or a sea. As a result of the ecological crisis in the Aral Sea (once the fourth biggest lake in the world), Uzbekistan ended its capture fishery activities in the 1980s. Currently, there is no marine fishery activity carried out in this country or under the flag of Uzbekistan on the world's seas and oceans.

## INLAND CAPTURE FISHERIES

In this millennium, inland capture fisheries produced only between 2 000 tonnes and 4 000 tonnes of fish annually, representing between 28 percent and 39 percent of the country's total fish production. The reasons for the small harvest are because waterbodies are not being fully exploited and scientifically managed and because all rivers are managed for the purpose of supplying water for agriculture: the water level regime is often very variable both during and between seasons. Fish production per hectare over the last 50 years fluctuated between 1 kg/ha and 69 kg/ha (average 21 kg/ha). In the early years of this millennium, fish production per hectare, as recorded by some enterprises, varied between 6 kg/ha and 10 kg/ha, while potential productivity is estimated to be

<sup>1</sup> The Red Data Book contains the official list of all endangered, rare and near extinction species of wildlife in Uzbekistan. As a rule, the catching, hunting and selling of these species are prohibited.

between 12 kg/ha and 150 kg/ha (average 37.1 kg/ha), meaning that actual production averages only between 30 percent and 57 percent of potential production.

### Technological aspects of fish capturing

Capture fishery enterprises in Uzbekistan use only gillnets and do not use other technologies such as seines, trawls, drag nets and other gear. The current capture technology yields very low productivity. The enterprises are generally poorly equipped with fishing boats and engines (Figure 10). While Table 15 and Table 16 show a large increase in outboard motor boats, the fleet of small-scale (inboard motor) boats decreased dramatically between 1991 and 2004. Due to privatization, the large majority of vessels and outboard motor boats used in inland capture fisheries and by fish farms is now privately owned.

FIGURE 10  
Fishing fleets on the Aydar-Arnasay lake system in 2005 (left)  
and on the former Muynak Bay on the Aral Sea in 2003 (right)



Photos courtesy of Mr B. Karimov.

TABLE 15

### Type and number of outboard motor boats available at inland fishery enterprises and fish farms in Uzbekistan

Power of boat motors ( horsepower)	1991			2004		
	Total	State	Private	Total	State	Private
Up to 12 HP	52	52	0	150	3	147
Up to 20 HP	14	14	0	80	2	78
Up to 25 HP	78	78	0	243	3	240
Up to 30 HP	78	78	0	257	12	245
Up to 60 HP	48	48	0	51	4	47
Up to 90 HP and higher	4	4	0	55	15	40
Total	274	274	0	836	39	797

Source: Authors.

Major difficulties encountered by the inland capture fisheries sector are as follows.

- Gears and equipment for catching fish are of poor quality.
- The water levels of all waterbodies on the plains are affected by irrigation goals, which generally are in conflict with commercial fish reproduction goals.
- The capacity to store and to process fish from inland capture fisheries is lacking.
- Government financial support of and private investment in the sector are lacking, which situation is further exacerbated by the absence of special credit lines for the sector.

TABLE 16  
**Type and tonnage of small-sized vessels used by fishery enterprises and fish farms in Uzbekistan**

Name of small-sized vessel	Tonnage (kg)	1991			2004		
		Total	State	Private	Total	State	Private
Amur	900	40	40	0	0	0	0
Motor boat	1 500	9	9	0	2	1	1
BMK-130	4 700	20	20	0	8	0	8
BMK-130K	5 200	1	1	0	0	0	0
PTS	6 000	2	2	0	0	0	0
MRB	18 000	5	5	0	1	1	0
T-63	36 000	1	1	0	0	0	0
Power boats	600	0	0	0	11	1	10
with various modifications	700	0	0	0	4	0	4
	800	1	1	0	1	0	1
"	1 000	2	2	0	8	1	7
"	1 200	0	0	0	1	0	1
"	1 500	0	0	0	2	1	1
"	2 000	0	0	0	2	0	2
"	3 000	0	0	0	1	1	0
"	5 000	0	0	0	1	0	1
"	8 000	0	0	0	1	0	1
"	12 000	0	0	0	1	0	1
	Total	81	81	0	44	6	38
Boats	100	297	297	0	4	1	3
with various modifications	200	1 568	1 568	0	54	0	54
	250	108	108	0	30	1	29
"	300	60	60	0	63	3	60
"	350	6	6	0	116	3	113
"	400	78	78	0	513	15	498
"	500	58	58	0	66	8	58
"	No tonnage	35	35	0	14	4	10
	Total	2 210	2 210	0	860	35	825
	Grand total	2 291	2 291	0	904	41	863

Source: Authors.

- Poaching of fish is widespread. As a rule, fishing activities need to be registered but often they are not. Common carp, asp, catfish and pike-perch are common species in the catches of poachers. Poaching causes the fisheries productivity of many natural waterbodies to be low and underestimated in national statistics.
- Materials and technical resources at national level for the improvement of production and profitability are lacking.
- Stocking practices using fish seed in waterbodies are poorly organized. Previously, the government absorbed the cost of (re)stocking programmes but in 2003 this support ended.
- Governmental and non-governmental institutional structures to promote the use of irrigation systems for fish production are generally lacking. There is no law that ensures the rights of private fish farmers to a guaranteed water supply.
- Fish protection devices on irrigation structures, which would prevent fish from being discharged with irrigation water into irrigation fields, are lacking.
- There are no corridors between waterbodies (including floodplains, river reaches and canals) to allow for migration of fish and fish fry to and from places of spawning and reproduction.

- There are no fish passes in hydropower structures.
- The current priorities for water use to satisfy irrigation demands and hydropower production demands often do not allow for maintaining optimal water levels and water supplies for fish spawning, reproduction and nursing.
- Water pollution in irrigation/drainage systems is hampering fish stock development and the fisheries sector; high mineralization levels and concentrations of toxic substances of agricultural and industrial origin make the environment less suitable or even unsuitable for fish. The total amount of mineral salts introduced into the hydroecosystems through collector-drainage waters (CDW) is about 70–80 million tonnes/year.
- There is a general, low level of public awareness that the irrigation network can be used for fish production.
- Fishery experts are in short supply and a lack of fishery training programmes results in a shortage of qualified persons and prevents an inflow into the sector of young persons with knowledge of modern fishery production, management and conservation practices.

### **RECREATIONAL FISHING**

Recreational fishing in Uzbekistan has not changed much since independence in 1991. It continues to be fairly disorganized. Most recreational fishers are not members of a fishing club or association. Persons can fish recreationally in almost all waterbodies in all regions of Uzbekistan but not in protected areas, on private fish farms, in areas leased by fishery enterprises and, of course, in areas managed and serviced by fishing clubs. Very popular areas for recreational fishing are lakes and rivers in submountain and plains regions. There are no statistics kept on the number of recreational fishers.

Target species that are popular among recreational fishers are common carp, common (European) catfish, pike-perch, asp, snakehead, bream and pike on the plains, trout in the submountain areas of Tashkent region and marinka (snowtrout) (*Schizothorax intermedius*) in all submountain regions.

Recreational fishing is not considered to be of major importance for household food security in Uzbekistan, although a local tradition holds that caught fish should be consumed by the recreational fishers and their relatives and friends.

Recreational fishers can be members of fishing clubs. There are two national fishing and hunting societies: Uzbekokhotribolovsoyuz (Uzbekistan hunters and fishers' societies) and Okhotribolovsoyuz for members of the military forces. Both societies have units or organizations in all regions and in Tashkent. A similar situation exists in Karakalpakstan.

All regional branches of Okhotribolovsoyuz have offices in the main cities (which are centrally located in the regions) and also in several areas that are managed by them and have good fishing environments. Members pay annual membership fees. They are issued membership cards and can visit and can fish the territories managed and serviced by Okhotribolovsoyuz. For each visit, they are issued a ticket. The territories generally possess service staff, including hunters.

There are no specific programmes in place for the restocking of waterbodies for recreational fishing purposes. It is acknowledged, however, that restocking with common carp, as was the practice before 2002, had a positive impact on the size and number of fish in the catches of recreational fishers. Codes of conduct for recreational fisheries or recreational fishery guidelines are not available in Uzbekistan.

### **AQUACULTURE**

Aquaculture is the most promising sector of the fisheries industry in Uzbekistan. The only aquaculture production system applied in the country is pond culture of cyprinids. Pond fish farms operate in all regions. The Regional Fish Hatchery belongs to the state, while all other farms are privately owned.

The total pond surface area of all fish farms in Uzbekistan is estimated to be 10 237 ha, which includes 8 619 ha of fattening/grow-out ponds and 1 618 ha of nursery ponds (Table 17). These ponds have the potential to produce 26 000 tonnes/year of fish at an average productivity rate of 3 tonnes/ha. For over 15 years, the pond production system has not been well-maintained and repaired when needed, as generally funds to do so were lacking.

TABLE 17  
Fish-culture farms and their pond surface area in 2007

Republic/province	Names of farms	Pond area (ha)		
		Total	Fattening	Nursery
Rep. of Karakalpakstan	Nukusbalyk Ltd	46	0	46
Andijan province	Andijanbalyk JS	986	894	92
Bukhara province	Bukharabalyk Ltd	574	428	146
Kashkadarya province	Kashkadaryabalyk Ltd	409	359	50
Namangan province	Namanganbalyk Ltd	800	600	200
Namangan province	Madaminjon Ota Ltd	90	90	0
Samarkand province	Ashurota farm	93.3	68.7	24.6
Samarkand province	Sherali farm	116.3	59	57.3
Samarkand province	Taidyl AV farm	93.4	70	23.1
Surkhandarya province	Azizbobo farm	34	34	0
Surkhandarya province	At-Termizij farm	34	34	0
Surkhandarya province	Abu-Hurairo farm	32	32	0
Syrdarya province	Syrdaryabalyk Ltd	980	980	0
Syrdarya province	Yangierbalyk Ltd	400	400	0
Tashkent province	Balykchi JS	2 573	2 351	222
Tashkent province	Damachi Balyk Ltd	275	275	0
Tashkent province	MBP ShK	258	0	258
Tashkent province	Toshkentbalyk Ltd	133	133	0
Ferghana province	Besharykbalyk Ltd	503	385	118
Ferghana province	Urai Ltd	334	314	20
Khorazm province	Horazmbalykmahsulot JS	1 473	1 112	361
Total		10 237	8 619	1 618

Source: Authors.

The combined nursery ponds in the republic have the potential to produce as many as 93 million yearlings per year. However, due to poor financing and management, the actual production is much lower.

### Fish-culture technology

Fish farmers continue to use the fish-culture production system of carp (cyprinids) polyculture that was introduced last century in the period of the former USSR. The system has not been adapted because of a lack of investments. As inorganic fertilizers in specified amounts are much cheaper than fish feeds, liming and fertilization of ponds is done in order to stimulate phytoplankton development. In this way, silver carp became the main cultured species and make up between 70 percent and 85 percent of the total aquaculture production. Common carp, together with grass carp and bighead carp, are now becoming additional cultured species. Some farmers use supplementary feeds (mainly bran, husks of cotton seeds, wheat) for common carp feeding, but other farmers do not use supplementary feeds. Occasionally, grass carp is fed with freshly cut plants (mainly reeds).

Artificial reproduction methods, using hormonal or pituitary injections, egg incubation, and larvae and fry raising to fingerlings, or so-called summerlings, are in common use. Over-wintering is done in ponds that are generally a little smaller than they were in former times. Large ponds (50–100 ha and larger) are filled with fresh river water every year in the spring, and stocked with yearlings. This requires large financial investments and efforts to ensure forage reserves (to make the water fertile) if it is to be done properly. Stocking densities of yearlings are between 1 500 fish per ha and 2 000 fish per ha (fish weighing 15–25 g at the age of one year) and the fish are cultured until autumn. Forage is added to ponds in the summer, taking into account that in well-managed ponds, 5 kg of forage produce 1 kg of fish.

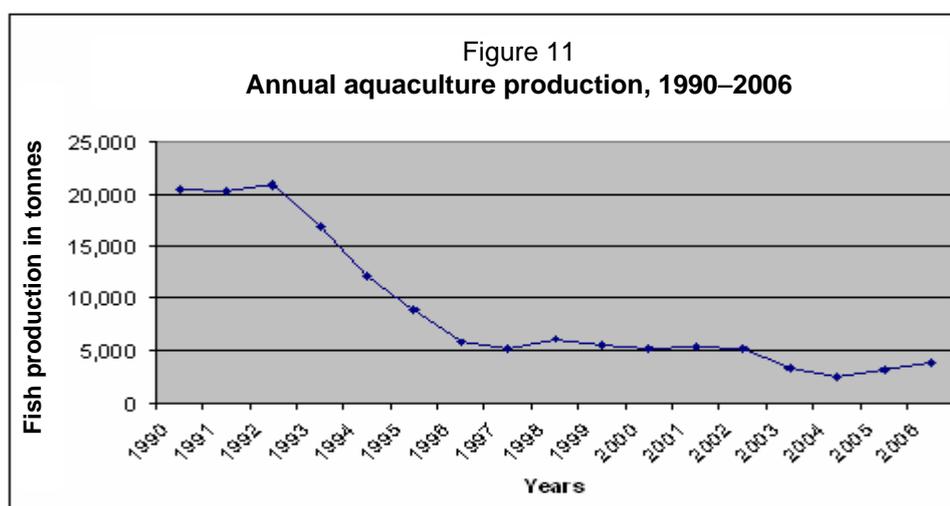
In autumn, the water with its accumulated fertility is discharged from the ponds and all the fish have to be sold in a few days to one week. Then the ponds remain empty from autumn to spring. In spring the ponds are again filled with fresh “infertile” water. Under the former planned economy, fish farmers aimed to meet their production targets and they did not look into the commercial aspect of production. Currently, the private farmers are seeking ways to reduce production costs and increase productivity of the commonly used two-year production cycle. There is a need for the development and adoption of more cost-effective technologies.

Some large fish farms stock at higher densities (up to 3 000–4 000 fish/ha), resulting in a need to raise the fish during a third year. These farms aim at producing fishes weighing 1.5–3 kg each. The price of their silver carp is higher per kilogramme of product. The practice is profitable because there is no real competition among the farms, and taxes on land and water use are low.

In the period from 1991 to 2006, there has been no attempt to develop or apply new aquaculture production systems, introduce new species or change to semi-intensive or intensive culture of carps.

### Fish production

Annual fish production in aquaculture from 1990 to 2006 is shown in Figure 11.



Source: The State Committee for Fisheries.

### Private entrepreneurial initiatives in fish culture

Private entrepreneurs are starting to show some interest in fish production as a profitable venture. From 2003–2004, when privatization of the sector ended, until 2005, there were no positive developments in fish production. However, recently some new, private fish-farm owners (investors from outside the sector) purchased and installed modern technology. A few of these private ventures have shown good progress in fish production. For example, the company Asia Agro Alliance bought the Damachi Fish Farm in 2005. This company restored the old Soviet technology and financed feeding of the fish and manuring of the ponds. It harvested 400 tonnes in 2005 and 490 tonnes in 2006. Because commercial high-quality fish feeds are not available in the country, Asia Agro Alliance uses farm-made feeds of wheat and bran. It markets its fish at the following weights: silver carp 1 200–1 500 g, common carp 800–1 500 g and grass carp 1 000–1 500 g. In recent years, its productivity was 2.1 tonnes/ha. Net profitability of production is estimated at 30–40 percent.

It is reported that the Namangan Fish Farm, in the Namangan region of the Fergana Valley, has also increased fish production using the methods of the Asia Agro Alliance.

Tashinvest, the new owner of the largest fish farm, Balikchy Fish Farm, has changed from a two-year to a three-year cycle of silver carp production (with small volumes of common carp and grass carp) in order to produce fish weighing 1.5–2 kg, which obtain a higher price in the local market. Of course, this practice is rather inefficient but is possible under conditions wherein competition in the

sector is almost nil, land and water costs as percentage of total production costs are minimal and there is a severe shortage of fish on the market.

The only new, private fish farm oriented towards intensive fish-culture practices is the NT Fish Farm (Tashkent). This private company was set up in 2007 and is fully oriented towards intensive fish-farming activities. In 2007, NT Fish Farm constructed flow-through tanks for intensive rainbow trout farming and started operations in 2008. This intensive fish-farming activity is the result of the German-Uzbek research project “Sustainable Aquaculture in Recirculating Systems – a feasibility study for the catchment area of the Aral Sea” carried out in 2006 and 2007. The research project was funded by the German Federal Foundation for the Environment (DBU).

#### *Paddy-cum-fish farming*

Some agricultural farmers are adopting paddy-cum-fish farming practices in Uzbekistan. For example, Mr Adiljan Abdurazzakov, a farmer in the village of Navruz in the Pap district of the Namangan region, harvests about 1 000–1 500 kg/ha/year of fish in addition to the paddy crops and earns an estimated profit of US\$500 per ha/year from the fish-farming activity. He undertakes the paddy-cum-fish farming in about 50 ha of paddy fields. This practice ensures him a reasonably good income. Because of its high water requirements, this production system has only limited potential in Uzbekistan and is limited to the paddy producing areas.

#### *Ornamental fish production*

Ornamental fish production is not conducted by aquaculture farms in Uzbekistan. Ornamental fish production is generally carried out by so-called “aquarians”, who are either private-sector entrepreneurs or hobbyists fond of aquaria and of keeping fish in aquaria.

Ornamental fishes are generally sold through a network of pet shops in the main cities, in two small wholesale markets (Yangiabad market and Farkhad market) in Tashkent and some similar markets in other large cities. Also some hobbyist traders take orders from pet shops and provide the shops with small quantities of ornamental fish species imported mainly from China, Malaysia and other countries of southeast Asia.

Local prices for some ornamental fish species available in a market in Tashkent are given in Annex 3.

Good Aquaculture Practices, Aquaculture Codes of Conduct and Better Management Practices in aquaculture are unknown in Uzbekistan and, therefore, not applied. The FAO Code of Conduct for Responsible Fisheries has, however, the support of the Ministry of Agriculture and Water Resources of Uzbekistan. A Regional workshop on the “1995 FAO Code of Conduct for Responsible Fisheries in the Central Asian region: A Call to Action”, was organized by the Uzbek Research Center for the Development of Fisheries of the Ministry of Agriculture and Water Resources of Uzbekistan, in close technical collaboration with FAO and with organizational support from the State Committee for Nature Protection of Uzbekistan and the Institute of Water Problems of the UzAS of Uzbekistan, in Tashkent on 8–10 April 2008<sup>2</sup>.

#### *Culture-based fisheries*

At present, the private company Akva-Tudakul operating at the Tudakul reservoir is the only positive example of a private-sector restocking activity. This recently established company applies culture-based fisheries practices in Uzbekistan. It obtained the use rights of the Tudakul reservoir in 2003 and started off with a production of 170 tonnes in that same year. The company established a hatchery that produces seeds of common carp, grass carp and silver carp. The hatchery and nursery is well-equipped for reproduction and has earthen nursery ponds with a total area of 120 ha. Fish seeds are raised to fingerling size in these ponds and then the fingerlings are stocked in the reservoir (on

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<sup>2</sup> FAO. 2008. *Report of the Regional Workshop on the 1995 FAO Code of Conduct for Responsible Fisheries in the Central Asian region: A Call to Action*. Tashkent, Uzbekistan. 8–10 April 2008, FAO Fisheries Report No. 866. Rome. 92 pp.

average about 45 000–55 000 fingerlings of common carp and silver carp per year). Production levels were about 356 tonnes of fish in 2004, 502 tonnes of fish in 2005 and about 1 000 tonnes of fish in 2006.

In 2006 and 2007, private companies similar to Akva-Tudakul were created at the Talimardjan reservoir (Kashkadarya region) and the Kattakurgan reservoir (Samarkand region). However, these companies do not have their own financial resources to conduct large restocking programmes. They established small hatcheries in 2006 and started restocking the reservoirs with fry of common carp, silver carp and grass carp in 2007. They stocked a total of about 110 000 fry in these reservoirs. It should be noted, however, that these reservoirs are less suitable for culture-based fisheries than the Tudakul reservoir. In the Kattakurgan reservoir, for instance, there is no dead volume of water because of huge sedimentation, which means that all introduced fish should be caught in one growing season.

Major constraints to aquaculture development in Uzbekistan at present are as follows.

- Diversity in fish species culture is limited. Culture practices are based on the culture of silver carp, common carp, grass carp and bighead carp.
- Technology applied to fish culture is based on extensive culture practices; limited examples of intensive culture practices exist in Uzbekistan.
- Access to investment funds and credit lines for fish production is difficult.
- High quality, commercial aquaculture feeds are not available on the markets in Uzbekistan.
- Government support to the sector is insignificant.
- Extension and training facilities in support of aquaculture development and management are non-existent.

## **FACILITATING INDUSTRIES**

Facilitating industries in support of the fisheries sector are not developed in Uzbekistan. All fish producers design and construct their own equipment or try to purchase equipment and materials abroad.

### **Feeds**

The commercial feed producing plant in Chinaz (that was created for aquaculture feed production in the 1980s) is no longer serving the sector, although it is capable of doing so. The main reason feed production for aquaculture ceased was because the demand from farmers reduced dramatically in the 1990s. Fish farmers currently do not establish new contacts with the feed plant because balanced fish feeds are considered too expensive for common carp production compared with the gains to be made from producing this species.

Supplementary feeds (wheat, bran) can easily be purchased locally by fish farmers. Mills produce such feeds and have distributors all over the country.

### **Veterinary service**

There is no network of veterinary stations in the country that can supply the aquaculture sector with services. At the Balikchy Fish Farm and the Khorazm Fish Farm, laboratories for water-quality control and fish health monitoring are in operation. Other farms do not have such laboratories.

There are only two laboratories in Uzbekistan with specialists in fish pathology. These laboratories are located in the Uzbek Research Center for the Development of Fisheries and the Center for Fish Products Certification, both in Tashkent.

The extensive culture systems used during the last decade did not require much veterinary service (because of low densities of fish and limited live-fish movements and introductions), but with the development of the aquaculture sector, the country needs to revive and strengthen its aquatic animal health services.

In general, fish culture managers (technologists) who graduated before 1994 have some basic knowledge about fish health monitoring and fish disease treatment methods. In the event of fish health problems, they often purchase a series of medicines through private trading companies. These companies, however, confirmed that sales of medicines/chemicals for aquaculture purposes are only made occasionally.

### Equipment

Capture fishery enterprises give orders for equipment, boats and gear to general trading companies. There is no network of trading companies specialized in supplying fishery equipment and gear in Uzbekistan.

Aquaculture farms are poorly equipped and mainly use equipment of pre-1994 manufacture. There are no specialized enterprises that import, sell and distribute aquaculture equipment in the country.

### Freezing/storage facilities

Freezing/storage facilities are constructed at aquaculture farms for use by the farmers. Capture fishery enterprises (brigades) generally buy blocks of ice at refrigeration stations. Refrigeration stations were not established to supply the fisheries sector, but consider sales to the sector as an additional activity. Only in the Navoi region does a capture fishery enterprise have a commercial refrigerator and sell ice also to other companies.

### Supply of materials to the sector

Through the Republican Commodity and Raw-Material Exchange, fish farms can buy mineral fertilizers, materials and equipment produced in Uzbekistan (Table 18). Many types of equipment and materials (e.g. boats, outboard motors, nets, chemicals, medicine and preparations) are not being produced in Uzbekistan. They are imported by private firms on the basis of orders placed by the consumer. As the orders pass through several intermediaries and wholesale companies, prices increase two to four times before the equipment reaches the final consumer.

### Hatchery services

Only a few hatcheries sell fish seeds to other fish farms: the State Regional Fish Hatchery, the Balikchy Fish Farm (both in the Tashkent region) and the Khorazm Fish Farm (the Khorazm region).

TABLE 18  
Prices of main inputs used in aquaculture in Uzbekistan, September 2007

Inputs	Price per tonne in soums (US\$ in bracket)
Cattle manure	32 000 (25)
Ammonium nitrate	190 000 (150)
Ammonium phosphate	320 000 (251)
Cottonseed cake	200 000 (158)
Cereals	490 000 (385)
Lime	80 000 (63)
Petrol, diesel oil	710 000 (710)

Source: The State Regional Fish Hatchery.

### Importation of equipment

Generally, trade companies search on the international market for the equipment required by fish producers. They do so only after having received an order, using their routine procedures. Fish producers themselves can find equipment manufacturers or distributors in other countries by checking for information on the internet, in journals and at exhibitions. Information on equipment for fish culture and fisheries is not available in the country.

## **Chapter IV**

### **PROCESSING, MARKETING AND TRADE OF FISH AND FISH PRODUCTS SINCE 2005**

#### **FISH PROCESSING AND STORAGE**

Processing and storage facilities are generally in poor condition throughout Uzbekistan. The reasons for this are the limited supply of fish, resulting in most fish being distributed in live and fresh forms, and the lack of investment in fish-processing and storage facilities. However, during the last two to five years, some enterprises gradually became interested (again) in fish processing. All fish-processing and fish-trade companies are privately owned. All processing enterprises must obtain national certification for each type of product to be processed. Upon presentation of samples of their products, enterprises can obtain the required quality and safety assurance certification at the State Center for Standardization, Metrology and Certification (UzGosStandard) in Tashkent as well as at regional centres.

The largest fish-processing and fish-trade company is Baliksavdo (translated as Fish Trade) situated in Tashkent. This company was established during privatization and resembled the earlier fish-processing facilities of Uzribsbit. In contrast to other fish-storage and fish-processing companies in existence before independence, this company did not move away from the fisheries sector after independence. Using the international network that it established before independence and using existing technologies, the company imports frozen fish and salts and smokes the fish at its own facilities (which is its main activity). The company also imports canned fish and other canned fish products, has a distribution network in the country and processes domestically produced fish from aquaculture farms. Annually the company processes about 3 500–4 000 tonnes of frozen herring, capelin and mackerel.

A few other fish-processing companies were established recently in the following places:

- in the town of Dustlik in Zhizak province, where Turkish entrepreneurs set up a company for the production of pike-perch for export;
- in Karakalpakstan and in Samarkand province, where private entrepreneurs established small-scale artisanal workshops for the production of canned roach products;
- in Tashkent province at Balykchi JSC (joint-stock company), where frozen silver carp are gutted, scaled and decapitated; and
- in the town of Navoi at Navoibalikichlik-2003, where entrepreneurs produce frozen and smoked roach, which in part is exported.

Statistics on the amount of investment and on the production of the newly established companies are unavailable as yet.

#### **DISTRIBUTION AND MARKETING OF FISH AND FISH PRODUCTS**

Fish retail activities can be conducted only in places designated by the local authorities of cities and districts (hokimiyats). The sale of fish is allowed only if a retailer holds documents confirming the legality of the catch or showing the purchase of the products and a certificate confirming the quality and safety of the products on sale.

There are designated areas in the markets for the sale of fish, areas that are generally equipped with basins for selling live fish and have access to tap water. The markets also have refrigerators or are equipped with power outlets for refrigerators and freezers. Each retailer has her or his own table. The fish retail sections have special containers for waste, which is frequently removed. Generally, there are also open sewage systems with grid covers, which are used to drain waste water.

In every green market of Tashkent, there are from three to five retail shops that sell imported, high-value fish and fish products from the Russian Federation and other former USSR countries. The products for sale include frozen, canned, salted and dried fish in various forms and caviar packed in

convenient and attractive packages. These products are generally expensive and vary in price from som25 000 to som40 000 per kg (US\$19.60–32.00).

In the town of Chinaz, Tashkent province, there is a wholesale fish market. Fish are transported on a daily base from this market to Tashkent, which is about 70 km away, and transported to this wholesale market from the Aydar-Arnasay lake system and the Chardara reservoir situated in Kazakhstan. In the market, freezers are available, as well as an ice making machine. It is very difficult to estimate the volume of fish sold in this wholesale market. Almost all fish sold there is illegally caught and goes unregistered. According to various unofficial sources, on average 3–5 tonnes of fresh fish are sold there daily. The maximum recorded volume of sales is 20 tonnes in one day. The market facilities include water and electricity and there are special areas for selling fish. However, it should be noted that the hygienic conditions under which the current sale of fish takes place are extremely poor. Ice is rarely used, and transporters generally do not have refrigeration equipment installed on their trucks and in their cars.

Capture fishery enterprises primarily sell their fish right on the shores of lakes and reservoirs and ask prices that are generally 50 percent of the wholesale prices. Fish brigades catch about 200–300 kg of fish per day. Most of the small-scale, intermediary companies use passenger cars for transporting fish. Larger intermediary companies (e.g. Navoibalikhilik-2003 in the town of Navoi) have trucks with cold storage/refrigeration capacity. All the caught fish is transported in freezers or refrigerators to cold storage, where part of the fish is processed and part of the fish is sold whole in fresh and frozen forms (Table 19).

Pond fish farms are often situated near cities and towns. Farmers harvest and sell their fish production in the autumn. Part of the harvested fish is sold at the farm gate to wholesalers and retailers in small lots (up to 200 kg), for which contracts generally have been concluded beforehand during the growing season. Another part of the fish is sold by the pond farmers in nearby markets and to nearby retail shops.

All fish wholesalers and retailers are licensed to market fish. The marketing of fish is highly seasonal; therefore, only a few companies are specialized in this activity. Baliksavdo is the only company that imports canned fish for institutional consumers (the Home Ministry, the Ministry of Defense and the National Security Service). It has specialty shops in the markets as well. In addition, in its workshop imported fish is processed into salted fish (mainly herring), which is considered a local delicacy.

Sixty percent of the fish is sold in markets, more than 15 percent is sold in shops and supermarkets and about 25 percent (mainly frozen and processed) is sold from warehouses to special consumers and wholesale buyers.

More than 90 percent of the live and frozen fish products available in the markets is domestic. About 8–9 percent of the fish products is (often illegally) imported from Kazakhstan *vis-à-vis* the Chinaz wholesale market, and about 1 percent is imported from Turkmenistan to the southern regions (Surkhandarya and Kashkadarya). Of the smoked fish available in the markets in Tashkent, some 90 percent originates from domestic sources and about 10 percent is imported.

Information on aspects of fish marketing (market structure, operations and performance) is scarce. Fish producers, wholesalers and retailers have limited knowledge about market volumes and price fluctuations during the year. The marketing strategies followed by the wholesalers and retailers are based on observations. Aquaculturists and fishers transport their fish to the Chinaz wholesale market. It is reported that an average of about 3–5 tonnes (maximum 20 tonnes on some days) of fresh fish arrive daily and are bought by about 30–50 intermediaries (buyers), who supply retailers in Tashkent. Retailers also purchase directly from fishers at the wholesale market. The intermediaries active in fish marketing earn a 10–20 percent margin.

The Chinaz market supplies fish to about ten green markets in Tashkent. In these green markets, adequate water supplies are provided for washing and cleaning the fish. In the market in Alay, one of the green markets, about 25 to 30 women are involved in selling fish. It was estimated that about 1 000–1 500 kg of fish are sold in the Alay market on a daily basis. Fish display tables are rented to every retailer/seller at a cost of som3 600 (US\$2.80) per day. The turnover in retail sales ranges

TABLE 19  
Seasonal consumer market prices for fish in Uzbekistan in 2007

Fish species	Average price of 1 kg of fish in US\$			
	January- April	May- August	September- December	Month of Eid
Common carp ( <i>up to 1 kg</i> )	0.47–0.63	0.47–0.63	0.80	1.50
Common carp ( <i>1–3 kg</i> )	2	2	1.80–2	5
Bream ( <i>up to 0.3 kg</i> )	0.30	0.20	0.35	0.40
Bream ( <i>more than 0.3 kg</i> )	0.50	0.50	0.60–0.70	0.90
Catfish ( <i>up to 1 kg</i> )	1.80	0.80–1	1–1.60	2–3.50
Catfish ( <i>1–3 kg</i> )	4	3.70	2.40–2.80	4–5
Catfish ( <i>3 kg and more</i> )	4–4.20	4	4	7
Common carp ( <i>3 kg and more</i> )	4	2–3	3.50–4	7–8
Grass carp ( <i>up to 1.3 kg</i> )	1.10	0.80–1	1–1.20	2
Grass carp ( <i>1.5–3 kg</i> )	1.60	1–1.20	1.60–1.70	3
Grass carp ( <i>3 kg and more</i> )	2–2.20	1.50–1.70	2.40–3	6
Pike-perch ( <i>up to 1 kg</i> )	1.40	1.60	1.60–2	3–4
Pike-perch ( <i>1–3 kg</i> )	2.80	1.80	2–2.50	4–5
Pike-perch ( <i>3 kg and more</i> )	3	2	2.50–3	5–6
Roach ( <i>up to 0.3 kg</i> )	0.30	0.20	0.30	0.40
Roach ( <i>more than 0.3 kg</i> )	0.50	0.50	0.60	0.90
Silver carp and bighead carp ( <i>up to 1.2 kg</i> )	0.60	0.60	1.20	2–2.50
Silver carp and bighead carp ( <i>1.5–3 kg</i> )	0.80–1	0.80	1.10	3
Silver carp and bighead carp ( <i>3 kg and more</i> )	1.10	1.10	2–2.30	4–5

Source: Authors.

between som500 000 and som800 000 (US\$394–630). Profits vary between US\$7 and US\$20 per day. The prices of fresh fish during Ramadan in 2007 are shown in Table 20.

Taking into account also the unregistered volume of fish that passes through the Chinaz market, the volume of fish going through the market in 2007 is estimated as follows:

- about 11 000 tonnes of live fish worth approximately US\$9.6 million;
- 885.2 tonnes of frozen fish (including gutted fish without head and tail) worth US\$878 600;
- 32 tonnes of refrigerated fish worth US\$22 800;
- 12 tonnes of smoked fish worth US\$9 750; and
- 34.4 tonnes of filleted fish worth US\$55 500.

TABLE 20  
Prices of fresh fish during Ramadan in Uzbekistan in 2007

Fish species	Price per kg in soums (US\$ in brackets) (1US\$ = som1 270 )
Carp from pond fish farm	1 500 (1.25)
Catfish	8 900 (7)
Grass carp	6 000 (4.7)
Pike-perch	7 600 (6)
Silver carp	6 400 (5)
Snakehead	4 500 (3.5)

Source: Authors.

Fish and other aquatic products in transit officially must be accompanied by a copy of the declaration of origin and a veterinary certificate.

In Uzbekistan, only fish is cultivated and caught. Molluscs and crustaceans are not cultivated and, therefore, are not widely available in the markets. The main fish species sold in the markets are common carp, silver carp, grass carp, pike-perch, roach, barbell, wels (catfish), snakehead, asp and pike.

## IMPORTATION AND EXPORTATION OF FISH AND FISH PRODUCTS

### Imports

Fresh fish are mainly produced for the domestic market. Limited volumes of fish and fish products are imported; mainly from Turkey and the Russian Federation. Frozen fish are imported from Norway, the Russian Federation, the United Arab Emirates, Turkey and the United Kingdom. Fish are also imported in dried, smoked and salted forms from Korea, Norway, the Russian Federation, Latvia, Turkmenistan and occasionally some other countries. Canned fish are mainly imported from Belgium, Canada, Germany, Italy, Latvia, the United States, Turkey, the Russian Federation, New Zealand and the United Arab Emirates.

According to data of the State Committee on Statistics of Uzbekistan, imports of fish products in 2006 were the following:

- frozen fish (including gutted fish without head and tail) – 991.2 valued at US\$ 625.60 (51.5 percent from Lithuania; 30 percent from the Russian Federation; the remainder from Latvia and from Turkey);
- fresh (refrigerated) fish – 1.7 tonnes valued at US\$1 700 (94 percent from Latvia; 5.6 percent from the Russian Federation and 0.4 percent each from Norway and Turkey); and
- fish flour – 79.5 tonnes valued at US\$79 900 (99.5 percent from the Russian Federation; 0.5 percent from Norway).

Canned fish is not produced nowadays in Uzbekistan. For this reason all canned fish sold and consumed in the country is imported. The major suppliers of canned fish are the Baltic States. The value of canned fish and fishery product imports reached US\$1.35 million in 2006.

### Exports

A very small volume of fresh fish is exported, mainly to the Russian Federation, Turkey and Afghanistan (Table 21). In 2006, Uzbekistan exported the following fish products:

- frozen fish (gutted fish without head and tail) – 744.2 tonnes valued at US\$712 100 (65 percent to the Russian Federation; 35 percent to Turkey);
- fresh (refrigerated) fish – 30 tonnes valued at US\$21 400 (100 percent to Afghanistan);
- smoked fish – 9.6 tonnes valued at US\$7 800 (100 percent to the Russian Federation); and
- filleted fish – 34.4 tonnes worth US\$55 500 (100 percent to the Russian Federation).

There are legislative acts concerning marketing standards for various products, including fish and fish products, and in particular marketing standards concerning content, main characteristics and name of foodstuffs, as well as labelling, packaging and promotion requirements.

TABLE 21  
Annual export of fish and fish products, 2004–2006

Type of fish product	2004		2005		2006	
	Tonnes	US\$	Tonnes	US\$	Tonnes	US\$
Fresh fish	–	–	5.0	4 300	30.0	21 400
Frozen fish	29.8	11 000	624.4	282 600	744.0	712 100
Fish fillets	–	–	–	–	34.4	55 500
Dried, salted and smoked fish and flour	17.5	11 600	8.6	8 300	9.6	7 800
Canned fish	–	–	0.1	300	–	–

Source: State Committee on Statistics.

## **FISH DEMAND AND CONSUMPTION**

Fish consumption levels in Uzbekistan are amongst the lowest in the world. The nominal per capita consumption of fish is less than 0.5 kg/year, while health and nutrition institutions recommend a per capita consumption of 10–12 kg/year. In former Soviet times, the fish per capita consumption was about 5–6 kg/year. The main reasons for the low consumption are the limited imports due to import restrictions (high import duties) and low levels of domestic fish production. In terms of market prices, fish is considerably cheaper than beef and usually two to three times cheaper than poultry. In particular, the prices paid by consumers for silver carp and common carp are relatively low compared with other animal protein sources. Large fish (1.5–3 kg and more), generally originating from natural waterbodies, is considered a high-quality product by Uzbek consumers and is only slightly cheaper than beef and poultry.

A substantial gap exists between supply and demand of fish and fish products in the Uzbek market. The current supply is far from sufficient to cover demand for fish and fish products. Future domestic demand will largely depend on the socio-economic development of the country, but also depend on whether the sector can supply the quality and safe fish products that consumers desire. General economic development, the expansion of the tourist industry and some other factors will certainly stimulate fish demand. Considering the present population of 26 million people, the country would need 260 000 tonnes of fish in order to provide 10 kg of fish per capita, whereas fish production in 2006 was reported to be not more than 7 200 tonnes. The government has the task of providing an enabling environment for the enhancement of fish production to meet the dietary animal protein requirements of the population through the optimization of fish yields from present farms and through the development of technologies and the diversification of types and objects of aquaculture.

The domestic consumers mainly purchase freshwater inland fish species, i.e. catfish, common carp, snakehead, pike-perch, asp, wels and barbell. Larger-sized fish (greater than 1.5 kg) are generally more popular. Large silver carp, bighead carp and grass carp are popular among consumers. Other fish species such as sturgeon and trout also easily attract consumers. It is expected that, as in the past, marine fish species will be popular among consumers in Uzbekistan if they become available in the market.

Today, the amount of fish consumed by urban and rural populations differs. Given that fish are mainly distributed to and sold in urban centres, fish are more available to urban consumers than rural consumers. If more fish were available in local, rural markets in the countryside, fish would play an important part in the diet of the rural population.

Traditionally, molluscs and aquatic plants are not part of the diet in Uzbekistan. Fish production is largely focused on the domestic market. Due to the limited quantities of fish available in recent years, fish for the most part is currently sold fresh, with small amounts of fish sold as smoked or salted fish.

## Chapter V

### GOVERNANCE AND INSTITUTIONAL FRAMEWORKS

#### FISHERIES ADMINISTRATION

As per Enactment No. 350 of the Cabinet of Ministers of Uzbekistan approved August 2003, the management of the fisheries sector is entrusted to the Ministry of Agriculture and Water Resources (Figure 12). To that end, the Main Administration for the Development of Animal Husbandry, Poultry Farming and Fisheries was established. Of the 12 officers who work in the main administration, five officers work within the Department for the Development of Poultry Farming and Fisheries and two of these five officers are responsible for fisheries development, both having an educational background in aquaculture.

Departments for the development of animal husbandry, poultry farming and fisheries have also been established in the regional departments for agriculture and water resources, which were entrusted with the promotion of fisheries development.

Commissions under the Council of Ministers of Karakalpakstan and regional authorities were created for allocating waterbodies to a variety of users, based on lease or rental agreements.

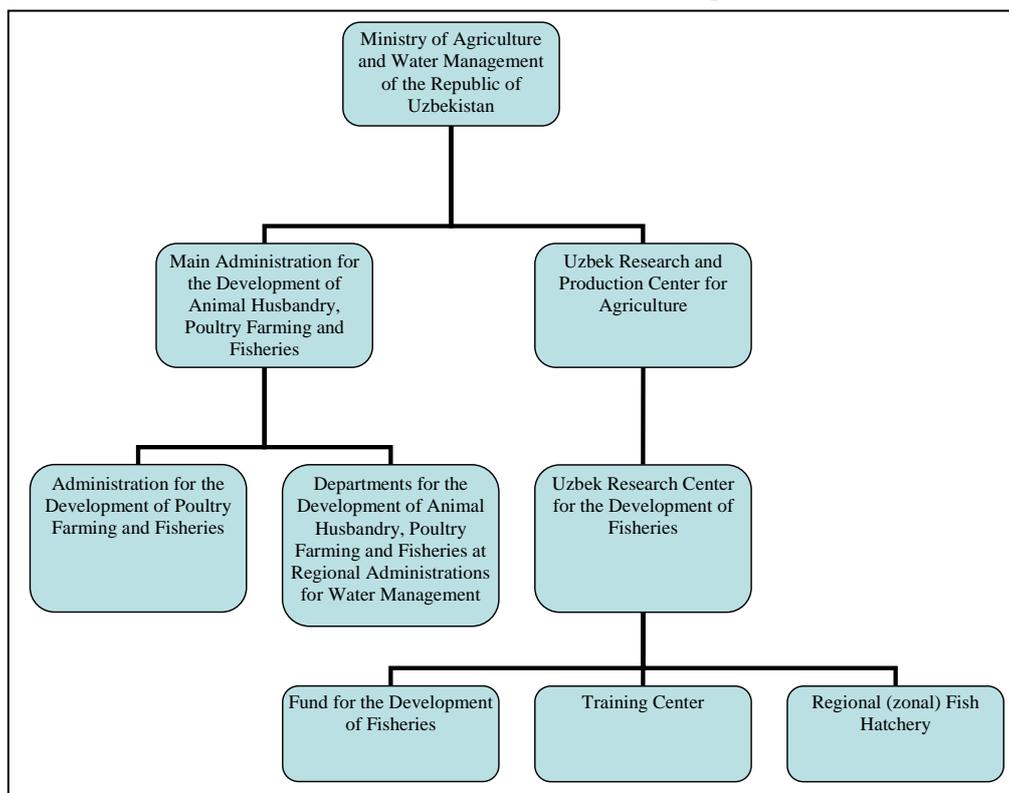
Non-governmental associations of fishers and of fish breeders were set up (2006) in Karakalpakstan and the provinces of Bukhara (2007) and Samarkand (2008). The main task of these associations is to protect the interests of fish farmers at the regional level.

The objectives of the Ministry of Agriculture and Water Resources are the following:

- carry out the unified policy on agrotechnology aimed at the modernization of rural industries;
- improve and introduce modern agrotechnologies for rural industries;
- coordinate activities of branches and structures servicing agricultural producers on the basis of market principles and mechanisms;
- coordinate work on the intensification of economic reforms in the rural sector, large-scale improvement of rental agreements and improvement in contract farming;
- develop recommendations for the improvement of the system of agriculture and distribution of agricultural crops;
- carry out the state policy on seed selection and seed growing, livestock breeding, veterinary services, and plant quarantine and carry out the provision to secure sustainable livestock production, poultry farming and fishery;
- manage the surface water resources according to the basin principle of management of irrigation systems and introduce market principles of water management at all levels;
- implement measures aimed at the improvement/reclamation of old irrigated lands and at the development of new lands;
- participate in the development of investment policies for agriculture, water and forest farms;
- ensure strict observance of laws on the use of land and water resources;
- implement state policy in the sphere of use, protection and development of forestry;
- provide scientific and technical information to organizations and enterprises reliant upon the ministry; and
- improve education, training and skills of managers and specialists in the fields of agriculture, and water and forest farm management.

Until 2003, Uzbalyk functioned as the agency responsible for fisheries development and sectoral management. Currently, there is no such specialized agency in Uzbekistan.

FIGURE 12  
The structure of fisheries-sector management



Source: Authors.

## FISHERY TRAINING, RESEARCH AND EXTENSION

### Research

Research on fish breeding development is conducted under the umbrella of the Coordination Committee for Science and Technologies Development of the Cabinet of Ministers of Uzbekistan. The one research institute specialized in the field of aquaculture and fisheries is the Uzbek Research Center for the Development of Fisheries at the Uzbek Research-Production Center for Agriculture. There are four other research institutes with divisions/departments conducting research in the fields of ichthyology, hydrobiology, fishery and aquaculture. They are the Institute of Water Problems of the UzAS (the Laboratory of Hydroecology), the Institute of Zoology of UzAS (the Laboratory of Ichthyology and Hydrobiology), the Institute of Bioecology of the Karakalpak Branch of UzAS (located in Nukus) and the National University of Uzbekistan (the Department of Ecology). Three of these research institutes are discussed briefly below.

#### *The Uzbek Research Center for the Development of Fisheries*

The Uzbek Research Center for the Development of Fisheries was established on 13 August 2003 (by Enactment No. 350) and functions under the Ministry of Agriculture. It is headed by a director, who is assisted by deputy directors (Figure 13). Of the 17 scientists working in the laboratory, 7 scientists have a doctoral degree and 10 researchers have a master's degree. The research conducted by the laboratory is field tested at the fish-seed production farm called the Regional (zonal) Fish Hatchery in the city of Yangiyul.

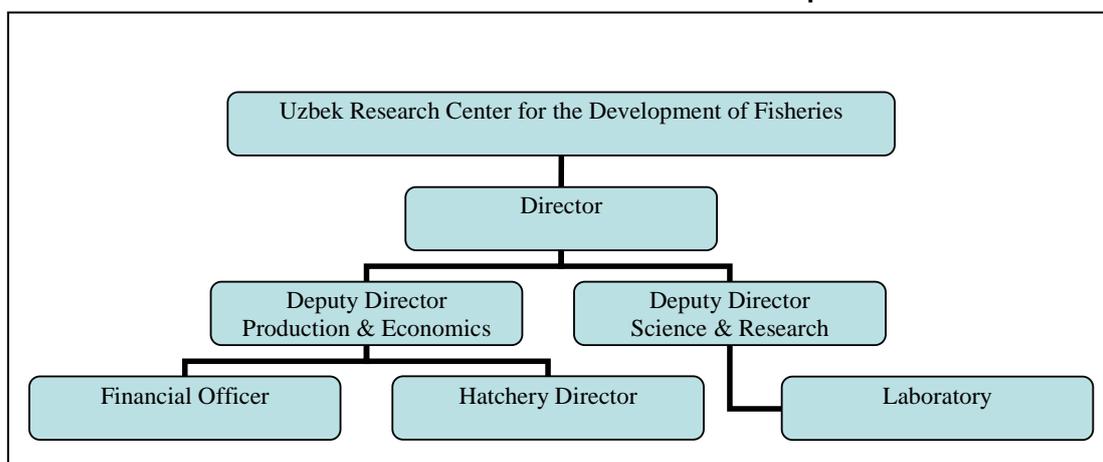
The Regional (zonal) Fish Hatchery at Yangiyul was established in 1975. The director reports that the nursery has 370 ha of land, of which 248 ha are water areas, including 84 ponds (72 nursery ponds and 12 broodstock ponds). The production potential is 15 million yearlings whereas present production is about 2 million yearlings and 50 million larvae. Breeding and rearing is undertaken mainly for three species, i.e. common carp, silver carp and grass carp. The yearlings, ranging in size from 6 cm to 12 cm and in weight from 20 g to 70 g, are sold for som3 000 (US\$2.30) per kg for

silver carp and som3 500 (US\$2.75) per kg for common carp and grass carp. Larvae are sold for som41 500 (US\$32.60) per bag containing 100 000 larvae, which includes som40 000 for the 100 000 larvae and som1 500 for the bag and oxygen. The nursery also conducts research on fish pathogens/fish health, the impact of an increase in density of grass carp and water plant eradication and utilization.

The main objectives of the center (for staffing see Figure 13) are:

- formulate scientific and methodological recommendations on the fish industry and its forage reserve development;
- carry out research on fish breeding and capture fisheries, namely develop activities regarding fish disease treatment and preventive measures, and develop actions to improve the brood fish quality and acclimatization of new species;
- provide fisheries and fish breeding farms with high-quality selective materials; and
- organize training and raise the qualification and skills of fish industry personnel.

FIGURE 13  
The structure of the Uzbek Research Center for the Development of Fisheries



Source: Authors.

#### *The Institute of Water Problems*

The Institute of Water Problems functions under the UzAS in Tashkent. It was established in 1991. The division that looks after the fisheries sector is known as the Laboratory of Hydroecology. It is managed by a director and has a staff of five scientists, i.e. an ichthyologist, a hydrobiologist, a hydrochemist, a fish feed specialist and a technician. Two staff members have doctoral degrees and three staff members have master's degrees.

The institute owns 93 ha of experimental farm and a small laboratory for hydrochemical and hydrobiological analysis. The research staff explores GIS technologies, irrigation and processing of statistical information and accounts, and is conducted with the assistance of the Ministry of Agriculture and Water Resources. The institute makes recommendations to the Committee on the Protection of Nature and to the Ministry of Health. Services developed by the institute are also made available to the committee and the ministry.

Research of note includes the following:

- study of the laws on particular features of arid hydrology and hydrogeology, including problems regarding the mode of formation of water resources and their size and quality under various economic conditions, and also the search for non-traditional sources of water;
- study on problems of management and rationalization of the utilization and protection of water objects;
- development of a methodology to forecast water supply in the country and its various regions in support of long-term planning of water resources in the general context of ecological and national safety;

- development of the ecosystem approach to hydroecological research: studies and estimates of the pollution level of various aquatic and terrestrial ecosystems in Uzbekistan, studies on biodiversity, primary productivity and intensive fishery/fish-farming technologies, and the effect of environmental conditions on the health of the aquatic populations;
- development of industrial sewage, water purification technologies;
- investigation of non-conventional water and land resource utilization in desert areas and arid zones; and
- development of a database on hydroecology of large fishery waterbodies of Uzbekistan.

#### *The Institute of Zoology*

The Institute of Zoology is part of the UzAS in Tashkent. Fishery sector research is conducted by the institute's Laboratory of Ichthyology. The laboratory has five scientists, including the head of the laboratory, two senior research scientists and two research scientists. Two scientists possess doctoral degrees in zoology. Major research includes:

- fundamental research on the state of ichthyological aspects;
- fish stock assessment in the Aydar-Arnasay lake system;
- Tudakul reservoir stock assessment;
- study of fauna, ecology and fisheries of rivers;
- conservation of rare and threatened (aquatic animal) species;
- monitoring of aquatic ecosystems and their bioresources; and
- taxonomy of aquatic animals.

#### **Training and extension support**

There are no specialized educational or capacity-building institutions that prepare specialists for the capture fisheries and aquaculture sectors. This means that neither researchers nor lecturers and technologists with specializations in capture fisheries and/or aquaculture are entering the sectors. Currently, the persons who work in the sectors as specialists were trained in subjects related to fisheries at the National University (biologists), at the former Tashkent State Agrarian University (agricultural experts) and at the Technical University (engineers, food industry experts).

Vocational training and other practical training opportunities for fish farmers do not exist in the country. However, the Uzbek Research Center for the Development of Fisheries has recently taken the initiative to build a training centre for fish farmers at the Regional (zonal) Fish Hatchery at Yangiyul, which became operational in 2008. There is no extension support for capture fisheries development in the country. Support for sustainable fisheries development needs to be developed.

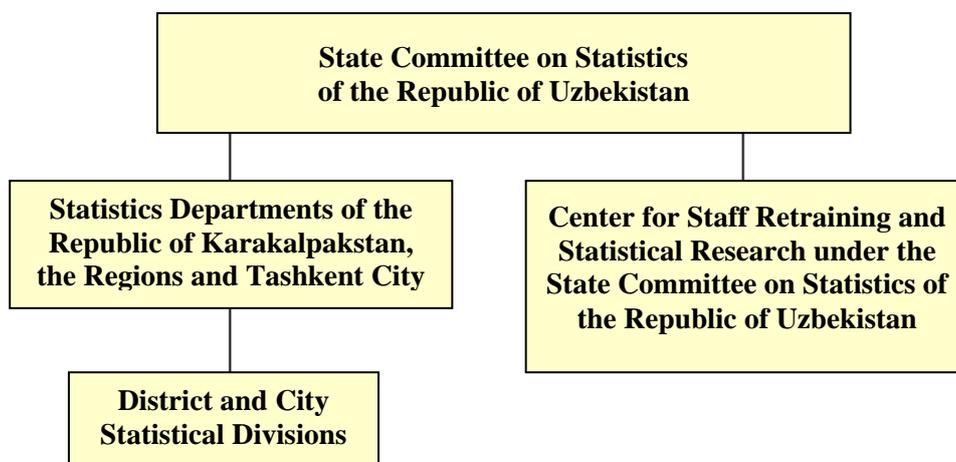
In the past, specialists trained for aquaculture and fishery professions in the higher educational system studied at the Department of Hydrobiology and Ichthyology in the Faculty of Biology at the former Tashkent State Agrarian University (now called the National University). Each year 8 to 20 students graduated in fishery and/or aquaculture subjects. In 2003, the department was transformed into the Department of Ecology, which does not list fishery and aquaculture among its priority subjects.

#### **FISHERY STATISTICS**

Until 2003, Uzbalik (Fisheries Corporation) had been collecting, analysing and disseminating statistics on the fisheries industry. Since 2003, the collection and analysis of statistics are being performed by the State Committee on Statistics of Uzbekistan headed by a chairperson with the rank of minister, who is supported by deputy chairpersons and the Department of Cattle Breeding and Fisheries (Figure 14).

The State Committee on Statistics has regional, municipal and district branches. In the administration of the State Committee on Statistics, there is a department of statistics on agriculture and ecology, while in regional and district administrations, there are departments of statistics on agriculture and ecology.

FIGURE 14  
The structure of the State Committee on Statistics of Uzbekistan



Source: Authors.

The law “On State Statistics” in Uzbekistan was adopted on 12 December 2002. According to this law, capture fish farmers and aquaculture farmers must submit reports to the state statistics administration where they are registered. Entrepreneurs who rent or lease ponds and/or reservoirs from the government are obligated to provide annual fish production information to their district administration. This information is collected and analysed by the State Committee on Statistics.

The level of experience in the actual collection, analysis and use of data is low at local district levels. Therefore, Inland capture fishery and aquaculture production figures are still considered questionable. It is known among all those involved that the official data significantly underestimate actual production. The problem is that although pond farmers pay the single land tax that is levied on agricultural producers (8 percent tax on all products, including fish produced for sale in Uzbekistan), they are not obliged to declare the height and composition of these products. Only the biggest fish farms, such as Balikchy, Khorazm, Todakol, the Regional Fish Hatchery and Zhizak, provide statistics on fish production. Therefore, an appropriate statistical system in support of decision-making by fisheries-sector management is required urgently.

#### **FISHERIES- AND AQUACULTURE-RELATED UNIONS, COOPERATIVES, ASSOCIATIONS AND OTHER FISHERIES-LINKED INSTITUTIONS**

In Uzbekistan, there are no unions, cooperatives or associations of aquaculture and fishery stakeholders active at the national level.

Non-governmental associations of fish breeders/fishers have, however, been created in Karakalpakstan (2006), in Bukhara province (2007) and recently (2008) in Samarkand province.

The association of fishers in Karakalpakstan unites more than 50 fish farms and capture fishery enterprises. The association of fishers in Bukhara province unites 16 fish-capture farms and 1 pond farm.

#### **The Association of Fishery Enterprises**

The fish farmers in Karakalpakstan have taken the initiative and founded the Association of Fishery Enterprises, with current membership numbering 50 members. The association registered in November 2006 as a non-governmental organization (NGO). The major objectives of the association are to:

- to protect the rights of registered members in relations with the government;
- to provide business support to members;
- to provide market support in the selling of fish; and
- to present issues of the fish farmers to the government in the quest for advice and solutions.

The management committee of the association is elected democratically. A chairperson and six members are elected to the management committee. Members contribute som10 000 per month (per farm) to the association and the government also promised to provide funds to the association. This will facilitate the association in providing fishing inputs and equipment to members on credit and at cheaper rates than if inputs were purchased individually.

### **The Business Women's Association**

The Business Women's Association is active in the country and provides assistance to women entrepreneurs. The association undertakes capacity-building activities and consultancies, provides assistance in obtaining credit, and is active in lobbying and advocacy and in attracting funds and programmes for the country in support of poverty reduction objectives. A few fishery entrepreneurs have received supported from the association but details regarding the type of support received were not available. The association is willing to be involved in supporting women in the creation and management of businesses in the fisheries sector.

## **INTERNATIONAL COOPERATION IN FISHERIES DEVELOPMENT AND MANAGEMENT**

As already mentioned, the fisheries sector in Uzbekistan is not considered a priority sector for the development of the national economy. This is reflected first by the limited interest of the government and second by a general lack of international assistance to the sector.

The few examples of international cooperation that occurred in recent years are mentioned below.

### **The Uzbek-American joint venture for the development of the Akva-Tudukal reservoir**

The Uzbek-American joint venture for the development of the Akva-Tudukal reservoir in the Navoi region showed that the adoption of appropriate technologies can enhance fish production many fold. The initial production of 170 tonnes in 2003 increased to 356 tonnes in 2004, 502 tonnes in 2005 and 1 000 tonnes in 2006.

### **German-Uzbek research projects**

Since the early 1990s, a number of important ecological research projects were undertaken that were devoted mainly to the Aral Sea problems. Some of these projects included fishery issues and were carried out in close cooperation with leading German scientists in fisheries and ecology from the Universities of Hamburg, Osnabruck and Bonn.

*The Alexander von Humboldt Foundation, the European Union (EU), and International Association for the Promotion of Cooperation with Scientists from the New Independent States of the Former Soviet Union (INTAS)*

A project funded by the EU and INTAS and entitled "Restoration and management options for aquatic and tugai ecosystems in the northern Amudarya delta region" (Aral Sea 00-1039) was carried out during the period from 2001 to 2003. Because the funding by INTAS was insufficient, the Institute Partnerships Grant of the Alexander von Humboldt Foundation (Germany) funded a follow-up joint research project entitled "Contributions to the decision-support system for sustainable development in the Amudarya delta region, Uzbekistan", which was implemented during the period from 2003 to 2005.

The main objective of both projects was to develop a model and database for a GIS-based, integrated modeling system to support the planning of ecologically-sound water management strategies in the northern Amudarya delta region under varying water supply alternatives. Concerning fishery issues, the Alexander von Humboldt Foundation project concluded that the ecotoxicological situation in the region has improved considerably and that development of commercial fisheries and fish farming based on the natural production and transport of larvae to the delta area is feasible. It made the following recommendations.

- The water in lakes and reservoirs and the flow in rivers and canals should be kept at levels that support fish reproduction. Water allocation should take the needs of fisheries into account.

- The restoration of the Muynak fish-breeding plant in Muynak district could serve to restock the lakes and to support conservation of rare fish species.
- The development of small-scale aquaculture (in ponds) to produce fish as a source of food for the local human population is a feasible alternative to compensate for the loss of the Aral Sea fisheries.

*The German Federal Foundation for the Environment (Deutsche Bundesstiftung Umwelt (DBU)) and the University of Osnabruck*

In 2006–2007, the DBU awarded a research grant for a project entitled “Sustainable Aquaculture in Recirculation Systems – Feasibility Study for the Catchment Area of the Aral Sea”, and under the project framework, new, sustainable aquaculture concepts were developed for Uzbekistan (Wecker, *et al.*, 2007).

The study was carried out by the Institute of Environmental Systems Research at the University of Osnabruck. The project was a collaborative effort among various fishery research institutes and enterprises in Germany and Uzbekistan. A multidisciplinary approach was chosen to consider the biological, ecological, technological and economical criteria for aquaculture development.

The use of various production systems, including “flow through systems”, “recirculation systems”, optimization of pond culture and fisheries enhancement, was analysed and evaluated in light of the situation in the sector. A scoring model was chosen to determine the most valuable or promising concept on the basis of a variety of economic, social and other criteria. The scoring model showed that the most promising concepts today are the following:

- an integrated pond culture system (combination of intensive monoculture of species such as catfish in small, divided parts of ponds and extensive polyculture of cyprinids in large parts of ponds; these two culture systems would benefit from each other when combined into one system);
- a flow through system with intensive trout culture; and
- fisheries enhancement with special attention to restocking (this concept includes the use of a moveable hatchery in containers called “hatchcons”).

On the basis of the results of the study, one new trout fish farm named the NT Fish Farm was created in the Tashkent region in 2007. In 2007, concrete tanks and other facilities were constructed, and the NT Fish Farm began the first production cycle in 2008.

### **The World Bank Rural Enterprise Support project**

The Rural Enterprise Support project, with the assistance of the World Bank, was implemented between 2002 and December 2007. The major objectives of the project were:

- to increase productivity and profitability in the agriculture sector;
- to support private-sector initiatives; and
- to ensure sustainability of the agriculture sector through the rehabilitation of an irrigation drainage system.

The project provided loans through commercial banks for agricultural activities, including livestock and fisheries. Loans ranged from US\$10 000 to US\$100 000 to each farmer and from US\$100 000 to US\$200 000 to agroservices. Rural business advisor services were provided for research, marketing and capacity building. Loan interest rates were 7–8 percent per annum. Though loans were available to the fisheries sector, fishery- and aquaculture-sector stakeholders showed no interest in obtaining loans. The World Bank agreed in principle to cover fishery investment under a second phase of the project, which was approved and awaits implementation start up.

### **The Food and Agriculture Organization of the United Nations project TCP/UZB/3103 (D)**

FAO, at the request of the Ministry of Agriculture and Water Resources of Uzbekistan, provided technical and policy advice to the fisheries and aquaculture sectors of Uzbekistan in 2007 and 2008. Under the FAO Technical Cooperation Programme (TCP) facility project “Development of strategic partnerships in support of responsible fisheries and aquaculture development in Uzbekistan”,

TCP/UZB/3103 (D), a number of capacity-building and training activities were carried out at the national level. The project had the following objectives:

- to increase knowledge and understanding among national policy-makers and potential donors on the status of fisheries and aquaculture in the country and on the current and potential contribution of the sectors to the achievement of food security and the alleviation of poverty;
- to identify effective livelihood-supporting policy interventions in the inland fisheries and aquaculture sectors through the formulation of a fisheries-sector development strategy and implementation programme;
- to develop strategic partnerships with national and international agencies and donors in support of the rehabilitation and responsible development and management of the sectors; and
- to increase the technical and managerial capacity of fishers and aquaculturists in Uzbekistan through training and dissemination of information on sustainable fishery technologies and better management practices.

The project organized, therefore, a number of national-level workshops and produced this “Review of the Current Status of Inland Capture Fisheries and Aquaculture in Uzbekistan”, and the final draft of the document entitled “Conception of Aquaculture and Capture Fisheries Development of the Republic of Uzbekistan, 2008–2016” contained in Part II of this FAO circular. The Conception of Aquaculture and Capture Fisheries Development outlining the development policy and strategy of Uzbekistan was endorsed by the “Conference on Fisheries in Uzbekistan: problems and the ways to their solution”, organized by the Uzbek Parliament on 29 September 2008. The conference recommended to the MAWR and other relevant agencies to accelerate the process of official approval of the document and to implement the development measures.

## Chapter VI POLICY, REGULATORY AND MANAGEMENT FRAMEWORKS

### FISHERIES AND AQUACULTURE POLICIES AND PLANNING

There is currently no official policy for fisheries development and management in Uzbekistan. One reason for the lack of a policy and legal framework for the fisheries sector is that privatization of the sector was completed as recently as 2003. As yet the private sector has not received government agreement on the roles of the public and private sectors in a joint effort towards sustainable development of the fisheries sector. In 2007, as mentioned above (refer to the section on international cooperation and the FAO project), the document entitled “Conception of Aquaculture and Capture Fisheries Development of the Republic of Uzbekistan, 2008–2016” was prepared in a participatory manner, involving all relevant sectoral stakeholders and also key representatives from other sectors in the process. This document awaits official approval.

To realize the programme to intensify economic reforms and to realize an increase in the rate of production of fish and fish products to meet the demand, the Cabinet of Ministers adopted Enactment No. 344 “On the measures to increase the production of fish and fish products in Uzbekistan for the years 1999–2001 and for the period until 2005” on 14 July 1999. The enactment was prepared by the state joint-stock corporation Uzryba. The enactment roughly delineated the targets for the development of the fisheries sector, e.g. the construction of three mini fish canneries. No state financial support for the measures outlined in the enactment was envisaged.

The main goal of the economic reform programme drafted in support of the implementation of the enactment was to restore aquaculture and fishery enterprise facilities to a pre-1994 level (before privatization). However, the programme was decided upon by a limited number of authorities (mainly the Ministry of Agriculture and Water Resources) and is not known among local authorities and sectoral stakeholders. The approved text of the programme, which is not in conformity with the realities of a modern, free market economy, was not easily available.

### FAO Code of Conduct for Responsible Fisheries

In Uzbekistan, the FAO Code of Conduct for Responsible Fisheries is not actively being applied. The FAO Code of Conduct for Responsible Fisheries has, however, the support of the Ministry of Agriculture and Water Resources of Uzbekistan. A Regional Workshop on the “1995 FAO Code of Conduct for Responsible Fisheries in the Central Asian region: A Call to Action” was held in Tashkent on 8–10 April 2008<sup>3</sup>.

Uzbekistan has ratified 9 international conventions on the environment and respective protocols for their implementation and signed 12 international agreements on cooperation in the field of environmental conservation. A list of the most important agreements relevant to the fisheries sector are mentioned below (refer [www.nature.uz](http://www.nature.uz) for detailed information).

### The United Nations Convention to Combat Desertification

The Government of Uzbekistan signed this convention in 1995. The State Committee on Hydrology and Meteorology (Uzgidromet) was appointed the national agency responsible for its implementation. The *main obligations* of the government, according to this convention, relate to the use of an integrated approach to increase the productivity of land resources and to the restoration, protection and sustainable management of land and water resources for the improvement of the living standard.

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<sup>3</sup> FAO. 2008. *Report of the Regional Workshop on the 1995 FAO Code of Conduct for Responsible Fisheries in the Central Asian region: A Call to Action. Tashkent, Uzbekistan, 8–10 April 2008*. FAO Fisheries Report. No. 866. Rome. 92 pp. [Bilingual English/Russian]

To meet its obligations, the government decided to undertake a number of steps, including the following: to study the opportunities for financing soil protection, especially the control of erosion and salinization; to create an infrastructure for the improvement of the management of water resources in agriculture; and to develop the scientific basis of organic farming.

### **The United Nations Framework Convention on Climate Change**

This convention was adopted by the United Nations in 1992. It was ratified by the Government of Uzbekistan in 1993. The main goal of the convention was to stabilize the concentration of greenhouse gases in the atmosphere at levels that would not cause climate change. In 1998, the Kyoto protocol was adopted, which was ratified by the Government of Uzbekistan in 1999. The protocol determined ways to implement the convention by the international community. Uzgidromet was appointed the agency responsible for the implementation of this convention by Uzbekistan.

### **Other signed conventions and agreements**

Other signed conventions and agreements with some relevance for Uzbek fisheries-sector management and development include the following:

- the Convention on Prohibition of Military Actions or Any Other Hostile Use of Environmental Modification Techniques, signed 26 May 1993;
- the Vienna Convention for the Protection of the Ozone Layer, signed 18 May 1993;
- the Montreal Protocol on Substances that Deplete the Ozone Layer, signed 18 May 1993;
- the Convention on Biological Diversity, signed 6 May 1995.
- the Convention on the Protection of the World Cultural and Natural Heritage, signed 22 December 1995;
- the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, signed 22 December 1995;
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed 1 July 1997;
- the Convention on the Conservation of Migratory Species of Wild Animals, signed 1 May 1998;
- the London corrigenda to the Montreal Protocol on Substances that Deplete the Ozone Layer, signed 1 May 1998;
- the Copenhagen corrigenda to the Montreal Protocol on Substances that Deplete the Ozone Layer, signed 1 May 1998; and
- the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, signed 30 August 2001;

The Convention on Biological Diversity was ratified and came into force in Uzbekistan in 1996. The State Committee for Nature Protection is responsible for supporting the implementation of the convention in Uzbekistan.

### **FISHERIES LEGAL AND REGULATORY FRAMEWORK**

Uzbekistan has no specific law on fisheries. This is rather understandable if one considers the peculiarities of the country. Uzbekistan is a landlocked country; it has no access to the sea. Inland waterbodies are mainly used for irrigation and natural fish resources are low as a result of large-scale fish capture in the past. The main potential for fish production is aquaculture, which in its present state can be regulated through the existing agricultural laws. The government pays careful attention to nature protection and fish biodiversity. The regulatory framework for the capture fisheries and aquaculture sectors contains several laws and decrees.

The following laws are applied according to the type of property of the enterprise and include enterprises active in the fisheries sector at large:

- the law on joint-stock companies and the protection of the rights of stockholders;

- the law on associations of limited liability: and
- the law on farming

The management of farms is further regulated by codes, laws and decrees of the President of Uzbekistan and by enactments of the Cabinet of Ministers, namely:

- The Tax Code of 24 April 1997;
- The Law on the Protection of Nature of 9 December 1992;
- The Law on Water of 6 May 1993;
- Regulation No.21-f of the Cabinet of Ministers of 20 January 1997;
- The Law on Farms of 30 April 1998 (Annex 6);
- Decree No. VII-2086 “On the introduction of a single land tax for agricultural producers” by the President of Uzbekistan on 10 October 1998;
- Enactment No. 289 “On the improvement of the system of fishery sector management” approved by the Cabinet of Ministers on 6 July 2001,
- Enactment No. 258 “On the improvement of the organization of the activity of the Ministry of Agriculture and Water Resources” approved by the Cabinet of Ministers on 28 June 2003;
- Enactment No. 350 “On measures to remove monopolies and to privatize the fishery sector” approved by the Cabinet of Ministers on 13 August 2003 (Annex 4);
- Enactment No. 1292 registered at the Ministry of Justice on 20 December 2003 “On the approval of the regulation of the calculation and levying of rent payment for the use of natural waterbodies by fish farms”; and
- The Hunting and Fish Catching Regulations on the Territory of the Republic of Uzbekistan, No. 1569, registered at the Ministry of Justice on 2 May 2006.

Considering that the agrarian sector occupies an important place in the Uzbek economy, significant benefits are given to the agricultural organizations, including aquaculture enterprises. In Regulation No.21-f of the Cabinet of Ministers of 21 January 1997, fish farmers involved in the cultivation of pond fish are on equal standing with agricultural enterprises as regards access to credit and to combustive-lubricating materials, mixed feeds, agricultural equipment and spare parts.

The Enactment of the Cabinet of Ministers No. 289 of 6 July 2001 “On the improvement of the system of fishery sector management” states that fish farms in terms of taxation have the same rights and obligations as agricultural organizations. Pond farmers, therefore, pay a single land tax instead of all state and local taxes (except the excise tax) and fees charged agricultural producers, including:

- income tax (on profits);
- value added tax (except on imported commodities such as labour and services);
- tax on the use of water resources;
- tax on the use of subsurface water resources;
- property tax;
- land tax;
- tax for the improvement of the territory and the development of the social infrastructure; and
- other local taxes and fees.

The single land tax may be levied on the area of the land allocated for ownership or for use or rent for agriculture.

The single land tax is set at a fixed amount per unit of land as determined by a basic rate and correction factors that take into consideration the position, soil and water quality, and water supply of the site. The single land tax contributes to the local revenues. Benefits for fish farms are envisaged under the Tax Code, and more specifically the tax on the property of legal persons. The tax base applied to the cost of property used for the production and storage of fish products is lowered for fish farms.

The benefits available under the land tax regime are tax exemptions for: lands occupied by rivers, lakes, reservoirs, canals, seas, glaciers, marshlands, hydrotechnical and other facilities given to enterprises for water management, as well as diversion strips along the waterbodies; agricultural lands and forest reserves of scientific organizations; and experimental and training-demonstration farms of

research organizations and agricultural and forestry educational institutions that are used for scientific and educational purposes (Land Tax Article 101).

## **FISHERY MANAGEMENT**

The decision to complete privatization in the fisheries sector was made just a few years ago. As a consequence, the fisheries sector has not yet produced any fishery management plans. Public-private collaboration on fishery management has yet to be established.

Fishery management today is very poor. The main reasons are that (i) fish capture is very small (several thousands tonnes); (ii) fish capture is important only at local level; and (iii) fish resources are determined by irrigation management rather than fisher activity.

If those who irrigate would ensure a certain water level in lakes, reservoirs and even in entire regions, then a noticeable increase in fish stocks would be possible, including commercially important species. Irrigation for agriculture is, however, much more important for the country than fish capture. Many traditional methods of fishery management were abolished and lost in the last decade. A study of fish stocks in all regions is not possible because of a lack of funds for research in these matters. Management tools such as regulations on minimal mesh sizes, catch quotas (in total and by species), area closures for fishing and seasonal fisheries closure, which were used previously, are no longer applied.

The latest fish-capture regulations were not developed by the fisheries sector but by the State Committee for Nature Protection. The goal of this committee is to protect the resources, but not to develop the utilization or productivity of natural ecological systems in terms of fish production. The current laws and regulations do not consider fish capture a commercial activity but a recreational activity similar to hunting.

### **Fish catch regulations**

The State Committee for Nature Protection of Uzbekistan adopted "Hunting and Fish Catching Regulations on the Territory of Uzbekistan", which were registered at the Ministry of Justice on 2 May 2006 (Annex 5). The regulations encompass all rivers with their tributaries and channels, lakes, reservoirs and the other fishery waterbodies in the country. Therefore, they regulate commercial fish capture, procurement of water invertebrates, sport and recreational fishing, and also rearing, scientific research and other works connected with fish capture. The regulations provide the framework for the conservation of fisheries in waterbodies.

These recently enacted new regulations deal with the manner of fishing, prohibition of fishing in various waterbodies, mesh-size regulations for various fishing gears, quota on various types of fishes, and prohibition of non-ecological fish-capture methods.

Fisheries is also controlled by the Regulation "On the procedure for allocation and use of natural fishery waterbodies of the Republic of Uzbekistan" (attachment to Annex 4), which is contained in Enactment No. 350 "On measures to remove monopolies and to privatize the fishery sector" approved by the Cabinet of Ministers of Uzbekistan in 2003). This regulation identifies the procedure for renting natural waterbodies in Uzbekistan.

Legal and physical persons now have the right to conduct commercial capture fishery activities that are covered under rental/lease contracts, which generally are valid for a period of more than ten years.

The amount of rent to be paid for the use of a natural waterbody is determined by:

- 1) the surface area and WATER volume of the waterbody;
- 2) the volume of aquatic animals caught in the waterbody in the last three years;
- 3) average annual catch as determined on the basis of catches in the last three years;
- 4) the yield per 1 ha as determined by dividing the average annual catch by the area of the waterbody; and
- 5) the average yield per 1 ha multiplied by 1.5 percent in the first year of rent; by 2 percent in the second year; and in subsequent years by 3 percent of the minimal salary.

The amount of the rent payment is determined annually at the beginning of the year (Table 22).

TABLE 22  
**Rent payments per hectare for natural waterbodies in  
 four provinces of Uzbekistan and in Karakalpakstan in 2007**

Republic/province	Name of waterbody	Rent payment per 1 ha (in soums)
Rep. of Karakalpakstan	Zhiltirbas	1 000
	Sarykamish	1 000
	Dautkul	2 847
	Sudochie	800
	Mezhdurechie	735
Bukhara province	Kara-kir	372
	Zamonbobo	745
	Agitma	969
	Devhona	1 043
	Hadicha	1 043
Jizzak province	Aydar-Arnasai	820
Navoi province	Aydar-Arnasai	606
	Tudakul	2 594
	Shurkul	640
Kashkadarya province	Sechankul	411
	Talimardjan	411
	Luhlikul	411

Source: Authors.

The Cabinet of Ministers of Karakalpakstan and the regional administrations (hokimiyats) have the right:

- to suspend the capture of fish and other aquatic animals and the storage of plants if violations of the laws and terms of contract are reported, particularly violations of that part of the provision regarding annual stocking, maintenance and reproduction of fish resources; and
- to terminate a contract upon systematic, gross violation by an enterprise renting a waterbody safeguarded by nature protection laws and by regulations on fish catches.

Fish farmers have the right:

- to use the allocated waterbody or a part of it according to the rent contract;
- to carry out commercial catch of fish on a quota-free basis and to sell produce at their discretion;
- to create subsidiary farms beyond the water protection zone for the production of forage and other crops connected with the main activity, as well as for production of fish products;
- to create their own hunting estates or fish farms; and
- to other rights in compliance with the law.

The tenant fish farmer/fishery enterprise is obliged:

- to catch fish in compliance with established laws and to obey nature protection laws;
- not to sublease the waterbody;
- to carry out annual stocking and melioration, to save juveniles and to take other measures to ensure the integrity and reproduction of fish resources;
- to submit each December information on the state of fish stocks in the natural waterbodies and the measures necessary for their reproduction to the State Committee for Nature Protection of Uzbekistan and to the Research Center for the Development of Fisheries;
- to register all caught fish in the standard book of catches;
- to ship fish using commodity-transport invoices;
- to keep records on all vessels and observe safety measures while catching fish;
- to submit statistical information according to the approved format; and
- to make timely rent payments for the use of the natural waterbody.

Inspections to ensure adherence to the Hunting and Fish Catching Regulations on the Territory of the Republic of Uzbekistan are carried out by Gosbiokontrol (State Biological Control Agency) under the State Committee for Nature Protection. The officers of Gosbiokontrol keep records on nets and fishing equipment used for fish catching.

## **Chapter VII**

### **SOCIAL AND ECONOMIC ASPECTS OF FISHERIES AND AQUACULTURE**

#### **FISHERIES AND AQUACULTURE EMPLOYMENT**

After the issuance of Enactment No. 350 in 2003 when privatization of fisheries was completed, the number of enterprises in the fisheries sector increased: (i) existing enterprises split into several smaller enterprises; and (ii) new enterprises were created. The number of people employed in the sector also increased in comparison with 1994–2003.

Official government figures estimate that about 5 700 people are employed in primary production activities in the fisheries industry (including aquaculture and capture fisheries). The two hundred-eighty private enterprises involved in fisheries employ 3 700 persons. More than 2 000 workers are employed at 21 aquaculture farms.

The administrative staff consists of 616 employees, representing 11 percent of the total number of people engaged in the fisheries industry. The percentage of staff to total number of people employed in the sector varies from region to region. The highest percentage of administrative staff is employed in enterprises in Surkhandarya province (14.9 percent).

The above-mentioned figure of 5 700 employees does not include the number of employees working in support services such as transport, processing by enterprises other than fishing enterprises, retail (mainly women) and wholesale trade and ice supply. It is estimated that about 10 000 people, including workers in the support services, are employed in the fishery industry in Uzbekistan.

As per a government report, the greatest number of specialists with diplomas, such as fish breeders, mechanics, and technicians and engineers, are in Tashkent (44.3 percent of the total number of workers), while 56 percent of the specialists are located in the other provinces, i.e. Ferghana, Navoi and Andijan provinces, and Karakalpakstan. Currently, there is a lack of qualified personnel in the fisheries industry because no educational institution offers an education in fisheries.

The National University (formerly the Tashkent State Agrarian University) may have to initiate action to provide for fisheries education at bachelor and master levels and establish regional vocational training centres for aquaculturists and fishers.

#### **SOCIAL SECURITY OF FISHERS, AQUACULTURISTS AND OTHER WORKERS ENGAGED IN THE SECTOR**

Special social security benefits are not envisaged for employees in the fisheries sector, neither at the state level nor at the private enterprise level (except in certain cases maybe a small benefit for workers employed in enterprises). Social security and (life and health) insurance programmes, which are common in other sectors, would also be beneficial in the fisheries sector, but at present no such programmes are envisioned. The current role of trade unions or associations in terms of contributing to the social welfare of fishers in private enterprises is negligible.

The salaries of fishers are low, on average about US\$100 per month. This low salary leaves them with insufficient income to make contributes to a social security scheme.

The current law requires an employer to pay 24 percent of employee salaries to a pension fund (workers receive their salaries in full).

#### **ECONOMICS OF FISHERIES AND AQUACULTURE**

As economic figures on various fishery and aquaculture activities in Uzbekistan are not available, the aim in this section of the report is to provide a general indication of investments and earnings made by the fisheries and aquaculture sectors.

Fish-capture technology used in Uzbekistan is limited to gillnetting in inland waters. The economics of fish capture with gillnets can be summarized as follows:

- initial investment low
- operational costs (per year) low
- gross income (per year) low
- net profits (annual) low
- trend in net profits compared with last years stable

Aquaculture technology in Uzbekistan is mainly limited to pond culture of cyprinids in extensive and slightly semi-intensive production systems. The economics of this activity can be summarized as follows:

- initial investment low  
(as ponds generally exist from Soviet times)
- operational costs (per year) low
- gross income (per year) low
- net profits (annual) low
- trend in net profits compared with last year increasing (because production is generally increasing)

The relative common cost-benefit structure of table-fish production by farmers who produce their own seeds and table fish are the following:

*Primary costs*

- salaries 12 percent
  - feeds, seeds and other materials 74 percent
  - gasoline, electricity 9 percent
  - services of other enterprises and persons 5 percent
- EXPENSES 100 percent

*Profit*

- primary costs 75 percent of total income
  - land tax 2 percent
  - net profit 23 percent
- INCOME 100 percent

## **CREDIT AND INVESTMENT IN FISHERIES AND AQUACULTURE**

Uzbekistan began to move towards a two-tier banking system under the former Soviet Union regime. The Banking Law of 1991 authorized a new structure. Under this new structure, a government-owned central bank wields control over a range of joint-stock sectoral banks specializing in services to agriculture or industrial enterprises and then referred to as Savings Banks (Sberbanks) and today called Ipotekbanks. The central bank directs the flow of as much as 70 percent of all deposits through more than 1 800 branches of Ipotekbank. The National Bank for Foreign Economic Affairs, established in 1991, conducts international financial exchanges on behalf of the government and holds Uzbekistan's foreign currency reserves.

In addition, there are commercial banks. Currently, commercial banks provide loans with a 14–24 percent interest rate, depending on the duration of a loan, the type of production or activity (services, trade, production, agriculture) of the borrower and an assessment of associated risks of non-repayment of a loan.

A borrower must provide a guarantee and business plan in order to obtain a loan. As a guarantee, a bank accepts the pledge of the main assets of the enterprise, i.e. vehicles and the value of pawned assets, which are estimated by independent appraisers. If the amount of the loan is som1 million, the pawned assets should be no less than som1.2 million. This is generally the main requirement of the bank that provides the credit. Without this guarantee, it is impossible to get a loan.

A beneficial loan from a special fund (with only a 3 percent annual interest rate) is available to farmers growing cotton and cereal crops. This type of loan can be used to pay for combustible-lubricating materials, mineral fertilizers, services and payments. The extent of the credit is determined in relation to the size of the plantation land area.

A specific line of credit may be established in support of the production of certain crops. Based on the distribution of the crops as determined by the departments of agriculture and water resources, the servicing banks send a list of farmers and the estimated number and value of credits to the Ministry of Finance of Uzbekistan. Upon confirmation by the ministry of the correctness of crop cultivation of farmers, the bank is then able to grant the loan. Revenue generated from a 3 percent interest rate is distributed as follows: 1.5 percent to the bank for its service and 1.5 percent to a special fund.

According to Regulation No. 21-f of the Cabinet of Ministers of Uzbekistan issued 21 January 1997, fish farms situated in rural areas and involved in the cultivation of pond fish have equal standing with agricultural enterprises in terms of obtaining credit, combustive-lubricating materials, mixed feeds, mineral fertilizers, agricultural equipment and other material-technical resources. Pond farmers can, therefore, apply to the Ministry of Agriculture and Water Resources and the Cabinet of Ministers of Uzbekistan with a request to establish a line of credit with beneficial terms.

Some efforts were made to study the credit operations of the People's Bank of Uzbekistan. The bank extends credit for livestock production and agriculture, including fisheries. Agriculture crops can be insured by the insurance company UzAgroInsurance for a value of 0.75 percent of the value of a bank loan. The amount of the credit cannot exceed 60 percent of the amount of the total investment, and thus the balance of 40 percent is borne by the farmers.

Credit for investment in livestock and poultry, fisheries and agricultural enterprises and for leasing of equipment is available from commercial banks. The commonly applied interest rate is 14–21 percent per annum. Immovable property is provided as a guarantee to the bank. It is reported that four fish farmers in the Khorazm and the Zhizak regions were given credit on the above-mentioned terms for the purchase of inputs for aquaculture. The total value of the credit provided was som10 million (US\$7 875). It can, therefore, be argued that the current supply of credit to the fisheries sector is negligible.

Institutional credit is not available at the moment for most entrepreneurs in the fisheries sector. They must rely on non-institutional sources of credit from moneylenders, relatives, etc. In general, the amount of credit obtainable from these sources is fairly limited and mainly intended for working capital requirements. In addition, most of these non-institutional credit arrangements have a number of disadvantages, such as high interest rates and unfavourable terms and conditions attached to loans.

The lack of flexibility in the Uzbekistan banking system, together with the relatively high interest rate of bank loans, constrain local entrepreneurs from investing in means of production, and thus present an obstacle for the development of the fisheries sector. Credit is needed for the construction of ponds, the purchase of inputs and fishing equipment, such as fishing nets, boats and transport vehicles, and the processing and marketing of fish.

There are no institutions that provide flexible lines of credit that meet the needs of small- and medium-scale aquaculture and fisheries producers in Uzbekistan at present. For the rehabilitation of the fisheries sector, it is important that there be access to credit for those willing to invest in the sector.

### **Microfinance**

Currently, a microcredit bank operates in Uzbekistan. This bank provides microcredit for the purchase of property and for production activities. It also demands a guarantor.

Microcredit interest rates are 10–14 percent per annum and their duration is for a period of less than three years. The largest amount available to legal persons is som15 million and to physical persons som7.5 million.

Policy Brief No. 3, 2006, of the United Nations Development Programme (UNDP) on Microfinance in Uzbekistan states: "Current State and Future Prospects, the total volume of microcredits provided by microfinance institutions as a share of GDP was 0.65 percent in 2003 and increased to 0.71 percent in 2004".

International donor organizations have played, and can continue to play, a decisive role in establishing, facilitating and developing microfinance in Uzbekistan. Some donors have provided start-up capital and funded transaction costs in early stages of microfinance schemes, and the Microfinance Institutions (MFIs), established with their support, continue independently their

operations. Among the donors are the Netherlands Agency for Technical Cooperation and Development (NOVIB), which assisted with the establishment of Sabr NGO-MFI, and the United Kingdom's Department for International Development (DFID), which provided start-up capital for Barokot. The Agency for Technical Cooperation and Development (AECTD), an international NGO based in France, continues to support microfinance. The Asian Development Bank (ADB), together with the Japan Fund for Poverty Reduction (JFPR), are financing innovative techniques for poverty reduction in Karakalpakstan. The World Bank is interested in implementing a microfinance programme in the Samarkand and Bukhara regions in close contact with branches of the Khalq Bank, one of the major banks in Uzbekistan. In its strategy for 2005–2007, the European Bank for Reconstruction and Development (EBRD) identified the establishment of a microfinance bank in Uzbekistan.

The fisheries sector has not been targeted by nor benefitted from microfinance schemes in the country. There is a need to extend support under microfinance schemes to fisheries and aquaculture to overcome the constraint of having to provide guarantees and to promote group lending. In this regard, a project implemented in Ferghana Valley by UNDP and called "Enhancement of Living Standards" provides an example of positive initial success of group lending and joint liability for recovery of loans. So far, a loan of about US\$75 000 was granted to 450 members in individual loans of som300 000 (US\$236). Loan repayment was reported to be at the rate of 98 percent. Fishery enterprises were not provided loans under this project but efforts will be made to extend the loan schemes also to the fisheries sector.

### **Insurance**

In Uzbekistan, 26 insurance companies currently operate. However, only the insurance company Uzagrosugurta deals with agro-insurance, including livestock. It is a state joint-stock insurance company and has been carrying out its activities since 1997. It has 193 branches employing 2 000 agents and a staff of another 2 000 persons. The business generates income from premiums amounting to som10–12 billion per annum. Premium payments amounting to 3–8 percent of the value insured are charged for crop and livestock insurance. At present, fisheries investments are not covered by insurance but the company has shown a willingness to prepare a scheme for the insurance of fisheries investments, with the assistance of international technical support.

## **THE ROLE OF FISHERIES AND AQUACULTURE IN FOOD SECURITY AND POVERTY ALLEVIATION**

Both during the Soviet era and after Uzbekistan gained its independence, the workers of the fisheries sector were among those people with higher living standards in comparison with workers from other rural sectors. The reason is because Uzbekistan is one of the more southern republics in the Commonwealth of Independent States, which implies warmer weather and higher yields in the fisheries sector compared with those republics in the more northern countries (taking into consideration the technologies that are applied).

In the 1990s, more than 12 000 people were directly involved in fisheries-sector primary production activities. Settlements and schools and kindergartens were built for fishers on some large farms. Food and free medical services were provided for them. In addition, free tickets were given to those people who needed to improve their health in sanatoriums and preventoriums, and tickets to summer camps were given to their children. There were clubs, libraries and other social facilities in these settlements. Trade unions exercised a strong influence over each farm, which together with the administrations of fish farms, addressed the social security issues of the workers in the fisheries.

Currently, it is impossible to distinguish families of fishers from those families working in other rural sectors. Uzbek families are usually large, consisting of several generations (children frequently live with their parents), and maybe only one or two family members are fishers. Other family members can be involved in activities such as the growing of cotton and cattle husbandry or work in the social and service sectors. After the complete privatization of the fisheries sector, employment significantly declined, particularly on pond farms.

Fishers and specialists have left the settlements on many fish farms because of the reduction in jobs. Due to the lack of attention by the fish farm administrators, many houses and social and cultural facilities in the settlements have fallen into ruin and property has been misused (Figure 15). The livelihoods of fishers and their families have deteriorated. Public institutions in the rural areas and the private fishing enterprises have taken almost no measures to improve the living standards and health of the fishers and their families.

FIGURE 15  
**Ruins left by people now living nearby at the Muynak Fish Farm in the village of Porlatau on the Amudarya River delta in Karakalpakstan**



Photo courtesy of Mr B. Karimov.

### **Capture fisheries**

Catches are usually made from the shores of lakes and reservoirs. There are few settlements on the shores of these waterbodies. Beach gangs of fishers usually work on a shift team. While working on the team, the fishers do not have to spend time searching for food because part of the catch is used for food. Furthermore, the owner of the enterprise provides fishers with food and clothes, including winter clothes and robes, when offshore as well as onshore. All this contributes to a slightly higher living standard for the fishers.

Houses of most fishers are situated in towns and villages, where there is always a power supply, pure drinking water and other conveniences. The size of a worker's house depends on his/her needs. Some workers live in flats and some workers live in houses. Gang leaders use high wages to attraction workers to participate in catches. Part of the catch generally constitutes payment for labour, i.e. workers receive piece-rate pay. Various enterprises propose their own terms. As the gangs are usually small (5 to 15 persons) and to catch requires certain skills, the fishers are usually well-known and

## **Chapter VIII**

### **SECTORAL DIAGNOSIS**

Chapter III describes the current status of fisheries in Uzbekistan, without giving a detailed analysis of the situation. It is clear that there are a number of constraints to overcome and issues to address if the fisheries sector is to develop in an environmentally and socio-economically responsible and sustainable manner.

Various methods can be used to diagnose the current situation. One of the most commonly used methods to analyse a situation, create understanding and assist future decision-making processes in a simple manner is the strengths, weaknesses, opportunities and threats analysis (SWOT). This method has the advantage that it addresses both internal and external factors that support or constrain development. The analysis of the internal and external pectoral environment provides useful information for the preparation of a strategic plan for fisheries sector development in Uzbekistan. In the following SWOT analysis, the current situation in the Uzbekistan fisheries sector is diagnosed in light of the sector's natural, human, inland and financial resources.

#### **STRENGTHS**

- Uzbekistan has the environmental water resources suitable for the development of aquaculture, such as rivers, reservoirs, lakes and irrigation channels.
- Inland water resources are underexploited.
- The experience of entrepreneurs in fish farming and hatchery management was gained during the Soviet era.
- The current fisheries administration in the Ministry of Agriculture and Water Resources is small and as such does not require many financial resources.
- The government has privatized fishery enterprises.

#### **WEAKNESSES**

- There is no national fisheries-sector policy or regulatory framework to assist the sector in sustainable management.
- Fisheries is not a priority sector for government development planning.
- The Ministry of Agriculture lacks the financial means to ensure that the Department of Fisheries is a centre of excellence; this department should be staffed with highly qualified personnel and equipped with modern means of communication and transport.
- Extension services are lacking at regional and district level.
- The fisheries-sector research institutes do not have the financial means to undertake the necessary research to assess fishery resources and support the development of fishery management.
- Most hatchery facilities for restocking of inland waters and aquaculture ponds with fish seed are functioning at a low level of efficiency and are underutilized.
- Domestically produced fish feed for aquaculture is of poor quality.
- Inland waterbodies are not being restocked and fishing in inland waterbodies is not being monitored and controlled.
- Per hectare productivity is too low.
- The collection of fishery statistics is not coordinated properly and data collection and analysis is not conducted in a scientific manner, which affects decision-making.
- Canks credit services and government incentives (subsidies) for the fisheries sector are lacking.
- Insurance schemes are not extended to the fisheries sector as they are to the agriculture sector.

valued in the fishery sector. If they are dismissed from one enterprise, they frequently receive proposals of employment from other enterprises.

At the present time, people living in villages situated near waterbodies generally do not catch much fish for domestic/family consumption; instead they catch some fish to sell for hard cash.

Unfortunately, there are no statistical data on real incomes of fishers. However, it is possible to estimate the monthly income of a fisher: it ranges between som100 000 and som300 000. This income is higher than incomes of workers involved in other activities.

Currently, there is no system that prepares specialists for the fishery sector. On some gangs, managers have a higher special education degree in fisheries, received before 1991. On other gangs, there are no specialists with such a degree.

### **Aquaculture**

Enterprises rather than private individuals engage in fish cultivation. The situation for the people working in aquaculture enterprises is similar to that of fishers. All pond farms of Uzbekistan are built near cities and large populated areas and on lands generally unfit for agriculture. In settlements belonging to aquaculture enterprises, the living standards are usually relatively good (Figure 16). Settlements are provided with electricity, gas, drinking water and services.

FIGURE 16  
**The fishing village of Navruz in the Aydar-Arnasay lake system**



Photo courtesy of Mr B. Karimov, 2005.

Average monthly wages/salaries on fish farms are between som100 000 and som130 000. Workers are employed all year round. Aquaculture entrepreneurs generally provide additional help in support of the livelihoods of the workers on their farms. On most farms, plots of land are allocated to workers and their families for growing vegetables and fruit.

In recent years, many fish-farm owners sell the fish produced to their workers at the wholesale price. Then in turn, the workers or their families sell the fish at the market, thus earning additional income.

Currently, the aquaculture sector lacks personnel with a higher education. On many fish farms, the higher education of the heads of the enterprises and the leading specialists was received before 1991. However, there is no specialized training available for young people and this makes it difficult to ensure continuation of aquaculture in the long term.

## **OPPORTUNITIES**

- With the participatory preparation of the “Conception of Aquaculture and Capture Fisheries Development of the Republic of Uzbekistan, 2008–2016”, the government initiated discussions with all relevant stakeholders, and increased stakeholders’ collaboration and involvement in decision-making seems possible for overcoming constraints in development.
- The proposed “Conception of Aquaculture and Capture Fisheries Development of the Republic of Uzbekistan, 2008–2016” (containing the “Aquaculture and Capture Fisheries Development Policy and Strategy of the Republic of Uzbekistan, 2008–2016”), once approved by the government, will provide a basis for responsible and sustainable development of the sector in the coming years and will allow international donors to support the government in its efforts towards sustainable development.
- There are opportunities for entrepreneurs to adopt cost-effective modern and innovative new technologies and management systems, taking advantage of the lessons learned by other countries and compiling up-to-date information on co-management schemes and programmes.
- Today, the hydrochemical and biological conditions of the waterbodies provide possibilities for the stocking of fishes, cage culture, pen culture and trout culture, in anticipation of an increase in future per capita consumption of animal protein.
- The World Bank agreed to cover the fisheries sector in the Rural Enterprise Support project Phase II, which was implemented in 2008 and will run to 2013.
- Banks have shown interest in providing loans to fishery enterprises, including microfinance support to women entrepreneurs.
- The uniting of international and regional fisheries bodies will provide Uzbekistan with increased access to information and collaboration on fishery resources, research, management, education, technology, marketing and trade.
- There are opportunities for insurance companies to extend insurance schemes to the fisheries sector.
- The increase in employment in the rural areas and the enhancement of socio-economics will facilitate poverty reduction.

## **THREATS**

- Inland waterbodies are not productive during part of the year because they are covered with ice and the water temperature is low in winter; during this period, fish do not consume much feed and grow slowly.
- The overall improvement in economic development has a role to play in the development of fisheries.
- The government needs to act more proactively in facilitating fisheries development by providing financial assistance for research and management of fishery resources.
- As long as the financial institutions do not consider the fisheries sector and its needs, investment in the sector will remain low.
- Unless fishery management is taken seriously in irrigation management for agricultural crops and is provided protection for maintaining the required level of water for fisheries, the level of production will remain low.
- Formal educational institutions, and practical training/capacity-building and extension institutions that address the needs of the fisheries sector are few and this limits the number of people who can be trained in fisheries, thus hindering sectoral development in the near future.

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**Annex 1****THE DYNAMICS OF FISH PRODUCTION IN UZBEKISTAN, 1980–2006**

TABLE 23

**The dynamics of fish production in Uzbekistan, 1980–2006 (in '000 tonnes)**

Year	Total fish production	Fish production in:	
		Pond fish farms	Natural waterbodies
1980	16.7	11.5	5.2
1990	26.5	20.4	6.1
1991	27.2	20.3	6.9
1992	28.1	20.9	7.2
1993	23.4	16.8	6.6
1994	15.3	12.2	3.1
1995	12.5	8.9	3.6
1996	8.0	5.8	2.2
1997	8.4	5.3	3.1
1998	8.8	6.1	2.7
1999	8.2	5.5	2.7
2000	8.7	5.3	3.4
2001	8.8	5.4	3.4
2002	7.8	5.2	2.6
2003	5.4	3.3	2.1
2004	4.3	2.4	1.9
2005	6.1	3.2	2.9
2006	7.2	3.8	3.4

*Source: Authors.*

Annex 2  
**FISH FAUNA IN UZBEKISTAN**

TABLE 24  
**Fish fauna in Uzbekistan**

Species scientific name	Common name	Status
<b>ACIPENSERIDAE</b>		
<i>Acipenser nudiiventris</i> Lovetzky	Spiny sturgeon	LC*
<i>Pseudoscaphirhynchus kaufmani</i> (Bogdanow)	Big Amu-Darya shovelnose	LC*
<i>Pseudoscaphirhynchus hermanni</i> (Kessler)	Little Amu-Darya shovelnose	LNC*
<i>Pseudoscaphirhynchus fedtschenkoi</i> (Kessler)	Syr-Darya shovelnose	LNC*
<b>SALMONIDAE</b>		
<i>Salmo trutta aralensis</i> Berg	Aral trout	LNC*
<i>Salmo trutta oxianus</i> Kessler	Amu-Darya trout	LC
<i>Salmo ischchan issykogegarkuni</i> Luschin	Sevan (Issyk-Kul) trout	AC
<i>Oncorhynchus mykiss</i> (Richardson)	Rainbow trout	AC
<b>COREGONIDAE</b>		
<i>Coregonus peled</i> (Gmelin)	Peled	AC
<i>Coregonus sardinella</i> Valenciennes	Least cisco, lake herring	AAC
<b>ESOCIDAE</b>		
<i>Esox lucius</i> Linnaeus	Pike	LC
<b>CYPRINIDAE</b>		
<i>Rutilus rutilus aralensis</i> Berg	Aral roach	LC
<i>Rutilus rutilus bucharensis</i> Nikolsky	Bukhara roach	LC
<i>Leuciscus lehmanni</i> Brandt	Zarafshan dace	LNC
<i>Leuciscus squaliusculus</i> (Kessler)	Syrdarya dace	LNC*
<i>Leuciscus idus oxianus</i> (Kessler)	Ide	LNC*
<i>Scardinius erythrophthalmus</i> (Linnaeus)	Redeye	LNC
<i>Ctenopharyngodon idella</i> (Valenciennes)	Grass carp	AC
<i>Mylopharyngodon piceus</i> (Richardson)	Black carp	AAC
<i>Aspiolucius esocinus</i> (Kessler)	Pike asp	LC*
<i>Aspius aspius taeniatus n. iblioides</i> (Kessler)	Asp	LC
<i>Opsariichthys uncirostris amurensis</i> Berg	Three-lips	AANC
<i>Tinca tinca</i> (Linnaeus)	Tench	AC*
<i>Pseudorasbora parva</i> (Schlegel)	Stone morokos	AANC
<i>Gobio gobio lepidolaemus</i> Kessler	Gudgeon	LNC

Species scientific name	Common name	Status
<i>Pseudogobio rivularis</i> (Basilewsky)	Amur false gudgeon	AANC
<i>Varicorhynchus capoeto heratensis natio steindachneri</i> (Kessler)	Khramulya	LC
<i>Barbus capito conocephalus</i> Kessler	Turkestan barbel	LC
<i>Barbus brachycephalus</i> Kessler	Aral barbel	LC*
<i>Schizothorax intermedius</i> McClelland	Marinka (snowtrout)	LC
<i>Diptychus maculatus</i> Steindachner	Scaled osman	LNC
<i>Diptychus dybowskii</i> Kessler Russky	Scaleless osman	LNC
<i>Chalcalburnus chalcoides aralensis</i> (Berg)	Aral shemaya	LC
<i>Alburnoides bipunctatus eichwaldi</i> (Filippi)	Rifle minnow (bystryanka)	LNC
<i>Alburnoides taeniatus</i> (Kessler)	Striped bystryanka	LW
<i>Alburnoides oblongus</i> Bulgakov	Tashkent bystryanka	LNC*
<i>Abramis brama orientalis</i> Berg	Eastern bream	LNC*
<i>Abramis sapa</i> (Pallas)	White-eye	LC
<i>Parapramis pekinensis</i> (Basilewsky)	White amur bream	AAC
<i>Capoetobrama kuschakewitschi</i> (Kessler)	Ostroluchka	LNC
<i>Hemiculter leucisculus</i> (Basilewsky)	Common sawbelly	AANC
<i>Hemiculter lucidus</i> (Pub.)	Sawbelly	AANC
<i>Pelecus cultratus</i> (Linnaeus)	Rasorfish	LC
<i>Rhodeus ocellatus</i> (Kner)	Bitterling	AANC
<i>Carassius auratus gibelio</i> (Blochin)	Crucian carp	AC
<i>Cyprinus carpio</i> Linnaeus	Common carp	LC
<i>Hypophthalmichthys molitrix</i> (Valenciennes)	Silver carp	AC
<i>Aristichthys nobilis</i> (Richardson)	Bighead carp	AAC
<b>COBITIDAE</b>		
<i>Nemacheilus strauchi</i> (Kessler)	Spotted stone loach	AANC
<i>Nemacheilus labiatus</i> (Kessler)	Plain stone loach	AANC
<i>Nemacheilus dorsalis</i> (Kessler)	Gray stone loach	LNC
<i>Nemacheilus stoliczkai</i> (Steindachner)	Tibetan stone loach	LNC
<i>Nemacheilus oxianus</i> Kessler	Amu-Darya stone loach	LNC
<i>Nemacheilus kuschakewitschi</i> Herzenstein	Kuschakewitsch stone loach	LNC
<i>Nemacheilus amudarjensis</i> Rass	Bukhara stone loach	LNC
<i>Nemacheilus amudarjensis choresmi</i> Berg	Khorezm stone loach	LNC
<i>Nemacheilus malapterurus longicauda</i> (Kessler)	Stone loach	LNC
<i>Cobitis aurata aralensis</i> Kessler	Golden spiny loach	LNC

Species scientific name	Common name	Status
SILURIDAE <i>Silurus glanis</i> Linnaeus	Wels, European catfish	LC
SISORIDAE <i>Glyptosternum reticulatum</i> McClelland	Turkestan catfish	LNC
GASTEROSTEIDAE <i>Pungitius platygaster aralensis</i> (Kessler)	Aral stickleback	LNC
POECILIDAE <i>Gambusia affinis holbrockii</i> (Baird & Girard)	Mosquito fish	LNC
ATHERINIDAE <i>Atherina mochon pontica</i> Eichwald	Silverside	ANC
CHANNIDAE <i>Channa argus warpachowskii</i> (Berg)	Snakehead	AC
PERCIDAE <i>Stizostedion lucioperca</i> (Linnaeus)	Pike-perch	AAC
<i>Perca fluviatilis</i> Linnaeus	Perch	AC
<i>Perca schrenki</i> Kessler	Balkhash perch	LNC
<i>Gymnocephalus cernuus</i> (L.)	Ruff, pope	AANC
ELEOTRIDIDAE <i>Micropercops cinctus</i> (Dabry & Thiersani)	Ruff, pope	AANC
GOBIIDAE <i>Rhinogobius</i> sp.	Amur goby	AANC
COTTIDAE <i>Cottus spinulosus</i> Kessler	Turkestan sculpin	LNC
<i>Cottus gobio jaxartensis</i> Berg	Freshwater sculpin	LNC
<i>Cottus rosalis</i> Berg	Sculpin	LNC

Source: Authors.

Notes: AAC – accidental introduction, commercial

AANC – accidental introduction, not commercial

AC – introduced, commercial

ANC – introduced, not commercial

LC – local species, commercial

LNC – local species, not commercial

\* Extremely rare – some fishermen believe the species still exists

## Annex 3

**PRICES OF SOME ORNAMENTAL FISH SPECIES IN  
A TASHKENT MARKET IN UZBEKISTAN, OCTOBER 2007**

TABLE 25

**Prices of some ornamental fish species in a Tashkent market in Uzbekistan, October 2007**  
(1US\$= som1 285)

Russian name	English common name	Latin name	Size (cm)	Price (som)
Лабео разные	Barbel steed	Labeo sp.	5	5 500
Цихлозомма Микка	Firemouth cichlid	Cichlasoma Meeki	2.5	3 500
Барбус суматранский	Sumatra barb	Puntius tetrazona	3	1 000
Скалярии	Angelfish, scalare	Pterophyllum	Diameter 5	2 000
меченосцы	Yellow cichlid	<i>Thorichthys helleri</i>	5	1 000
Дискус красный	Discus red	<i>Symphysodon discus</i>	10–12	25 000
Дискус коричневый и др.	Discus brown	<i>Symphysodon aequifasciatus</i>	7	10 000
Пангасис акулий	Catfish	Pangasius spp.	10 40	10 000 (US\$75)
Рыба-попугай	Parrot fish	Scarus spp.	12–13	20 000
астронотусы	Oscar	Astronotus ocellatus	4 14 22	500 15 000 25 000
Петушки	Siamese fighting fish	Betta splendens	–	550
Гурами	Giant Gourami	Osphronemus goramy	4 7	1 200 2 000
Акула-балу	Cichlidae	Species from Cichlidae	4	1 500
Рыба-нож черный	Knife fish	<i>Chitala chitala</i>	6–7	6 000
Кои из Сингапура Кои из Малайзии	Koi from Singapore Koi from Malaysia	<i>Cyprinus carpio carpio</i>	6–7 10–12	3 500 7 000
Кои местные	Koi from local persons	<i>Cyprinus carpio carpio</i>	3–4 10–12 16–18 25–28	1 500 3 000 6 000 20 000
Телескоп	Goldfish	Carassius auratus auratus	6–7 15	3 000 25 000

Source: Authors.

## Annex 4

**ENACTMENT No. 350 OF THE CABINET OF MINISTERS  
OF THE REPUBLIC OF UZBEKISTAN****13 August 2003***(Non-official translation)***ON MEASURES TO REMOVE MONOPOLIES AND  
TO PRIVATIZE THE FISHERY SECTOR**

Recently, changes have been made to the enactment in compliance with Enactment No. 499 of the Cabinet of Ministers of 25 October 2004.

With a view to intensifying the process of privatization and developing private property in the fisheries sector, introducing market principles and mechanisms in the organization of the activities of capture fisheries and aquaculture enterprises, removing monopolies in the sector to create a competitive environment, as well as regulating captures and fish/fish products, the Cabinet of Ministers **ENACTS:**

1. To agree to the suggestions of the Special Committee on the audit of the organization and activity of the joint-stock company Uzbaliq, which committee was established by Decree P-1728 of the President of the Republic of Uzbekistan on 18 March 2003:

- on the liquidation of the joint-stock company Uzbaliq and the association Karakalpakbalik; and
- on the complete privatization of aquaculture and capture fishery enterprises within the liquidated company Uzbaliq mainly.

2. To take into consideration that a Main Department for the Development of Animal Husbandry, Poultry Raising and Fisheries be established within the central apparatus of the Ministry of Agriculture and Water Resources of Uzbekistan, and that departments for the development of animal husbandry, poultry raising and fisheries be established within the regional administrations for agriculture and water resources, and entrusted with the development of the fisheries sector.

3. The Special Committee for the audit of the organization and activity of the company Uzbaliq, together with the State Property Committee of Uzbekistan and concerned ministries and agencies, must provide within one month for the liquidation of the joint-stock company Uzbaliq in accordance with established procedures, envisaging the transfer of state shares and stockholding in the statute funds of privatized fishery enterprises to physical persons and foreign investors in the stock and non-stock markets in compliance with Attachment 1 to this enactment.

4. To establish a Uzbek Research Center for the Development of Fisheries by merging the research institute Akvakultura and the enterprise Ikhtiomarkaz into the Uzbek Scientific Industrial Center for Agriculture under the Ministry of Agriculture and Water Resources of Uzbekistan.

To assign the State Regional (zonal) Fish Nursery as a daughter enterprise to the Uzbek Research Center for the Development of Fisheries.

To determine the following tasks as the priority tasks of the Uzbek Research Center for the Development of Fisheries:

- to develop scientific recommendations on and a methodology for the development of the fisheries sector and its forage resources;
- to conduct scientific studies on selection-breeding activities and fishery melioration, to develop measures aimed at the prevention and treatment of fish diseases, and to improve qualitative breeding functions in broodstock and acclimatization of new fish species;
- to provide capture fisheries and aquaculture farms with quality selection-breeder material;

and

- to organize retraining and professional development of workers for the fisheries sector.

Within one month, the Ministry of Agriculture and Water Resources of Uzbekistan should develop and approve the regulations of the Uzbek Research Center for the Development of Fisheries and its structure.

5. To establish the procedure by which:

- Natural fisheries waterbodies shall be assigned to fishery enterprises on a competitive basis and according to the terms of a lease for a period of not less than ten years.
- The lease contract for the right to use shall be concluded among the Council of Ministers of Karakalpakstan, the regional administrations (hokimiyats) and a fishery enterprise, the winner of the competition.
- Fish catches in natural waterbodies shall be performed by fishery enterprises that conclude a lease contract and shall be carried out on a quota-free basis, considering the available biological resources, demands and conservation of productivity and reproduction of fish resources at the appropriate level.
- Fishery enterprises renting areas of natural waterbodies shall be obliged to strictly observe environmental law and established rules of capture fisheries in the territory of the republic, to carry out annual stocking and to provide measures for conservation and reproduction of fish resources.

In case of gross and systemic violations of environmental law, the rules of capture fishing and the terms of the lease contract by the fishery enterprise, the lease contract can be annulled before its expiration using the established procedure.

6. To approve the regulations on the procedure for assigning and using natural fisheries waterbodies according to Attachment 2 of this enactment.

7. To establish an Off-budget Fund for the Development of Fisheries within the Uzbek Research Center for the Development of Fisheries for the financing of research and selection-breeder work, for the development of modern formulations of feeds and implementation of other measures to assist the introduction of modern technologies in the fisheries sector, for the prevention and treatment of fish diseases and for the elaboration of investment projects for the development of the sector.

The Ministry of Finance and the Ministry of Agriculture and Water Resources of Uzbekistan shall develop and approve, according to established procedures, the regulation on the formation and use of the revenues of the Fund for the Development of Fisheries of the Research Center for the Development of Fisheries.

Point 8 was invalidated by Enactment No. 499 of the Cabinet of Ministers of 25 October 2004.

8. To permit the State Property Committee of Uzbekistan to allocate to the Fund for the Development of Fisheries revenues obtained from the sale of the government's share of ownership of joint-stock companies in compliance with Attachment 1 to this enactment, but to retain revenues to cover operating expenses and to compensate shareholders for the cost of the shares they previously held in the joint-stock company Uzbalik.

9. The Ministry of Finance of Uzbekistan, together with the Ministry of Agriculture and Water Resources, the State Committee for Nature Protection, the Council of Ministers of Karakalpakstan and the regional administrations, shall develop and approve within one month the regulations on levies and the amounts of lease payments for the use of areas of natural waterbodies of Uzbekistan, according to the terms of the lease contract.

The revenues obtained from the lease of the natural fisheries waterbodies of Uzbekistan shall be allocated at the following rates:

- 60 percent to the respective local budget, including revenues for measures to develop the fisheries sector;
- 25 percent to the Fund for the Development of Fisheries under the Research Center for the Development of Fisheries;
- 15 percent to the State Committee for Nature Conservation of Uzbekistan with the targeted use of funds for measures aimed at the protection and sustainable use of fishery resources.

10. The Ministry of Agriculture and Water Resources of Uzbekistan, together with the Ministry of the Economy, the State Committee for Nature Protection and the state joint-stock company Uzdonmahsulot, shall develop and submit to the Cabinet of Ministers within two months the programme for the development of the fisheries sector and its forage resources for 2004–2006.

11. The Council of Ministers of Karakalpakstan, administrations of the regions and Tashkent City:

- together with the Ministry of Agriculture and Water Resources of Uzbekistan, capture fisheries and fish-breeding enterprises, shall create the necessary conditions for the development of the retail trade of fish and fish products;
- together with the Ministry of Agriculture and Water Resources of Uzbekistan, the state joint-stock company Uzdonmahsulot and other concerned agencies, shall assist capture fisheries and fish-breeding enterprises by providing selection-breeder materials, feeds and other resources;
- together with the State Committee on Land Resources of Uzbekistan, shall exercise strict control over the protection and targeted and sustainable use of fishery resources in natural waterbodies and over poaching and illegal trade in fish and fish products. Quarterly reports shall be submitted to the Cabinet of Ministers of Uzbekistan.

12. Together with the State Committee on Land Resources of Uzbekistan, strict control shall be exercised over the targeted protection and sustainable use of fishery resources in natural waterbodies and over poaching and illegal trade in fish and fish products. Quarterly reports shall be submitted to the Cabinet of Ministers of Uzbekistan.

13. To recognize as invalid:

Enactment No. 289 of the Cabinet of Ministers “On the improvement of the system of fishery sector management” of 6 July 2001, except paragraph 9;

Enactment No. 198 of the Cabinet of Ministers “On measures for the improvement of the use of natural fisheries waterbodies in the Republic and for the strengthening of protection of fishery resources” of 11 May 1998, except point 6; and

Enactment No. 2 of the Cabinet of Ministers “On the approval of the procedure for assignment and use of natural fisheries waterbodies in the Republic” of 2 July 1998.

14. The Ministry of Justice of Uzbekistan, together with the Ministry of Agriculture and Water Resources, the State Committee for Nature Protection and other concerned ministries and agencies, shall submit proposals on changes and amendments to the current law resulting from this enactment.

15. The monitoring of the implementation of the current enactment shall be entrusted to the Deputy Prime Minister of Uzbekistan, R.S. Azimov

Chairman  
Cabinet of Ministers

I. Karimov

Attachment 1  
To Enactment No. 350 of the Cabinet of Ministers of the Republic of Uzbekistan  
adopted on 13 August 2003  
(*Non-official translation*)

Enterprises of the liquidated joint-stock company Uzbalik,  
the shares and shareholding of which are subject to free transfer preferably to private property  
through stock market and off-stock market bids

Name of enterprise	Share of enterprise subject to sale on the stock market (%)
Andijonbalik (OJSC)	25
Bukhorobaliksanoatsotish (OJSC)	25
Balikchi (OJSC)	25
Navoijbalikchilik (OJSC)	25
Damashchi (OJSC)	25
Jizzakhalik (OJSC)	25
daryobalik (OJSC)	25
Kazakhdaryobalik (OJSC)	25
Muinok balik konserva kombinati (OJSC)	25
Namanganbalik (OJSC)	25
Nukusbalik (OJSC)	25
Sirdaryobalik (OJSC)	25
Surkhonbalik (OJSC)	25
Toshkent balik (OJSC)	25
Urai (OJSC)	25
Khorazmbalikmaksulotlari (OJSC)	25
Yangiyerbalik (OJSC)	25
Chinaz plant of granulated feeds (JSC)	25
Aidarkul Ltd	25
Samarkandbalik Ltd	25
Besharikbalyk (JSC)	16.4
Baliksavdo (closed JSC)	10

Sources: The collection of laws of the Republic of Uzbekistan, 2003, No. 15–16, p. 127; The collection of enactments of the Government of the Republic of Uzbekistan, 2003, No. 8, p. 70.

Note: OJSC – Open Joint-Stock Company; JSC – Joint-Stock Company.

Attachment 2  
To Enactment No. 350 of the Cabinet of Ministers of the Republic of Uzbekistan  
of 13 August 2003  
*(Non-official translation)*

**REGULATION  
ON THE PROCEDURE FOR ALLOCATION AND USE OF NATURAL FISHERY  
WATERBODIES IN THE REPUBLIC OF UZBEKISTAN**

- I. General provisions
- II. The procedure for the rental of natural fisheries waterbodies to fishery enterprises
- III. The rights and obligations of the lessor
- IV. The rights and obligations of the leaseholder

**I. GENERAL PROVISIONS**

1. This regulation determines the procedure for the rental of natural fisheries waterbodies in the Republic.

2. All natural waterbodies, including the sea, rivers, reservoirs and lakes and their supplementary waterbodies (except pond farms and fish nurseries), that are in use or can be used for the catching or reproduction of fish and other aquatic animals are fishery waterbodies.

Natural fishery waterbodies on which commercial catches are performed or can be performed, are fishery waterbodies. Fishery waterbodies can be used for sport and recreational fishing.

3. Legal entities and physical persons (hereinafter referred to as fishery enterprises) who conclude the contract of tenancy in compliance with this Regulation shall have the right to carry out commercial fishing.

**II. THE PROCEDURE FOR THE RENTAL OF NATURAL WATERBODIES TO  
FISHERY ENTERPRISES**

4. Natural fishery waterbodies are rented to fishery enterprises, which as a rule are established as private property by the Council of the Ministry of Karakalpakstan and the provincial administrations, on a competitive basis for a period to be indicated in the contract of tenancy, but for not less than ten years.

5. To deal with the rental of natural fisheries waterbodies to fishery enterprises, special committees shall be established under the Cabinet of Ministers of Karakalpakstan and the provincial administrations and shall be headed by the First Deputy of the Chairperson of the Council of Ministers and by the khokim of the province. The committees shall include representatives of the State Biological Control Agency (Gosbiokontrol), the territorial financial and tax agencies, regional administrations of agriculture and water management, judicial bodies, bodies of interior affairs and other concerned agencies.

6. The assignment of natural water resources to the winning fishery enterprises shall be made on the basis of a contract of tenancy concluded among the Council of Ministers of Karakalpakstan, the regional administrations (lessors) and the fishery enterprises (leaseholders or lessees).

The permit of the assigned natural fishery waterbody or its part, which indicates the name of the waterbody, its location, size and borders as well as other necessary information, is affixed to the contract of tenancy.

7. To participate in the competition to rent the natural fishery waterbody or its part, the potential leaseholder must submit the following documents to the Council of Ministers of Karakalpakstan and the regional administrations:

- a letter of application;
- a copy of the certificate of state registration of the fishery enterprise as a legal entity or as an individual entrepreneur; and
- information on the availability of the material/technical resources needed for commercial fish catching.

8. The Council of Ministers of Karakalpakstan and the regional administrations shall hold a meeting of the commission on competition within one month from the deadline for submission of applications and their accompanying documentation and shall decide on the leaseholder of the natural fishery waterbody or its part. Within ten days of the decision, the contract of tenancy shall be concluded with the winner of the competition and a certificate shall be issued (certificate for capture).

9. Applicants who were refused a contract of tenancy for the natural waterbody have the right to lodge a complaint against the decision of the commission on competition as per the procedure established by the law.

10. The fishery enterprises that conclude a contract of tenancy for the use of natural waterbodies or their parts shall pay rent in the amount and as per the procedure established by the law.

11. The contract of tenancy for the natural waterbody or its part can be cancelled at the request of a fishery enterprise or as a result of gross and systematic violations of the established rules of capture by the fishery enterprise or failure to observe obligations on the conservation and reproduction of fishery resources.

### **III. THE RIGHTS AND OBLIGATIONS OF THE LESSOR**

12. The lessor in the guise of the Cabinet of Ministers of Karakalpakstan and the regional administrations shall have the right:

To suspend the capture of fish and other aquatic organisms and the storage of plants if violations of the current law occur, particularly as regards annual stocking, conservation and reproduction of fish resources; and

To cancel the contract of tenancy as per the established procedure upon systematic violations of environmental laws and established rules of fish catching by the fishery enterprise.

13. The lessor is obliged:

To receive free-of-charge applications and accompanying documents from legal entities and physical persons who expressed their desire to participate in the competition for the lease of a natural waterbody or its part;

To consider the submitted applications and conduct the competition within the established time frame;

To inform participants in the competition in good time about results of the competition;

To conclude within ten days the contract of tenancy with the winner of the competition for the right to use the natural waterbody or its part, and to issue a certificate for capture.

### **IV. RIGHTS AND OBLIGATIONS OF LEASEHOLDER**

14. The fishery enterprise that rents the waterbody shall have the right:

To use the assigned natural waterbody or its part in accordance with the concluded contract of tenancy;

To perform commercial fish catching on a quota-free basis and sell the produce at its discretion;  
To establish its own hunting estate/fishery enterprise; and  
To have other rights in conformity with the law.

15. The fishery enterprise is obliged:

To catch fish according to established law and not to violate the environmental laws;

Not to sublease the assigned waterbody;

To restock fish annually, improve the waterbody, conserve the juveniles of commercial fish species and take other measures to provide the safety and reproduction of fish resources;

To submit in December of each year information on the state of fish resources in the natural waterbodies and on measures necessary for the reproduction of fish resources to the State Committee for Nature Protection of Uzbekistan and the Research Center for the Development of Fisheries;

To record in standard logs all fish caught;

To transport fish with an accompanying proper invoices;

To record all boats used and safety measures observed during the catching of fish;

To submit statistical reports according to approved forms; and

To pay for the lease of the natural waterbody in a timely fashion.

16. The catching of fish and other aquatic animals can be performed only within the limits of the natural waterbodies or their parts indicated on the permit of the assigned fishery waterbody or its part, which is affixed to the contract of tenancy.

17. Upon gross and systematic violations of established environmental law and rules of catching by a fishery enterprise, the contract of tenancy can be cancelled by decision of the Council of Ministers of Karakalpakstan and the regional administrations.

18. Upon violation of the terms of the contract of tenancy by the lessor or leaseholder, each party bears responsibility as prescribed by the law.

19. Trade in fish and fish products, as well as in other aquatic animals, by legal entities and physical persons can be conducted only in places determined by town and district authorities (hokimiyats) according to the established procedure and upon presentation of documents confirming the validity of the catch or the purchase of the produce as well as the quality certificate of the produce.

## Annex 5

**HUNTING AND FISH CATCHING REGULATIONS IN  
THE TERRITORY OF THE REPUBLIC OF UZBEKISTAN**

Adopted by Order No. 27 of the Chairman of  
The State Committee for Nature Protection of the Republic of Uzbekistan  
on 22 March 2006

Registered at the Ministry of Justice  
of the Republic of Uzbekistan  
on 2 May 2006  
No. 1569

**SELECTED CHAPTERS RELATING TO FISHERIES**  
*(Non-official translation)*

**Chapter IV: Fish Catching Regulations**

28. The present Regulations apply to all rivers and their tributaries and channels, lakes, reservoirs and other fishery waterbodies in the Territory of Uzbekistan (regardless of the departmental jurisdiction under which they lie) but excludes preserves, fish hatcheries and pond farms and their observance is mandatory for all persons and enterprises, regardless of the departmental jurisdiction under which they lie.

29. The present Regulations for fish capture regulate commercial fish capture, procurement of water invertebrates, sport and recreational fishing, rearing, scientific research and other work connected with fish catching.

30. Commercial fish catching on fishery ponds is done by those organizations and enterprises with agreements concluded according to an established procedure. Fishery organizations, enterprises and firms must have the necessary, precise permit to perform fish catching.

31. Waterbodies that are used or can be used for commercial fish catching, or are significant for fish resource reproduction, are considered fishery waterbodies.

32. Fish-capture enterprises, fish farms, societies of hunters and fishers, and other fishers are obliged:

- a) to prevent violations of nature protection regulations;
- b) to mark the farm boundaries;
- c) to show to nature protection inspectors upon demand their certificates for fish capture that grant the right to carry out commercial fish capture, their journals recording commercial operations and other documents related to the fishery, and not to impede inspection as per the established procedure; to allow inspection of production areas, fish-capture gear (on the coast as well as in the water), natatorium and reception facilities, and fish yields; and also to allow inspection of entries in commercial journals with information characterizing fishery operations;
- d) to provide each fisher on the catch with documents identifying his/her affiliation to the fishery organization;
- e) to mark fishing gears with their affiliation;
- f) to use the fishing gears that are authorized;
- g) to keep specific coastal areas and waterbodies in sanitary condition as required;
- h) not to carry out work on the waterbodies or their areas that would alter the natural condition of the waterbodies without the permission of the nature protection agents;

- i) in accordance with nature protection agents, to carry out tasks to upgrade the fishery (e.g. improve fish reproduction conditions, combat fish kills, mow aquatic plants, save fingerlings of commercial fish);
- j) to stock waterbodies with those fish species that are caught in volumes sufficient for reproduction of the fish catch;
- k) to refrain from commercial fishing on waterbodies assigned to societies of hunters and fishers for sport and recreational fishing or on waterbodies that are the sites of protective and reproduction activities, without the permission of the societies;
- l) to protect fish resources and the fisheries allotted to fish farmers;
- m) to accompany nature protection officials when on duty at their night-time work stations on their rounds to check on businesses and possibly to provide vehicles for their use;
- n) to present nature protection officials with monthly information about the quality and quantity of fish captured by anglers in the waterbodies;
- o) to refrain from fishing within 100 m of the coast, as this zone is prohibited for commercial fishing and can be used only for sport and recreational purposes;

33. Nature protection agents have the right:

- a) to correct, in accordance with scientific organizations, and to change terms of a fishing ban of up to 15 days, depending on hydrometeorological conditions (the terms of a fishing ban take effect on the first and last days of the prohibition);
- b) during a fishing ban, to limit motor-boat traffic on waterbodies;
- c) when necessary, to permit fishing in kill waterbodies with any type of capture gear and at any time by fishery enterprises and organizations;
- d) to permit, in accordance with the Institute of Zoology of the Academy of Sciences of Uzbekistan, the catching of weed-bed inhabiting, low-value, predator fish species with low growth rates, and also sport fishing or casting for records, which species commercial fishers are not permitted to catch by current regulations;
- e) to issue permits to fish for the purposes of scientific research, acclimatization, stocking, rearing and monitoring of stocks with all types of fishing gear in all waterbodies and in all seasons of the year according to the prescribed procedure.

## §1. Prohibitions

34. Physical and juridical persons are prohibited:

- a) from fishing with fishing gear or other means beyond two-thirds of the width of a river, brook or channel, and at the same time or in turn, casting seines and launching floating nets from the opposite banks;
- b) from accepting (or releasing) fish catches of species with names other than their actual names or without an indication of their names;
- c) from keeping books and from presenting calculated data that intentionally distort yield size and type of fishery;
- d) from capturing fish using explosives, toxic or chemical substances, electric current and various electronic fishing gear (electric fishing rod), thrust weapons, firearms and pneumatic units, and throw-on nets;
- e) from using other new types of gears and new methods of fish capture unless in agreement with the nature protection agents;
- f) from stocking and acclimatizing new fish species without the permission of the nature protection agents and without a sign off by the Institute of Zoology of the Academy of Sciences;
- g) from capturing fish listed in the Red Book of Uzbekistan. When caught by fishing gear, such fish should be released alive back into the waterbody;
- h) from selling any fish species outside the norm, as set out in Articles 40–43 of the present Regulations. Fines at fixed rates will be charged for damage caused by illegal catching,

gathering or destroying of a fish species as well as eggs and any other fish products. If fish are caught in accordance with Article 42, documents confirming the legitimacy of the fish catch should be presented;

- i) from diverting the flow from the fishery waterbodies for the needs of enterprises and for irrigation without fish-protection structures;
- j) from being on a waterbody or close to it with fish catching tools, the use of which in this territory and at the present time is prohibited by fishery Regulations;
- k) from carrying out activities that change the natural conditions of the fishery waterbodies, including activities using explosives, but excluding activities such as those dealing with sanitation, hydrotechnology and improvements that have been agreed upon with the nature protection agencies;
- l) from throwing various types of fishing gear that have been used in waterbodies with pestholes of parasites and infectious fish diseases into other waterbodies without a preliminary decontamination of the gear;
- m) from allocating and using insecticides and pesticides within 500 m of the coastal zone;
- n) from destroying or damaging posts and floating signs that indicate boundaries of fish catching areas and zones prohibited for fish catching;
- o) from using all types of double-walled purse seines and trap nets;
- p) from setting fishing gear in a chessboard arrangement with a distance of less than 100 m between the vertical and horizontal lattices;
- q) from setting stationary nets at depths of less than 1 m and within 500 m of the boundaries of coastal, non-aqueous zones;
- r) from setting commercial fishing gear at less than 1 000 m from dams, sluice, bridges, the mouths of rivers and the confluences of channels into water ponds;
- s) from emptying dirty and untreated sewage water from industrial and communal enterprises and also waste harmful to fishes into fishery waterbodies on the coasts and onto the ice of these waterbodies;
- t) from emptying silt collected during dredging operations and the cleaning of beds of waterbodies into spawning areas and wintering pits, and emptying retting flax, hemp, filament and leather into fishery waterbodies;
- u) from storing aquatic plants without the consent of the nature protection agents;
- v) from commercial fishing outside the boundaries of designated areas;
- w) from importing, exporting and transporting fish products without documents identifying the legitimacy of a catch or acquisition of a product.

35. Commercial fishing is prohibited during the entire year:

- a) at protected bridges and dams, cage lines, and also in irrigation and overflow channels for a distance of 200 m from the boundaries of fish hatcheries, ponds and other aquaculture areas;
- b) at the mouths of rivers and irrigation canals for a distance of 1000 m on both sides and along a river or a canal for a distance of 500 m from shore to upper stream;
- c) on newly created waterbodies, unless allowed by appropriate authorities, and on the wintering pits of fishes;
- d) on channels and on channels connecting lakes or connecting a lake and a river;
- e) in the Amudarya River and the Syrdarya River; and
- f) from using nets made from fishing line.

36. Commercial fishing during the spawning period is prohibited:

- a) in the Amudarya River and the Syrdarya River from 10 March to 31 May;
- b) on waterbodies in Karakalpakstan and the Khorosm region from 25 April to 10 June; and
- c) on all other waterbodies from 16 April to 31 May.

## §2. Commercial size of a fishery catch

37. It is prohibited to produce a fish catch and to accept fish objects that are not fresh and that do not meet the minimum length requirements (in cm) as prescribed by the present Regulations (Attachment 4 below).

38. Notwithstanding Article 37 of the present Regulations, as regards commercial fishing on fishery waterbodies, the following quantities of small-sized bycatch are allowed (figures are in percentages of total catch):

common carp – 5  
 bream – 5  
 pike perch – 5  
 asp – 5  
 shemaya – 5  
 varicorhinus – 7  
 schizothorax – 7  
 roach – 10  
 pelecus cultratus – 10  
 crucian carp – 10

When the number of small-sized fish in a catch exceeds the norm, fishing in the present location must cease or the fishing gear must be substituted for gear with a larger mesh size. Live fish should be released back into the waterbody, and for those fish that are no longer alive, fees for damage are imposed at a fixed rate.

## §3. Mesh size of fishing nets

39. Use of fishing gear with mesh that is less than the following sizes (in mm) is prohibited:

- a) draught beach lake seines and scrapers:
  - in purse – 36
  - in driving gear – 44
  - in vanes – 50
- b) gillnets (in coppers) – 40
- c) river seines: 40
  - in purse – 40
  - driving gears – 45
  - in vanes – 55
- d) fixed nets – 50
- e) floating nets – 50
- f) gillnets for catching varicorhinus – 45
- g) gillnets for catching roach – 36
- h) trap nets – 40

The mesh size of a fishing gear is defined by measuring the distance between 11 knots by braid and dividing the number by 10. The mesh size of a wet fishing gear produced from vegetable fibres can be 5 percent smaller than the standard sizes.

Fishing gear with small-sized mesh (36 and 45 mm) can be used only with the permission of the nature protection agents in compliance with the Academy of Sciences of Uzbekistan, and where massive stocks of varicorhinus and roach occur.

#### **§4. Sport and recreational fishing**

40. Sport and recreational fishing is allowed:

- a) on waterbodies used by all citizens and without charge (for a catch up to 5 kg), but excluding natural reservations, fish hatcheries and aquaculture ponds, or for a fee in the areas reserved to the hunters' and fishers' societies by virtue of passes issued by these societies;
- b) in periods of spawning, to hunter and fisher society members, each with a maximum of 5 hooks; and
- c) under water and without oxygen tanks.

41. A catch produced using fishing rods must not exceed the following limits: 5 kg if fished on waterbodies in common use; and 10 kg if fished on waterbodies reserved to hunters' and fishers' societies .

42. A catch fished on waterbodies reserved to hunters' and fishers' societies can exceed the Regulation by a maximum of 5 kg for an additional fee.

43. Rules on fishing are fixed in principle. However, it is acceptable if one fish weights more than the amount established by the Regulations.

44. Use of the following fishing tools and methods is prohibited:

- a) nets of all kinds, drag nets, seines, trap net and capes;
- b) thrust fishing gear (fish forks and others);
- c) kiddle with more than 15 hooks (per person);
- d) electric current, chemicals, drugs, biological substances and explosives;
- e) firearms; and
- f) handmade, electric fishing gear.

45. To hold sport and recreational fishing tournaments during the spawning period is allowed in designated places on waterbodies and with fishing rods that have a maximum of 5 hooks.

#### **Chapter V: Concluding statement**

46. Persons who violate the Hunting and Fish Catching Regulations are subject to administrative and criminal proceedings and disciplinary action.

*Attachment 4*

#### **To the Hunting and Fish Catching Regulations on the territory of the Republic of Uzbekistan**

The commercial size (in cm) of a fish catch is the following:

##### Common carp

Zarafshan River basin – 30

Kashkadarya River basin – 26

Surhandarya River basin – 28

Sirdarya River basin – 28

Amudarya River – 29

Amudarya River basin, lakes – 24

Bream

Khorezm region waterbodies – 28  
Syrdarya River basin – 26  
Zarafshan River basin – 24  
Amudarya River – 25  
Amudarya River basin, lakes – 20  
Tashkent region waterbodies – 20

Khramulya

Zarafshan River basin – 24  
Kashkadarya River basin – 22  
Surhandarya River basin – 23

Aral asp

Amudarya River basin – 45  
Surhandarya River basin – 38  
Khorezm River basin – 36  
Sirdarya River basin – 36

Silver crucian carp in all basins – 26

Shemaya

Amudarya basin – 19  
all other waterbodies – 16

Rasorfish in all waterbodies – 22

Pike perch (Zander)

Syrdarya basin – 36  
Surkhandarya basin – 38  
Tashkent region waterbodies – 36  
All other waterbodies – 37

Marinka (snowtrout) in all basins – 18

Roach in all basins – 17

Herbivorous fishes in all basins – 55

The commercial size of a fish is determined by measuring its length from the top of the head (at the closed mouth) to the base of the tailfin. The commercial size of a processed fish (salty, dried, smoked) is 4 percent less than a fresh fish.

*Source:* The collection of laws of Uzbekistan. 2006. No. 18, pp. 158.

Annex 6

## **THE LAW ON FARMS OF THE REPUBLIC OF UZBEKISTAN**

**30 April 1998**

*(Unofficial translation)*

(New edition as revised August 2004)

### **I. General statements**

#### **Article 1. Purpose of the present law**

The purpose of the present law is to regulate relations in the sphere of establishing, managing, reorganizing and liquidating farms.

#### **Article 2. Legislation on farms**

Legislation on farms consists of the present law and other legislative acts. In the event that an international agreement signed by Uzbekistan establishes rules other than those envisaged by the legislation on farms of Uzbekistan, the rules of the international agreement shall prevail.

#### **Article 3. Farm**

A farm is an independent, economic entity that produces agricultural products using rented land.

#### **Article 4. Head of farm**

The head of a farm is its founder – the farmer. The farmer can be represented by a person over 18 years of age who has qualifications or work experience in agriculture. The head of the farm represents the farm in relations with other legal entities and individuals.

### **II. Founding a farm**

#### **Article 5. Conditions for founding a farm**

A farm is founded primarily on lands and territories where farm workers are in short supply.

A farm specializing in cattle breeding is founded upon condition that there are no less than 30 head of cattle. The minimum size of the land area leased to a farmer shall be 0.3 ha per head of cattle on irrigated lands in the Andijan, Namangan, Samarkand, Tashkent, Ferghana and Khorezm regions, 0.45 ha per head of cattle on irrigated lands in other regions of the country and in Karakalpakstan, and 2 ha per head of cattle on non-irrigated (dry) lands.

A farm specializing in crop cultivation shall be allowed an area with a minimum size of 10 ha for growing grain and cotton, and 1 ha for gardening, viticulture and vegetable growing, as well as cultivation of other crops.

Upon the receipt of land, a farmer is obligated to provide a crop yield (based on a three- year average) of not less than the amount designated in an assessment of the land by the office of the land register. This obligation is written in the land lease agreement.

#### **Article 6. Procedure for founding a farm**

A farm is founded by a farmer who provides the land for the farm and approves the farm charter.

To establish a farm, the farmer must receive land in accordance with the established procedure.

**Article 7. State registration of a farm**

A farm is recognized as being established at the moment it is registered with the state in accordance with the prescribed procedure. At the time of state registration with the authorized body, a farm assumes the status of a legal entity and the farmer has the right to establish a settlement, to open various types of bank accounts and to have his/her own seal with the farm name on it.

A farm may be refused state registration if the procedure for establishing a farm as prescribed by the present law is violated or if the farm charter does not comply with the law.

Refusal of registration by the state and/or failure by the farmer to observe registration deadlines may be contested in court.

**Article 8. Farm charter**

A farm shall act on the basis of a charter. A draft of the farm charter is approved by the Cabinet of Ministers of Uzbekistan.

**Article 9. Contents of a farm charter**

A farm charter should contain the following information:

- the name of the farm;
- the first name, the last name, the patronymic and the address of the head of the farm;
- the farm location;
- the farm mailing address;
- the crop specialization and the basic types of activity on the farm; and
- the amount of authorized capital.

The farm charter may contain other statements provided they do not contradict the law.

**III. Allotment of land for farming and land and water use****Article 10. Land allotted for agricultural purposes**

Land for agricultural purposes is allotted from:

- land reserves;
- agricultural land that is not allotted to legal entities or individuals;
- reorganized or liquidated agricultural cooperatives (shirkats) and other agricultural enterprises, establishments and organizations; and
- agricultural cooperatives and other agricultural enterprises, establishments and organizations.

The amount of land allotted to farms is deducted from the total land allotment allocated to agricultural cooperatives and other agricultural enterprises, establishments and organizations.

Land belonging to scientific research facilities, higher educational institutions, academic lyceums, professional colleges, schools and lands assigned to the water fund cannot be allotted to farms.

Land located along the state border of Uzbekistan, along large and small rivers and around reservoirs is allotted for farming in compliance with the procedures established by law. Land within 500 m of the state border of Uzbekistan cannot be allotted for cattle breeding, poultry farming, and farming activities related to the reproduction, grazing and raising of animals (cattle, poultry, fur-bearing and other animals, fish, bees) or for activities related to animal zoology parks and vivariums.

**Article 11. Procedure for allotment of land for farming**

Land is leased for farming on the basis of a tender and for a maximum period of 50 years and a minimum period of 30 years.

In allotting land for farming, preference is given to persons living in the area close to the farm.

Land belonging to land reserves or agricultural land not allotted to legal entities or individuals is allotted by the district hokim on the basis of the results of a tender organized by the district commission on issues of allotment (sale) of land.

Land of reorganized or liquidated agricultural cooperatives and other agricultural enterprises, establishments and organizations is allotted by the district hokim on the basis of the results of a tender organized by a special commission.

Land of an agricultural cooperative and other agricultural enterprise, establishment and organization may be allotted to members (workers) for the purpose of farming by the district hokim on the basis of the results of a tender organized at the general meeting of the agricultural cooperative, or agricultural enterprise, establishment or organization by the authorized body of another agricultural cooperative, enterprise, establishment or organization.

The decision of the district hokim on the allotment of land for farming enters into force upon the approval of the allotment by the regional commission on issues of allotment (sale) of land, which is headed by the hokim of the region.

A general meeting of an agricultural cooperative (shirkat) and the authorized body of another agricultural enterprise, establishment or organization may define land areas to be allotted to a farm, without defining the farmer. In this case, the land is allotted to a farm in compliance with the procedure provided in paragraph three of this Article 11.

A land lease agreement is signed by the head of the farm or the hokim of the district.

The decision of the general meeting of the agricultural cooperative, the authorized body of another agricultural enterprise, establishment or organization and the hokim of the region to reject a land allotment, as well as the decision of the regional commission on issues of allotment (sale) of land to reject a land allotment approved by the decision of the district hokim, may be appealed to a court or official of a higher standing body. Persons who receive land for farming and own a house in the rural, built-up area shall keep the right of ownership of the land adjoining the house.

Boundaries of the farm are established on site by a land surveyor paid from the local budget.

#### **Article 12. Specifications of farm organization by members of agricultural cooperatives**

A member of an agricultural cooperative who wishes to relinquish his/her membership and share of a farm has the right to receive the monetary equivalent of his/her share of the property and profit (revenue), the amount of which is determined with consideration for the contribution of labour of the cooperative member.

The decision of the general meeting of the agricultural cooperative serves as a basis for granting a specified person the right of land lease for farming in compliance with the procedure defined in Article 11 of this law. At the same time, the granting of a land lease should not deprive an agricultural cooperative of land resources and basic production funds necessary for its activity.

#### **Article 13. Land use**

The rights and obligations of a farm regarding ownership and utilization of land are defined by law.

Land allotted to a farm shall be used in strict accordance with the specified purpose. It cannot be privatized, purchased, sold, pawned, gifted, exchanged or subleased.

A farm can use the right of land lease as a guarantee for securing credit.

Land allotted to a farm may be divided during the reorganization of the farm upon condition that the newly formed land areas are not less than the minimal size specified by Article 5 of this law.

The size of the land area and its boundaries may be changed only with the approval of the head of the farm.

In the event that the head of the farm dies, the right of land lease shall transfer in accordance with the law and for the duration of the land lease agreement.

Upon expiration of the land lease agreement, the farm shall have the right to extend the agreement for a further period. In the event that the head of the farm dies, the right to extend the agreement for a further period shall be inherited by the lawful heir.

A land lease agreement may be changed or annulled by mutual agreement of both parties, or by the court in the case of disagreement of the parties.

In the event a farm is liquidated, the land lease agreement shall be subject to annulment in compliance with the procedure established by the law.

#### **Article 14. Payment for the use of the land**

Payment for the use of the land allotted to a farm is in the form of an annual rental fee paid to the local budget in the amount specified by the single tax rate, which is determined by the quality, location and water supply of the land as well as the cadastral assessment of the land.

The farm shall be exempt from the payment of the rental fee for use of the land for a period of two years after the registration of the farm by the state.

The farm shall be exempt from the payment of the single tax for that part of the land developed at the farmer's own expense and for the duration of the land development as specified in the corresponding project or for a maximum of five years from the start of development.

#### **Article 15. Water use**

The limits on the use of water for farming are defined by the authorized bodies.

### **IV. Rights and obligations of a farm and farm property rights**

#### **Article 16. Rights of a farm**

A farm shall have the right to:

- organize farming production on allotted land in compliance with the crop specialization envisaged by the charter and land lease agreement;
- distribute agricultural varieties with consideration for its crop specialization and on the basis of signed contractual agreements;
- sign future contracts with pre-payment for products procured;
- market goods produced, including the right to sell to consumers at the farmer's own discretion;
- set prices for goods produced, jobs performed and services provided;
- sign agreements for the supply of electricity, combustive-lubricating materials, mineral fertilizers and chemicals for plant protection and for services;
- receive revenue (profit) from entrepreneurial activity in an unlimited amount subject to taxation as established by law;

- disburse revenue (profit) earned and manage monetary funds in its bank accounts;
  - purchase stocks and other securities;
  - receive credits, attract investment funds and property of other legal entities and individuals on the basis of an agreement, and direct these funds into production and reproduction;
  - use its property as well as its right of land lease to secure credit;
  - take advantage of all types of benefits and preferences given to small and private enterprises;
  - purchase or lease needed equipment, production means and other property, and construct and repair buildings and structures; and
  - submit claims to court for the protection of its rights and legal interests.
- Farms may have other rights in accordance with the law.

#### **Article 17. Obligations of a farm**

A farm must:

- provide for purposeful, effective and rational utilization of land under conditions defined by law and a land lease agreement;
- comply with ecological requirements and other rules of environment protection;
- organize measures for the improvement of land and preservation and improvement of its fertility as well as provide for allocation of funds for these purposes in the business plan;
- begin to utilize the land within one year from the time of its allotment, unless another period is agreed in the land lease agreement;
- supply agricultural products upon government request in compliance with signed contractual agreements and within the limits of envisaged volumes;
- comply with the established requirements on by-sort-distribution of cotton and grain crops;
- utilize water resources in accordance with the agreed limits;
- conduct clean-up and repair of the on-farm network of irrigation canals and ditches;
- comply with conditions of land-burdening and servitude;
- provide a safe work environment for its workers;
- pay taxes, dues and other obligations in a timely manner and in compliance with the procedure established by the law;
- comply with agro-technical requirements during the production of agricultural products; and
- protect crops from plant pests, diseases and weeds.

A farm may bear other obligations in accordance with the law.

#### **Article 18. The authorized fund of a farm**

The authorized fund of a farm is defined by the head of the farm.

Contributions to the authorized fund of a farm may be made in the form of money, securities, buildings, constructions and other property or property rights having pecuniary value.

If the head of the farm transfers a common (shared or joint) property of family members to the authorized fund of the farm, then a notarized agreement signed by all of the property owners is required.

The increasing or decreasing of the authorized fund of a farm is based on the decision of the head of the farm and on changes in the farm charter.

#### **Article 19. Farm property rights**

Farm property rights are protected by the state.

A farm has the property right to buildings, constructions, agricultural crops and plantings, cattle, poultry, processed products, agricultural technology, inventory, equipment, transportation means,

monetary funds and objects of intellectual property as well as other property, which property right is included in the farm assets.

Farm property may consist of monetary funds and material resources of the head of the farm, revenue (profit) received from the sale of goods (labour, services), revenue from securities, and other sources not prohibited by the law.

A farm has the right to establish a settlement, expand, purchase, lease or take for temporary use property in compliance with the procedure established by the law.

#### **Article 20. Farm's funds and accounts**

A farm has the right to open bank accounts, to conduct monetary transactions and to save funds as well as to disburse funds at its own discretion. Funds may be withdrawn from the farm's account only by agreement of the head of farm or by a court decision.

#### **Article 21. Farm property inheritance**

Farm property is inherited in compliance with the law. Heirs who carry on the farming are exempt from paying the state dues for the issuance of the right to inherit.

### **V. Organization of farming activity**

#### **Article 22. Farm production activity**

A farm independently defines the directions of its activity and the structure and the volume of production in compliance with crop specialization as envisaged by its charter and the land lease agreement. It has the right to engage in any type of agricultural production, except for agricultural production prohibited by the law. It may also process and sell agricultural products.

A farm is obliged to comply with normative acts and quality standards for products and to comply with ecological, health and other requirements and rules established by the law.

Government intervention or intrusion of other bodies and organizations or their officials in the farming activity of a farm is prohibited. Losses, including missed profits, incurred by the farm as a result of unlawful decisions by the state and other bodies and organizations or actions (dereliction) by their officials and nationals, shall be eligible for compensation in compliance with the procedure established by the law.

A farm conducts foreign economic trade in compliance with the established regulations.

#### **Article 23. Labour on a farm**

Labour relations between the farm (employer) and its employees are regulated by a labour agreement (contract) in compliance with the law.

The head of the farm decides on the organization of its employees in compliance with the law.

A record of the activity of the farm workers must be kept.

By mutual agreement between the head of the farm and the employees, farm workers' wages are defined in monetary and material terms and are not lower than the minimum wage established by the law.

The head of the farm and the employees are subject to state social insurance regulations. The granting and payment of state social security allowances and pensions are made in compliance with the procedures and conditions established by the law.

**Article 24. Procedure for selling farm products**

A farm has the right to sign contracts with juridical persons and individuals for the sale of farm products, including to the government (e.g. state agencies). In the case of a violation of contractual obligations, the parties have responsibilities as established by the law or the agreement.

Farm products for export are managed in compliance with the procedure established by the law.

**Article 25. Joint activity among farms**

Upon mutual agreement, a farm may unite or join unions or other associations for production, procurement, processing and sale of its products, provision of material and technical resources, construction, technological water management and veterinary, agrochemical and consultancy services.

**Article 26. Credit to and insurance of farms**

Long-term credit for construction to meet proposed production objectives and for procurement of basic production means, and short-term credit for ongoing farming activity are arranged on the basis of a credit agreement.

Credit with beneficial terms is extended to farms in compliance with the procedure established by the law.

A farm insures against the risk of complete loss (destruction), partial loss and damage to its own or rented means of production, to crops and crops plantings, to multi-annual crops and to processed products, raw materials and materials. It insures against entrepreneurial risk and risk of liability for breach of contract on a voluntary basis, and receives insurance compensation in compliance with procedures and conditions established by the law.

**Article 27. Taxation of farms**

A farm pays taxes and dues and makes other obligatory payments to the state budget of Uzbekistan and state funds-in-trust in compliance with the law.

The profit of the farm after payment of taxes, dues and other obligatory fees is disbursed at the discretion of the head of the farm and is not liable to tax.

**Article 28. Record keeping of farming activity**

A farm keeps records on the results of its activity and provides reports to the local statistics and taxation bodies in accordance with the established procedure.

**VI. Concluding statements****Article 29. Government support and other support to farms**

The state guarantees the rights and protection of the legal interests of farms.

State bodies are responsible for assisting farms in their development and improvement.

Republican and local executive bodies, citizen self-governmental bodies of communities, kishlaks (villages) and auls (settlements) in compliance with the legal procedure shall:

- carry out infrastructure development (building roads, electric mains and communication lines, supplying water and gas, installing telephones, building radio broadcasting stations, organizing the use of land, improving land) as farms are being established on territory where there has been no previous production and/or social activity;
- provide assistance to farms on building production facilities and housing;

- provide services to supply sorted seeds and agricultural planting material, organic and mineral fertilizers, agricultural plant protection against plant pests, diseases and weeds, and provide technical services;
- provide assistance with the procurement of agricultural technology, equipment and inventory on a lease basis;
- provide assistance with the procurement of pedigree cattle and poultry as well as mixed fodder;
- create the necessary conditions for zoo-veterinary check-ups for farm cattle;
- provide assistance with storage and marketing of agricultural products grown on farms;
- motivate farmers to organize production of non-agricultural goods; and
- provide consultancy and other types of services and information.

Other forms of support envisaged by the law for the development of private entrepreneurship are applicable to farms.

#### **Article 30. Limitations on inspections of farming activity**

Inspection of farming activity is conducted according to the established procedure and is concerned only with the issue of the rational use of leased land in compliance with the land lease agreement in the event that agreed obligations regarding the sale of products on government requests are not fulfilled or that proof of a violation of the law on land and a delay in the payment of the single tax is presented.

#### **Article 31. Farm reorganization**

Reorganization of a farm (merger, affiliation, demerger, segregation, reformation) is conducted according to the procedure established by the law.

#### **Article 32. Basis for the liquidation of a farm**

A farm is liquidated in the following instances:

- voluntary rejection of the right to rent land;
- recognition of the bankruptcy of a farm, including systematic failure to settle accounts with the suppliers of material-technological resources, labour and services;
- the death of the head of a farm and the absence of an heir who wishes to continue to farm; and
- rescinding of the land lease agreement as per the established procedure in light of the need of the state for land for public purposes or in light of a violation of the law on land, including the use of land for purposes other than farming and the sowing of agricultural crops not specified in contractual agreements.

#### **Article 33. Procedure for liquidating a farm**

A farm is liquidated on the basis on a decision by:

- the head of the farm;
- the court in cases specified by the law.

Liquidation of the farm is executed according to the procedure established by the law.

#### **Article 34. Resolution of disputes**

Disputes over founding, managing, reorganizing or liquidating a farm are resolved in accordance with the law.

#### **Article 35. Liability of a farm for its obligations**

A farm is liable for its obligations, including the provision of agricultural products upon state request in compliance with signed contractual agreements and in the amounts envisaged, as well as timely payment for supplies of material-technological resources, and provision of services on its property, which may be withdrawn in accordance with the law.

In accordance with law, the head of a farm bears additional liability for the obligations of the farm in the event that farm property is misused.

In the case of a lack or insufficiency of funds of a reorganized or liquidated farm, the liability for damage caused by the death or illness of an employee on the job is assumed by the state in accordance with the procedure envisaged by the law.

**Article 36. Accountability for the violation of the law on farms**

Persons guilty of violating the law on farms are accountable in accordance with the law.