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The Scrutinising of Changes in the Aquaculture Supports

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Abstract
In the world, aquaculture is seen as the fastest growing and developing food production sector and however, in the near future, it is estimated that the rates of fisheries and aquaculture will be equalized. In 2015, the fisheries production of the world amounted to 170,345,641 tons (fisheries; 93,704,616 tons and aquaculture; 76,641,025 tons) according to the FAO records.
The aquaculture in Turkey started in 1970s and its rate in total fisheries production has rapidly increased as of 2000. In our country, the amount of aquaculture, which was 79,943 tons in 2003, reached 253,395 tons in 2016. The aquaculture rate in the total production of our country has increased by more than 310%. As one of the most important reasons for this rate increase, it is seen to be providing some support policies with various incentive systems by the government for support and encourage the aquaculture in country.
Directly product support for aquaculture farmers was started in 2003. According to the total capacity of the farms, total product and fry supports were provided. In 2008, the total capacity supported was limited to 2000 tons/year. However, in 2012, different tonnage application (whole unit price to 250 tons/year and ½ unit price from 251 to 500 tons/year) were brought to the total product support and the fry support was removed. At the same time, the processed product support was brought at the rate of twice the amount specified in the invoices of the total product. In the present, the support system is still continuing.
The types of product support, prices, supported capacities and the expense criteria are applied annually by issuing the "Aquaculture Support Communiqués" in the Official Gazette.

Keywords: Aquaculture, Fisheries, Support, Communiqués.

INTRODUCTION

Food resources have declined for various reasons, while world's population has increased by 1.6% per year. The expert analysis shows that food production in the world will increase by 1.2% per year and the general demand by 1.3%. In the reports of the United Nations, it is stated that the world's population growing at a mean rate of 78 million per year, will reach 8 billion by 2030; the global animal product needs in the next 20 years will increase twice depending on the growth of total population; and about 20% of the total animal protein needs will supply by fish [1]. However, it was reported that 81% of the world's aquaculture production is consumed by people as food [2].

Archaeological remains indicate that fish hunting and aquaculture are used as basic food source by humanity, since ancient times. It is known that in B.C. 3000 thousand years, Chinese people cultured the mullet in pond-like areas, and Romans also cultured the freshwater mullet and carp species in aquariums and pond water [3].

In recent years, it has become important that the total fish production should be supported not only by natural stocks, but also by aquaculture, as it is an important animal protein source and a very important food for human health. The nutritional and environmental problems that arise from the regional and fisheries and the related subjects taking into consideration the conditions that will be required in the coming years must be investigated extensively; they must be evaluated under the new findings and information; and the future plans and programs must be prepared according to these results [4]. Scientific and technological developments related to aquaculture have benefited the development of the industry in the last 50 years [5].

The development of aquaculture sector has been faster than the lower branches of agriculture. The aquaculture sector has been in a very important position in human nutrition due to provide the quality and cheap animal protein. The sector, which has grown by more than 11% on average since 1984, has been launched by the World Food and Agriculture Organization (FAO) as the fastest-growing food industry [6].

It has been reported by FAO that, the world's aquaculture production has reached 170 million tons in the 2015, while the aquaculture sector has shown rapid growth in the last 10 years in the world. The amount of aquaculture accounts for approximately 45% of world fisheries production [7].

However, Turkey has a potentially important fisheries production. Turkey has 8.300 km coastline, approximately 24 million hectares of seaside, and a total surface area of more than 1.4 million hectares of inland waters including over 220 dams, 200 natural lakes and more than 1000 ponds. In addition to this, it has a total of 26 million hectares of aquaculture production field with 33 rivers and streams of 178 thousand km long [8]. With this potential, aquaculture has become one of the most important elements of agriculture in our country [4].

In Turkey, the total fisheries production is totally 588.715 tonnes including 335.320 tonnes of fishing production and 253.395 tonnes of aquaculture in the year 2016 (Table 1).

Table 1. The aquaculture amounts of Turkey [9]

Years	Aquaculture (Tons)				TOTAL (Tons)
	Sea (Tons)	Percentage in Total (%)	Inland Waters (Tons)	Percentage in Total (%)	
2000	35.646	45.1	43.385	54.9	**79.031**
2001	29.730	44.2	37.514	55.8	**67.244**
2002	26.868	43.9	34.297	56.1	**61.165**
2003	39.726	49.7	40.217	50.3	**79.943**
2004	49.895	53.1	44.115	46.9	**94.010**
2005	69.673	58.9	48.604	41.1	**118.277**
2006	72.249	56.0	56.694	44.0	**128.943**
2007	80.840	57.8	59.033	42.2	**139.873**
2008	85.629	56.3	66.557	43.7	**152.186**
2009	82.481	52.0	76.248	48.0	**158.729**
2010	88.573	53.0	78.568	47.0	**167.141**
2011	88.344	46.8	100.446	53.2	**188.790**
2012	100.853	47.5	111.557	52.5	**212.410**
2013	110.375	47.3	123.018	52.7	**233.393**
2014	126.894	54.0	108.239	46.0	**235.133**
2015	138.879	57.8	101.455	42.2	**240.334**
2016	151.794	59.9	101.601	40.1	**253.395**

Evaluating the Turkey's recent history of last 25 years related to aquaculture, there is no data on statistics about aquaculture until 1985. However, it is known that the studies on aquaculture start carp and rainbow trout towards the end of the 1960s-1970s, and sea bream and sea bass culture since the 1980s [10], and the alternative fish culture researches with the species such as particularly trout, ell and carp in the inland water of our country and sea bream and sea bass in our sea, and other species (turbot, tuna, white grouper, dentex, sharpsnout sea bream, common sea bream, etc.) [11] (Table 2.).

Table 2. The culture amounts of the most cultured fish species in Turkey (tons) [12]

Years	Trouts			Sea Bream	Sea Bass
	Inland Waters	Sea	Total		
2000	42.572	1.961	44.533	15.460	17.877
2001	36.827	1.240	38.067	12.939	15.546
2002	33.707	846	34.553	11.681	14.339
2003	39.674	1.194	40.868	16.735	20.982
2004	43.432	1.650	45.082	20.435	26.297
2005	48.033	1.249	49.282	27.634	37.290
2006	56.026	1.633	57.659	28.463	38.408
2007	58.433	2.740	61.173	33.500	41.900
2008	65.928	2.721	68.649	31.670	49.270
2009	75.657	5.229	80.886	28.362	46.554
2010	78.165	7.079	85.244	28.157	50.796
2011	100.239	7.697	107.936	32.187	47.013
2012	111.335	3.234	114.569	30.743	65.512
2013	122.873	5.186	128.059	35.701	67.913
2014	107.983	5.610	113.593	41.873	74.653
2015	101.166	6.872	108.038	51.844	75.164
2016	101.297	5.716	107.013	58.254	80.847

There are many sea and inland water fish farms with different capacity in Turkey. The total number of these farms is 2,308 (Table 3.), and they have a total project capacity of 487,859 tons/year, according to records by the year of 2017 [9].

Table 3. The numbers and capacities of aquaculture farms in Turkey [9]

Group	Capacity Group (tons)	Farm Number	Total Project Capacity (tons/year)
Sea	0-50	173	4.008
	51-100	17	670
	101-250	18	3.144
	251-500	68	23.298
	501-1000	71	54.374
	1001>	80	151.470
	TOTAL	**427**	**254.440**
Inland	0-50	1.352	21.159
	51-100	108	4.515
	101-250	175	36.044
	251-500	118	38.909
	501-1000	125	134.289
	1001>	3	7.400
	TOTAL	**1881**	**233.419**

Aquaculture Supports

The aquaculture in Turkey started in 1960-70s and its rate in total fisheries production has rapidly increased as of 2000. In our country, the amount of aquaculture, which was 79,943 tons in 2003, reached 253,395 tons in 2016 (Table 1.). The aquaculture rate in the total production of our country has increased by more than 310%. As one of the most important reasons for this rate increase, it is seen to be providing some support policies with various incentive systems by the government for support and encourage the aquaculture in country.

In order to benefit from the development of the aquaculture sector in our country together with all stakeholders, the government has started directly product support for aquaculture farmers from 2003 on the basis of support policies. According to the total capacity of the farms, total product and fry supports, and the IPARD supports were provided. As a result, the aquaculture industry has achieved substantial growth, as mentioned above. Thus, the target of production has been reached before the time schedule prescribed by the State Planning Organization in the 9th Development Plan. From the date the supports start to be awarded, the aquaculture rate in the total production of our country has increased by more than 310%. In today, our country ranks first place in the trout culture in European Countries and second place in sea bream and sea bass culture.

Firstly, the product support was given to aquaculturist who culture the trout, sea bream and sea bass and have the “Fisheries Aquaculture Document”, when they applied to the Provincial/District Directorates, in the framework of “the Communiqué on Implementation Principles of the Council of Ministers by Decree No. 2000/467 on the Support of Animal Husbandry (Communiqué No: 2003/16 [13])". The IPARD support has been in operation since August 30, 2011, with the aim of expanding micro and small scale farms (currently producing or new ones), achieving EU standards and ensuring good fish culturing practices. With the provision of these incentives/supports, it is aimed to increase the total production and to increase the employment and at the same time increase the societal consumption of the fish, which is a reliable food.

Until today, some changes on the conditions and characteristics of aquaculture supports were made over the years. In the communiqués (Communiqué No: 2005/13 [14], 2006/9 [15] and 2007/20 [16]), product support amounts are given according to total farms production capacity in the 2005, 2006 and 2007 years, respectively. The fry supports for the 1 kg fish were operated as 4 fries for the trout and sea trout culture; 3 fries for the sea bream, sea bass, common sea bream, blackspot seabream, dentex, white grouper, sharpsnout sea bream, red drum, white sea bream, mullet, striped seabream, meagre and corb culture; and 2 fries for the turbot, sturgeon and catfish species.

In 2008, the total farm capacity supported was limited to 2000 tons/year for having the higher capacity by changing of the “Aquaculture Support Communiqué (Communiqué No: 2008/31 [17])". For the fry support, the supportable amount was limited the project or farm capacity in the Fisheries

Aquaculture Document (Communiqué No: 2009/44 [18], 2010/13 [19]). In the 2011, the limitation of 2000 tons/year was applied to the fry supports (Communiqué No: 2011/26 [20]).

However, in 2012, different tonnage application (whole unit price to 250 tons/year and ½ unit price from 251 to 500 tons/year) were brought to the total product support and the fry support was removed (Communiqué No: 2012/50 [21]). At the same time, the processed product support (fillet or smoked fish) was brought at the rate of twice the amount specified in the invoices of the total product. The support of the recirculation system culture in the 2016, and the supports of trout above kg and fish marks in the 2017 were added to content of the support policy. In the present, the support system is still continuing (Communiqué No: 2013/26 [22], 2014/27 [23], 2015/20 [24], 2016/33 [25], 2017/38 [26], 2018/33 [27]).

In order to benefit from the support in the present, the following documents are requested;

a. To have "Fisheries Aquaculture Document/ Certificate",

b. To be registered with the Aquaculture Registration System (SKS),

c. To join association in places where the Producer Association is established according to the Agricultural Producer Association (Law No: 5200) and/or the cooperatives related to aquaculture production,

d. The petition of application for the supports,

e. The sales document showing the purchase of the product and/or fisheries fry determination form (when requested until the last application date),

f. The sales document showing the purchase of the harvesting product and/or fisheries harvesting determination form (when requested until the last application date),

g. The feed invoice (when requested in year until the last application date).

The changes in the fisheries support system between 2003 and 2018 years were summarized in Table 4. The types of product support, prices, supported capacities and the expense criteria are applied annually by issuing the “Aquaculture Support Communiqués” in the Official Gazette.

Table 4. The changes in the fisheries support system between 2003 and 2017 years

Years	Supported capacity	Fry Supports	Processed Product	Trout Above kg	Recirculation System	Fish Mark
2003	Farm capacity amount	Based on 1 kg fish equivalent fish number	-	-	-	-
2004	Farm capacity amount	Based on 1 kg fish equivalent fish number	-	-	-	-
2005	Farm capacity amount	Based on 1 kg fish equivalent fish number	-	-	-	-
2006	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2007	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2008	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2009	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2010	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2011	2000 tons/year limitation	The amount of fries corresponding to 2000 tons/year	-	-	-	-
2012	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	-	-	-
2013	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	-	-	-
2014	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	-	-	-
2015	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	-	-	-
2016	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	-	Up to the amount of culture	-
2017	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	Addition price to culture amount	Up to the amount of culture	Addition price to culture amount
2018	unit price to 250 tons/ year and ½ unit price from 251 to 500 tons/ year	-	Twice the amount specified in the invoice for the product	Addition price to culture amount	Up to the amount of culture	Addition price to culture amount

CONCLUSION

The aquaculture supports has played a major role to prevent unregistered and unregistered production, to create a competitive sector, to develop environment-friendly and sustainable production techniques and systems, to increase the production, fisheries amounts, its quality and consumption in the country [28]. With the granting of supports, in the aquaculture sector increasing capacity of farms and the establishment of new farms have gained momentum, has been regarded as a sign of this [6].

Furthermore, by introducing an inspection mechanism, informal sales have been relatively avoided and price stability has been achieved in the supply of fish to domestic and foreign markets. The registration rate of farmers to the registration system was reached to 95% now, while it is 10% in the 2003 [29]. In addition, the sector employs more than 250.000 people and the growth rate of the industry is seen to be twice as much compared to sectors such as agriculture, fishing and forestry [28].

It has been determined that supports play an important role in bringing and using modern and advanced technologies in order to strengthen the substructures of the farms. However, it has been shown that the supports policies have been developed every year since 2003, were useful for providing to entry and offshore operations and equipment of the new production techniques, even if it is not enough for transition [30].

However, the content of support Communiqué applied in recent years, has created disappointment among most farmers, failing to meet their expectations.

Prepared programs have received a great deal of reaction from farmers, because in the preparing of support policies, it was thought that the ideas of the farmers who are the most important parts of the aquaculture sector is not taken into consideration and without making useful economic analyses about the sector.

The support policies applied in Turkey, is the belief that inadequate when compared with the example in the European Union. It is stated that it is necessary to liberate existing policies from inadequacy in order to evaluate our country's current potential in the best way.

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