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Policy Implementation at Trout Production and Breeding Sector in Turkey

Serpil Yilmaz and Yasar Ozvarol
Faculty of Fisheries, Akdeniz University, 07059 Antalya, Turkey

Abstract: Aquaculture is the most supported and developing sector in world food platforms. Consequently, as of 2005, while 118,000 tons of (21.6%) total national fishery production, 545,000 tons, were met through breeding, the ratio of breeding in global fishery production was 34% (48.1 million tons of 141.4 million tons). Fishery breeding in Turkey is among important sectors with its 1 billion USD worth of fixed investment, 500 million USD worth of live fish and approximately, 400 million USD worth of export. Aquaculture in Turkey was initiated in 1970s through trout fishery farms and still 44.7% of total fishery production is composed of trout breeding cultivated both inland and off-shore. The policies implemented also, affect trout breeding as well as other fish species. On the other hand, there are also various methods for protection and support applied in the EU. In Turkey, challenging EU accession stage, the structure of fishery sector needs to be improved, forward-looking and production-boosting policies need to be developed and implemented in order to benefit the sector's probable contribution to the national economy. In this study, Turkish trout breeding and production are examined. Then, an evaluation of related policies and a discussion were presented and it concludes.

Key words: Aquaculture, trout breeding, policies, world food platforms, Turkey

INTRODUCTION

Fisheries have a very crucial place in national economies as they considerably contribute to human nutrition, supply raw material to industry and create employment opportunities and export potential. Furthermore, the sector of fisheries is one of the four fundamental elements of agricultural sector in Turkey.

In order to grasp the importance of the sector of fisheries in agricultural sector, it is enough to just analyze the share of agricultural sector and fishery in the GDP of the country and the share of fishery in agricultural sector. Namely, the share of fishery in agricultural sector is 4.5% (with current prices) while, the share of agriculture in GDP is 9.2% (Anonymous, 2008a).

The sector of fisheries comprises fishery breeding, fishing and the sub-sectors of these two sectors (Saygi *et al*., 2006). It is an undisputed reality that fishery consumption is directly linked with national nutrition criterions and healthy life consciousness. However, in Turkey, a member of developing-countries category, the level of nutrition is imbalanced and furthermore inadequate and the encouragement and realization of fisheries consumption has not been fully achieved yet. Consequently, the per capita fish consumption in Turkey lags behind with a quantity of 8.9 kg than the world and EU averages, 16 and 23 kg, respectively (Anonymous, 2007a). The per capita annual fish consumption in Turkey is fairly low because of regional disparities, income-price ratio, consumption addictions and finally supply and demand imbalances in the market.

Besides, being a good source of nutrition, fisheries are a crucial source of income for developing countries, especially, the consumption of developed countries is taken into account. Turkey exported 48.5,0000 tons of fisheries in 2006 for an income (FOB) of 280 million USD (Anonymous, 2007a).

Although, the area on which fisheries are cultivated is >26 million hectares, the contribution of the sector concerned has not reached to desired levels (Dogan, 2003a, b; Yenigun *et al*., 2001; Celikkale *et al*., 1999; Aydin *et al*., 2005). However, the sector has further economic meanings with its direct and indirect linkages with the sectors of food and manufacturing, health, environment, tourism and transportation.

On the other hand, the facts that Turkey has a favourable climate and is surrounded by seas from three directions have turned the sector of fisheries into a more important economic activity in agricultural sector. Despite, this fairly large potential and the developments achieved through recent investments, it cannot be claimed that the sector is utilized adequately. As a result of the increases in aquaculture and fishing in fisheries, the share of fisheries in GDP has increased gradually; the value added of the sector in national economy has increased parallel to the expansion of production, but these developments have remained inadequate.

Corresponding Author: Serpil Yilmaz, Faculty of Fisheries, Akdeniz University, 07059 Antalya, Turkey

In this context, it may be claimed that the facts that the methods of breeding could not be developed regularly, as rich nutrition sources the seas and inlands could not be introduced well enough and the misusage of the resources are all the reasons of the low levels of both production and consumption of fisheries.

MATERIALS AND METHODS

In this study, the current status of Turkish fisheries sector and the effects of fishery policies on trout production support policies are discussed for both current and future requirements. Additionally, policy implementations at trout production and related problems were also analyzed.

The research material consists of the data obtained from secondary sources and previous research studies. The leading material of the research is formed beside the reports of Ministry of Agriculture and Rural Affairs about fishery products, rather with the data gained from national and international institutions, article, thesis and statistics, which were published before about the subject and data treated by collecting the reports, which haven't been published yet. Also, in this study, it was derived benefit from proportional calculations and indexes.

RESULTS AND DISCUSSION

Fisheries breeding and policies

Fisheries breeding: Fisheries breeding is a sector itself. Fish breeding under human control off-shore, in the lakes, in net cages or pools on land with the help of technology is called fisheries breeding, or aquaculture in other words (Ozdemir and Dirican, 2006; SPO, 2007).

The breeding initiated with wooden cages, through fry caching and produced by raising method in closed bays in 1970s today has turned to be a sector itself with an annual production of 128,000 tons of fish.

As of 2006 the share of fisheries breeding in total fisheries is only 19.5%, while its share in total value-added of fisheries is about 31%. In the same period, 44% of breeding was carried inland and the rest, 56%, off-shore.

According to the data compiled by the Ministry of Agriculture and Village Affairs both the quantity and value of breeding in Turkey increased by 9% in 2006 and reached to 128 thousand tons and 766 million Turkish Liras (TL). As of 2007 there were 1492 active enterprises, 1175 of which operates inland and 317 of which offshore.

As can easily be followed from Table 1, a fishery breeding in Turkey has quintupled. The very same ratio for the most supported and developing sector, aquaculture in the whole world is 1.9%. Again, as may be easily followed from Table 1, while breeding inland has tightened, off-shore breeding has developed. As of 2005, 41 and 59% of aquaculture production was carried inland and off-shore, respectively while, the ratios are 61 and 39% for the whole world.

China, India, Vietnam, Indonesia, Thailand, Bangladesh and Japan are the main producers in terms of fisheries breeding and Turkey can only rank 23rd with a share of 0.25% (FAO, 2008).

In EU a total of 1.3 million tons of fisheries breeding is carried and in turn an income of 3 billion Euros is generated. The employment created only through farms and production is 75,000. The main fisheries breeders in the EU are France, Spain, Italy and Britain, respectively; among Mediterranean countries Turkey ranks 5th after France, Spain, Italy and Greece. 2.6% of the global fisheries breeding is met by the EU countries. Also, 3.1% of global production is carried in the region of Mediterranean (Eurostat, 2007).

In the sectors of fisheries and breeding, European Union ranked after China with a production of 7.3 million tons in 2006. As a EU candidate country, the production in Turkey is 587,000 and 575,000 tons of which is exported to the EU.

Table 1: Inland and off-shore fish breeding in the world and in Turkey (thousand tons)

	Turkey						World						
	Inland		Off-shore		Total		Inland		Off-shore		Total		
Years	Quantity	(%)	Quantity	(%)	Quantity	(%)	Quantity	(%)	Quantity	(%)	Quantity	(%)	(½) (%)
1995	14	63.6	8	36.4	22	100.0	13981	57.3	10404	42.7	24385	100.0	0.09
1996	18	54.5	15	45.5	33	100.0	15806	59.4	10788	40.6	26594	100.0	0.12
1997	27	60.1	18	39.9	45	100.0	17455	61.0	11154	39.0	28609	100.0	0.16
1998	34	59.6	23	40.4	57	100.0	18466	60.6	12025	39.4	30491	100.0	0.18
1999	38	60.3	25	39.7	63	100.0	20121	60.3	13260	39.7	33381	100.0	0.23
2000	43	54.4	36	45.6	79	100.0	21215	59.8	14266	40.2	35481	100.0	0.22
2001	37	55.2	30	44.8	67	100.0	22489	59.5	15331	40.5	37820	100.0	0.18
2002	34	55.7	27	44.3	61	100.0	23847	59.6	16143	40.4	39990	100.0	0.15
2003	40	50.0	40	50.0	80	100.0	25234	59.6	17070	40.4	42304	100.0	0.19
2004	44	46.8	50	53.2	94	100.0	27167	59.8	18300	40.2	45467	100.0	0.21
2005	48	40.6	70	59.3	118	100.0	29308	60.9	18842	39.1	48150	100.0	0.25

FAO (2008)

Table 2: Foreign trade by economic activity (USD million)

Foreign trade	2000	2001	2002	2003	2004	2005	2006	2007
Export								
Agriculture and forestry	1659	1976	1754	2121	2542	3329	3481	3724
Fishery	25	30	51	81	103	140	131	158
Share of fishery (%)	1.5	1.6	2.9	3.8	4.1	4.2	3.8	4.3
Import								
Agriculture forestry	2123	1409	1703	2535	2757	2801	2902	4641
Fishery	2	1	1	2	8	24	33	31
Share of fishery (%)	0.09	0.07	0.06	0.07	0.29	0.86	1.14	1.89

Anonymous (2008b)

Therefore, the sector of fisheries in Turkey fairly contributes to national economy in terms of export capacity, especially with enhanced production through increased production capacity. If Table 2 is analyzed, it may be observed that the share of fisheries in the exports agricultural production is gradually increasing.

However, if the total inland and off-shore sources of Turkey are taken into account, aquaculture production and exportation realized seems to be fairly low. Hence, the main bottleneck of the fisheries policies implemented in Turkey is that production level could not even catch up with the production capacity of current resources and further the policies implemented are inadequate.

In order fisheries exportation to be enhanced production should be increased through the encouragement of entrepreneurs towards breeding, costs should be diminished through economies of scale (with an increase in rate of capacity utilization at the sectors of fisheries processing and breeding), quality controls should be conscientiously followed and standardization of the products should be assured and finally exportation should be supported.

There are some problems regarding marketing besides, breeding activities itself. In order to compensate these failures and disorders an effort started to be made by the government in accordance with the Law of Fisheries article 26 and the Regulation of Wholesale and Retail Selling Areas for Fisheries date: 19.06.2002 and no. 24970 became effective after its publication at the Official Gazette. In the regulation, some sensitive issues such as Infrastructure, Physical, Technical and Hygienic Conditions of Fisheries Markets and Foundation, Work Permits and Product Sales at the Fisheries Wholesale Centers are defined in detail (Anonymous, 2002). Some crucial adjustments were made especially, on the 13th title of EU negotiations-Fishery with the adjusted version of the regulation through Official Gazettes date: 14.07.2004, no. 25522 (Anonymous, 2004) and date: 27.04.2007, no. 26505 (Anonymous, 2007b). Yet, while the adjustments on the regulation mostly intend the formation of structure, operation and technical and hygienic conditions of marketing channels, they do not contain any price intervention element.

According to the regulation, the length standards of the products marketed should be parallel to the hunting constraints. The hunting or marketing of the fisheries smaller than some certain lengths is forbidden. The length limitations are generally in line with EU standards. On the other hand, in case of a discrepancy in terms of the consumption of the products marketed or a condition necessitating an intervention, the fishery products are withdrawn from the market by virtue of the 34th article of the Law of Fisheries no. 1380 and the products improper for consumption are disposed of according to a report prepared. Furthermore, a legal action is launched for the people concerned.

There is a system regarding market data compilation in Turkey but this system is incompatible with the EU system. While, the system anticipates edification at the very first step where, the product lands before the hunted products are put on the market, the market data is compiled mostly from fish markets and sale centers in Turkey.

On the other hand, one positive development regarding the sector is that for EU harmonization purposes a new project is on the way on fisheries by the Ministry of Agriculture and Village Affairs.

Within the context of the project, that will be carried out under the Directorate-General of Protection and Control and supported by the EU, it is intended that by the end of 2006 the infrastructure and legislation of fisheries sector will be harmonized with EU standards. The project, supported by the EU with 6.2 million Euros, was initiated on January 10th 2005 and firstly the conformity of legislation is anticipated.

In this context, fisheries-related 4 general directorates within the body of Ministry Agriculture and Village Affairs are going to be combined with the new Ministerial Organization Law and Directorate-General of Fisheries is going to be founded. Therefore, within the legislation compliance the Law of Fisheries is going to be renewed.

Besides, strengthening of the organizations of fisheries, improvements of the wholesale centers where, fish are marketed are in the scope of EU harmonization project on fisheries sector. With such actions it is expected that all current problems regarding

Table 3: Budgetary contributions for infrastructural needs of the sector of fishery

Budget items	Euro	TL
Fishing port construction	14,785,554	26,407,000
Fishing port maintenance	1,119,821	2,000,000
Budget for fishery researches, including breeding	1,931,775	3,450,150
National partner financial contribution to the project of legal and institutional harmonization with EU acquits for the fishery sector	351,008	626,901
Additional construction needs of 30 ports	215,258	384,451
Vessel monitoring system	135,750	242,450
Total	18,188,158	32,484,051

SPO (2007) (1 Euro = 1.786 TL)

Table 4: Production of some selected fisheries through breeding (ton)

	2000							2006	
Species	Values	(%)	2001	2002	2003	2004	2005	Values	(%)
Inland	43385	54.90	37514	34297	40217	44115	48604	56694	43.97
Trout	42572	53.87	36827	33707	39674	43432	48033	56026	43.45
Carp	813	1.03	687	590	543	683	571	668	0.52
Off-shore	35646	45.10	29730	26868	39726	49895	71673	72249	56.03
Trout	1961	2.48	1240	846	1194	1650	1249	1633	1.27
Bream	15460	19.56	12939	11681	16735	20435	27634	28463	22.07
Bass	17877	22.62	15546	14339	20982	26297	37290	38408	29.79
Mussel	321	0.41	5	2	815	1513	1500	1545	1.20
Shrimp	27	0.03	-	-	-	-	2000	-	-
Others	-	-	-	-	-	-	2000	2200	1.71
Total	79031	100.00	67244	61165	79943	94010	120277	128943	100.00

Anonymous (2007c), Turkish Statistical Yearbook, 2005 and 2007

the contribution to production and employment opportunities and that could not be resolved despite the high potential of the sector, are going to be resolved. In this sense, it is advised that all the necessary supports should be given by the municipalities, the governorships and the central government.

In Table 3 is the investment data for 2006 compiled by the Turkish State Planning Organization (SPO) on the sector of fisheries and breeding. According to the Table 3, the share of investment channeled into fisheries and breeding in total investments is 10.6%.

Trout breeding: A Turkey rank is 5th among EU countries (FAO, 2008). The most widely fish produced off-shore is bream and bass and inland it is trout. Fifty six thousand tons of aquaculture production in Turkey is inland trout and carp production, while 72000 tons of off-shore production is on bream, bass, trout, mussel and other species. As of 2006 44.7% of aquaculture production is on trout, 29.8% on bass, 22.1% on bream and 3.4% on other species. With its share of 44.7% trout production takes the lead and production growth is about 17%. Seven percent of all Turkish fish industry is consisted of trout production (especially rainbow trout).

As may be followed from Table 4, the fishery production concentrated on bream and bass breeding but in recent years with a shift towards rainbow trout breeding in cages trout production together with the inland breeding has reached to the level of 57,659 tons. Still, the lack of enough, diversified and large integrated facilities are the major factors limiting trout production in cages. On the other hand, thanks to the construction of higher capacity and more technologic trout farms, the low level of inland trout production in 1990s, namely 3,212 tons of trout production, has turned to be 56,026 tons of trout (Table 4).

If the inland trout production is analyzed by regions, Aegean Region takes the lead with a production level of 17,583 tons and a share of 31.4%. Black Sea Region follows with 10,982 tons of production and a share of 19.6% in return. Then, Mediterranean Region, Central Anatolia Region and Marmara Region follow with the quantities of 8,607, 8,510 and 7.462 tons and with the shares of 15.4, 15.2 and 13.3%, respectively. In the Eastern and South-Eastern Anatolia Regions especially, the inland trout production is gradually under improvement. In case of off-shore trout production Aegean Region leads with a share of 97.5% and Mediterranean and Marmara Regions follow it (Table 5).

Most of the trout farms operating in Turkey are small enterprises, although it is not a desired case, these enterprises have played significant roles in the development of the sector. The number of either licensed or unlicensed trout farms is >1000 and may be increased. Through, net cage utilization for breeding in natural lakes and dams some large advances could be achieved (Table 6). But, still it could not be claimed that cold water resources are not optimally utilized for trout breeding in

Table 5: Regional distribution of trout production: quantity (ton), price (TL) and value (1000 TL)

	Inland				Off-shore					
Regions	Quantity	(%)	Value	(%)	Price	Quantity	(%)	Value	(%)	Price
Marmara	7462	13.3	33275	14.0	4.46	298	1.1	2328	1.1	7.81
Aegean	17583	31.4	65854	27.6	3.75	27762	97.5	215065	97.5	7.75
Mediterranean	8607	15.4	37221	15.7	4.32	403	1.4	3195	1.4	7.93
Central Anatolia	8510	15.2	34399	14.4	4.04	-	-	-	-	-
Black Sea	10982	19.6	53745	22.6	4.89	-	-	-	-	-
Eastern Anatolia	2302	4.1	11011	4.6	4.78	-	-	-	-	-
Southern Anatolia	580	1.0	2605	1.1	4.49	-	-	-	-	-
Total	56026	100.0	238111	100.0	4.25	28.463	100.0	220588	100.0	7.75

Anonymous (2006)

Table 6: The licensed net cage enterprises breeding inland water products

Item	Unit	Capacity (ton)
Total Inland	1,204	57,170
Net Cage	171	25,350
Enterprises at investment stage		
Pre-authorized	208	110,855
With an approved project	53	12,023
Total	261	122,878

Anonymous (2006)

Table 7: Production, price and value by species

Species	Quantity (ton)	Ratio (%)	Value (1000 TL)	Ratio (%)	Price (TL kg^{-1})
Inland	56694	44,0	240782	31,4	4,25
Trout	56026	43,5	238110	31,1	4,25
Carp	668	0,5	2672	0,3	4,0
Off-shore	72249	56,0	525447	68,6	7,27
Trout	1633	1,3	8981	1,2	5,50
Bream	28463	22,1	220588	28,8	7,75
Bass	38408	29,8	288060	37,6	7,50
Mussel	1545	1,2	2317	0,3	1,50
Others	2200	1,7	5500	0,7	2,50
Total	128943	100,0	766229	100,0	5,94

Anonymous (2006)

Turkey. Also, structural problems of trout farms hinder these enterprises to reach the potential.

The projects of especially, these family-type small sized enterprises and the way these projects are implemented should be analyzed by professional technical staff and necessary adjustments should be made. Through, the utilization from current cold water resources for fry production and their raising in Black Sea, significant improvements have been achieved but these improvements should still be supported with some practices. Besides, trout production could rather be increased through the usage of net cages for trout breeding purposes in some lakes and dams that have not been cultivated yet. As a matter of fact, some efforts have been initiated in the provinces of Burdur, Isparta and Antalya in order to cultivate some intact lakes and create economic value and employment.

One of the major reasons, why trout is preferred by the breeders is that trout can be easily fed by any kind of fish-feed. The fish, which used to grow in 18 months can now be harvested only in 6-7 months. The heavy demand both from domestic and foreign markets, the appropriateness of inland and off-shore water for trout culture are the factors attracting breeders attention. In Turkey, trout breeding is carried through floating cages constructed on dams, rivers and streams and trough concrete pools constructed by waterfronts. The eases of fish egg stripping, fish fry production and hatchery construction are advantages in terms of independence from abroad. In any case, the fact that only one harvest can be realized in Turkey because of high water temperature, while foreign countries harvest for 2 or 3 times reveals the necessity of some further efforts on the issue.

It is more availing for any kind of issue of aquaculture and therefore, for trout breeding to work on some before-hand determined targets very carefully. Consequently, it is a necessity to have an idea about the prices and price fluctuations that may affect breeding in economic sense. The letter of agreement on membership to International Organization for the Development of Fisheries in Eastern and Central Europe (EUROFISH) was signed on March 5th, 2002 after 5 years of meeting attendance and approved by the Grand National Assembly of Turkey (GNAT) on June 23rd, 2004. Again, through the subscription to the Mediterranean Fishery Statistics and Information System (MEDFISIS) that is prepared by Food and Agriculture Organization (FAO) for the administration, protection and monitoring of fisheries related resources in the Eastern Mediterranean Basin and aiming the utilization of fishery statistics and knowledge access systems by the countries of the region, the procurement of reliable and rapidly accessible statistical data and sharing with other Mediterranean countries would be assured (Anonymous, 2007c). But, still there is no regular source of knowledge for the producers. In Table 7 are the production levels, prices and production values by species.

Trout breeding inland and bream and bass breeding off-shore take the leads in Turkey in terms of aquaculture. If the prices are compared by species, it may be observed that bream, bass and salt-water trout compete with each other. It can be followed from Table 7

that despite recent excessive price increases, trout and bass are preferred to any other species with some fluctuations.

Again, if the trout prices analyzed by regions the lowest price prevails in Aegean Region, while the highest is in Black Sea Region. In terms of salt water trout the highest prices are in the Mediterranean Region and Marmara and Aegean Regions follow (Table 5).

As widely known, a 5 trillion TL incentive pack was approved by the Council of Ministers in 2003 for the fisheries breeding industry. Accordingly, 90,000 TL kg^{-1} for trout breeding and 153,000 TL kg^{-1} for bream and bass was paid as incentive and then in December depending on the results the support was increased to 400,000 TL kg^{-1} for trout, bream and bass. In 2003 approximately, 1 trillion TL worth of incentive was paid to 127 bream, bass and trout farms. For the incentives in 2004, the level of support for bream, bass and trout was increased to 400,000 TL kg^{-1} and promulgated with the publication of bulletin no. 2004/13 in the Official Gazette date: 01.04.2004, no. 25420.

According to the incentives that were prepared by the Ministry of Agriculture and Village Affairs and would be given in 2008 with the Council of Ministers decree that was published in April, those breeders producing trout and salt-water trout and that have a fisheries breeder certificate for fisheries breeding and are members of producers' associations where, available and of fisheries breeding connected cooperatives may benefit these product incentives up to 2,000 tons annually and would be paid 65 KR kg^{-1} (1 TL = 100 KR) (Council of Ministers Decree on the Support for Stockbreeding no. 20080, (Anonymous, 2004).

Even though, the studies reveal a 28% increase in the number of enterprises and threefold increase in the capacity through these supports, it is estimated that these increases are the result of chaining of production. Therefore, it is desired that the incentives offered for fish fry and other fish should carry on, should not vary by species, should be paid on time and refining should also be included into the incentive packs.

Policies applied, problems and discussion: Fisheries breeding is a highly developing sector in Turkey. The realization of the mentioned targets and policies would cause fisheries industry to have a healthier structure and significantly contribute to the national economy and employment. Therefore, the supports for fisheries breeding should be enhanced and maintained. The importance of fisheries for health should be explained to the consumers and enough advertisement campaigns should be organized in order to increase fisheries consumption. Like the ones in the EU some multi-year guidance programs compassing aquaculture should be implemented in Turkey (Anonymous, 2007d).

Being quite suitable for fisheries breeding with her inland and off-shore resources Turkey has a great deal of potential. It is possible to boost the production through the opening of reservoirs to cage fisheries and the encouragement of salt water fish production with off-shore systems (Atay *et al*., 2000; Atay and Korkmaz, 2001). Therefore, for those enterprises having Environment Administration Certificate such as 14001 there should be some exclusive and additional supports.

Most parts of the coasts in Turkey, especially the coasts of South Aegean and West Mediterranean that have high production potentials are within the borders of Environment Protection for Special Areas. These coasts enclose very suitable areas for breeding where, there is no structuring and habitation. Utilization from these stagnant areas through breeding and creation of contribution to national economy should be furnished.

In order to enhance fisheries production constituting one of the indispensiable food sources of humankind and in order the citizens utilize it, with coordination among Ministries the fisheries legislation should be revised, the law of fisheries no. 1380 should urgently be revised in breeding context.

The fisheries sector in Turkey challenges with the problem caused by the authorization division among various ministries. The issue of fisheries allocated among different bodies of the Ministry of Agriculture and Village Affairs should be gathered under a single roof. Accordingly some revisions should be made in field services, the bureaucratic problems during the approval stage of breeding project should be ceased. With respect to the researches the foundation of an enterprise takes 2-3 years, including Assessment of Environmental Effects (AEA). The dispersed structure and the division of responsibilities do not contribute to an effective administration.

Still, an opinion that fisheries investments occupy coasts of the country is imposed upon society, especially by tourism sector. In fact, new investments are made on potential fisheries areas determined by the Ministry of Agriculture and Village Affairs, those investments outside determined areas are moved into these legal areas. In this context, the Ministry of Tourism and Culture should make a new resolution.

In terms of environmental pollution public should be informed that breeders have lesser negative effects compared to other polluters and more studies should be carried in order to decrease environmental effects.

Although, environmental law was refused by the Council of State in 2006, it is still in force. Although enterprises desire to come out, bureaucracy hinders it. The state and the sector should come to an agreement on legal infrastructure.

On the other hand, simplification and acceleration of bureaucracy in breeding is also important. However, although the authority to prepare landscaping is given to the Ministry of Environment and Forestry, its execution is carried by the Ministry of Public Works and Settlement and leasing authority is carried by Special Provincial Administrations. Whereas, leasing criterions should be well-defined because of the implementation differences among provinces. The off-shore leasing prices are quite high. While, the price in the EU countries is about 150 Euros per ha, it is about 1200 to 1500 Euros in Turkey. This price difference boosts the costs in Turkey and creates an unfair competition in exportation. The leasing terms should be extended, investments should be guaranteed.

The level of producer organization in the fisheries sectors either between enterprises supplying domestic markets or between those making exports is no adequate. Enterprises should come together and become more efficient in order to solve both internal and external problems. Domestic production should also be assessed before the importation of processed products, breeding sector should be thought of while, taking importation decisions, some precautions should be taken for the protection of domestic production. The domestic market that is introductory and consumption encouraging should be enlarged in order to solve marketing problems of fish raised.

Processing of fisheries under inappropriate conditions creates physical losses during domestic consumption, product processing and exportation. In this respect, the production with the standards, kinds, qualities and quantities demanded by both domestic and foreign markets necessitates the integration of production and producers under contemporary national norms.

In Turkey still there is no national or international comprehensive data base on the marketing of fisheries for either hunters or breeders. There is a need for a system compiling marketing related knowledge at a center, preserve those for daily necessities and adapt them for their availability. The 60-70% of aquaculture products are exported to the EU countries. There is a need for bilateral agreements with Near and Middle East for an effective marketing there. Export supports should be enlarged for fisheries and support premiums of freight should also compass aquaculture fish.

The mechanisms under European Union Common Fisheries Policy should be implemented on aquaculture. In order not to repeat the problems such as the one in 199 with the EU the analysis should not be finalized without regular repetitions and necessary procedures of producers should be followed in case of negative results. The necessary steps are specified with circular on the precautions that should be exercised in case of a problem with the products exported from fisheries facilities no. 2005-20.

Although, it is a positive development that the Regulation for the Wholesale and Retail Centers of Fisheries, once in the national programme, entered into effect on 19.06.2002 after its publication in the Official Gazette during the accession period of Turkey into the EU, there are no regular control mechanisms even in special market places and the regulations are not implemented. In this context, it is claimed that fish exchanges would be very beneficial.

Some fish (Bream and bass) can be marketed only after 22 months following the hatching. However, the credits for breeding have a deferment of only 1 year, so the repayments begin at the very middle of production process. Hence, there is a need for the development of credit systems peculiar to breeding. The insurance procedures and terms should be revised.

In order to increase production through breeding, attention should be given on new species having potential in terms of breeding. The direct premium support given to fish and fries should be maintained. The incentive payments should be done on time; the planning efforts and market conditions should not be affected negatively. The delay of the payments experienced in 2007 adversely affected the sector. The public fisheries production facilities should be privatized.

There is a need for well-trained labour force in the fisheries sector. Accordingly a special attention should be paid especially to staff training. In order to increase the efficiency of the facilities after a certain level of capacity there should be an obligation of the employment of a technical staff trained on fisheries.

The fisheries bait and equipment industry should be supported in order to extend good quality bait usage and mechanization. The import duties and funds for bait importation should be diminished.

The inadequacies should be dissolved for the transfer of technologic improvements. For the resolution of problems peculiar to the sector, there is a need for the development of technical and scientific cooperation in and between the universities.

A central laboratory should be founded for the diagnosis and treatment of fish diseases and then some affiliate regional laboratories also need to be founded where, breeding is widespread.

Producers' organization should be more operational, the top organization of the cooperatives should be completed, the cooperatives should be strengthened, so that they can be harmonious with the EU and may become a member of European Agri-Cooperatives (COGECA). An auto-control mechanism should be established by means

of cooperatives. Some producer associations have been established in some suitable regions under the leadership of the Ministry of Agriculture and Village Affairs, but the number of these cooperatives should be increased and their marketing organization should be strengthened.

Within the body of the Ministry a directorate-general should be founded, the responsibilities allocated to other directorate-generals should be gathered under a single roof.

CONCLUSION

In order to boost fisheries sector that is one of the sectors in Turkey that should be developed in terms of capacity and have a competitive power, it is necessary to prepare a draft law of fisheries and various regulations linked with this law. The administrative capacities of the Ministry of Agriculture and Village Affairs and the Coast Guard Command, especially in terms of controls and supervisions, should be strengthened the efforts to determine fish stock should urgently be initiated. Most importantly a Directorate-General for Fisheries that would dominate the sector and would be organized by well-trained technical staff should immediately be founded and put into practice; government should follow decisive and strong policies both the financially and structurally. Again the licensing and registration procedures of breeding activities should be facilitated. In terms of market policy, the government should merely intervene to the controls of supply, prices and market withdrawals.

As a result, in the common Fisheries Policy of the EU countries, it is highlighted that as breeding sector creates alternative business by furnishing socio-economic development especially, at the coastal regions it is very important and it is also mentioned that there will always be some problem as long as the sector prevails.

The EU has the opinion that fisheries breeding sector should preferably be supported because of these aforementioned problems waiting for resolutions. There is also a need for governmental support for the resolution of problems in Turkey.

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